# 2014 **Reference document**





# REFERENCE **1**



This Reference Document was filed with the Autorité des marchés financiers (AMF, the French financial market authority) on March 31, 2015, in accordance with article 212-13 of its general regulations. It may be used in support of a financial transaction if it is accompanied by an offering circular signed by the AMF. This document was prepared by the issuer and is binding on those signing it.

This is a free translation into English of the AREVA group's Reference Document for 2014, which is issued in the French language, and is provided solely for the convenience of English speaking readers.

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# **GENERAL COMMENTS**

This Reference Document contains information on AREVA's objectives, prospects and development strategies. This information should not be interpreted as a guarantee that events and data set forth herein are assured or that the planned objectives will be met. Forward-looking statements made in this Reference Document also address a certain number of risks, whether proven or unproven, known or unknown, which remain subject to unforeseen events. Were they to translate into fact, these risks could cause AREVA's future financial results, operating performance and production to differ significantly from the objectives presented or suggested herein. In particular, these risk factors include trends in the international economic and commercial situation.

This Reference Document contains estimates of the markets, market shares and competitive position of AREVA. They are provided solely for purposes of information and are likely to vary as a function of circumstances.

In this document, the company is referred to as "AREVA". The "group" designates AREVA and its subsidiaries. A glossary defining technical terms may be found at the end of this Reference Document.

Pursuant to article 28 of the European Community regulation no. 809/2004 of April 29, 2004, the directive 2004/100/CE and article 212-11 of the general regulations issued by the Autorité des marchés financiers, the following items have been included for reference:

- AREVA's consolidated financial statements for the year ended December 31, 2012 and the statutory auditors' report on the consolidated financial statements for the year ended December 31, 2012, discussed on pages 193 to 202 and pages 191 to 192 respectively of the Reference Document filed with the Autorité des marchés financiers on March 28, 2013 under number D. 13-0237; and
- AREVA's consolidated financial statements for the year ended December 31, 2013 and the statutory auditors' report on the consolidated financial statements for the year ended December 31, 2013, discussed on pages 190 to 200 and pages 188 to 189 respectively of the Reference Document filed with the Autorité des marchés financiers on March 31, 2014 under number D. 14-0255.



1.1. PERSON RESPONSIBLE FOR THE REFERENCE DOCUMENT

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1.2. ATTESTATION BY THE PERSON RESPONSIBLE FOR THE REFERENCE DOCUMENT

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# 1.1. PERSON RESPONSIBLE FOR THE REFERENCE DOCUMENT

#### Mr. Philippe Knoche

Chief Executive Officer of AREVA

# **1.2.** ATTESTATION BY THE PERSON RESPONSIBLE FOR THE REFERENCE DOCUMENT

"I hereby attest, having taking every reasonable measure to this effect, and to the best of my knowledge, that the information contained in this Reference Document fairly reflects the current situation and that no material aspects of such information have been omitted.

I attest that, to my knowledge, the financial statements are prepared in accordance with applicable accounting standards and give a fair presentation of the assets, financial position and operating results of the company and of all consolidated companies, and that the management report of the Board of Directors, whose structure is described in Appendix 7 of this Reference Document, presents a fair picture of the business, income and financial position of the company and of all consolidated companies as well as a description of the main risks and uncertainties they confront.

I have received an end-of-engagement letter from the Statutory Auditors indicating that they have verified information relating to the financial position and the financial statements provided in this reference document and have read the entire report.

The end-of-engagement letter does not contain any observations.

The historical financial information presented in this Reference Document has been covered in reports by the Statutory Auditors, which contain observations. Without qualifying the findings on the financial statements, the statutory auditors, in their report on the consolidated financial statements for the year ended December 31, 2014 on page 170 of this Reference Document, wish to draw attention to:

- Note 1.1.1 describes the circumstances that led the group to revise its strategic outlook, and therefore to review the recoverable value of some current and non-current assets impaired for a total of € 2.6 billion and to record affectional charges and provisions on some contracts;
- Note 24 describes the reasons that led AREVA to apply paragraph 32 of IAS 11 as from the second half of 2013 and the methods of recognition applicable to the OL3 contract. In addition, this note specifies the conditions of completion of this contract and the sensitivity of the income at completion to legal risks, as well as to the operational conditions for the end of construction and testing until the reactor is put into service;

- Notes 1.2.5 and 9 describe the treatment and impact on the consolidated financial statements of the discontinued operations (wind power, solar energy and energy storage activities);
- Notes 1.18 and 13 describe the procedures for measuring the provisions for end-of-lifecycle operations, and their sensitivity to the assumptions used in terms of technical processes, costs, disbursement schedules and inflation and discount rates.
- Note 1 relates to the new standards and particularly to the IFRS 11 standard regarding the "Joint Arrangements" whose impact on the 2013's consolidated financial statements is described in the note 37 to the consolidated financial statements.

The reports on the consolidated financial statements for the years ended December 31, 2012 and December 31, 2013 contain observations, are incorporated by reference and appear on page 191 of the 2012 Reference Document and on page 188 of the 2013 Reference Document."

Courbevoie, March 31, 2015 Philippe Knoche Chief Executive Officer of AREVA

# STATUTORY AUDITORS

2.1. STATUTORY AUDITORS

2.2. DEPUTY AUDITORS

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The term of office of the statutory auditors is six years.

# 2.1. STATUTORY AUDITORS

#### Mazars

Tour Exaltis - 61, rue Henri-Regnault - 92400 Courbevoie - France

Represented by Cédric Haaser and Jean-Louis Simon

 First term granted by the Annual General Meeting of Shareholders convened June 26, 1989. Term renewed in particular by the Annual General Meeting of Shareholders convened May 7, 2013, and to expire following the Annual General Meeting of Shareholders convened to approve the financial statements for the year ending December 31, 2018.

# 2.2. DEPUTY AUDITORS

#### Mr. Hervé Hélias

Tour Exaltis - 61, rue Henri-Regnault - 92400 Courbevoie - France

 First term granted by the Annual General Meeting of Shareholders convened May 7, 2013, and to expire following the Annual General Meeting of Shareholders convened to approve the financial statements for the year ended December 31, 2018.

#### Ernst & Young Audit

1-2 place des Saisons - 92400 Courbevoie - Paris la Défense 1 - France

Represented by Aymeric de la Morandière and Jean Bouquot

 First term granted by the Annual General Meeting of Shareholders convened May 7, 2013, and to expire following the Annual General Meeting of Shareholders convened to approve the financial statements for the year ended December 31, 2018.

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#### AUDITEX

1-2 place des Saisons - 92400 Courbevoie - Paris la Défense 1 - France

Represented by Christian Scholer

• First term granted by the Annual General Meeting of Shareholders convened May 7, 2013, and to expire following the Annual General Meeting of Shareholders convened to approve the financial statements for the year ended December 31, 2018.

# SELECTED 03

# **SUMMARY DATA**

(in millions of euros, except workforce)	2014	2013 <sup>(2)</sup>	Change 2014/2013
Income			
Reported revenue	8,336	9,062	-725
Gross margin	(390)	1,227	-1,617
Percentage of reported revenue	ns	13.5%	ns
Operating income	(2,645)	34	-2,679
Net financial income	(397)	(248)	-149
Share in net income of joint ventures and associates	(154)	(13)	-141
Net income from discontinued operations	(648)	(256)	-392
Consolidated net income	(4,834)	(494)	-4,340
Comprehensive income attributable to equity owners of the parent	(5,155)	(562)	-4,593
Cash flow			
Reported EBITDA	711	991	-280
Percentage of reported revenue	8.5%	10.9%	-2.4 pts
Restated EBITDA (1)	735	991	-257
Percentage of reported revenue	8.8%	10.9%	-2.1 pts
Change in operating working capital requirement	43	552	-508
Net operating Capex	(1,160)	(1,371)	+211
Reported free operating cash flow before tax	(403)	165	-568
Restated free operating cash flow before tax (1)	(372)	165	-537
Miscellaneous			
Backlog	46,866	41,440	+5,426
Net cash (debt)	(5,809)	(4,468)	-1,340
Equity attributable to owners of the parent	(673)	4,574	-5,247
Capital employed	5,564	7,657	-27,3%
Workforce at year end	41,847	44,743	-6.5%
Dividend per share	-	-	-

(1) Restated for the impacts of 2014 asset disposals.

(2) In application of IFRS 5 and IFRS 11, the financial statements at December 31, 2013 were restated to present pro forma data at comparable consolidation scope at December 31, 2014.



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The realization of one or more of the risks presented below or the occurrence of one or more of the events described in this section could have a significant impact on the group's operations and/or financial position. Unidentified risks or risks that the group currently considers to be insignificant could also affect the conduct of its operations.

All identified risks are monitored within the framework of the Business Risk Model (BRM) presented in Section 4.1, and, more specifically, in the ordinary course of the group's operating activities. The operating units (Business Groups and Business Units) are responsible for leading the risk management policy in close coordination with the specialized departments. The policy involves procedures, analyses, monitoring and, whenever possible, risk transfer to the insurance and reinsurance market. The policy for each type of risk is presented in this chapter. However, the group cannot guarantee that the monitoring and follow-up implemented in connection with this policy will prove sufficient in all circumstances.

# 4.1. RISK MANAGEMENT AND COVERAGE

## 4.1.1. RISK MANAGEMENT

#### OVERALL ORGANIZATION OF RISK MANAGEMENT AND CONTROL

The purpose of the risk management policy and insurance is to protect the group's operations, performance and strategic objectives.

The Risk Committee coordinates the analysis of the group's main risks for all nuclear and renewable operations worldwide and sets up the necessary action plans for better control of them.

The Risk Committee may call on expertise from throughout the group to accomplish its mission.

The Risk Management and Insurance Department, working closely with the operating departments, is responsible for implementing the risk management policy. The department develops methodological tools to ensure consistent treatment of risk among the group's different entities, assists them in their use and promotes the exchange of best practices. The Risk Management and Insurance Department consolidates risk assessment at the group level. Financially, the Risk and Insurance Department arbitrates between retaining part of the risk and transferring it to the insurance and reinsurance markets through the group's comprehensive and global policies. This specific point is developed in Section 4.1.2. *Risk coverage and insurance*.

#### **RISK MAPPING**

The principal objectives of risk mapping are to:

- formally identify operational risks;
- characterize these risks so as to be able to rank them; and
- define and implement an action plan aimed at managing them.

The Risk and Insurance Department steers this initiative by:

- establishing a common set of methodological tools and benchmarks;
- leading a network of risk coordinators trained by the AREVA group and assigned to the operating units; and
- following up the action plans.

The risk maps are presented every year to the Management Committees of the Business Groups and the Business Units, and then to the Risk Committee, which prepares the summary that will be validated by the group's Executive Management Board (EMB) for presentation to the Supervisory Board's Audit Committee. Since the change in governance on January 8, 2015, the summary is validated by the Executive Committee (ExCom) and presented to the Board of Director's Audit and Ethics Committee. This initiative covers the consolidated AREVA group.

The group's multiyear audit plan builds among other things on risk mapping results, which are updated every year. The Audit Department subsequently implements this plan by conducting audits.

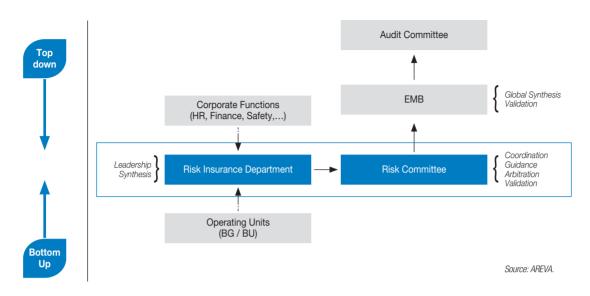
#### **RISK ANALYSIS AND CONTROL**

Managing risk entails:

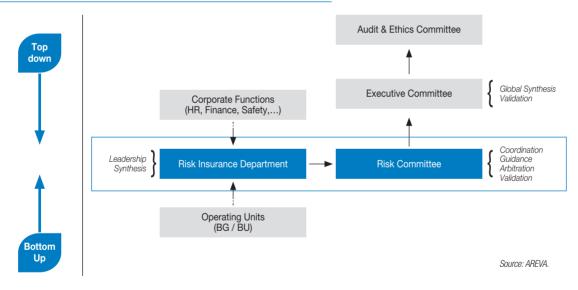
- an ongoing and documented process of risk identification, analysis, ranking, optimization, financing and monitoring;
- a broad scope covering all of the group's activities, both operational (construction, manufacturing, sales, projects, services, etc.) and functional (finance, legal, contractual, organizational, human resources, etc.);
- contributing to resource optimization and cost reduction; and
- developing business continuity and crisis management plans.



#### AREVA'S RISK MAPPING PROCESS UNTIL THE CHANGE OF GOVERNANCE



#### **AREVA'S RISK MAPPING PROCESS SINCE THE CHANGE OF GOVERNANCE**



The first stage of the risk management process is to identify the risk using a Business Risk Model (BRM) drawn up for the use of the operating units. Working from a defined number of typical risks or families of risk (BRM risk), the model lists all of the foreseeable or fortuitous situations or events that may have an impact on employee safety, the financial performance of the Business Unit or even of the group, and its corporate image.

The BRM is destined to evolve by incorporating best practices and lessons learned.

The establishment of the risk map is the opportunity for collecting components of recommendations and decision-making concerning the implementation of action plans designed to optimize the management of each risk and render the residual risk acceptable to the group. The operating units are responsible for analyzing and ranking their risks, and for managing them by implementing action plans using appropriate means.

In each Business Group, the risk management coordinators provide their management with a cross-business picture of risks and of how the Business Units are managing them. The Risk Committee is then informed of the status of action plans and decides which risks affect the group's strategic objectives.

The group's commitment to transparency in risk management is shown in particular through the publication of environmental monitoring results for the principal sites and more generally through the implementation of its Nuclear Safety Charter and its sustainable development policy.

The operating units, supported by AREVA's specialized departments, manage risks related to nuclear safety, the environment, and the physical protection of AREVA's facilities under the oversight of national and international authorities. The Risk and Insurance Department draws technical expertise from these departments in performing its duties.

# RISK MANAGEMENT RELATED TO THE GROUP'S INDUSTRIAL OPERATIONS

By regulation, industrial facilities operated by AREVA are classified into various categories by level of risk and the quantity of nuclear material or chemical substances.

In addition to the means of preventing and countering acts of malfeasance and actions to ensure public safety in the event of an accident, the industrial safety of the facilities consists in particular of:

- protecting employees, members of the public and the environment from the harmful effects of radiation and chemicals; and
- defining and implementing measures designed to prevent accidents and limit their impacts.

## 4.1.2. RISK COVERAGE AND INSURANCE

Some risk factors, were they to materialize, could be covered by one or several of the insurance policies taken out by the group as part of its insurance programs.

To mitigate the consequences of certain potential events on its operations and financial position, AREVA transfers risk to reputable insurance and reinsurance companies worldwide. For example, AREVA has acquired insurance coverage for its industrial risks, civil liability and other risks related to its nuclear and non-nuclear operations, with coverage limits varying according to the nature of the risk and the group's exposure.

AREVA's Risk and Insurance Department leads the insurance program for the entire group. The Department:

- recommended solutions to the Executive Board (to Executive Management since the change of governance), either to retain the risk and finance it internally or to transfer it to the insurance market;
- negotiates, sets up and manages comprehensive and global insurance programs for the entire group and reported to the Executive Board (to Executive Management since the change of governance) on actions taken and costs incurred; and
- settles claims for the subsidiaries involved.

#### 4.1.2.1. WORLDWIDE GROUP INSURANCE PROGRAMS

#### **Directors and Officers liability insurance**

The purpose of directors and officers liability insurance is threefold:

- firstly, it provides liability coverage for financial risk incurred by group directors and officers due to damages suffered by third parties as a result of professional errors or misconduct in the course of their duties;
- secondly, it reimburses group companies that are legally allowed to indemnify directors and officers for claims submitted against these individuals;
- thirdly, it covers civil and/or criminal defense expenses incurred by officers and directors as a result of any claims based on professional errors or misconduct.

The policies exclude coverage of claims based on intentional misconduct by a director or an officer, or on personal gain (financial or otherwise) to which a director or officer was not entitled. Fines and penalties levied against directors and officers are also excluded, as well as claims for losses due to pollution, asbestos or toxic mold. Liability insurance policies for directors and officers exclude claims based on the purchase of securities or assets of a company at an inadequate price.

#### **AREVA's liability**

The group is covered by a "worldwide" civil liability program with limits appropriate to its size and operations. The program covers:

- operator liability related to operating activities and services performed at customer sites;
- product liability covering the post-delivery period; and
- professional liability ("Errors and Omissions") covering the financial consequences of damages associated with intellectual services performed by a company of the group for its own account or on behalf of a third party.

It is also covered for liability for environmental damage, damage to property held on behalf of third parties, and for product recall expenses, among others.

The program covers the monetary consequences of civil liability likely to be incurred by the operating entities due to their operations, including bodily harm, property damage and consequential damage suffered by third parties, excluding nuclear operator liability. Certain events not usually covered by insurance, such as landslides, damage from asbestos, or damage caused by computer viruses, are also excluded. Liability insurance limits vary based on capacities available on the insurance market and on a reasonable assessment of the risks to which the group is exposed, as identified by the operating units and the Risk and Insurance Department, in particular during the risk mapping process.

#### Coverage relating to nuclear facility operations

For a description of insurance taken out related to nuclear facility operator activities, see Section 4.3.1.9.

#### 4.1.2.2. **OTHER INSURANCE**

The group has recourse to Coface type coverage for some large export contracts from France, such as the construction of nuclear power plants. The insurance policies cover auto liability and work accidents in accordance with the legal obligations of each country in which AREVA and its subsidiaries are based.

#### 4.1.2.3. OUTLOOK AND TRENDS IN 2015

The insurance programs will be renewed in April 2015.



# 4.2. LEGAL RISK

# 4.2.1. REGULATORY RISK

The group conducts its operations in accordance with local laws under operating licenses and permits. In particular, these operations require licenses relating to production capacities and to environmental releases from the facilities. In conducting its operations, the group must comply with applicable legislation and regulations, in particular concerning environmental protection, employee protection, public health and nuclear safety, and with its operating licenses and permits. The operator may be subject to sanctions, including administrative sanctions, in the event of an incident or lack of compliance with applicable regulations or operating permits and licenses. Such sanctions may include, among other things, the temporary suspension of operations, or measures to enforce compliance or to restore normal conditions. In addition, damage to the environment, to public health or to occupational safety, or the non-compliance of the group's facilities could result in liabilities for some of the group's entities with regard to third parties and government agencies.

Moreover, a strengthening of or change in legislation or regulations, particularly in areas such as environmental protection, health and nuclear security, could require that the group's facilities and products be brought into compliance, which would likely have a significant impact on the group's operations or financial position. In France in particular, the French Nuclear Safety and Transparency Law of June 13, 2006 ("TSN Law") codified in the Environmental Code requires a periodic reassessment of nuclear safety likely to translate into considerable expense to bring the facilities into compliance, but this would bolster their nuclear safety and ensure their sustainability. Similarly, the administrative order of December 12, 2005 related to pressurized nuclear equipment (the "ESPN Order") strengthens requirements and

controls to take into account nuclear safety and radiation protection requirements incumbent upon the manufacturer, which is responsible for the compliance of this equipment, designed for use in nuclear reactors, which is likely to prolong the time needed by the French nuclear safety authority ASN to pronounce the compliance of the most significant pressurized nuclear equipment.

The group may also not receive on a timely basis permits or licenses to modify or expand its industrial operations for which it has applied or may apply, whether in France or abroad, which could limit its growth capabilities.

Moreover, some operations, such as those of the Mining Business Group in certain countries, are subject to special tax rules whose modification could have a negative impact on the group's financial position.

In addition, the group pays particular attention to regulations with which noncompliance could expose the group to criminal or civil penalties and significantly impact its operations, image and reputation.

#### 4.2.1.1. NUCLEAR AND ENVIRONMENTAL REGULATIONS

The group's operations are subject to constantly changing and increasingly stringent national and international regulations in the nuclear and environmental fields. The list of the AREVA group's regulated nuclear facilities (see *Glossary*) or similar facilities is presented in the table in below.



#### NUCLEAR FACILITIES FOR WHICH ENTITIES OF THE AREVA GROUP HOLD THE OPERATING PERMIT OR LICENSE

The main nuclear facilities at December 31, 2014, whether classified as regulated nuclear facilities in France (INB) or their corollaries in other countries, are listed below.

Location	Business Unit	Legal entity holding the license	Description	
Front End Business Group				
Malvési, France (1)	Chemistry	AREVA NC	Packaging and storage of radioactive substances	
Tricastin, France	Chemistry	AREVA NC	Preparation of UF <sub>6</sub>	
Tricastin, France	Chemistry	AREVA NC	Conversion of enriched uranium-bearing materials (U <sub>3</sub> O <sub>8</sub> )	
Tricastin, France	Enrichment	Eurodif Production	Georges Besse gaseous diffusion enrichment plant	
Tricastin, France	Enrichment	SET	Georges Besse II centrifuge enrichment plant	
Tricastin, France	Enrichment	Socatri	Plant for uranium recovery and cleanup	
Romans, France	Fuel	AREVA NP	Fuel fabrication for research reactors	
Romans, France	Fuel	AREVA NP	Fuel fabrication for power reactors	
Dessel, Belgium	Fuel	FBFC International SA	Fabrication of uranium and MOX fuel	
Lingen, Germany	Fuel	ANF	Fuel fabrication	
Richland, United States	Fuel	AREVA Inc.	Fuel fabrication	
Lynchburg, United States	Fuel	AREVA Inc.	Fuel fabrication plant (undergoing decommissioning)	
Reactors & Services Business Group				
Maubeuge, France	Equipment	Somanu	Nuclear maintenance workshop	
Back End Business Group				
Veurey, France (2)	Valuation	SICN	Fuel fabrication plant (undergoing decommissioning)	
La Hague, France (3)	Recycling/ Decommissioning & Dismantling	AREVA NC	Used fuel treatment plants and liquid effluent/ solid waste treatment facilities	
Marcoule, France	Recycling	AREVA NC	MELOX MOX fuel fabrication plant	

(1) INB pending a construction license.

(2) Two INBs at this site in final shutdown/dismantling status.

(3) Seven INBs at this site, including four in final shutdown/dismantling status.

Internationally, the International Atomic Energy Agency (IAEA) and the European Commission have each established a system of nuclear materials safeguards.

Other international agreements adopted under the umbrella of the IAEA govern nuclear safety in the facilities, including the Convention on Nuclear Safety (CNS) and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

With respect to the European Union, the provisions of the Euratom Treaty and its implementing provisions reinforced the aspects related to nuclear materials safeguards and established a common set of rules, in particular concerning public health protection, radiation protection of workers and radioactive waste transportation. In France, regulated nuclear facilities (INB, installations nucléaires de base) operated by the group fall under a strict legal framework. For example, specific licenses and permits are delivered for the construction, startup, modification, safety review, final shutdown, dismantling and decommissioning of the facilities, and govern in particular rules for nuclear safety, protection of public health and of the environment, and the monitoring of radioactive and non-radioactive releases. The license decrees required for certain operations are granted following a public inquiry and an administrative process requiring the opinion of several organizations. Procedures related to the creation, modification or final shutdown of regulated nuclear facilities are set by decree no. 2007-1557 of November 2, 2007 pertaining to regulated nuclear facilities and, in matters of nuclear safety, to the control of the transportation of radioactive materials. In application of this decree, the general technical rules applicable to regulated nuclear facilities were strengthened by the order of February 7, 2012 setting the general rules pertaining to regulated nuclear facilities, most of whose provisions became effective on July 1, 2013. In addition, the TSN law establishes administrative and criminal penalties (articles L. 596-14 *et seq.* and articles L. 596-27 *et seq.* of the French Environmental Code). Every year, each regulated nuclear facility operator must also submit a report on measures taken in respect of nuclear safety and radiation protection, which is made public.

Regulated nuclear facilities are monitored closely by the French nuclear safety authority ASN, an independent administrative authority. Operations abroad are subject to the same type of rigorous control, the United States Nuclear Regulatory Commission (NRC) being one example.

In France, some facilities operated by the group are subject to regulations pertaining to environmentally regulated facilities (ICPE), depending on the operations performed or the substances used. Group facilities that may represent hazards or drawbacks, in particular for public health, safety and security, or for the protection of nature and the environment, are subject to prior reporting to the Prefecture, to a registration process, or to a licensing process. In the last case, the operating license or permit granted upon completion of a public inquiry after consultation with various organizations takes the form of a prefectorial order accompanied by specific operating requirements.

The group is also subject to regulations pertaining to the protection of its employees, its subcontractors and the public from the hazards of ionizing radiation (radiation protection), in particular by the establishment of exposure limits.



Other national and international provisions govern:

- the protection and safeguarding of nuclear materials, of their facilities and of their transportation, such as the Convention on the Physical Protection of Nuclear Materials of October 28, 1979, the French Defense Code (articles L. 1333-1 et seq. and R. 1333-1 et seq.), the Euratom Treaty of March 25, 1957 (Chapter VII) and the Euratom Regulation no. 302/2005 of February 8, 2005, the IAEA/ France/Euratom Safeguards Agreement (INFCIRC/290 of July 27, 1978), and many international agreements. Compliance with these requirements is regularly verified by inspectors from the IAEA, Euratom and the office of the Senior Defense and Security Official at the French Ministry of Ecology, Sustainable Development and Energy (MEDDE);
- the safety of facilities of vital importance, as provided in the French Defense Code (articles L. 1332-1 *et seq.* and R. 1332-1 *et seq.*) and the national safety directives, under the supervision of the Senior Defense and Security Official at the MEDDE and the prefectorial authorities;
- nuclear facilities contributing to deterrence, as provided in the French Defense Code (article R. 1411-1 *et seq.*) under the supervision of the French deterrence authority;
- the transportation of radioactive materials with the Transport of Dangerous Goods Order of May 29, 2009 (TDG Order – see Glossary);
- the control of cross-border movements of radioactive waste with the Council Directive 2016/117/Euratom of November 20, 2006 on the supervision and control of transfers of radioactive waste and used nuclear fuel; see also *Regulations governing radioactive waste*, below.

Similar regulations provide for rigorous control of facilities and their operating conditions by the competent bodies in the foreign countries in which the group operates nuclear facilities (Belgium, Germany and the United States).

#### **Regulations governing end-of-lifecycle operations**

#### Regulations governing dismantling

The legal framework governing dismantling operations performed in France primarily derives from the TSN Law as codified. In addition, the September 5, 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, adopted under the auspices of the IAEA, contains provisions related to the nuclear facility decommissioning process.

As the holder of licenses and permits for operations and dismantling, the nuclear operator is the legal entity responsible for the operation and dismantling of the facilities. The operator remains responsible for the timing and methods selected to dismantle the facilities it operates, subject to the technical supervision of the French nuclear safety authority ASN, which validates each major stage of dismantling.

The decision authorizing dismantling and specifying its procedures is made by decree following a public inquiry and a process requiring the opinion of several organizations. The decree authorizing final shutdown and dismantling operations specifies, among other things, the features of dismantling, the dismantling schedule, the final conditions to be achieved, and the types of operations for which the operator is responsible upon completion of dismantling.

Depending on the particular features of each facility, dismantling operations may take several decades, encompassing work execution phases and facility monitoring phases involving practically no operation. Dismantling involves a series of operations, from the shutdown of the nuclear facility to the decision of the competent authorities to decommission the facility, at which time it can generally be put to new industrial use.

In France, the group is currently the licensee of eighteen regulated nuclear facilities, six of which are officially in final shutdown/dismantling status, and one nuclear defense facility. An authorization decree is also expected for one new regulated nuclear facility at the Malvési site.

The level of dismantling selected depends in particular on the expected use of the site that hosts the regulated nuclear facility. In the United States, Germany and Belgium, where the group operates four nuclear facilities, the rules pertaining to dismantling are based on principles that are largely similar to those that apply in France.

The non-regulatory aspects of dismantling are dealt with in Section 4.3.1.8.

#### Regulations governing radioactive waste

In France, the waste generated by nuclear operations or by the dismantling of regulated nuclear facilities is governed by articles L. 542-1 to L. 542-14 of the Environmental Code in particular. At the international level, radioactive waste management falls under the purview of the IAEA's Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management of September 5, 1997. At the European level, the Council directive no. 2011/70/ Euratom of July 19, 2011 establishes a strict European Community framework for the safe and responsible management of used fuel and radioactive waste.

The producer or, as applicable, the holder of waste from nuclear operations or dismantling operations is obligated to process and dispose of such waste.

Article L. 542-2-1 of the French Environmental Code authorizes the treatment of foreign used fuel and radioactive waste in French facilities under certain conditions, including in particular the signature of intergovernmental agreements indicating an estimated schedule for the receipt and treatment of these substances and, as applicable, the prospects for the later use of the radioactive materials separated during the treatment. Every year, the operator submits a report inventorying these substances to the minister of Energy. Article L. 594-1 of the Environmental Code provides that operators of regulated nuclear facilities must establish provisions to cover the cost of dismantling the facilities and managing used fuel and radioactive waste, and allocate the necessary assets to cover these provisions exclusively. In this regard, the regulations specify that the operator must account for these assets separately and that they must be sufficiently secure and liquid to meet their purpose. Their realizable value must be at least equal to the amount of the provisions. The portfolio of assets thus earmarked is protected from all creditors, except for the State when it enforces compliance with rules pertaining to nuclear operations. All of these items are verified by a number of different administrative authorities, including the French national commission to assess the funding of dismantling expenses. Moreover, financial penalties apply in the event of a failure to comply with all of the obligations related to dismantling expenses.

#### 4.2.1.2. RULES OF BUSINESS ETHICS

The group attaches special importance to adherence to strict ethical values in connection with its operations. In particular, it adopted a Values Charter in 2003 that calls for all employees to comply with applicable legislation and regulations and with the specific values, action principles and rules of conduct set forth in that charter. Occasional deviations from these standards by employees, officers or representatives of the group are nonetheless possible, with potential repercussions on AREVA's reputation as a function of their severity.

## 4.2.2. CONTRACTUAL AND COMMERCIAL RISKS

#### 4.2.2.1. BREACH OF CONTRACTUAL COMMITMENTS

The group is exposed to the risk of default by its customers for the payment of its products and services and/or by its suppliers for the performance of certain services or the delivery of certain products.

Except when customers deposit funds to cover the group's expenses during the contract implementation phase, the group is exposed to the risk of a customer's inability to accept delivery or to the risk of default on payments during delivery. In such instances, the group may not be able to recover expenses incurred for the project or attain the operating margins contemplated when the contract was concluded.

In connection with certain disputes set out in Section 20.8. *Legal and arbitration proceedings*, the group may also be exposed to the risk of customer payment of part of its products and services on a blocked account during the execution of certain contracts. In fact, depending on the outcome of the disputes in question, the group could run the risk of having all or part of the blocked payments withheld.

Though the group endeavors to control its exposure to contractual risk, it is not possible to guarantee that all risks of non-payment risk or non-execution can be eliminated.

#### 4.2.2.2. NON-RENEWAL OR TERMINATION OF CONCESSIONS RELATED TO THE GROUP'S MINING OPERATIONS

The group's mining operations involve concessions received or partnerships formed under legal systems specific to each country. Despite the relatively long terms of these partnerships or concessions (on the order of 20 years), the group's operations are exposed to the risk of non-renewal or termination.

#### 4.2.2.3. LONG-TERM CONTRACTS

#### THE GROUP ENTERS INTO LONG-TERM CONTRACTS THAT COULD LIMIT ITS OPPORTUNITY TO TAKE ADVANTAGE OF IMPROVING CONDITIONS IN CERTAIN MARKETS, OR RESULT IN LOWER PROFITABILITY THAN ANTICIPATED.

In these long-term contracts, prices are adjusted based on general indices rather than current market prices for certain raw materials or services. This type of contract could prevent the group from taking advantage of price increases for those products or services; this is the case for certain natural uranium sales contracts, in particular, or for conversion or enrichment services. In addition, the profitability of certain long-term contracts in which the group commits to providing deliverables at a fixed price, adjusted based only on general indices, could be affected by certain excess costs that cannot be charged to customers, including unanticipated increases for certain types of costs, technical difficulties, subcontractor default or a suboptimal group organization. The performance of this type of contract could, therefore, reduce the group's anticipated profitability, or even cause an operating loss.

#### 4.2.2.4. WARRANTIES

In accordance with the group's practices and policies, the warranties provided in the group's contracts or financing are limited in duration and capped in value, and exclude consequential or indirect damages. However, the group could under certain circumstances give warranties exceeding those limits, particularly in competitive markets.

#### 4.2.2.5. EARLY TERMINATION CLAUSES

The group enters into contracts that sometimes include clauses allowing the customer to terminate the contract or reject the equipment if contract clauses concerning schedule or performance have not been met. Difficulties concerning products and services provided under this type of contract could thus result in unexpected costs.

Contract performance difficulties, besides the aforesaid negative financial consequences, could also harm the group's reputation with existing or potential customers, particularly in the nuclear sector.

#### 4.2.2.6. **REQUIREMENTS CONTRACTS**

Some contracts concluded by entities of the group, in particular in the Front End Business Group, are contracts for variable quantities, depending on our customers' reactor requirements; these are called "requirements contracts".

Therefore, the estimates provided by AREVA's customers in connection with these contracts may be revised downwards in certain circumstances, with a corresponding reduction in the revenue anticipated by AREVA for the contracts in question.

## 4.2.3. RISKS AND DISPUTES INVOLVING AREVA

AREVA is exposed to the risk of disputes that could lead to civil and/or criminal penalties. AREVA cannot guarantee that it is not potentially exposed to claims or investigations that could have a significant unfavorable impact on the group's image and financial performance.

Except for the following cases, and to AREVA's knowledge, there is no other governmental, administrative, legal or arbitration proceeding pending or threatened that had or could have a significant impact on the financial position, profitability or reputation of AREVA and/or of the group in the past twelve months.

#### 4.2.3.1. OLKILUOTO 3 EPR POWER PLANT (OL3) (DISPUTE CONCERNING AREVA NP)

On December 5, 2008, the AREVA-Siemens consortium initiated arbitration proceedings with the ICC on account of delays and disruptions suffered in the performance of the contract and the resulting additional costs incurred ("D&D Claim"). In June 2011, the AREVA-Siemens consortium submitted a brief to the Court of Arbitration putting its loss at 1.9 billion euros for the part of the project running up to December 31, 2007 ("part 1").

On July 5, 2012, the Court of Arbitration rendered a final partial verdict enjoining TVO to release 100 million euros (plus interest) due to the AREVA-Siemens consortium and retained in contravention of the contractual provisions. TVO made the payment that same month, in July 2012.

TVO filed its claim on September 28, 2012 along with the statement of defense to the Consortium's statement of claims, and assessed its current loss at about 1.6 billion euros.

On October 29, 2013, the Consortium responded to TVO's counterclaim and filed a claim with the arbitral tribunal for the second part of the project (January 1, 2008 to June 30, 2011), bringing its total claim for the first and second parts to 2.7 billion euros.

On October 20, 2014, the Consortium updated the amount of its claim against TVO to reflect more detailed cost estimates and interest accrued to date. For events during the construction period until June 2011, the Consortium is claiming a total of approximately 3.4 billion euros. TVO announced that its claim could amount to 2.3 billion euros for the period running up to the end of 2018. The Consortium and its counsel still consider the allegations of serious/intentional offense made in the counterclaim to be unfounded.

#### 4.2.3.2. **SOCATRI**

During the night of July 7 to July 8, 2008, uranium-bearing effluents from the Socatri plant at the Tricastin site spilled into the Gaffière stream. On the civil counts, in August 2012, the City of Bollène filed a claim before the Court of First Instance of Carpentras against Socatri, Eurodif Production, Comurhex and AREVA NC, asking the Court: to hold the four companies jointly and severally liable for a payment in the amount of 100,000 euros by each of the companies for their history of polluting the water table; to hold Socatri liable for specific pollution and consequences caused by its facilities, based on the report of the court-appointed expert, who assessed the damage to the city at 11 million euros, without however providing justification for this amount; and to hold Comurhex liable for specific pollution caused by its facilities and the management of the waste mound present on its site, for 100,000 euros. This case was heard on March 3, 2015 and deliberations began on May 12, 2015.

#### 4.2.3.3. DISPUTES INVOLVING AREVA RELATED TO THE T&D BUSINESS, SOLD ON JUNE 7, 2010

On January 24, 2007, the European Commission fined 11 companies, including AREVA SA, for anti-competitive practices in the gas insulated switchgear market (GIS):

- On April 10, 2014, the Court of Justice of the European Union ruled in favor of AREVA in some of the counts submitted on appeal by AREVA. This resulted in a change in the allocation of fines, but did not reduce their total amount. The total amount of the penalty, including interest, is 79 million euros, including 28 million euros for Alstom and AREVA severally. Once all appeals have been exhausted, and after Alstom's guarantee has come into play, AREVA owes the amount of 2.7 million euros (principal and interest combined), for which a provision has been constituted. This amount is contested by Alstom, which demands payment of 7.9 million euros (corresponding to 10% of the total amount of the fine, including the share that is exclusively Alstom's). The parties are attempting to resolve this difference in interpretation amicably.
- Concerning the new claim for damages filed by EBS Networks in Ireland on April 19, 2013, naming jointly AREVA SA and all the defendant companies subject to the above-mentioned finding by the European Commission. Before any defense on the merits, AREVA asked initially for dismissal of this action on procedural grounds (strike out) after the plaintiff had served its statement of claim. Following discussions with ESB initiated by AREVA, an amicable settlement was signed on October 17, 2014, putting an end to all claims filed against the latter. This case is now closed.

#### 4.2.3.4. URAMIN CASE

Since March 2014, and after a search of AREVA's offices on June 3, 2014, the company has been under investigation by the Financial Prosecutor's Office following a notification from the French Cour des Comptes under article 40 of the French Code of Criminal Procedure.

#### 4.2.3.5. CFMM

A request for arbitration was submitted to the International Chamber of Commerce on July 28, 2014 by a partner, Mr. Georges Arthur Forrest, against the CFMM company in which the petitioner challenges the decision by the General Meeting of Shareholders on June 24, 2013 to liquidate ArevExplo RCA. CFMM submitted counterclaims in response to this petition. An arbitration court was being constituted at December 31, 2014 and the proceedings, which should take place in 2015, are expected to result in a decision in 2016.

# **4.3.** INDUSTRIAL AND ENVIRONMENTAL RISK

By nature, the group's operations carry risk, most notably those performed in the nuclear facilities listed in Section 4.2.1.1. and those performed in its other industrial facilities or during logistics or maintenance operations at its customers' sites. To prevent these risks and limit their consequences, the group has adopted risk management strategies and procedures in line with best practices. If incidents and accidents were nonetheless to occur, in particular due to security breaches or acts of malfeasance, the group could face substantial liability or significant operating cost overruns. In fact, the group's operations require processes that use various toxic chemical compounds and radioactive substances. Such events could have

serious consequences, particularly in the event of radioactive contamination and/ or irradiation of the environment, of individuals working for the group or of the general public, as well as a significant negative impact on the group's operations and financial position.

If an accident should affect one of the group's plants or the transportation of hazardous and/or radioactive materials, the severity of the accident could be aggravated by various factors that are not under the group's control, such as meteorological conditions, the type of terrain, or the intervention of outside entities.



# 4.3.1. NUCLEAR RISK

#### 4.3.1.1. RISK OF NUCLEAR ORIGIN

Risks of nuclear origin are linked to the characteristics of radioactive substances. These risks thus concern all of the group's industrial facilities in which these substances are found, whether regulated nuclear facility, regulated defense nuclear facility, environmentally regulated facility or mining operations.

Risk prevention is based on a systemic and systematic analysis of the risks specific to each facility or activity undertaken and on the definition of the means to prevent events of concern and to detect and manage incidents and accidents and limit their potential consequences, based on defense-in-depth principles. These principles consist of systematically analyzing potential technical, human or organizational failures, and of defining and implementing a series of independent lines of defense to protect against the consequences of those failures.

These principles are implemented in the facility design phase, during the industrial production phase, and during cleanup and dismantling after the end of production operations.

# Dissemination of radioactive materials that can lead to contamination

Uncontained radioactive materials (solid, liquid or gaseous) may disperse and lead to human and environmental contamination if they are insufficiently contained. Controlling this risk consists above all of limiting the dispersion of those substances from the facilities under all operating conditions (normal or accidental), as well as after shutdown, in particular by interposing suitable containment barriers and ventilation systems.

#### Radiation

Whenever a person works in the presence of radioactive materials, there is a risk of exposure to radiation.

The estimated biological impacts of radiation on the human body are generally expressed in millisieverts (mSv). The regulatory annual dose limits are as follows:

- in the European Union, 1 mSv per year for the general public above naturally occurring radioactivity, and 100 mSv over five consecutive years for employees, not to exceed 50 mSv in any one year;
- in the United States, 1 mSv per year for the general public and 50 mSv per year for employees;
- in France, the maximum regulatory limit for employees is 20 mSv/year. AREVA
  applies this maximum limit to all of its employees and subcontractors in all of
  its facilities and operations, regardless of the country in which they are located.

Collective protection and monitoring systems are installed to limit radiation at the source and optimize the doses received to levels that are as low as reasonably possible. In addition and if necessary, the time at work of operators is limited. The group applies the ALARA principle ("as low as reasonably achievable"), which holds that any action will be taken to reduce exposure to radiation, as long as it is reasonable from the technical, economic, social and organizational points of view. The radiation protection departments continually verify compliance with this principle of optimization.

After a job study and approval by the occupational health physician, all operators and workers qualified for work in a radioactive environment receive thorough medical and radiological follow-up. In accordance with applicable regulations, regular training sessions are held to maintain their knowledge at the appropriate level. The results recorded (see Section 17. *Human resources*) testify to the effectiveness of these practices and the good level of radiation protection control in the group.

#### Criticality

The risk of a criticality accident corresponds to the risk of an uncontrolled chain reaction with a brief and intense emission of neutrons, accompanied by radiation. This risk, should it materialize, would result in irradiation of workers or individuals located near the event, causing lesions proportional in seriousness to the intensity of the radiation received. This risk is addressed in any facility likely to receive fissile materials.

The prevention of this risk is based on limiting the factors leading to uncontrolled chain reactions. This limitation is factored into the design (e.g. equipment geometry) or in operating requirements, mass limitations, etc. In areas of facilities most exposed to risk, prevention measures are strengthened with the use of shielding which strongly reduces the consequences of a potential criticality incident for personnel, and with the installation of a criticality accident detection, alarm and measurement system.

For transportation, nuclear safety and criticality are verified under both normal and accidental operating conditions. Transportation regulations set forth rules for storage during transit, particularly in terms of the criticality risk.

#### Thermal releases and radiolysis

Matter absorbs the energy produced by intense radiation, which can lead to temperature increase. The energy is removed to control the temperature rise and prevent the dispersion of radioactive materials. Cooling is provided by redundant cooling systems with heat exchangers and ventilation systems.

Radiolysis corresponds to the decomposition of a hydrogenated compound (especially water) when exposed to radiation, leading to the release of hydrogen. In normal operations, the facilities are designed to limit hydrogen concentrations by flushing the equipment with air. A backup system is added if a loss of normal flushing capacity can cause concentrations to rise to the limit value in a few hours or tens of hours.

#### 4.3.1.2. INTERNAL RISKS THAT COULD LEAD TO NUCLEAR RISK

As in any industrial activity, facility operations and the presence of personnel also give rise to risk. Since such incidents could affect equipment important for managing nuclear safety, strong prevention measures are taken in the nuclear industry. Prevention is based on factoring the potential causes of malfunctions into the design or into operating instructions and on limiting their possible consequences.

#### The conventional risks most frequently encountered are:

- the risks associated with handling and the use of hoisting, transfer and positioning equipment;
- internal fire and explosion hazards, against which safety functions are protected (for instance with fire-resistant rooms to limit fire propagation to a small area);
- the risks related to the use of chemical reagents or toxic raw materials such as HF or UF\_6;
- the risks associated with the use of pressurized equipment;
- the risks associated with utilities (electricity, water, steam, industrial gases, etc.).

These risks are managed with an approach similar to that used for nuclear risk management, reflecting the nature of the risk and in compliance with regulatory requirements defined for each technical field: safety systems, fire containment, detection, Atex rules for explosive atmospheres, separation of incompatible chemicals, etc. These technical measures are supplemented as necessary with compliance inspections, periodic verifications and maintenance, and operator training and/or certification measures.

Measures are also adopted to minimize the consequences of a failure whenever an incident may have an impact on nuclear safety. Automatic fire detection systems are used for early alerts to employees trained to respond to and extinguish a fire start. Response means are also provided (e.g. fire department in the event of a fire start).

# A risk highly specific to the group involves the use of uranium hexafluoride (UF $_{\!_6})$

During enrichment operations, uranium is handled in the chemical form of UF<sub>6</sub> (uranium hexafluoride), which is a solid at normal temperatures and pressures, and becomes gaseous when heated (sublimation at about 56). This gas can react when it comes into contact with water vapor in the air, forming uranium oxide and hydrofluoric acid, a highly toxic compound for man, plants and animals. In view of the large quantities of UF<sub>6</sub> handled at the production sites, the inherent risks were factored into the design of the facilities (double containment barrier, automated monitoring of high-risk areas, etc.).

Other risks, such as those related to parallel activities and to human and organizational factors, are also taken into account. Prior coordination of activities and the parties involved and the establishment of a suitable organization combined with personnel training in particular contribute to the limitation of these risks.

# 4.3.1.3. EXTERNAL RISKS THAT COULD LEAD TO NUCLEAR RISK

Unlike risks of internal origin, it is not always possible to act on risks of external origin related to the facility's environment. However, their origin must be taken into account to reduce and manage their consequences, particularly in terms of radiation. The desired level of protection is secured by considering in particular unforeseen but highly improbable events in the context of each site.

#### Earthquake

Earthquakes and their possible repercussions, such as a tsunami, can cause damage that could disable nuclear safety systems.

For facilities in which nuclear materials are handled, the risk of an earthquake is factored into the design of equipment, systems and buildings. The analysis consists of demonstrating that damage affecting the nuclear safety of the facility is unlikely to occur at the level of the event scenario.

#### Airplane crash

This risk concerns the crash of an airplane, or part of an airplane, on a facility. Its probability of occurrence depends on the number of aircraft that could reach the site without being detected, and its potential severity depends on the type of aircraft and the surface of sensitive areas in each facility. Each site is located:

- away from controlled airspace;
- away from airspace used by military aircraft; and
- far from any airport.

Safety studies are carried out to assess the risk of an airplane crash and determine the means for limiting its consequences (factoring in the organization of airspace use, type of flights, known crash statistics, etc.), including the risk of deliberate attack.

Special measures are taken to protect the nuclear facilities from terrorism; these measures have been strengthened under the French national security plan known as "Vigipirate". For security reasons, these measures may not be disclosed to the public.

#### Adverse meteorological conditions and flooding

This risk is factored into the design based on potential local weather conditions. Advance warning is given for any threatening weather conditions, and there are instructions for each facility concerning additional measures to be taken, such as increased monitoring or specific action.

The possible causes of external flooding (rain, river flooding, breach of levies, tsunami) are factored into the design of the facilities and in operating measures. The risk of a thousand-year flood is taken into account, in particular by locating facilities above the thousand-year flood plain.

Other risks caused by potential external events, such as the loss of power supply or utilities (water, steam, compressed air, etc.), are also addressed through redundant or independent backup systems.

Following the accident at the Fukushima Daiichi nuclear power plant in Japan, in addition to measures taken in the design of the facilities or during operations, supplementary safety assessments (SSA) were carried out to evaluate the facilities' strength after a malfunction. Based on these assessments, special programs to improve the level of facility protection led to work and actions (see Appendix 3, Section 2. *Environmental information*). Other measures are being implemented in accordance with regulatory decisions by ASN applicable to the group's nuclear facilities.

#### 4.3.1.4. TRANSPORTATION OF RADIOACTIVE MATERIALS

To protect members of the public, property and the environment from the effects of radiation during the transportation of radioactive materials on public lands, the "defense in depth" concept applies to these operations, as it does to other nuclear operations. This concept consists of setting up a series of barriers – safety systems, procedures, technical or administrative controls, etc. – to prevent accidents and limit their consequences. The design of the shipping cask is the main component of this system. As with any nuclear activity, these operations are governed by stringent international regulations.

If the materials transported exceed a certain level of activity set by regulation, the cask must, under normal and accidental operating conditions, provide:

- the containment of the materials;
- continued sub-critical conditions when fissile materials are transported;
- control of radiation intensity; and
- protection from the heat of the materials transported to prevent damage.

The related requirements cover cask design, fabrication, operation and maintenance.

AREVA's objective is to ensure an optimum level of safety and security during transportation. To discharge its mission in supervising transportation activities in the AREVA group, the Logistics Business Unit has established an organization to analyze risks, develop and implement action plans and manage emergencies around the globe. Its monitoring center is able to access in real time all necessary information on shipments under its supervision at all times.

In addition, insurance is taken out for shipments in accordance with the conditions described in Section 4.3.1.9. Special coverage relating to nuclear facility operations.

#### 4.3.1.5. NUCLEAR SAFETY IN THE AREVA GROUP

Nuclear safety encompasses all of the technical provisions and organizational measures pertinent to the design, construction, operation, shut-down and dismantling of regulated nuclear facilities and to the transportation of radioactive materials, and designed to prevent accidents and limit their consequences.

Nuclear safety is an absolute priority for AREVA. The group formalized its commitments in the fields of nuclear safety and radiation protection in a Nuclear Safety Charter (available on the group's website under "Media Center"), which aims to ensure a very high level of nuclear safety throughout the operation of its facilities and its services activities. The Charter is founded on the principles hereunder.

#### Organizational principles

The executive management of AREVA and each of its subsidiaries set up an organization reflecting the legal provisions of the country in question based on the overriding liability of the operator. Each site director is responsible for nuclear safety and radiation protection at that site. He or she sets up an appropriate organizational structure to ensure that all legal and regulatory requirements for every aspect of nuclear safety and radiation protection are applied at every affected unit and facility. He or she delegates authority as regards nuclear safety and has the resources to verify implementation of this delegation independently of operating personnel.

#### **Action principles**

Nuclear safety applies to every stage in the facility lifecycle, from design to dismantling, and to the services operations. It builds on a nuclear safety culture shared by all personnel and maintained by regular training. In the area of radiation protection, the group is committed to maintaining the exposure of workers and the public to a level as low as reasonably achievable (see Section 4.3.1.1.). The same continuous improvement initiative applies to the reduction of impacts from liquid and gaseous effluents (see Appendix 3, Section 2. *Environmental information*).

#### An organization

In the fields of nuclear safety and radiation protection, the Safety Health Security Quality Environment Department (SQED) defines, leads and coordinates the group's nuclear safety and radiation protection policy; coordinates regulatory intelligence in the fields of safety and radiation protection; and provides leadership for the network of related experts. It provides the necessary support to the operating entities and steers relations with the regulators.

#### **General Inspectorate for Nuclear Safety**

The General Inspectorate for Nuclear Safety is part of the SQED. It is headed by the Inspector General, who reports directly to the group's Executive Management. It proposes and implements an annual nuclear facility inspection program to prevent

any risk that would potentially alter nuclear safety. To perform its duties, the General Inspectorate has:

- a corps of inspectors, which performs independent verifications of the operating
  organization of the facilities; and
- ongoing support from the SQED's safety specialists.

The inspector general proposes an annual inspection program, which is approved at the highest level. This program ensures that the Nuclear Safety Charter is correctly applied, detects any warning signs of a potential deterioration in nuclear safety performance, and points to necessary improvements to ensure the best level of control.

#### Subcontracting

Ensuring nuclear safety, health, industrial safety and environmental protection in subcontracted activities is a major and constant concern for the nuclear industry. AREVA is dedicated to improving the formal conditions for subcontracting and monitoring subcontracted work. This includes applying internal guidelines for compliance with nuclear safety, radiation protection and environmental protection requirements as part of the procurement process. It also includes the definition of a social certification for service providers based on the criteria of nuclear safety, occupational safety, training, professionalization and employee satisfaction.

#### **Reporting system**

AREVA endeavors to provide reliable and relevant information enabling an objective assessment of the status of nuclear safety in its facilities. Nuclear events are evaluated according to the International Nuclear and Radiological Event Scale (INES), including in countries where no such requirement exists (see Appendix 3 Section 2. *Environmental information*). The INES ranks the severity of events on a scale from 1 to 7. Level 1 or higher events are of public record.

As per its commitments, the group publishes, both in hard copy and on its website (under "Media Center"), the annual report of the General Inspectorate of Nuclear Safety. This report presents the status of nuclear safety and radiation protection at the AREVA group's nuclear facilities in France and abroad, as observed through the program of inspections, and draws on analyses of events and on various elements identified by nuclear safety specialists with a view to identifying areas for improvement.

Also, pursuant to article L. 125-15 of the Environmental Code, each of the sites operating the group's nuclear facilities in France publishes an Annual Nuclear Safety and Radiation Protection Report and makes it publicly available.

# 4.3.1.6. PROTECTION AND SAFEGUARD OF NUCLEAR MATERIALS AND FACILITIES

In addition to the measures adopted to prevent the risks of an incident or accident and limit the consequences, sites in possession of nuclear materials must take measures to prevent the loss, theft or diversion of the materials held in the facilities, or any act that might result in their dispersal in the environment. As is done for nuclear safety, the measures taken are based on the concept of defense in depth and rest on three interrelated pillars forming a strong and interconnected whole, which are:

- physical protection to avert, detect, prevent or delay any unauthorized access to the nuclear materials or any act of sabotage that might endanger the public;
- physical monitoring, in which movements of nuclear materials require authorization and are monitored;

 a materials accounting system distinct from physical monitoring, which provides independent control based on the daily accounting of quantities of materials held in each area of the site and of all movements of nuclear materials from one area to another.

The competent authorities including, in France, inspectors reporting to the Senior Defense and Security Official at the Ministry of Ecology, Sustainable Development and Energy, regularly verify compliance with and proper application of these measures.

#### 4.3.1.7. NON-PROLIFERATION

Proliferation is the diversion of nuclear materials by a State for non-peaceful purposes.

Non-proliferation is a shared objective of all of the signatory countries of international agreements in this area, in particular the Treaty on the Non-Proliferation of Nuclear Weapons of July 1, 1968. Non-proliferation requirements relate to the physical protection of nuclear materials per the Convention on the Physical Protection of Nuclear Material; to safeguards controls per the Euratom treaty, which established a nuclear materials accounting system; and to inspection by the IAEA and Euratom.

To meet national regulatory requirements for the nuclear materials safeguards and facility protection, AREVA takes every measure necessary in this field to know, at all times, the amount, type, use and location of the materials held by the group's entities.

#### 4.3.1.8. RISKS RELATED TO END-OF-LIFECYCLE OPERATIONS

As an operator of regulated nuclear facilities and industrial facilities covered by legislation on environmentally regulated sites, the group is legally obligated to secure, dismantle or remediate its facilities after shutdown, in whole or in part, and to manage waste resulting from these operations. As a mine operator, it must also provide for closure, securing and reclamation after operations.

The AREVA group plans for the dismantling of its facilities from the beginning of the design phase. Operating experience from facility maintenance, from dismantling activities carried out for its own account or for other nuclear operators, and from pilot projects conducted beforehand contribute to the safety of similar dismantling operations. Operations carried out by subcontractors are supervised closely. Computer programs were developed to facilitate the adoption of new standards for data historization and traceability, thus reducing the research necessary for characterization at the end of operations (radiological, physico-chemical, etc.) and the impacts of dismantling work.

In France, the law provides for a mechanism to ensure that the operators of regulated nuclear facilities have sufficient assets to fund long-term expenses associated with the dismantling of these facilities of the management of used fuel and radioactive waste. In the United States, the Decommissioning Funding Plan (DFP) is updated every three years.

Future expenses relating to end-of-lifecycle operations for its nuclear facilities and for reclamation of regulated industrial facilities have been identified and special provisions have been recorded. Rules regarding provisions for end-of-lifecycle operations, in the amount of 6.985 billion euros on a discounted basis, including a third party share of 188 million euros, are described in Section 20.2. Notes to the consolidated financial statements, Note 13. End-of-lifecycle operations.

The provisions set up to cover these expenses are based on estimates of future costs developed by the group, taking into account, by definition, a series of assumptions (see Section 20.2. Notes to the consolidated financial statements, Note 13.

End-of-lifecycle operations). However, it may be stated with certainty that the provisions currently set up will be in line with the actual costs ultimately borne by the group, which could be higher than initially estimated, due in particular to changing legislation and regulations applicable to nuclear operations and environmental protection, to their interpretation by the courts, and to the growing body of scientific and technical knowledge. These costs also depend on regulatory decisions, in particular concerning dismantling methods, and on the choice and cost of solutions for the final disposal of certain types of radioactive waste (see Section 20.2. Notes to the consolidated financial statements, Note 13. End-of-lifecycle operations). It is therefore possible that these future obligations and potential expenses or potential additional future liability of a nuclear or environmental nature that the group may later have to bear could have a significant negative impact on the group's financial position. For example, as provided in the French law of June 28, 2006, the Direction Générale de l'Energie et du Climat (DGEC, the French government's office of climate and energy) tasked a working group with performing a new cost assessment for deep geologic disposal. The working group, established by a decision on June 23, 2011 of the Industrial Coordination Committee for Radioactive Waste (COCIDRA) and led by the DGEC, brings together representatives from ANDRA, AREVA, the CEA, the EDF group and ASN. The minister in charge of Energy could establish and publish the cost of deep retrievable disposal when the working group's report is available. This disposal cost estimate could be substantially higher than the estimate published previously by the relevant authorities.

In addition, any reduction of the discount rate, or any acceleration of the dismantling schedule, would require the group to record an increase in the value of the provisions (for more details, see Section 20.2. *Notes to the consolidated financial statements, Note 13. End-of-lifecycle operations*).

The group holds a portfolio of financial assets (equities, bonds, mutual funds and receivables from third parties) to fund its future end-of-lifecycle obligations. The group is exposed to a risk of insufficient value of assets held to fund its end-of-lifecycle operations. The group would have to use its own financial resources to fund these operations, which would result in a significant negative impact on its net income and financial position.

In particular, considering the intrinsic volatility of equity markets, the value of the portfolio of financial instruments could decrease and/or provide a return insufficient to fund the group's end-of-lifecycle operations. The sensitivity of the value of the portfolio to variations in the markets is described in Section 20.2. *Notes to the consolidated financial statements*, Note 13. *End-of-lifecycle operations*.

Used fuel treatment contracts call for the final waste and residues from those operations to be allocated to and retrieved by the original waste and residue generator. However, as the temporary holder of the nuclear waste and residue generated by its customers, the group could remain liable if a customer defaults or files for bankruptcy.

# 4.3.1.9. SPECIAL COVERAGE RELATING TO NUCLEAR FACILITY OPERATIONS

International nuclear liability law is based on a series of principles that override general liability law. The operator of the nuclear facility that caused the damage is solely responsible. This is known as the exclusive liability channeling principle. Its liability is objective ("no fault"), for which there are few exemptions. The operator of a nuclear facility is therefore required to compensate the victims for the bodily harm and property damage they have suffered. The operator is required to maintain a financial guarantee, which is generally insurance, to cover its liability at a capped amount.

This system is defined by international treaties such as the Paris Convention on Third Party Liability in the Field of Nuclear Energy of July 29, 1960, amended, and the Brussels Supplementary Convention of January 31, 1963, amended, or the Vienna Convention of May 21, 1963, amended. In addition, the Common Protocol of September 21, 1988, which entered into force in France on July 30, 2014, is intended to connect the two systems established by the Paris and Vienna conventions, thus reducing common law jurisdiction in order to provide better protection to potential victims of a nuclear accident. In the United States, while not founded on an international convention, the Price Anderson Act establishes a system to manage claims submitted to nuclear operators.

Every country in which the group operates nuclear facilities is subject to one of these legal constructions.

For purposes of information, France has set a maximum nuclear civil liability amount, currently 91.5 million euros per nuclear accident in a nuclear facility and 22.9 million euros per accident during transport. Moreover, should an accident occur in a regulated nuclear facility in France, the French government would assume liability above 91.5 million euros and up to a limit of 228.6 million euros. Thereafter, the Signatory states to the Brussels Supplementary Convention would assume collective liability for the amount above 228.6 million euros, up to a limit of 381.1 million euros. The State in which the nuclear facility responsible for the damage is located would cover the 700-million-euro to 1.2-billion-euro tier. Beyond this amount, the other Signatory States would intervene up to a limit of 1.5 billion euros. A mechanism to increase these limits would apply as new States ratify the Conventions.

The protocols amending the Paris Convention and the Brussels Supplementary Convention were signed on February 12, 2004 by representatives of the signatory states. However, the amended conventions are not yet in effect. The main amendments will concern the increase of the three tiers of indemnity. Thus, the nuclear operator's liability would increase from 91.5 million euros to 700 million euros per nuclear accident in any given facility (70 million euros in a reduced-risk facility). The limit of liability during transportation would increase from 22.9 million euros to 80 million euros per accident.

In addition, draft legislation on the energy transition and green growth (as adopted by the French National Assembly at first reading on October 14, 2014 and by the Senate on March 3, 2015) brings forward the effective date for the increased nuclear operator liability (700 million euros per nuclear accident in a facility and 80 million euros per transportation accident), as contemplated in the protocols of February 12, 2004 amending the Paris and Brussels Conventions.

#### Description of insurance acquired by the group

AREVA has acquired several insurance policies in France, Germany, Belgium and the United States to cover its regulated nuclear facilities in France and abroad, and its nuclear transportation operations. These special insurance policies comply with the international conventions governing nuclear operator liability, including their liability limits.

The insurance policies are reinsured by the nuclear insurance pools of various countries, including Assuratome in France, DKV in Germany, Syban in Belgium and ANI in the United States. In addition, AREVA is a member of the European Liability Insurance for the Nuclear Industry mutual insurance association (ELINI).

# Property and business interruption insurance for nuclear operations

Due to the nature of the potential damage to the facilities, this type of insurance is available only through the pools mentioned above or through specialized mutual insurance companies capable of providing the necessary coverage. The limits of coverage for this type of insurance are based on the estimated replacement value or on an estimate of the maximum possible loss (MPL). The coverage for some complex facilities can be up to 1 billion euros.

Mining operations and AREVA's US and Belgian sites are not covered by property and business interruption guarantees for the nuclear process; rather, they are covered by specific programs set up locally in agreement with AREVA's Risk and Insurance Department.

## 4.3.2. CHEMICAL RISK MANAGEMENT

#### 4.3.2.1. SEVESO REGULATIONS

The group operates 10 sites subject to Seveso regulations, which implement European Directive 96/82/EC of December 9, 1996, amended, on the control of major accident hazards involving dangerous substances. The regulations apply to facilities that may present a significant risk to public health and safety or to the environment. The directive was abrogated by directive 2012/18/EU of July 4, 2012 (the "Seveso III Directive"), which will enter into effect on June 1, 2015. The sites

subject to these regulations are located in France and in Germany (Lingen ANF). Five of them are subject to high-threshold Seveso regulations, four of which are in France: AREVA NC (Tricastin and Malvési sites) and AREVA NP (Jarrie site). The ANF Lingen site is a nuclear facility and also presents a high-threshold Seveso risk due to its storage of hydrofluoric acid (HF).

Legal entity/Location	Detail of regulated operation	Threshold
AREVA NC/Tricastin (W plant, part of INB 155)	Storage of 320 MT of HF	20 MT
AREVA NC/Malvési	Storage of 180 MT of HF	20 MT
AREVA NC/Tricastin (part of INB 105)	Storage of 310 MT of potassium bifluoride	20 MT
AREVA NC/Tricastin (part of INB 105)	Storage of 70 MT of HF	20 MT
AREVA NP/Jarrie	Storage 2,950 MT of substances hazardous to the environment	500 MT
ANF/Lingen	Storage of 35 MT of HF in solution	20 MT

In accordance with the regulatory requirements, the five sites in France have set up a plan to prevent major accidents and limit their impacts on individuals and the environment. A safety management system incorporating the organization, functions, products and other resources was set up to strengthen risk management.

Similarly, hazards studies are updated on a regular basis. They are the foundation of the process designed to minimize risk from the outset, control urban development, establish emergency management plans and inform the public. Hazards studies present in particular the hazards that the facility could generate in the event of a deviation and demonstrate measures capable of reducing the probability and impacts of an accident to the lowest achievable level in view of current knowledge and practices, taking into account the vulnerability of the facility's environment.

As part of a continuous improvement process, the relevance, reliability and "standalone" quality of safety barriers are reviewed on a regular basis. This review applies to prevention barriers (intended to reduce the probability of an unscheduled event) and to protection barriers (intended to limit the consequences of an unscheduled event). Moreover, a dedicated working group was set up in 2004 to harmonize and share best practices from Seveso sites. For instance, the working group launched an initiative to learn the lessons from the September 27, 2012 accident in Gumi, South Korea.

With respect to insurance, the above-mentioned facilities of AREVA NC, AREVA NP and ANF are covered by the civil liability program taken out by the group. The level of coverage is based on quantification of reasonably expected risk and guarantees available in the insurance market.

#### 4.3.2.2. IMPLEMENTATION OF REACH REGULATIONS

On December 18, 2006, the European Parliament adopted the REACH regulation (Registration, Evaluation, Authorization and Restriction of Chemicals), EC no. 1907/2006. REACH establishes a new policy for managing chemical substances in the European Union. The long-term objective is to find substitutes for substances that are of most concern for health and the environment. The regulation helps improve knowledge on the properties of chemical substances and the risks associated with their use.

It requires that all chemical substances produced or imported in quantities of more than 1 metric ton per year be registered. The data collected in this way are being used to ensure appropriate management of the risks associated with the use of each substance. In addition, each user of a substance must ensure that its use is covered by the manufacturer's and importer's registration file and that recommended risk management measures are applied.

For the substances of most concern for health and the environment, listed in Appendix XIV of the regulation, an authorization request must be submitted to the European Chemicals Agency. More than 150 substances were introduced in the process: a list of substances was published in October 2008, with updates from January 2009 to June 2013, and was expanded in 2012, 2013 and 2014. Today, 31 substances are listed in Appendix XIV. AREVA is directly concerned by only a few of these substances; a research and development program is in progress to find substitutes for them.

Several steps were taken to manage the legal, financial and technical consequences of the REACH regulation and to ensure that all of the group's entities are in compliance. In October 2006, an awareness program targeting the affected functions was deployed throughout the group and has continued since then. An internal organization was set up consisting of a REACH steering committee at the corporate level (Safety Health Security Quality Environment Department, Purchasing Department, Legal Department, and Research and Development Department), representatives of the Business Groups and technical advisors for the various issues related to REACH. This organization, described in a group procedure, will deploy and monitor the initiative in each legal entity.

AREVA is affected by this regulation as a producer and importer of substances used in certain operations, in particular in the Front End Business Group, and more generally as a downstream user of substances and mixtures. It should be noted that the radioactive substances covered in the Euratom directive (no. 96/29, replaced by no. 2013/59) are excluded from the scope of the REACH regulations. The group pre-registered and registered all substances produced or imported in quantities of more than 1 metric ton. Eleven applications for registration, including three as lead registrant, were filed before the first deadline of November 30, 2010, and six applications were filed before the second deadline in 2013.

### 4.3.3. OTHER ENVIRONMENTAL RISK

#### NATURAL DISASTERS PREVALENT IN CERTAIN REGIONS IN WHICH THE GROUP DOES BUSINESS COULD AFFECT ITS OPERATIONS AND FINANCIAL POSITION.

The location of some of the group's production sites in areas exposed to natural disasters, such as earthquakes or flooding, could weaken the group's production capacity. Following the Fukushima accident in March 2011, stress tests were carried out or are being completed on nuclear facilities in most of the countries that have them; the conditions required for their continued operation were set upon the completion of these tests.

#### OCCUPATIONAL DISEASES RELATED, IN PARTICULAR TO EXPOSURE TO ASBESTOS OR RADIATION, CANNOT BE RULED OUT.

The group believes that it fundamentally complies with legal and regulatory provisions pertaining to health and safety in every country in which it operates and

considers that it has taken the measures needed to ensure the health and safety of its own personnel and of subcontractor personnel (see Section 17. *Human Resources*). However, the risk of occupational disease cannot be excluded in principle. Yet the occurrence of disease could result in legal action against the group or in claims for compensation, either from employees or former employees, or from buyers of the group's businesses, in the event that occupational disease as the result of a previous exposure should arise in employees prior to their transfer with the business. These actions could result in the payment of damages.

The group received a limited number of claims in France for occupational diseases concerning various disorders in 2014, mostly for musculoskeletal ailments (joint disorders).

# 4.4. OPERATIONAL RISK

## 4.4.1. RISK OF INTERRUPTION IN THE SUPPLY CHAIN FOR PRODUCTS OR SERVICES

An industrial breakdown, a work stoppage or an interruption of the supply chain in the group's manufacturing plants or at a supplier's location could delay or stop the flow of the group's products or services.

This risk is heightened by the fact that the group's different plants, in any given business, are highly integrated and interdependent, and that some of the group's suppliers could have financial difficulties or might not be able to cope with demand while complying with the group's deadlines and quality standards. A potential breakdown or stoppage of production in a plant or at a supplier's location, or an interruption of some shipments could affect all of the group's operations and cause an interruption of supplies or services.

Contracts between the group and its customers include a certain number of warranties that can trigger penalties for delays. These warranties could enter into play as a result of an industrial breakdown, work stoppage, or an interruption of the supply chain, whether at one of the group's industrial units or at one of its supplier's locations.

Although the group has implemented measures to limit the impact of a potential breakdown and has covered its exposure through business interruption insurance for its industrial units and selects its suppliers based on stringent criteria for quality and financial soundness, it is nonetheless still possible that an industrial breakdown, a work stoppage or an interruption of the supply chain at the group's industrial units or at a supplier's location could have a significant negative impact on the group's financial position and on its ability to respond in optimum manner to customer demand.

## 4.4.2. RISK OF DEFAULT BY SUPPLIERS, SUBCONTRACTORS, PARTNERS AND CUSTOMERS

AREVA's suppliers, subcontractors and partners could encounter financial difficulties related to economic conditions and no longer be in a position to perform contracts entered into with the group.

Depending on the geographical area, the economic situation could have a negative impact on the group's suppliers, subcontractors, partners and customers, whether for their access to sources of funds or for their ability to meet their obligations in the group's regard.

## 4.4.3. RISK ASSOCIATED WITH DEPENDENCY ON THE GROUP'S CUSTOMERS

#### THE GROUP'S LOSS OF ONE OF ITS MAIN CUSTOMERS OR A REDUCTION IN THEIR PURCHASES, OR AN EROSION OF CONTRACT TERMS OR CONDITIONS, COULD HAVE A SIGNIFICANT NEGATIVE IMPACT ON THE GROUP'S OPERATIONS AND FINANCIAL POSITION.

The group has very substantial commercial relations with the EDF group. At December 31, 2014, EDF France represented about 35% of the group's revenue. AREVA is the leading supplier to the EDF group in the nuclear field, providing products and services at every stage in the nuclear fuel cycle as well as for the

construction, equipping and maintenance of the EDF group's nuclear power generating resources. In the fuel cycle, the relationship between the EDF group and AREVA is governed by multiyear contracts.

In its operating segments, these contracts give AREVA operating visibility beyond 2020, with the regular signature of contracts covering multiple years.

The group's 10 biggest customers, including the EDF group, represented about 60% of its revenue at December 31, 2014.

## 4.4.4. RISK RELATED TO THE INFORMATION SYSTEM

All industrial and commercial activities in the group rely on a mission-critical information system, which must be updated regularly to adapt to a constantly changing environment.

While it deploys the resources necessary to ensure the security of its information systems and the fluidity of its management processes, the group cannot guarantee that these systems will not experience technical difficulties or flaws that could have a significant negative impact on its operations.

## 4.4.5. UNSCHEDULED WORK IN THE PRODUCTION OF PRODUCTS AND SERVICES SOLD

The group provides services and designs, manufactures and sells several products with a high unit value used in major projects, in particular the design and construction of nuclear reactors and heavy equipment, work to extend the plant operating period, and reactor maintenance. Occasionally, final adjustments may be required, products may need to be modified after manufacturing has begun or after customers have placed them in service, or services to be provided may have to be adapted. These adjustments, modifications and additional services could trigger unexpected costs for the group. Though the group has set up a rigorous management control system and a system to control product and service quality

and standards, these unanticipated expenses could have a significant negative impact on the group's business or financial position.

When the group sells certain products, such as nuclear steam supply systems, or concludes service contracts, customers sometimes demand schedule or performance warranties, or penalties for not meeting them. Pursuant to such commitments, the group may have to repair products delivered or correct services provided in the event of faulty design or performance. The risk is significantly increased if the repairs or services concern a standardized series of products.

## 4.4.6. SUPPLIER CONCENTRATION IN THE PROCUREMENT CHAIN

#### A DECREASE IN THE SUPPLY OF CERTAIN STRATEGIC COMPONENTS OR AN INCREASE IN THE COST OF ELECTRICITY COULD HAVE A NEGATIVE IMPACT ON THE GROUP'S PRODUCTION COSTS.

The group's operations require large supplies of specific commodities and semifinished products, including base products, zircon ore and others. Some operations also use large quantities of electricity. The group's large requirement for commodities and semi-finished products is such that the group could experience procurement difficulties, given the limited number of suppliers.

For all of these operations, a shortage of commodities or semi-finished products could translate into a production slowdown or even, in certain circumstances, in shutdown.

# 4.5. RISK RELATED TO MAJOR PROJECTS

Generally speaking, the revenue, cash flow and profitability recognized for a project may vary significantly, according to the level of completion of the project in question, and may depend on a certain number of factors. These may include unforeseen technical problems inherent in the complexity of the projects and/or related to the equipment supplied, lost skills or issues concerning technological processes, postponements or delays in contract execution, financial difficulties of the group's customers, payments withheld by the group's customers, default by or financial difficulties of AREVA's suppliers, subcontractors and partners in a consortium in which AREVA shares responsibility, and unforeseen additional costs resulting from project modifications or changes in legislation. The profit margins on some of AREVA's contracts may be different from those initially anticipated insofar as costs and productivity may vary during contract execution.

## 4.5.1. NEW REACTOR CONSTRUCTION CONTRACTS

As for any new project, the construction of a new reactor model involves risks relating to its technical implementation, the manufacture of new components, achievement of performance levels, and startup schedule compliance.

Such risk could have a short-term negative impact on the group's operations and financial position.

Events related to the construction of the Olkiluoto 3 EPR power plant (OL3) illustrate this risk. A project management department is in charge of managing the risk related to the OL3 project and is in regular contact with the Finance Department. Several specialized teams manage the various aspects of the project, whether in

terms of delays, disruptions, disputes or risk. In addition to operational meetings, the teams hold joint progress meetings once a month to ensure coherence in project management. Work is being carried out within the group to harvest operating experience and thus improve project management in the future. For additional information on the OL3 project, see Section 4.2.3.1. *Olkiluoto 3 EPR power paInt (OL3) (dispute concerning AREVA NP)*, Section 20.2. *Notes to the consolidated financial statements , 2014*, Note 24, and Section 20.8. *Legal and arbitration proceedings.* 



## 4.5.2. AREVA'S INDUSTRIAL PROJECTS

#### THE GROUP CANNOT ENSURE THAT INDUSTRIAL PROJECTS OR MINING PROJECTS CAN BE IMPLEMENTED WITHIN THE PLANNED BUDGETS AND SCHEDULES AND CONSISTENT WITH THE OPERATING REQUIREMENTS OF THE SITES INVOLVED.

As for any new project, the development of new mining or industrial capacities involves risks relating to its technical implementation and to start-up schedule compliance.

The group cannot guarantee that the product of mining or industrial projects will enable it to cover its operating, depreciation and amortization expenses or give the

expected return on investment, particular if the competitive situation in the target market changes.

Similarly, in the case of transitions between two industrial plants, the group cannot guarantee that facility shut-down and start-up schedules will be optimized to minimize the financial and social impacts.

In addition, the group cannot guarantee that suppliers associated with the different projects will provide their products or services on time and as required in the contracts.

Such risk could have a negative impact on the group's operations and financial position.

# **4.6. LIQUIDITY AND MARKET RISK**

The group has an organization dedicated to implementing market risk management policies approved by Executive Management for centralized management of exposure to foreign exchange, commodity, rate and liquidity risks.

In the Finance Department, the Financial Operations and Treasury Management Department (DOFT) makes transactions on financial markets and acts as a central desk that provides services and manages the group's financial exposure. The organization of this department ensures the separation of functions and the necessary human, technical, and information system resources. Transactions handled by DOFT cover foreign exchange and commodities trading, interest rates, centralized cash management, internal and external financing, borrowings and investments, and asset management. To report on financial risk and exposure limits, DOFT prepares a monthly report presenting the group's positions and the performance of its financial transactions. The report is sent to the senior management of the AREVA group and to the Finance, Legal and Strategy Departments. The reporting system also includes weekly reports submitted to the group's CFO, including a valuation of all positions and their market value. Together, these reports and reviews are used to monitor the group's counterparty risk. For more information, please refer to Section 20.2. *Notes to the consolidated financial statements for the year ended December 31,* 2013, Note 31.

## 4.6.1. LIQUIDITY RISK

The liquidity risk is the risk that the group may be unable to meet its immediate or short-term financial commitments.

Management of the liquidity risk is provided by the Financial Operations and Treasury Management Department (DOFT), which ensures that it has sufficient financial resources available at all times to fund current operations and the investments needed for its future growth, and to cope with any exceptional event. The goal of liquidity management is to seek resources at the best cost and to ensure that they may be secured at any time. These aspects are described in more detail in Section 20.2. Notes to the consolidated financial statements, 2014, Note 31. Market risk management.

In addition, the group's liquidity risk, including stress scenarios, is regularly monitored.

In 2014, the group continued its program of asset disposals with the takeover of Euriware by Capgemini and the disposal of the Duisburg fuel cladding manufacturing facility, AREVA TA's Transportation I&C Systems business and Aerospace Assembly Line business, the electrical panel business in Brazil, and the land-based wind turbine business.

Concerning long-term financing, AREVA:

 raised 750 million euros in March 2014 through a nine-year bond issue maturing on March 20, 2023, at a rate of 3.125%;  negotiated with a pool of 10 banking partners for a structured finance arrangement in the amount of 650 million euros, maturing in 2024, for the Georges Besse II enrichment plant, with limited recourse to its shareholders, which was implemented in June 2014.

As of the date that this Reference Document was filed, AREVA's Standard & Poor's rating was BB - for long-term borrowings and B for short-term borrowings, with a neutral outlook.

For 2015, the liquidity risk is covered by:

- a cash position of 1.686 billion euros at December 31, 2014 (corresponding to cash net of current borrowings, including 172 million euros in commercial paper and 200 million euros maturing in December 2015 related to the loan from the European Investment Bank, with a balance of 1.062 billion euros as of the same date);
- an unused balance of confirmed bilateral lines of credit maturing in 2016 et 2017 in the amounts of approximately 50 million euros and 795 million euros respectively, in addition to an unused 1.25-billion-euro syndicated line of credit maturing in 2018.

Moreover, AREVA has no significant financial debt maturing before December 2015 (repayment of the first installment of a loan granted by the European Investment Bank in the amount of 200 million euros).

AREVA will present a financing plan for the 2015-2017 period before publication of the half-year financial report. It will incorporate the effects of the competitiveness plan and include the following measures:

- strong selectivity in capital expenditure, which will be brought back to a total of less than 3 billion euros over the period (versus 4.6 billion euros from 2012 to 2014), with priority given to investments in the nuclear and occupational safety of our facilities, their maintenance, and the completion of current Capex programs in the group's strategic projects;
- the raising of bank financing backed by industrial assets as in 2014 with project financing for the Georges Besse II plant - and use of operational financing instruments;
- a more extensive asset disposal program than was announced on October 7, 2014;
- partnerships with an equity component;

In addition, AREVA is studying means for strengthening its equity which would supplement the financing described above as needed. These means will be clarified at the same time as the remainder of the plan.

AREVA has confirmed, undrawn lines of credit in the total amount of 2.1 billion euros (syndicated credit of 1.25 billion euros maturing in 2018 and bilateral lines of credit in the amount of 845 million euros maturing in 2016 and 2017), on which AREVA could be led to draw (as it had done from 2007 to 2010 on its syndicated line of credit), depending on needs for liquidity necessary to its activities

## 4.6.2. FOREIGN EXCHANGE RISK MANAGEMENT

In view of the geographic diversity of its locations and operations, the group is exposed to fluctuations in exchange rates, particularly the dollar-euro exchange rate. The volatility of exchange rates may impact the group's currency translation adjustments, equity and income.

The principal factors that may influence the group's exposure to currency risk, by Business Group, are:

- Mining-Front End Business Group: The facilities of these Business Groups are located around the globe and their operations are denominated primarily in US dollars, which is the world reference currency for the price of natural uranium and for conversion and enrichment services. As a result, these Business Groups have significant exposure to the risk of the US dollar's depreciation against the euro and, to a lesser extent, against the Canadian dollar. This exposure, consisting mainly of multiyear contracts, is hedged globally to take advantage of the automatic hedges resulting from the purchase of materials. As medium to long term exposure is involved, the amount of the hedge is set up according to a gradual scale for a duration based on the likelihood of the risk, generally not to exceed five years;
- Reactors & Services Business Group: Specific insurance coverage is usually acquired or forward currency transactions are concluded to hedge the risk associated with sales of heavy components (steam generators, reactor vessel heads) that may be invoiced in US dollars while production costs are incurred in euros;
- Back End Business Group: This division's exposure to foreign exchange risk is minimal. Most sales outside the euro zone are denominated in euros;

Renewable Energies Business Group: the main contracts relate to the Offshore Wind business with customers in the Eurozone, and thus the Business Group has little exposure to foreign exchange; it should be noted that AREVA and Gamesa signed binding agreements to create the Adwen joint venture, on July 7, 2014, which was effectively created on March 9, 2015. In addition, certain contracts in the Solar and Bioenergy businesses may be exposed to limited foreign exchange fluctuations, including the US dollar, the Australian dollar, the Brazilian real and the Indian rupee. In July 2014, AREVA decided to discontinue the Solar business upon the completion of current construction projects, unless a full takeover bid is received in the short term.

For 2014, the average value of the euro decreased by 12% compared with the US dollar.

As provided by group policies, each operating entity responsible for identifying foreign exchange risk must hedge exposure to currencies other than its own accounting currency by initiating a transaction exclusively with the group's Treasury Management Department, except as otherwise required by specific circumstances or regulations. The Financial Operations and Treasury Management Department (DOFT) centralizes the currency risk for the entities and hedges its position directly with banking counterparties. A system of strict limits, particularly concerning results, marked to market, and foreign exchange positions that may be taken, is monitored daily by specialized teams that are also charged with valuation of the transactions. In addition, analyses of sensitivity to changes in exchange rates are periodically performed.

For more information, please refer to Section 20.2. Notes to the consolidated financial statements, Note 31. Market risk management.

## 4.6.3. INTEREST RATE RISK MANAGEMENT

The group's exposure to fluctuating interest rates encompasses two types of risk:

- a risk of change in the value of fixed-rate financial assets and liabilities; and
- a risk of change in cash flows related to floating-rate financial assets and liabilities.

The group uses several types of derivative instruments, as required by market conditions, to allocate its borrowings between fixed rates and floating rates and to manage its investment portfolio, with the goal being mainly to reduce its borrowing costs while optimizing the management of its cash surpluses. The group's rate

management policy, approved by Executive Management, is supplemented by a system of specific limits for asset management and the management of rate risk on borrowings. In particular, the system sets authorized limits for portfolio sensitivity, derivatives authorized to manage financial risk, and subsequent positions that may be taken.

For more information, please refer to Section 20.2. Notes to the consolidated financial statements, Note 31. Market risk management.

## 4.6.4. RISK ASSOCIATED WITH EQUITY SECURITIES AND OTHER FINANCIAL INSTRUMENTS

#### THE GROUP HOLDS PUBLICLY TRADED SHARES IN A SIGNIFICANT AMOUNT AND IS THUS EXPOSED TO CHANGES IN THE FINANCIAL MARKETS.

Publicly traded shares held by the group are exposed to the volatility inherent in equity markets.

Of particular note at December 31, 2014 are the following:

- equities held in the portfolio of financial assets earmarked for future end-oflife-cycle operations (see Section 20.2. Notes to the consolidated financial statements, Note 13, End-of-lifecycle operations);
- other long-term investments: these are minority interests, most notably Summit and Japan Steel Works (see Section 20.2. Notes to the consolidated financial statements, Note 15. Other non-current financial assets).

The risk of a decrease in the price of shares and of other non-current financial assets is not systematically hedged.

The risk on shares held in the portfolio of assets earmarked to fund end-of-lifecycle operations is an integral component of AREVA's asset management program, which includes equities to increase long-term returns as part of a program to allocate assets between bonds and equities (see Section 20.2. *Notes to the consolidated financial statements*, Notes 13, 14 and 15).

In addition, the group is exposed to changes in the value of other financial instruments in its portfolio, in particular bonds and mutual fund shares held in the portfolio earmarked for end-of-lifecycle obligations.

## 4.6.5. COMMODITY RISK

The group's exposure to variations in commodities prices is not significant.

## 4.6.6. COUNTERPARTY RISK RELATED TO THE USE OF DERIVATIVES

#### THE GROUP IS EXPOSED TO THE CREDIT RISK OF COUNTERPARTIES LINKED TO ITS USE OF FINANCIAL DERIVATIVES TO COVER ITS RISKS

The group uses different types of financial instruments to manage its exposure to foreign exchange and interest rate risks, and its exposure to risks on commodities. The group primarily uses forward buy/sell currency and commodity contracts and rate derivative products such as swaps, futures or options to cover these types of risk. These transactions involve exposure to counterparty risk when the contracts are concluded over the counter.

To minimize this risk, the group's Treasury Management Department deals with diversified, top quality counterparties based on their ratings in the Standard & Poor's and Moody's rating systems, with a rating of Investment Grade. An umbrella agreement is always signed with the counterparties.

The limits allowed for each counterparty are determined based on its rating and the type and maturity of the instruments traded. Assuming the rating of the counterparty is not downgraded earlier, the limits are reviewed at least once a year and approved by the group's Chief Financial Officer. The limits are verified in a specific report produced by the internal control team of the Treasury Management Department. During periods of significant financial instability that may involve an increased risk of bank default, which may be underestimated by ratings agencies, the group tries to monitor advanced indicators such as the value of the credit default swaps (CDS) of the eligible counterparties to determine if limits should be adjusted.

To limit the counterparty risk on the market value of its commitments, the group has set up a mechanism for margin calls with its most significant counterparties concerning interest rate transactions (including foreign exchange and interest terms and conditions).

## 4.6.7. RISKS ASSOCIATED WITH URANIUM, ENRICHMENT AND CONVERSION

#### 4.6.7.1. URANIUM RESERVES

The group's uranium reserves and resources are only estimates drawn up by the group based on geological assumptions (developed based on core drillings, among other things) and economic assumptions, and there is no guarantee that mining operations will produce the same results.

The group could be led to modify these estimates if there is a change in evaluation methods or geological assumptions, and/or a change in economic conditions (see Section 6.4.1. *Mining Business Group*).

Estimates of uranium resources and reserves are updated annually to produce data for the Reference Document for the year ended. The functioning of the

Resources and Reserves Committee in 2014 is described in Section 6.4.1. *Mining Business Group.* 

It is not possible to guarantee that the projected quantities of uranium will be produced or that the group will receive the expected price for these ores, which is indexed to market performance, in accordance with contract terms agreed upon with the customers.

There is no assurance that other resources will be available. Moreover, uranium price fluctuations, production cost increases and declining mining and milling recovery rates can affect the profitability of reserves and require their adjustment.



#### 4.6.7.2. PRICE MOVEMENTS OF URANIUM, ENRICHMENT AND CONVERSION

Fluctuations in the prices of uranium, uranium conversion and uranium enrichment could have a significant negative or positive impact on the financial position of the group's mining, enrichment and conversion operations.

Although the group operates mostly as a provider of processing services for uranium, of which the customers are generally owners, it remains exposed to price risk for uranium in its mining operations and to price risk for uranium conversion

and enrichment services. Natural uranium and conversion and enrichment prices have fluctuated in the past, and depend on factors that are beyond AREVA's control. These factors include demand for nuclear power; economic and political conditions in countries that produce or consume uranium, including Canada, the United States, Russia, other CIS republics, Australia, and some African countries; nuclear materials and used fuel treatment; and sales of surplus civilian and defense inventories.

If the prices for natural uranium, conversion and enrichment were to remain below production costs over a prolonged period, this could have a negative impact on the group's mining operations and uranium conversion and enrichment operations.

# 4.7. OTHER RISK

## 4.7.1. POLITICAL AND ECONOMIC CONDITIONS

#### SOME OF THE GROUP'S OPERATIONS ARE SENSITIVE TO POLICY DECISIONS IN CERTAIN COUNTRIES, ESPECIALLY AS REGARDS ENERGY.

The risk of a change in energy policy by certain States cannot be excluded and could have a significant negative impact on the group's financial position. The debates that have begun or will come in various countries on the future of nuclear power could evolve in a manner that is unfavorable to the group's operations, particularly as influenced by pressure groups or following events that give the public a negative image of nuclear power (e.g. accidents or incidents, violations of non-proliferation rules, diplomatic crises).

As a result of events in Japan in March 2011, the German government decided to phase out nuclear power while other European Union countries, including France, decided to perform stress tests on their facilities (see the ASN report of January 3, 2012 on the supplementary safety assessments of nuclear facilities).

More generally, events of this nature are likely to affect the positions of certain States vis-à-vis nuclear energy and could for example lead to:

- new reviews of the share of nuclear power and renewable energies in the energy mix;
- the early shutdown of certain nuclear power plants;
- the slowdown or freezing of investment in new nuclear construction projects;
- the reconsideration of programs to extend the operation of existing power plants;
- changes in policies for the end of the cycle, particularly as concerns used fuel recycling; and/or
- lesser acceptance of nuclear energy by the public.

In addition, a change in economic policy, at a time of financial and budgetary pressures, may lead to lower support for the development of renewable energies in some countries.

#### POLITICAL RISK SPECIFIC TO CERTAIN COUNTRIES IN WHICH THE GROUP DOES BUSINESS COULD AFFECT ITS OPERATIONS AND THEIR FINANCIAL EQUILIBRIUM (E.G. POLITICAL INSTABILITY, ACTS OF TERRORISM).

AREVA is an international group with energy operations around the globe, including countries with varying degrees of political instability. Some of the group's mining

operations, for example, are located in countries where political change could affect those operations. Political instability can lead to civil unrest, expropriation, nationalization, changes in legal or tax system, monetary restrictions, and renegotiation or cancellation of ongoing contracts, leases, mining permits and other agreements. Acts of terrorism can also generate socio-political turmoil or impair the physical safety of the group's personnel and/or facilities.

For example, the mining agreements between the government of Niger on the one hand and Somaïr and Cominak on the other, which were signed on November 9, 2001 and came into effect on January 1, 2004, expired on December 31, 2013. Under Nigerien mining law, these agreements, which govern the terms and conditions for operation of the uranium deposits, including legal, tax and customs considerations, were to have been renewed after negotiations between the parties. By year-end closing 2013, the discussions begun in 2012 between the two mining companies and the government of Niger had failed to produce an agreement on the tax provisions to be applicable starting in 2014. Nevertheless, a Nigerien ministerial decree was applied and an agreement to maintain the status quo on the tax and customs provisions was signed between the two mining companies and the government of Niger. This allowed the mining companies to continue their operations until an agreement is reached on new provisions in these areas, which would apply to the companies as from 2014.

In May 2014, AREVA and the State of Niger signed a strategic partnership agreement enshrining the renewal of the mining contracts held by Somaïr and Cominak in the framework of the Nigerien Mining Law of 2006 (see Section 6.4.1. *Mining BG)*.

#### THE GROUP CONDUCTS OPERATIONS ON INTERNATIONAL MARKETS SUBJECT TO STRONG COMPETITIVE PRESSURES THAT COULD LEAD TO A CONSEQUENTIAL DROP IN DEMAND FOR THE GROUP'S PRODUCTS AND SERVICES.

The group's products and services are sold on international markets characterized by intense competition on price, financial terms, product/service quality and the capacity for innovation. In some of its businesses, the group has powerful competitors that are larger than the group or have access to more resources. Moreover, these competitors may sometimes make decisions that are influenced by extraneous considerations other than profitability or have access to financing at advantageous terms.

In addition, competitive pressures increased as a result of the deregulation of the electricity market, which opened the door to new competitors for the group's main customers and in particular resulted in increased price volatility. Deregulation may lead to changes in prices for electricity and for products and services related to the generation, transmission and distribution of electricity and/or to lower investment in the nuclear power sector.

Nuclear power and renewable energies developed by the group are also competing with other sources of energy, in particular oil, natural gas, shale gas, coal or hydroelectricity. These other energy sources could become more attractive than the energy sources developed by the group.

Certain risks have been identified as being inherent to the Renewable Energies Business Group:

- the risks associated with the order intake process and the confirmation of key sales opportunities;
- the risks associated with the ramp-up of the supply chain and assembly lines, of internal/supplier quality control, and of the execution of projects that technology leaders and in many countries;
- the risks related to the ability of the technologies sold to achieve the level of performance required and the impact this may have on existing contracts and

on the market, in particular with the lack of a representative installed base to support planning and the establishment of the necessary provisions for defects and malfunctions over the medium and long term;

- the risks related to the safety of operations in new environments and with rising volumes; and
- the risks associated with the loss of key technical skills.

Since 2010, the group has set up a certain number of risk mitigation action plans with the objective of securing project completion and the full operational cycle of the group's products, ensuring the strength and quality of the group's value chain, and implementing all of the group's operational performance optimization processes.

## 4.7.2. RISKS RELATED TO THE GROUP'S STRUCTURE

#### THE GROUP CANNOT ENSURE THAT ITS STRATEGIC ALLIANCES, RESTRUCTURING OR REORGANIZATION, MERGERS AND ACQUISITIONS, ASSET DISPOSALS AND CONSOLIDATION WILL BE PERFORMED AS INITIALLY CONTEMPLATED OR THAT THESE OPERATIONS WILL GENERATE THE ANTICIPATED SYNERGIES AND COST REDUCTIONS.

The conclusion of certain asset disposal transactions may depend on conditions precedent over which in some cases AREVA has no control, such as approval by competition authorities in the relevant countries or opinions issued by certain bodies representing the group's employees. A lack of approval, or a delay in this regard, could result in the termination of these transactions and thus have a material impact on the group's anticipated financial position and performance.

The group is involved in a variety of acquisitions, strategic alliances and joint ventures with partner companies. Although the group believes that its acquisitions, strategic alliances and joint ventures will be beneficial, a certain level of risk is inherent in these transactions, particularly the risk of overvalued acquisitions; insufficient vendor warranties; underestimated operating costs and other costs; disagreements

with partners (particularly in joint ventures); potential integration difficulties with personnel, operations, technologies or products; lack of performance on initial objectives; or third-party challenges to these strategic alliances or mergers and acquisitions, based on their impact on those parties' competitive positions.

In addition, minority shareholders in certain AREVA subsidiaries, such as Eurodif (see Section 25.2.2. *Main shareholders agreements concerning AREVA's equity interests*), could restrict the group's decision-making ability.

The CEA must hold at least the majority of the share capital and voting rights of AREVA; it has the power to make most of the decisions at General Meetings of Shareholders, including those related to the appointment of members of the Supervisory Board and those related to dividend distributions. The legal requirement that the CEA retain a majority interest in AREVA's share capital could limit AREVA's ability to implement transactions with a dilutive impact on equity.

### 4.7.3. HUMAN RESOURCES RISK

# THE GROUP MIGHT NOT BE ABLE TO FIND THE NECESSARY EXPERTISE TO CARRY OUT ITS OPERATIONS.

In some fields, the group has to turn to outside experts when it does not have expertise internally for the successful conclusion of its projects. The group cannot guarantee that it will find the necessary skills for the successful performance of some operations, which could have a significant negative impact on those operations and on the group's financial position.

The group has undertaken a program to reorganize its skills base featuring among other things a mobility initiative supported by an important training initiative.

The group cannot guarantee the success of this program, nor that it will be able to hire the human resources necessary for its development in a timely or cost effective manner.

The group's development, reorganization or restructuring could potentially be accompanied by labor protests that could disrupt its operations and impact its financial position.



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# **5.1.** HISTORY AND DEVELOPMENT OF THE ISSUER

## 5.1.1. LEGAL AND COMMERCIAL NAME OF THE ISSUER

The legal name of the company is AREVA.

## 5.1.2. PLACE OF REGISTRATION OF THE ISSUER AND REGISTRATION NUMBER

AREVA is registered under number 712 054 923 with the Business Registry of Nanterre.

Business code (APE): 741J (company management).

Business registration number (Siret): 712 054 923 000 57.

## 5.1.3. DATE OF INCORPORATION AND LENGTH OF LIFE OF THE ISSUER

The French decree no. 83-1116 of December 21, 1983 establishes the Société des participations du Commissariat à l'énergie atomique, the former name of AREVA.

AREVA was registered on November 12, 1971. The statutory term of the company is 99 years from its date of registration, unless extended or the company is dissolved beforehand.

## 5.1.4. ADDITIONAL INFORMATION

# CORPORATE STRUCTURE OF AREVA AND APPLICABLE LEGISLATION

AREVA is a business corporation with a Board of Directors\* (*Société anonyme à Conseil d'administration*) governed by Book II of the French Commercial Code, by Decree no. 83-1116 of December 21, 1983, as amended, and by Order no. 2014-948 of August 20, 2014 on governance and transactions on the share capital of public corporations.

#### **REGISTERED OFFICE**

The registered office is located at AREVA Tower, 1 place Jean Millier, 92400 Courbevoie, France.

\* On January 8, 2015, the Shareholders of AREVA decided to change the form of governance from that of a Supervisory Board and an Executive Board to that of a single Board of Directors.



# 5.1.5. IMPORTANT EVENTS IN THE DEVELOPMENT OF THE ISSUER'S BUSINESS

Two major nuclear energy industry companies majority-held directly and indirectly by CEA-Industrie were combined to form AREVA on September 3, 2001:

- Cogema (Compagnie générale des matières nucléaires), established in 1976 to acquire the majority of CEA's production department operations: mining, uranium enrichment and used fuel treatment; and
- Framatome, established in 1958, one of the world's leading companies in the design and construction of nuclear reactors, in nuclear fuel and in the supply of services relating to those operations. In 2001, Framatome established Framatome ANP as a joint company of AREVA (66% interest until March 2011) and Siemens (34% interest until March 2011), thus merging the nuclear operations of those two groups.

The purpose of AREVA's establishment was to create an industrial group with a world leadership position in its businesses and to streamline its organization, giving the group:

- complete coverage of every aspect of the nuclear business and a unified strategy with respect to major customers;
- an expanded customer base for all of the group's nuclear products and services;
- better cost control by pooling the purchasing function and some overhead costs, and
- optimized financial resource management.

This restructuring was carried out through mergers and contributions to the company CEA-Industrie, which adopted the business name "AREVA".

AREVA was thus formed from the corporate structure of CEA Industries. It kept the Euronext Paris listing of approximately 4% of its share capital.

#### IMPORTANT EVENTS IN THE DEVELOPMENT OF THE ISSUER'S BUSINESS

For earlier main events, please refer to previous AREVA Reference Documents.

#### 2011-2013

In January 2011, AREVA announced the success of the capital increase reserved for investment certificate holders in the amount of 35 million euros. It followed the reserved capital increase subscribed by the Kuwait Investment Authority (KIA) in the amount of 600 million euros and by the French State in the amount of 300 million euros, which was approved by the AREVA Supervisory Board in December 2010. With these transactions, the group raised a combined total of 935 million euros.

In March 2011, AREVA acquired the 34% interest in AREVA NP held by Siemens. AREVA NP became a wholly owned subsidiary of AREVA following this transaction.

On May 30, 2011, the AREVA ordinary share was listed for trading on compartment A of the regulated NYSE Euronext market in Paris.

In June 2011, AREVA's Supervisory Board, meeting under the chairmanship of Jean-Cyril Spinetta, appointed Luc Oursel Chairman and Chief Executive Officer. The other members of that Executive Board – Philippe Knoche, Pierre Aubouin and Olivier Wantz – were appointed at the same time.

In December 2011, AREVA presented its "Action 2016" Strategic Action Plan.

On May 16, 2012, AREVA finalized the disposal of its 26% interest in Eramet to the *Fonds stratégique d'investissement.* 

On June 11, 2012, AREVA closed the sale of its 27.94% equity interest in the Millennium mining project to Carneco Corporation for 150 million Canadian dollars (about 115 million euros) following the signature of the sales agreement on March 2, 2012.

On August 28, 2012, AREVA finalized the disposal of its 63% interest in La Mancha Resources, Inc. to Weather Investments II.

On January 18, 2013, AREVA signed a 5-year syndicated line of credit agreement with 19 banks for 1.25 billion euros to replace the previous undrawn syndicated line of credit which expired in 2014.

On June 2, 2013, AREVA launched the first employee shareholding program since the company was established; following this transaction, 36% of the employees in France, the United States and Germany held approximately 1.2% of the group's share capital at December 31, 2013.

On June 24, 2013, the AREVA Supervisory Board appointed Pierre Blayau to the position of chairman of the Supervisory Board to replace Jean-Cyril Spinetta, who had resigned.

On August 29, 2013, AREVA launched a new 7-year, 500-million-euro bond issue maturing on September 4, 2020 with an annual coupon of 3.25%. In addition, the group undertook the buy-back of outstanding bonds maturing in 2016 and 2017.

#### 2014

For the main events of 2014, please refer to Sections 6.4. Operations and 9.1.3. Highlights of the period.



# **5.2. INVESTMENTS**

The group invested more than 13.5 billion euros over the 2007 to 2012 period.

#### 2013

Gross Capex amounted to 1.423 billion euros in 2013 and to 1.371 billion euros net of disposals. In 2013, the bulk of capital expenditures related mainly to the

continuation of strategic and priority investments begun in previous years: Georges Besse II to a large extent, along with mining development and Comurhex II.

#### 2014

Gross Capex decreased in 2014 in the Front End Business Groups, in accordance with the planned pace of construction and ramp-up of the enrichment and conversion facilities.

Moreover, they increased in the Mining and Back End Business Groups, due to:

- the ramp-up of the Cigar Lake mine in Canada and the end of capital spending on the Imouraren project;
- increased Capex on the la Hague facilities.

As a result, total gross Capex amounted to 1.159 billion euros in 2014, compared with 1.423 billion euros in 2013.

Net of disposals, Capex amounted to 1.160 billion euros in 2014, compared with 1.371 billion euros in 2013.

This Capex program covers all Business Groups. However, projects were selected and graded according to their percentage of completion and their necessity.

In 2014, the bulk of capital expenditures relates to the continuation of strategic and priority programs begun in previous years: Georges Besse II to a large extent, along with mining development and Comurhex II

### OUTLOOK

AREVA's financing plan for the 2015-2017 period includes a measure of strong selectivity in capital expenditure. Priority will be given to investments in the nuclear and occupational safety of our facilities, their maintenance, and the completion

of current Capex programs in the group's strategic projects. As a result, capital expenditure will be brought back to a total of less than 3 billion euros over the period 2015-2017.

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#### A FEW FUNDAMENTAL CONCEPTS FOR AN UNDERSTANDING OF NUCLEAR POWER

Since the beginning of this century, energy has been a centerpiece of many of our society's challenges, which may be summed up as the need to continue to produce and consume energy without threatening the climate. If the share of fossil fuels in the global energy mix is to be reduced from its current level of more than 80%, low-carbon energy sources that do not affect the climate must be developed, including nuclear power, capable of producing massive quantities of electricity on demand, and renewable energies.

#### Using fission energy in nuclear power plants

A nuclear power plant is an electric generating station with one or more reactors. Like all conventional thermal power plants, it consists among other things of a steam supply system that converts water into steam. The steam drives a turbine, which in turn drives a generator, producing electricity.

A "nuclear reactor" is an industrial facility that produces heat from the energy released by the fission of combustible atoms during a controlled chain reaction. A "nuclear steam supply system" is the combination of equipment used to produce steam from fission energy. A "nuclear island" is the system encompassing the nuclear steam supply system and the fuel-related facilities, as well as the equipment required for the system's operation and safety. A "conventional island" consists of the alternating current turbogenerator coupled to the nuclear island, along with the equipment required for its operation. A nuclear power plant thus consists primarily of a nuclear island and a conventional island. The reactor is enclosed in a reinforced containment

building meeting nuclear safety requirements. The three main components needed to sustain, control and cool the fission process in the reactor core are fuel, a moderator and a coolant. The combination of these three components determines the reactor type or model. Several combinations have been tested, but only a few of them have gone beyond the prototype stage to commercial operation.

#### A heat source and a cooling source

Like all other thermal power plants, a nuclear power plant has a heat source (the nuclear steam supply system with its fuel core and heat exchangers) and a cooling source designed to condense steam after it has passed through the turbine. That is why power plants are usually built near the sea or a river – the water is used to cool the steam. Some power plants are also equipped with cooling towers in which cooling water is dispersed like rain so that it will evaporate, improving the efficiency of cooling and reducing the environmental impacts (reduced withdrawal of water, elimination of thermal releases to rivers).

#### A moderator and a coolant

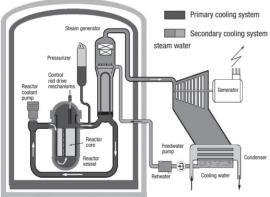
During the fission process, neutrons are released at very high speed. As they strike light atoms (hydrogen contained in water) and slow down, they react much more with the uranium-235 atoms. Reactors called "thermal neutron" or "slow" reactors take advantage of this property, reducing the level of uranium-235 enrichment required to sustain the chain reaction. In water reactors, the water is used as a moderator, *i.e.* to slow the neutrons released by nuclear fission, but it also serves as a coolant, *i.e.* the fluid that circulates in the reactor core to extract heat.

#### The world's most prevalent reactor: the pressurized water reactor

In light water reactors, the fuel is low-enriched uranium. The water in the primary cooling system bathes the reactor core, consisting of tubes containing the fuel, which heats up as a result of the fission reactions.

In pressurized water reactors (PWR), the water is heated by the tubes containing the fuel and transfers its heat via heat exchangers in which the water of a secondary cooling system is converted into steam. The nuclear steam supply system consists of the reactor core and the steam generators, together with the pressurizer, the reactor coolant pumps and legs. The primary cooling system is separate from the secondary cooling system, which produces steam to drive the turbo-generator, thereby strengthening the containment of radioactivity

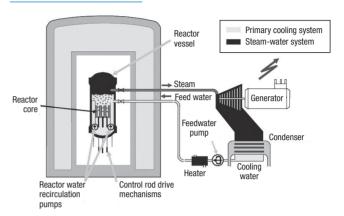
PWR reactors have a triple containment system to prevent the release of radioactive fission products. The primary barrier in this system is the metal cladding around the fuel. The secondary barrier consists of the separate primary and secondary cooling systems. The third barrier is comprised of the nuclear steam supply system enclosed in a concrete containment building designed to contain hazardous products in the event of a leak. All of the reactors in the French nuclear power program are PWRs, which represent the majority of reactors in service around the world.



#### Source: AREVA

Boiling water reactors (BWR) are generally comparable to PWRs. The main difference is that the water boils when it comes into contact with the fuel and the primary and secondary cooling systems are not separate. This causes the water to vaporize at the top of the vessel containing the core. The heat from the core is released to the water flowing through it. The resulting steam drives the turbine, then cools when it comes into contact with the cold source and returns to liquid form in the condenser before it is recirculated to the reactor vessel. Thus, in a BWR, the water is in a closed cycle in which the steam produced in the reactor core expands directly into the turbine.

#### **BOILING WATER REACTOR**



Source: AREVA.

AREVA is active in both of these reactor systems.

#### Difference between generation II and generation III reactor systems

Nuclear reactor systems are classified by generation. The timeline for the different generations corresponds to the date at which the related technologies become mature. Generation II designates most of the reactors currently in service around the world (most are PWRs, some are BWRs), whereas AREVA's generation III reactors benefit from evolutionary technology offering enhancements and factoring in operating experience from previous generations, particularly in terms of safety and security.

#### **Renewable energies**

Renewable energies - hydropower, biomass, wind, solar, geothermal and ocean energies - do not consume natural resources for their operations. Their efficiency is contingent on their location (dam site, wind, sunshine, etc.). Some of these energy sources are spread out and intermittent, which makes them less suitable for baseload power generation. Others are more flexible and allow relatively high power densities to be achieved. AREVA is present in four alternative energies, which are described in more detail in Section 6.4.5. Renewable Energies BG.

#### In conclusion

Nuclear and renewable energies meet the need to reduce CO<sub>2</sub> emissions and are capable of supplying baseload or peak power. In this respect, the technologies and services offered by AREVA in nuclear power and renewable energies complement each other.

PRESSURIZED WATER REACTOR

### 6.1. MARKETS FOR NUCLEAR POWER AND RENEWABLE ENERGIES

#### 6.1.1. NUCLEAR POWER AND RENEWABLE ENERGIES IN THE GLOBAL ENERGY CONTEXT

#### 6.1.1.1. THE CHALLENGES OF THE ENERGY SECTOR

#### Strong growth in electricity demand

Despite slower global economic growth in 2014, world demand for energy continued to rise in industrialized countries included. Several macro-economic indicators suggest that economic growth in industrial countries will remain weak in the short term. Emerging markets will continue to expand and offer the most promising growth opportunities for the energy sector.

In fact, under the combined pressures of world population growth, more widespread access to energy and long-term economic growth, world demand for energy is set to increase over the long term.

According to the central "New Policies Scenario" <sup>(1)</sup> of the *World Energy Outlook* (WEO) published by the International Energy Agency (IEA) in November 2014, global primary energy consumption is expected to grow from the base of 13.4 Gtoe in 2012 to 18.3 Gtoe in 2040, giving average annual growth of 1.1%. According to the report, China and India, emerging countries and developing countries would account for the majority of the added demand.

Electricity consumption climbed faster than global primary energy consumption over the 1990 to 2012 period, at 3% average annual growth for the former and 1.9% for the latter, and that trend will continue. According to the central scenario of the International Energy Agency (IEA), world power generation In 2040 is estimated at 40,104 TWh, compared with 22,721 TWh in 2012, that is an average annual growth of 2.1%. Almost all of this growth originates in non-member countries of the Organization for Economic Cooperation and Development (OECD). In China, for instance, electricity consumption is expected to grow more than twice by 2040.

On the supply side, oil, gas and coal continue to be the preferred energy sources. In 2012, oil constituted 31.4% of global primary energy, while coal represented 29% and natural gas 21.3%. In the United States, technologies deployed on a large scale by the oil and gas industry are facilitating the development of oil and shale gas production. However, the hydraulic fracturing technique used in non-conventional gas production is a cause for environmental concern. The new energy policies being implemented by several countries are looking to reverse this trend. The fight against greenhouse gas emissions (GHG) and the issue of security of fossil fuel supply have become major concerns for the public, businesses and governments alike. The latter are devising measures to conserve energy, promote renewable energies, develop new energy technologies and diversify energy sources geographically. A number of countries are currently considering the possibility of using nuclear power and renewable energies or increasing their contributions to bolster their security of energy supply, enhance competitiveness and cost predictability, and reduce  $CO_2$  emissions for sustainable economic growth.

#### Energy and global warming

Maintaining current energy policies together with the sharp increase in energy demand would have serious consequences for the climate. Today, the energy sector represents about two thirds of all greenhouse gas emissions, with a  $CO_2$  component that could reach 38 gigatonnes by 2040 in the IEA central scenario. This figure is 20% higher than in 2012 and is consistent with an average global temperature increase trend of 3.6°C (*Source: WEO 2014*).

Europe, which has set a target for emissions reduction, has had a system in place since January 2005 to cap  $CO_2$  emissions by establishing the European Trading System (ETS), which recognizes the economic value of emissions reductions. The ETS is one of the first such systems in the world and remains the largest, with 28 Member States of the European Union in addition to Norway, Iceland and Liechtenstein.

Similar plans have been set up elsewhere in the world and others continue to emerge. Federal laws in the United States, such as the Energy Independence and Security Act, the Energy Improvement and Extension Act, and the American Recovery and Reinvestment Act, provide financial support to companies that invest in the carbon-free energy sector or local sources of energy with high added value. Three voluntary carbon emissions permit trading exchanges - the Regional Greenhouse Gas Initiative, the Midwestern Greenhouse Gas Accord and the Western Climate Initiative - were established in 38 states and provinces of the United States, Mexico and Canada. In China, a trial phase began in 2013-2014 with the launch of seven pilot projects in five cities (Chongging, Beijing, Shanghai, Shenzen and Tianjin) and two provinces (Guangdong and Hubei). On December 10, 2014, the National Commission for Development and Reform of China (NDRC) published the first legal fundamentals for a national carbon quota exchange system, which should be launched in 2016. Once in operation, this market will be the largest in the world. In Japan, a new energy program is under discussion to curtail the growth of carbon-emitting sources of energy. A similar program has also existed in New Zealand since 2010. In 2013, Kazakhstan also initiated a cap system with emissions permit trading; in South Korea, this same type of system was launched in January 2015. Meanwhile, South Africa is planning to deploy a system that combines a carbon tax with permit exchanges as from January 1, 2016.

The price of carbon remained relatively low in these markets (less than 30 euros per metric ton of  $CO_2$ ) and did not have a significant impact on greenhouse gas reductions. In Europe, prices for the European Union Allowance (UEA) have stagnated since 2013 at around 5-7 euros per metric ton of  $CO_2$ . Other factors may have played a part in observed emissions reductions, such as the impact of policies in support of renewable energies, the economic situation and energy efficiency.

<sup>(1)</sup> The IEA considers that additional efforts will be required beyond those identified in the New Policies Scenario in order to limit the temperature increase from climate change to 2°C. The 450 scenario in the report confirms that new nuclear and renewable energy facilities would be required to meet this goal.

#### GLOBAL STATUS OF THE MAIN EMISSIONS TRADING SYSTEMS (ETS)



\* Shenzhen, Shanghai, Beijing, Chongqing, Tianjin, Hubei, Guangdong, before a national cap and trade system starts in 2016. Source: AREVA.

The United Nations Framework Convention on Climate Change was instituted in Rio in 1990 as an attempt to limit the increase in the average global temperature to less than 2°C. A first major agreement was reached in 1997 with the signature of the Kyoto Protocol among historically industrialized nations for a reduction of greenhouse gas emissions. The protocol established global emissions reduction goals for the 2008-2012 period. In the meantime, the search for an agreement involving more countries was not successful, and the Kyoto Protocol was extended for a second period, from 2013 to 2020. In 2012, the Doha Climate Change Conference in Qatar set up a working group tasked with reaching a global consensus on the reduction of greenhouse gas emissions by 2015, with an agreement to become effective by 2020. This new agreement should include the biggest producers of greenhouse gas emissions, i.e. China, India and the United States, which represent more than half of the world's energy-related CO<sub>2</sub> emissions. In November 2014, the United States and China signed an agreement on climate change: the United States will reduce its greenhouse gas emissions from 26% to 28% by 2025 in relation to 2005, and China agreed to use 20% non-fossil fuels in its energy mix by 2030 and to limit its coal consumption. The European Union committed to a 40% reduction of its emissions by 2030 in relation to 1990. The logical conclusion of all these debates is that no source of energy should be ignored in the mix, in particular nuclear power, recognized as one of the means to fight climate change. A "Green Fund" was established during the Copenhagen Conference in 2009 and will receive initial funding agreed to in 2014 in the amount of 7.4 billion euros, mostly from the United States, Japan, the United Kingdom, Germany and France. The fund aims to raise 100 billion dollars per year by 2020 and should help the most vulnerable countries adapt to climate change and support low-carbon capital projects. The next UN Conference of the Parties on Climate Change (COP21) will be held in Paris, France in December 2015. The challenge for the conference will be to reach a multilateral agreement to reduce greenhouse gas emissions after 2020 based on national contributions submitted by each of the Parties. All contributions must be provided by October 2015. The Convention's secretariat will calculate the total of all contributions to determine their adequacy for the objective of limiting the temperature increase to 2°C. The new plan will become effective on expiration of the Kyoto Protocol Phase 2 for the 2012-2020 period.

### It is necessary to plan for the depletion of fossil energy resources

The global availability of energy resources will not dampen the growth in energy demand by 2040 and beyond. However, a large amount of capital funding is required to exploit these resources and many factors will determine the rate at which this occurs, such as the uncertainty of the economic outlook, the investment

climate and the availability of financing, geopolitical factors, climate change policies, technology advances, and changes in legal, tax and regulatory frameworks.

In the absence of a strong climate policy, the gradual depletion of hydrocarbon resources is a major threat to global energy supply. According to the IEA central scenario, oil production peaked in 2006 and the average price per barrel should reach 132 dollars by 2040 (in 2013 US dollars). Forecasting the medium to long term availability of fossil fuel resources (oil and natural gas) thus remains very difficult. The reserves, production costs and environmental standards that might impact production (in particular for shale gas, bituminous sands, deep offshore oil and arctic resources) are all subject to big uncertainties today.

In addition, oil and gas resources are unevenly distributed on earth. To take an example, three countries – Iran, Russia and Qatar – possess more than half of the world's natural gas reserves.

Consequently, relying on the massive use of fossil resources to satisfy demand for energy would be the source of serious problems in terms of security of supply, with uncertainties ranging from the volumes available to prices to geopolitical risks.

Oil is used mainly for transportation, while natural gas and coal are used for industry, power generation and heat production. China is a big consumer of coal, which it uses heavily in its energy mix.

### The need for and wated investment and a change in the global power generation mix

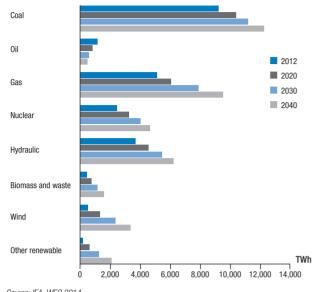
Massive capital spending in the electricity sector and a radical change in the power generation mix are required for the reasons outlined above: rising demand for electricity, urgent efforts to prevent climate change, and declining fossil resources.

The New Policies Scenario in *World Energy Outlook* 2014 aims to take into consideration firm or planned national policy commitments of countries around the globe. This central scenario measures the impacts of these decisions on the energy sector, compared with the two other scenarios used: the "Current Policies Scenario", which assumes no major change in energy policy compared with the situation at mid-2013, and the "450 Scenario", which aims to limit concentrations of greenhouse gases in the atmosphere to 450 ppm <sup>(1)</sup> (in CO<sub>2</sub> equivalent), thereby limiting the temperature increase on the planet to 2°C.

In the central scenario, nuclear generating capacity would climb by more than 88% to around 4,650 terawatt-hours (TWh) by 2040, and in the meantime a significant share of the existing reactor fleet would have to be replaced. Wind energy would increase more than sixfold by 2040.

#### (1) ppm: parts per million.

#### GLOBAL ELECTRICITY MIX IN THE IEA'S NEW POLICIES SCENARIO



#### Source: IEA, WEO 2014.

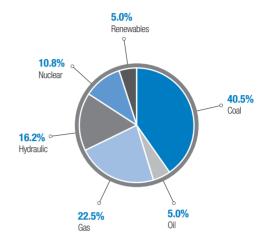
#### 6.1.1.2. NUCLEAR POWER

Nuclear power offers many advantages on the environmental, economic, strategic and operational levels:

- it helps combat climate change;
- it creates significant value locally and creates a large number of highly qualified jobs that cannot be delocalized;
- it is cost-competitive compared with other sources of baseload electricity;
- it offers stable production costs including less uncertainty on electricity generated prices;
- it ensures security of supply: nuclear fuel is easy to store and uranium resources are well distributed around the globe, unlike oil and gas reserves, which are concentrated in Russia and the Middle East;

#### WORLD ELECTRICITY GENERATION BY SOURCE IN 2014

The chart below shows the breakdown of electric power generation in the world



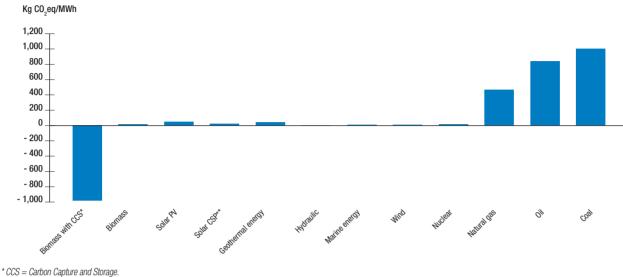
Sources: IEA, WEO 2014

- it is a solution for limiting trade deficits for countries that import fossil energies and for preserving the reserves of the exporting countries by limiting their domestic use;
- it offers heightened operational and safety performance, particularly with the new generation III reactors developed by AREVA: the EPR and ATMEA1 reactors<sup>(1)</sup>.

#### Nuclear power helps combat climate change

Nuclear power is already making a strong contribution to the fight against climate change. The chart below shows that GHG emissions from nuclear power are as low as those from renewable energies.

<sup>(1)</sup> The ATMEA1 reactor is being developed in collaboration with Mitsubishi Heavy Industries.



#### GREENHOUSE GAS EMISSIONS (GHG) BY POWER GENERATION SOURCE ACROSS THE ENTIRE OPERATING CYCLE

CCS = Carbon Capture and Storage

\*\*CSP = Concentrated Solar Power.

Source: IPCC literature review, 2011.

On a global scale, nuclear power has already avoided the release of approximately 56 billion metric tons of  $CO_2$  since 1971, equivalent to almost two years of global emissions at current levels (source: WEO 2014).

Faced with the climate issue, nuclear power is increasingly proving to be an essential component of the energy mix, producing baseload electricity that supports sustainable economic and social development.

#### Nuclear power is competitive

The correlation between nuclear generating costs and the price of uranium is very low. The contribution of raw materials to the total cost of nuclear power (at net present value) is minimal, and the impact of a doubling of uranium prices on the full cost of power generation In new power plants is only about 5%.

Conversely, the cost of fossil energies has a very strong impact on the cost of the electricity generated in thermal power plants fueled with coal, and the situation is even worse for gas. In fact, natural gas represents 60 to 70% of the total cost of the electricity generated by a combined cycle gas turbine. The price of carbon is also an important component in the cost structure of gas-fired power plants, and even more so for coal-fired plants, but it has zero impact on the cost of nuclear power.

Gas and oil prices vary largely and there is a consensus that the trend will rise in the medium term due to increasing demand, the shift from coal to natural gas and the depletion of conventional resources. Independently of the uncertainties concerning the long-term demand trend, prices are in fact subject to very strong short-term constraints that are impossible to anticipate: geopolitical risks, very high level of uncertainty about production costs (deep offshore, shale gas, etc.), economic environment (financial crisis followed by an economic crisis), and financial speculation in the commodity markets. In addition, transportation difficulties, in particular for gas, create a market imbalance between regions. Fluctuations in demand and supply therefore remain the key determining factors in fossil fuel price trends. While gas prices are high in Europe and Asia, this source of energy has become very cost effective in the United States thanks to the shale gas made available by new technologies such as hydraulic fracturing and horizontal drilling. Still, substantial uncertainties remain as to its price volatility (from \$2.75/MBtu in 2012 to \$4.5/Mbtu in the first eight months of 2014), its competitiveness in other regions, its potential reserves, and the acceptability of the potential environmental consequences of its extraction, such as ground pollution and the very significant use of fresh water resources

In Europe, shale gas production may appear attractive considering the region's growing dependency on imported gas. There are, however, several obstacles to developing shale gas on a large scale: the lack of industrial and technical maturity, the difficulty of accessing the deposits in some cases, the lack of harmonization in the regulatory systems of European countries, and much higher development costs than in North America.

In Europe, carbon prices continued to drop in 2014, as planned EU-ETS <sup>(1)</sup> reforms will take several years to be put into practice. However, increasingly stringent commitments in terms of emissions reduction are expected to push carbon prices up in countries where a regulated carbon market has already been established, while in other countries, carbon restrictions appear to be unavoidable in the medium to long term.

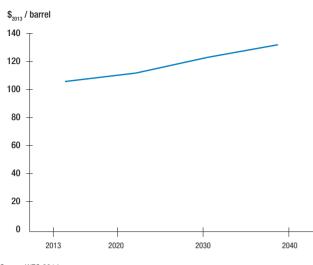
Thus, the cost of gas- or coal-based electricity is difficult to predict, considering the historical volatility of commodity prices and the uncertainty surrounding the price of carbon.

In addition, for fossil energy exporters, nuclear power helps secure current and future income for national budgets: the national resource extracted can be used to generate cash from exports rather than using it to produce electricity locally.

<sup>(1)</sup> European Union Emission Trading System: the European system to trade emission quotas.

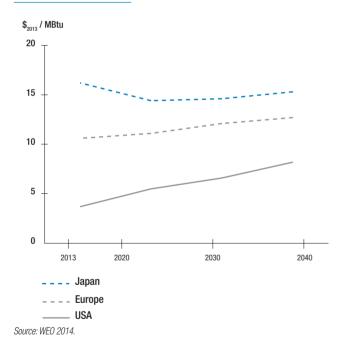


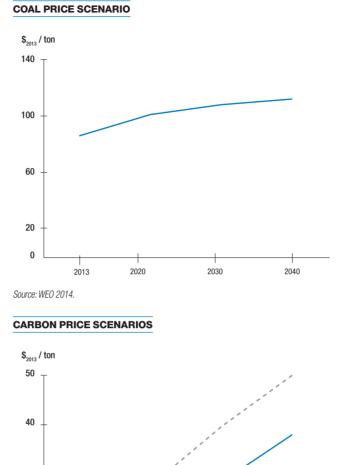
#### OIL PRICE SCENARIO

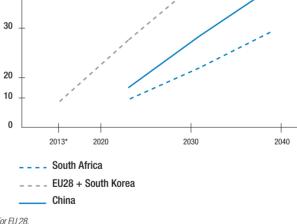




#### GAS PRICE SCENARIOS







\* For EU 28. Source: WEO 2014.

A long-term view of the energy sector shows that nuclear power is a very competitive source of electricity, offering stable and predictable costs.

Based on data published in the IEA's World Energy Outlook 2014:

- new nuclear projects are clearly competitive in China;
- the total cost of new nuclear projects is comparable to that of other base electricity production technologies in Europe (gas, coal);
- in the United States, the price of fossil fuels and/or CO<sub>2</sub> emissions would have to be high to restore the competitiveness of new nuclear projects.

### Nuclear power improves national security of electricity supply

Another major advantage of nuclear power is the security of supply it provides. Unlike hydrocarbon reserves, which are concentrated in certain regions, uranium resources are well distributed around the world. For example, proven uranium resources are found in OECD countries (41%), major emerging countries such as Brazil, Russia, China and South Africa (23%) and in other parts of the world (36%) (source: Uranium 2014: *Resources, Production and Demand*, IAEA© OECD 2014).

#### With the latest generations of reactors, nuclear power offers enhanced safety and operating performance

AREVA's range of reactors offers a combination of capacities, from 1,100 MWe to 1,650 MWe, and of technologies. These reactors meet the most recent requirements in terms of:

- nuclear safety: designs that drastically reduce the possibility of a serious accident and ensure that there would be no offsite consequences by maintaining containment integrity (core catcher to confine the molten core, prevention of a hydrogen explosion or steam inside the containment, ability to withstand a large commercial aircraft crash), as confirmed by the safety regulators' certification and by the necessary measures to ensure continuity of cooling;
- competitiveness: reduction in fuel consumption and operating costs, high availability (92%) over a 60-year period of operation, thus maximizing power generation; and
- environmental protection: reduction in the quantity of used fuel and final waste.

#### 6.1.2. NUCLEAR ENERGY MARKETS

The first commercial nuclear power programs were launched in the mid-1960s in the United States and in the early 1970s in Europe. In the 1970s, with fears of fossil fuel shortages rising (oil shock), several countries decided to reduce their dependency on imported energy by launching nuclear power programs. The 1970s and 1980s saw a sharp rise in nuclear power programs, as shown below. Strong initial growth slowed when the public became concerned after the accidents at Three Mile Island

#### in 1979 and Chernobyl in 1986. As a result, whereas 399 reactors had been built over the 1970 to 1990 period, installed capacity rose by only 18.1% over the 1990 to 2014 period. As the vast programs initiated in North America and Western Europe subsided, the growth of the reactor fleet picked up in Eastern Europe and Asia. This trend continues despite delays associated with the assessment of the Fukushima accident in 2011.

#### 6.1.1.3. **RENEWABLE ENERGIES**

Renewable energies also contribute to energy self-sufficiency as regards fossil resources while limiting greenhouse gas emissions.

Many countries are providing support to renewable energies, whether through subsidized electric rates, production quotas, green certificates, or other means. The commitment of many countries to expand the share of renewable energies in their production mix leads one to assume that such policies will be pursued.

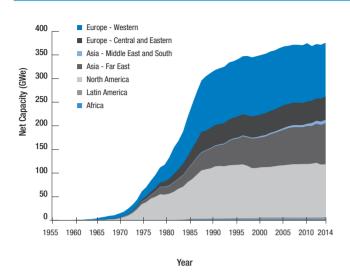
In some regions, the competitiveness of certain renewable technologies are already in line with that of more conventional sources of energy, thanks to technology enhancements, economies of scale, the learning curve and the growing size of facilities. The accelerated market consolidation observed recently in many segments of this market should also contribute to an increase in their competitiveness in the short term.

Renewable energies thus offer several advantages on the environmental, economic, strategic and operational levels:

- they contribute to the fight against climate change by avoiding carbon accumulation in the atmosphere, in addition to reducing local pollution associated with certain gases (SOx, NOx)<sup>(1)</sup> and particles emitted by plants using fossil fuels;
- they can under certain conditions become competitive with fossil fuel sources of electricity, especially in a situation with rising fuel prices over the long term and uncertainties about CO<sub>2</sub>;
- they are available locally and well distributed geographically, thus contributing to security of supply, unlike oil and gas reserves, which are concentrated in Russia and the Middle East;
- they are a solution for limiting trade deficits for countries that import fossil energies and for preserving the reserves of the exporting countries by limiting their domestic use;
- they offer heightened operational performance, although their integration into power systems raises important challenges due to their intermittency.

<sup>(1)</sup> SOx: sulfur oxides emitted by coal and diesel fuel combustion - NOx: nitrous oxides emitted by the combustion of all types of fossil energies.

#### WORLD INSTALLED NUCLEAR GENERATING CAPACITY (IN NET GWE)



Global installed nuclear generating capacity is estimated at 376 GWe in 2014, slightly more than in 2013.

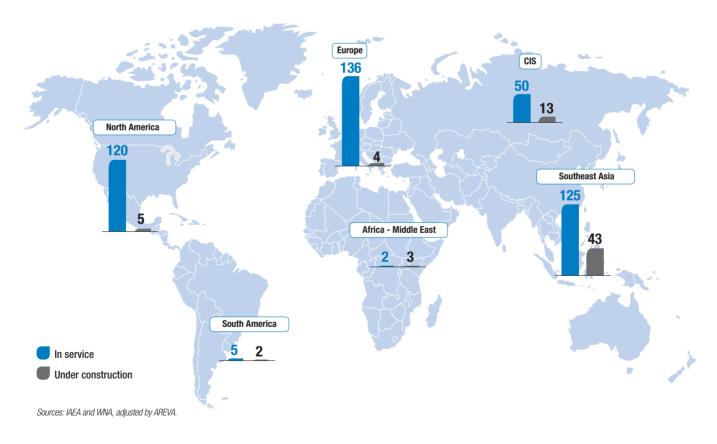
The chart on the left shows the breakdown of nuclear generating installed capacity.

At December 31, 2014, a total of 438 reactors representing 397 GWe (376 GWe net) were connected to the grid in 31 countries in the world's largest power consuming regions.

With about 43% of the world's installed capacity, Europe and the Commonwealth of Independent States (CIS) are the leading regions for nuclear power generation, ahead of North America, which represents about 30% of global capacity. Through 2015-2016, most of the medium-term growth potential for nuclear power is located in Asia (China, South Korea and India) and, to a lesser extent, in the countries of the CIS, as indicated below.

#### Source: IAEA PRIS Database, AREVA Estimations.

#### REACTORS IN OPERATION OR UNDER CONSTRUCTION WORLDWIDE AS OF YEAR END 2014



Nuclear power development continues globally, led mainly by China, Russia, South Korea and India, as well as by a number of countries which are studying the nuclear option as a new component of their energy mix. According to the IAEA and the World Nuclear Association (WNA), 70 reactors were under construction worldwide at year-end 2014 (compared with 72 at year-end 2013); 181 reactors were planned or on order (compared with 170 at year-end 2013, 165 at year-end 2012 and 152 at year-end 2011); and more than 300 more are planned in the coming years.

The reactors are based on three main technologies:

- light water reactors technology represent 82% of all reactors in the global fleet. They include two categories: pressurized water reactors (PWR), which are in the majority and represent practically all of the new builds, and boiling water reactors (BWR). There were 357 light water reactors in service in 2014, including 56 VVER reactors (PWR) based on Russian technology;
- there were 49 Canadian-designed heavy water CANDU reactors connected to the grid at the end of 2014;
- fifteen gas-cooled Magnox and AGR units are in operation in the United Kingdom.

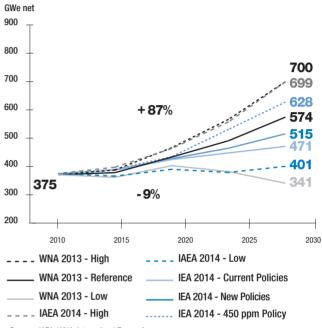
Other types of reactors in service include Russian-designed light water graphite reactors (RBMK) and fast breeder reactors, but their number and capacity are marginal on an international level.

#### OUTLOOK FOR INSTALLED NUCLEAR GENERATING CAPACITY

Nuclear power's recognized benefits include its competitiveness and cost predictability, security of supply, and the reduction of greenhouse gas emissions. In view of these benefits, existing reactors should be modernized and optimized to further increase their safety and possibly available capacity. This should also contribute to new reactor construction to replace or expand installed generating capacity worldwide, and it will be a potential source of long-term growth for all of AREVA's nuclear fuel cycle operations.

With the prospect of increasing reliance on nuclear power over the years to come, especially in emerging countries, the International Atomic Energy Agency (IAEA) is seeking to promote the establishment of a new framework to respond effectively to demand from individual countries while still limiting the risks of proliferation. For example, the IAEA is leading the International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO) to anticipate the specific needs of developing countries and to help emerging countries acquire the necessary infrastructure for a nuclear power program. At the same time, the IAEA is working to establish mechanisms to guarantee fuel supply and related services so that sensitive nuclear facilities, in proliferation terms, do not come into being. Finally, after the Fukushima accident, the IAEA adopted a multi-disciplinary Nuclear Safety Action Plan to further improve nuclear safety in global nuclear power production.





Sources: IAEA, WNA, International Energy Agency.

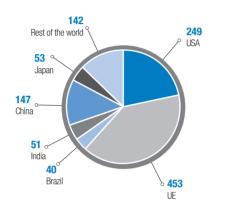
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### 6.1.3. RENEWABLE ENERGIES MARKET

Each year since 2008, renewable energies represented a greater share of new generating capacity coming on line in the United States and Europe than that of fossil energies. Whereas renewable energies, excluding hydropower, accounted for less than 5% of the electric power mix in 2011, national governments have often set a target of 15% to 20% of the mix by 2020.

As shown on the chart below, more than 60% of the electricity from renewable sources was produced in Europe or in the United States in 2012.

#### ELECTRIC POWER GENERATION FROM RENEWABLE SOURCES\* BY REGION IN 2014 (TWH)



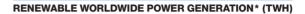
<sup>\*</sup> Excluding hydropower Source: IEA, WEO 2014.

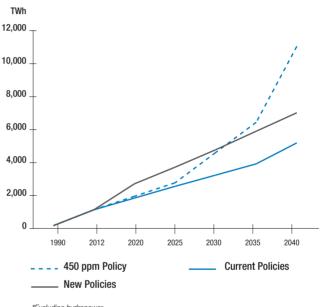
Europe is particularly dynamic when it comes to developing renewable energies. For example, the European Union has set a goal of a 27% share of final energy consumption by 2030.

North America is also in a growth mode in this area. Legislation passed in more than half of the US states calls for renewable energy sources to contribute 12% or more to total power generation by 2020. Three markets were created in recent years to trade carbon emission permits, particularly for the power sector, under a voluntary system.

China, India and other emerging countries, which are setting goals for reduced carbon intensity, are new potential markets for renewable energies. China, for example, has set up seven pilot exchanges to trade carbon credits. Both China and India have ambitious objectives for building renewable energy capacities in their respective five-year plans. In addition to low construction costs, these countries often have good access to renewable energy resources, such as biomass in Brazil and India.

The central scenario in the IEA's *World Energy Outlook 2014* foresees very strong worldwide growth in power generation from renewable sources, for a combined total excluding hydroelectric power of 4,768 TWh per year by 2030.



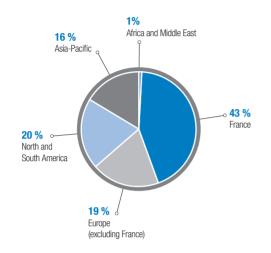


\*Excluding hydropower Source: IEA, WEO 2014.

### 6.2. AREVA'S CUSTOMERS AND SUPPLIERS

#### 6.2.1. CUSTOMERS

#### **REGIONAL DISTRIBUTION OF CUSTOMERS BY REVENUE**



#### Source: AREVA.

AREVA's customers are chiefly electric utilities, energy services companies, developers of renewable energies projects, public entities (agencies in charge of the back end of the nuclear cycle, research centers, etc.) and local public sector or economic players.

Geographically, the majority of the group's customers are located in Europe, the United States, Latin America and Asia.

The EDF group is the group's key customer, representing about 35% of its revenue. The group's 10 biggest customers represented about 60% of its revenue in 2014. A discussion of backlog may be found in Section 9.

#### NUCLEAR

The nuclear businesses have a limited number of customers. The contracts are generally large, amounting to as much as several billion euros. In addition to the

#### 6.2.2. SUPPLIERS

Outsourced procurement represented a volume of approximately 3.6 billion euros in 2014 (excluding Wind Energy and Solar Energy), including 1.3 billion euros for non-production purchases (information technology, telecommunications, intellectual and engineering services, corporate services and energies). Production purchases are divided among the following categories:

- civil engineering and finishings;
- raw materials and semi-finished products;

EDF group, the principal customers are utilities such as Duke and Exelon in the United States, ETN in Brazil, GDF-Suez, RWE and E.ON in Europe, and CGN, CNNC, KHNP and TEPCO in Asia. Customers are diversified geographically, with a strong historical presence in Europe and growth in Asia.

In the different segments of the nuclear fuel cycle, AREVA's customers enter into long-term contractual commitments. This is the case in several businesses, for example in Chemistry, Enrichment or Recycling or in the Mining Business Group, which have service agreements with most of the world's nuclear utilities. The Reactors & Services Business Group signs contracts for services and equipment replacement operations for the installed reactor base.

Because AREVA has the ability to position itself across all of the nuclear businesses in integrated manner, it is able to sign large-scale contracts and make integrated offers in the fuel cycle and in combination with reactor supply. AREVA is competing for several other large new build projects, particularly in Europe, China and India.

In addition to contracts with nuclear utilities, more than 90% of which are AREVA customers, the group has significant contracts with governmental and paragovernmental entities such as the Commissariat à l'énergie atomique et aux energies alternatives in France (CEA, the French atomic energy commission), the United States Department of Energy (DOE), the Nuclear Decommissioning Authority of Great Britain (NDA), the French naval shipyards DCNS and the Direction générale de l'armement (French defense procurement agency, DGA), among others.

In line with market practices, a certain number of warranties are given to customers in areas such as performance, delivery schedules, liability for non-performance, etc. The warranties and the risks associated with these warranties are described in Sections 20.2. *Notes to the consolidated financial statements for the year ended December 31, 2014* and 4. *Risk factors* respectively.

#### RENEWABLES

Customers are public or private utilities, independent energy infrastructure project developers, local or regional groups of economic developers, or industry. These customers are based in a large variety of geographic areas covering five continents.

The diversity of these different types of customers from very distinct regions give the benefit of uncorrelated market dynamics. This robustness is strengthened by the diversity of the tree complementary resources targeted by AREVA's renewables offering: coastal winds, direct solar radiation and biomass.

- forgings, boilers, piping and welding;
- mechanical accessories, components and equipment;
- electricity, electronics and instrumentation;
- logistics, handling and storage; and
- production services.



In 2014, the group continued to roll out the Supply Chain network and the corresponding transformation actions, which now cover the following activities:

- purchases;
- management of supplier claims;

- expediting <sup>(1)</sup>;
- follow-up of procurement and inventory management at the group's plants;
- upstream transportation and major industrial projects logistics.

### 6.3. OVERVIEW AND STRATEGY OF THE GROUP

#### 6.3.1. OVERVIEW

AREVA is a global leader in low-carbon power generation solutions. In 2014, it had consolidated revenue of 8.336 billion euros. The group had 46.866 billion euros in backlog at December 31, 2014, representing 5.6 years of revenue, providing good visibility for the group. It employs 41,847 people. AREVA's strategy is built on developing low-carbon energies by expanding its core nuclear business and its second pillar, renewable energies.

AREVA conducts its operations in the booming energy market propelled by the combined effects of demographic dynamism, particularly in emerging countries, access to energy by the majority, and long-term economic growth. Moreover, the volatility of oil and gas prices, their rising production costs over the long term and, above all, their negative contribution to greenhouse gas emissions will have a not insignificant impact on the future energy mix, with the advantage going to technologies that emit few greenhouse gases and are less sensitive to the price of oil. The energy sector has for that matter invested very large amounts of capital in recent years to meet rising demand and to replace some of the existing infrastructure.

The group's biggest advantage is that it is active in a broad spectrum of businesses in low-carbon power generation. The group is one of very few suppliers capable of meeting customer requirements at every stage of the nuclear value chain, offering global solutions that protect the environment while complying with stringent safety criteria. Its integrated model and policy of partnerships put AREVA in an ideal position to anticipate market requirements.

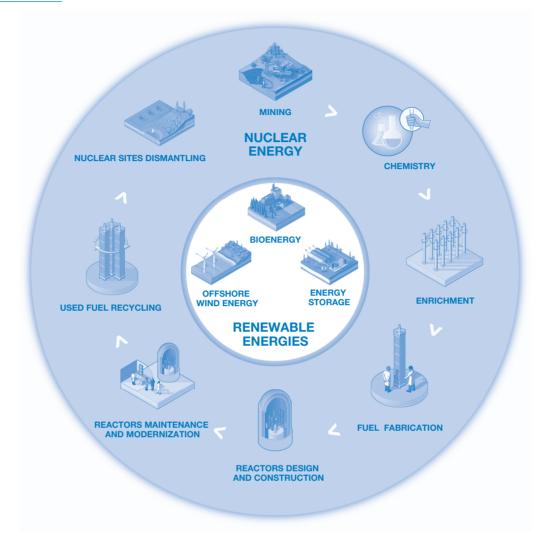
The group is recognized for its technological expertise in every aspect of the nuclear business, backed by 50 years of research and operating experience with proprietary processes and a range of new generation reactors to meet the energy challenges of the 21<sup>st</sup> century. This gives the group a favorable market position.

AREVA has all the resources needed to take full advantage of energy market growth. With its international presence and recognized expertise in technology, the group is ready to respond to its customers' leading challenges: to generate power safely, at a competitive cost and while limiting emissions of greenhouse gases.

<sup>(1)</sup> Expediting covers the life cycle of purchasing orders made in project mode, from signing to final execution, in relation with all internal stakeholders (purchasing, project, design, inspection, quality, etc.). The main objective is to ensure deadline are met.



#### THE GROUP'S BUSINESSES

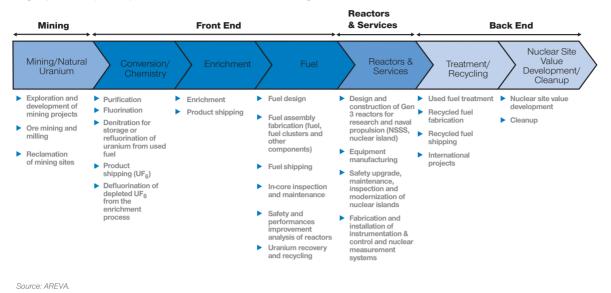


#### **Nuclear businesses**

The group is a global leader in solutions for nuclear power generation and is integrated across the entire nuclear power cycle. This integrated model is the catalyst for major synergies, not only in technologies and sales, but also in costs and portfolios. A significant share of AREVA's business is based on multiyear contracts. Recurring fuel cycle and installed based service operations are stable and offer visibility to back the less regular new builds business.

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The group's nuclear power operations consist of four main business segments:

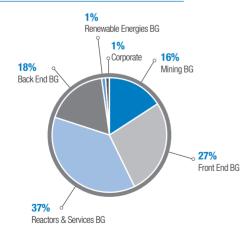


#### **Renewable energies businesses**

The group conducts operations in the fields of offshore wind, bioenergy and energy storage, with the objective of becoming a European leader through strategic partnerships.

AREVA is still performing a few contracts in the field of solar energy. The group has decided to discontinue this business as soon as the contracts end, unless a full takeover bid is made in the short term.

#### **AREVA REVENUE IN 2014 BY BUSINESS GROUP**





The **Mining Business Group** represented 16% of AREVA's consolidated revenue in 2014, or 1.297 billion euros. With its presence on five continents, its operations include exploration for new deposits, mining and milling of the uranium ore, and site rehabilitation following mining operations. Today, AREVA is **a global leader in uranium production** with a diversified portfolio of mines in operation (Canada, Kazakhstan and Niger) and projects under development or in the exploration phase (Africa, Canada and Mongolia).

The **Front End Business Group** represented 27% of consolidated revenue in 2014, or 2.235 billion euros; it combines the operations of uranium conversion and enrichment as well as fuel design and fabrication for two types of nuclear light water reactors. AREVA is **one of the world's major players in the front end of the nuclear cycle.** 

The **Reactors & Services Business Group** represented 37% of consolidated revenue in 2014, or 3.119 billion euros. Its operations combine nuclear reactor design and construction and the manufacture of related equipment. It also offers products and services for the operation, maintenance, modernization and performance improvement of nuclear power plants. AREVA is one of the world's leading nuclear reactor constructors in terms of installed capacity, and a leader in heavy equipment replacement for nuclear reactors. In addition to its installed base business, AREVA is a leading player in the design and construction of next-generation reactors. The operations of the Reactors & Services Business Group also include the design and construction of nuclear reactors for research and naval propulsion, and related services.

The **Back End Business Group** represented 18% of AREVA's consolidated revenue in 2014, or 1.531 billion euros. It offers efficient management solutions for the back end of the nuclear cycle. AREVA offers solutions consisting primarily of the recycling of used power reactor fuel and nuclear site cleanup and value development. In particular, AREVA is number one worldwide in the treatment and recycling of used fuel. AREVA's customer base in the back end of the fuel cycle is chiefly comprised of European utilities. The group has signed agreements to transfer technology to Japan, the United States and China in connection with work to define solutions for used fuel management. The Business Group is also active in site and facility value development after production is discontinued.

The **Renewable Energies Business Group** represented 1% of AREVA's consolidated revenue in 2014, or 52 million euros, generated by the Bioenergy activity. In application of IFRS 5, and in view of the creation of the AREVA H2Gen joint venture with Smart Energies and Ademe in the energy storage field. Accordingly, 2013 data was restated to present pro forma information using the 2014 consolidation scope, and income from these operations is presented on a separate line.

The Energy Storage activity is no longer included in consolidated revenue or in other consolidated data. Since 2013, the Wind Energy and Solar Energy activities are no longer included in them either.

#### 6.3.2. STRATEGY

Following the difficulties generated by the Olkiluoto 3 project in Finland, the acquisition of UraMin in 2007 and the Fukushima accident in 2011, throughout 2014 the group coped with, among others, a deterioration of the economic situation (no reactor restart in Japan, lower price levels in uranium, conversion and enrichment, decreased of utility maintenance budgets, end of HEU and waste packaging contracts).

Despite this economic situation, the fundamentals of energy demand confirm the growth prospects of the nuclear market. According to the available estimates, world nuclear generating capacity is destined to rise 50% by 2030, led by the Asian market in particular.

While the growth of the global installed base is confirmed, the fundamentals of this market have changed in recent years:

- In mature nuclear markets (Europe and the United States), AREVA's traditional customers are under heightened economic pressure, which is passed on to suppliers. Profitability requirements and power plant aging, together with growing used fuel inventories, are creating new demand in the utilities market.
- Concerning the new builds market, the competition will become becoming more pronounced, certain competitors benefit from the growth of their essentially captive domestic markets (China, South Korea and Russia) and from the ability to finance the projects they are building.

With this as a backdrop, and while keeping nuclear and occupational safety at the top of the priorities for the group and for our customers, AREVA has established structured its strategic roadmap to meet thearound 3 followingthree objectives:

#### Refocus on core nuclear processes:

- give priority to mastery of key nuclear processes in the nuclear supply chain for which global leadership and long-term competitiveness are within AREVA's reach;
- control the risks related to the management of large nuclear facility construction or modernization projects;
- streamline the portfolio of renewables asset portfolio operations by continuing offshore wind operations via through a joint venture with Gamesa and seeking partners in the solar and bioenergy operations.

#### Reforge Redefine the partnership with EDF:

Reforge the industrial relationship between AREVA's skills and technologies and EDF, to which it is a supplier, to deal with:

- a new challenge to the entire industry for market competitiveness, at a time when AREVA is completing a cycle of capital investment in its fuel cycle facilities and entering a new cycle of investment for EDF's reactor fleet ("Grand Carénage" program of major refits);
- successful completion of Flamanville 3 and new reactor projects expected in the coming decade, beginning with Hinkley Point, building on valuable lessons learned from the difficulties encountered on current projects;
- the need to optimize the reactor line;

the geographic displacement of markets to emerging economies.

#### Strengthen the development of our presence in China:

- o pursue the strategy undertaken with the subsidiaries and joint ventures;
- grow the strategic agreement signed by AREVA and CNNC in March 2014 concerning the entire range of activities;
- pursue the partnership with CGN by capitalizing on the progress of the Taishan 1 and 2 reactor project.

To achieve this strategic roadmap, AREVA is putting in place an operating plan comprising two axesalong two lines:

- the rolling outroll-out of a **competitiveness plan** that aims for annual baseline cost savings of 1 billion euros by 2017 in relation to 2014;
- the implementation of new measures for the management of large projects,
   i.e. Olkiluoto 3, Flamanville 3 and the Jules Horowitz research Reactor construction project.

The strategic roadmap covers all of the group's operations. Strategic objectives were thus defined for each Business Group:

#### Mining Business Group:

- o secure AREVA's presence at its traditional locations for the long-term,
- develop sources of supply favoring competitiveness and profitability over volumes,
- o maintain all Mining BG's key competencies;

#### Front End Business Group:

- regain the profitability of conversion by successfully shifting from Comurhex I facility to Comurhex II, capitalizing on existing domestic customers and on the growth of the Chinese market,
- strengthen the profitability of capital expenditures in enrichment with operational and commercial leverage,
- consolidate leadership in fuel assembly fabrication by being established as EDF's leading supplier, by expanding the footprint in Asia, and by strengthening innovation;

#### Reactors & Services Business Group:

- o secure the profitability of the Large Projects activity,
- increase the profitability of the services activities and play a major role in EDF's "Grand Carénage" program,
- o develop unique and innovative solutions,
- o reinforce AREVA's industrial footprint in China,
- o respond to the utilities' heightened sensitivity to prices by being competitive;

#### Back End Business Group:

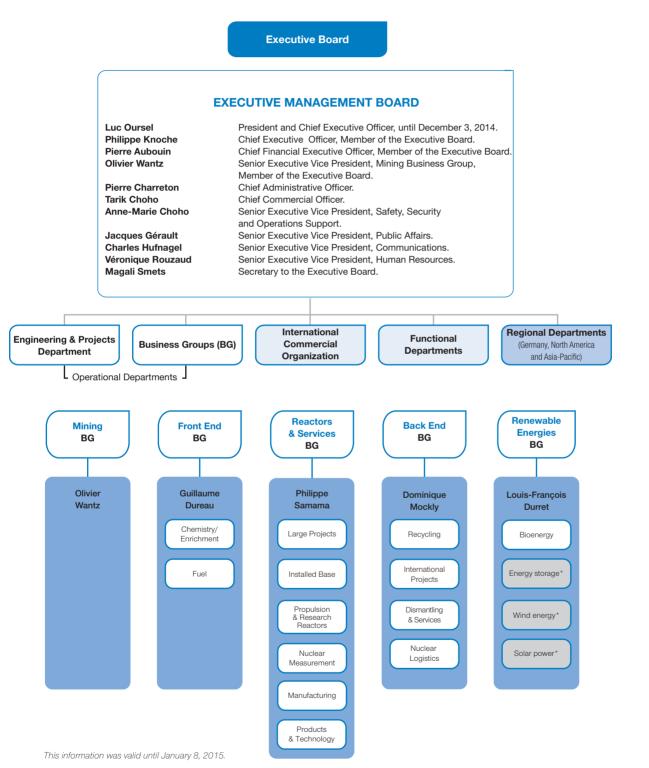
- reestablish competitiveness by focusing as a priority on the cost basis of the plants,
- continue to innovate selectively to optimize and prolong plant operations and to develop new offers,
- support EDF in the replacement of its MOX-based reactor fleet and promote the use of treatment and recycling to increase the use of the French facilities,
- o support the development of treatment and recycling platforms internationally,
- o strengthen AREVA's position in the logistics markets,
- develop the dismantling operations internationally (fuel cycle plants and reactors) and become the leader in critical dismantling operations;

#### Renewable Energies Business Group:

- become a leading player, first in Europe and then globally, in the offshore wind market through the creation of a joint venture between AREVA and Gamesa,
- continue to streamline the portfolio of operations by seeking one or more partners for bioenergy,
- focus on a co-financing approach with the State for emerging or less mature operations (energy storage, floating wind turbines).

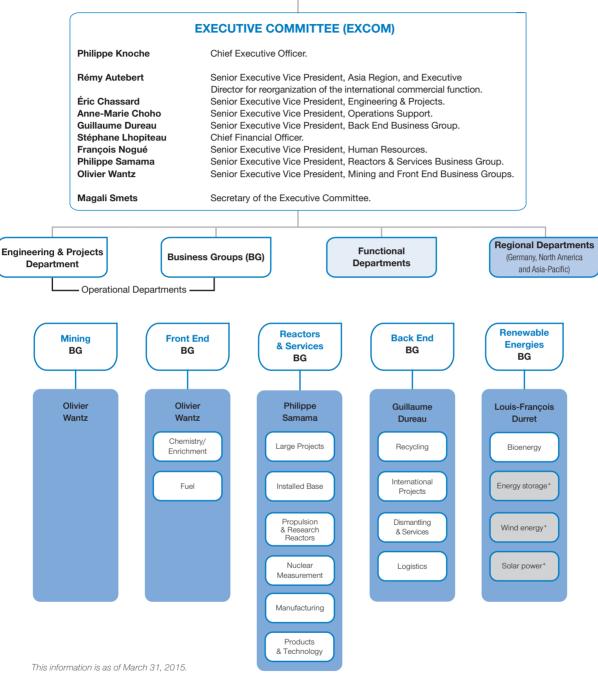
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#### 6.3.3. OPERATING ORGANIZATION



\*Discontinued operations (held for sale).

#### **Corporate management**



\*Discontinued operations (held for sale).



### 6.4. OPERATIONS

#### 6.4.1. MINING BG

#### **KEY FIGURES**

	2014	2013
Revenue* (in millions of euros)	1,297	1,717
Operating income (in millions of euros)	(73)	499**
Workforce at year end	3,915	4,125***

\* Contribution to consolidated revenue.

\*\* In application of IFRS 5 and IFRS 11, the financial statements at December 31, 2013 were restated to present pro forma data at comparable consolidation scope at December 31, 2014.

\*\*\* After implementation of a new tool to consolidate workforce information, the number of employees for 2013 was restated to reflect the financial consolidation scope and to include early retirees, who had not been taken into account until now.

For information, 1 metric ton of natural uranium corresponds to about 2,599 pounds of  ${\rm U_3O_8}.$ 

#### 2014 REVENUE BY GEOGRAPHICAL AREA

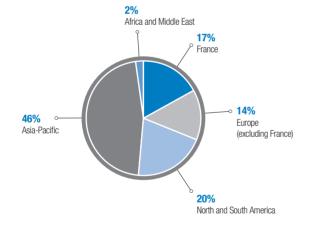


The four main activities of the Mining Business Group are:

- mineral exploration: seeking new deposits for the future;
- mining projects: mine development and construction;
- mining operations: extraction of uranium ore using various mining techniques, and ore processing (chemical concentration of natural uranium);
- site rehabilitation after mining: rehabilitation of mine sites in accordance with applicable environmental standards.

The group's mining operations involve uranium, a relatively abundant metal in the earth's crust, which in its natural state contains two main isotopes: more than 99% is non-fissile uranium-238 (238U), while 0.7% is fissile uranium-235 (235U).

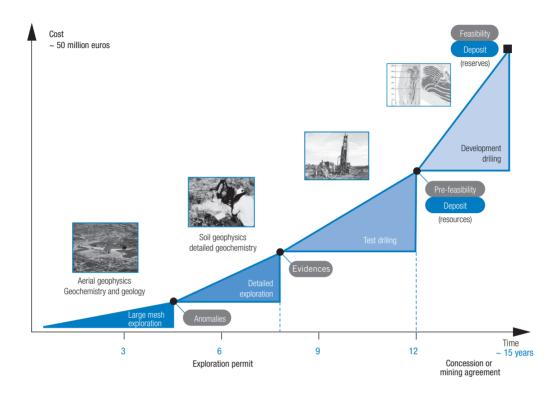
Mining operations cover long cycles requiring substantial capital expenditure over several years before mining operations begin, the first deliveries of uranium are made and the first income is received. Then cash flow increases before once again falling off in the final years of operation, followed by site rehabilitation.



Source: AREVA



#### BUSINESS MODEL OF A URANIUM DEPOSIT, FROM EXPLORATION TO MINING FEASIBILITY\*



\* Duration given for information purposes only; may vary considerably depending on context. Source: AREVA.

The first phase of exploration in areas chosen by AREVA for their promising geological history consists of detecting surface or subterranean indicators using aerial or ground geophysics (gravimetry, electromagnetism and radiometry) and surface geological surveys. This is followed by test drilling to develop an initial estimate of the deposit's resources.

Once the attractiveness of the deposit has been confirmed, the drilling grid is tightened to refine the estimate of resources and confirm mining feasibility, both technically and economically (reclassification from resource to reserve).

These operations, which require an exploration permit that eventually confers mining rights, take an average of 10 to 15 years.

Once the technical and economic feasibility of mining projects has been demonstrated, mining facilities are built and uranium ore is mined in an open pit, an underground mine, or by in situ recovery (see Glossary), depending on the characteristics of the deposit.

- Whether for open pit or underground mines, the extracted ore is milled and leached, usually with acidic solutions. Leaching may be static (heap leaching) or dynamic. In the processing plant, the uranium is extracted from the solutions using solvent extraction techniques or by fixation on ion exchange resins. The purified uranium is then precipitated and dried to produce a uranium concentrate called "yellowcake". This product is packaged and shipped to the conversion plant of the customer's choice.
- The in situ recovery technique is used when the containment and permeability
  properties of the deposit allow the uranium to be dissolved directly in the ground.
  In that case, oxidizing solutions are pumped into the ore bed between injection

wells and producing wells. The resulting solution is pumped to the surface and processed in the same manner as for open pit or underground mines.

Mine rehabilitation is an important activity that calls for specific mining and civil engineering techniques and involves many areas of expertise. The purpose of this activity is to minimize the residual impacts of the mining sites with a view to sustainable development.

The environmental impacts of mining operations must be monitored and limited throughout the development and production cycle.

#### **OPERATIONS AND HIGHLIGHTS**

Key events in the Mining Business Group in 2014 were as follows:

- The first ore from the Cigar Lake mine in Canada, operated by Cameco, was delivered in March to AREVA's McClean Lake mill. Operational restart of the mill allowed the first uranium to be drummed in October;
- Within the framework of the Nigerien law of 2006, AREVA and the State of Niger signed in May a strategic partnership agreement which among other things includes the renewal of Somaïr's and Cominak's mining agreements. The agreement also stipulates the putting of the Imouraren project under care and maintenance. A joint strategy committee was set up to decide on the best schedule for production startup of the mine based on market conditions;
- A project to establish a Mining Innovation Center project was launched in February at the Bessines site in the Limousin region of France to further develop uranium ore expertise and research infrastructure;

 Despite lower sales volumes than in 2013 (due to the end of uranium sales under the HEU agreement and natural uranium inventory reductions, the Mining Business Group had good operating and financial performance in 2014 in a market environment affected by the consequences of the Fukushima events.

In 2014, AREVA produced 6,499 metric tons of uranium in joint venture share (equity share of production):

- Somair produced 2,331 metric tons of uranium, for an AREVA share of 1,478 metric tons (on a 100% basis);
- Cominak produced 1,501 metric tons of uranium, for an AREVA share of 510 metric tons (on a 100% basis);

2014 PRODUCTION IN METRIC TONS OF URANIUM (MTU)

- Katco produced 4,322 metric tons of uranium (above its nominal capacity of 4,000 metric tons of uranium due to the catch-up of volumes that could not be calcined before December 31, 2013), for an AREVA share of 2,204 metric tons;
- McArthur River/Key Lake produced 2,224 metric tons of uranium (AREVA's share);
- Cigar Lake produced 49 metric tons of uranium (AREVA's share). In addition, as part of the restart of AREVA's McClean Lake mill, which processes all of the ore from Cigar Lake, 30 metric tons of uranium (AREVA's share) were produced from historic ore stockpiles at the McClean Lake deposits.

		Share in JV in 2014	Available share <sup>(1)</sup> 2014	Financial consolidation 2014 * *	
Country	Site	МТИ	MTU	MTU	<b>Type</b> <sup>(2)</sup>
Canada	McArthur River	2,224	2,224	2,224	UG
Canada	Cigar Lake	49	49	49	UG
Canada	McClean Lake	30	30	30	n.d.
Total	Canada	2,304	2,304	2,304	
France	Hérault Mining Division	3	3	3	n.d.
Total	France	3	3	3	
Kazakhstan	Katco	2,204	2,750	4,322	ISR
Total	Kazakhstan	2,204	2,750	4,322	
Niger	Cominak (3)	510	350	-	UG
Niger	Somaïr	1,478	1,900	2,331	OP
Total	Niger	1,988	2,250	2,331	
TOTAL		6,499	7,307	8,959	

(1) Share available to AREVA: share of resources and production sold/distributed to AREVA by the mining joint venture.

(2) Type of operation: ISR: In Situ Recovery; OP: Open Pit;UG: Underground; n.d.: not defined.

(3) Cominak has been consolidated under the equity method since January 1, 2014.

Source: AREVA.

#### MANUFACTURING AND HUMAN RESOURCES

AREVA's diversified portfolio of mining assets and resources is an important factor in security of supply for utilities seeking long-term guarantees of uranium deliveries. The Mining business has staff on five continents. The uranium production sites are located in three countries: Canada, Niger and Kazakhstan.



#### LEADING SITES OF THE MINING BUSINESS GROUP



Source: AREVA.

#### Canada

In February 2014, half a century after AREVA launched its first mineral exploration program in Canada, the group celebrated its 50<sup>th</sup> year of presence in that country.

In Canada, AREVA's production comes from the McArthur River and Cigar Lake mines operated by Cameco Corporation. These sites are located approximately 700 kilometers north of Saskatoon in Saskatchewan Province. AREVA is conducting an important exploration program in this uranium-rich province and in the Nunavut territory, where it also holds majority interests in several deposits: McClean Lake (70% interest), Shea Creek (51% interest), Midwest (69.16% interest) and Kiggavik (64.8% interest). For the latter, a final Environmental Impact Statement (EIS) was submitted to the authorities of Nunavut in October 2014.

Additional studies are required to determine the development shedules for these deposits, which will depend on uranium market conditions.

#### McArthur River

McArthur River is operated by Cameco Corporation, which holds a 69.805% interest (AREVA's stake is 30.195%). The McArthur River mine has the world's largest production capacity. The deposit was discovered in 1988 and mining began in December 1999.

Located more than 600 meters below the surface near fractured, water-saturated rock, and in view of the very high-grade uranium it contains, the deposit cannot be mined with conventional methods. The miners are protected from direct contact with the orebody by the use of special mechanical mining methods (raise boring),

and the ground is frozen to prevent water infiltration. The mined ore is processed at the Key Lake mill, about 80 kilometers south of the deposit. The mill is operated by Cameco Corporation, which holds an 83.33% interest (AREVA holds 16.67%). McArthur River and Key Lake have a capacity of 7,200 metric tons of uranium per year (18.7 million pounds of  $U_{a}O_{a}$ ).

#### Cigar Lake

Cigar Lake is owned by a joint venture of Cameco Corporation (50.025%), AREVA (37.1%), Idemitsu Uranium Exploration Canada Ltd (7.875%) and Tepco Resources Inc. (5%). The deposit is operated by Cameco. Cigar Lake will be the world's second largest uranium deposit after McArthur River.

AREVA discovered the deposit in 1981 and contributed to the development of the mining method. Given its very high-grade ore and its location 450 meters below the surface in fractured, water-saturated rock, the deposit cannot be mined with conventional methods. Freezing techniques are used to strengthen the ground and prevent water infiltration. The selected mining method involves removing the ore by high-pressure jet boring. All infrastructure drifts are located in more solid rock under the deposit to position equipment, drill the ore body to freeze the ground, and mine it by jet boring.

Cigar Lake should produce 6,900 metric tons of uranium per year at full capacity (18 million pounds of  $U_{\rm s}O_{\rm s}).$ 

The first ore was shipped from Cigar Lake to the JEB mill (see below) in March 2014.

#### McClean Lake

AREVA operates McClean Lake and is a 70% owner alongside Denison Mines Ltd, which has a 22.5% stake, and Overseas Uranium Resources Development Company Ltd of Japan (Ourd), which owns 7.5%.

The first uranium production at the McClean Lake open pit mine began in 1995, and uranium concentrate production began at McClean Lake's Jeb mill in 1999. Mining operations were stopped in early 2009 and the mill was put under care and maintenance in 2010. The mill is capable of processing very high-grade ore (> 15%) without diluting it. Its capacity was raised in order to receive all of the ore from Cigar Lake. Under an agreement signed in 2011 between the partners of Cigar Lake and McClean Lake, the JEB mill will process all of the ore from the Cigar Lake mine. Accordingly, the mill was restarted in October 2014.

As part of JEB mill restart operations, 43 metric tons of uranium were produced from historic ore stockpiles from the McClean Lake deposits (on a 100% basis), of which 30 metric tons correspond to AREVA's share

#### Niger

Exploration teams from the Commissariat à l'énergie atomique (CEA, the French atomic energy commission) detected uranium in Niger at the end of the 1950s. The uranium province is located west of the Aïr granitic body.

Almost 2,500 people work at Somaïr and Cominak. Along with jobs, the operating companies provide health, social and educational services to the local communities in this isolated area.

Cominak and Somaïr have delivered uranium to their customers without interruption since mining operations began in the 1970s.

AREVA also owns the Imouraren project (see below), one of the world's largest deposits, with 174,196 metric tons of reserves after application of the recovery rate with a grade of 700 ppm.

On May 26, 2014, AREVA and the State of Niger signed an agreement renewing their strategic partnership:

- the agreement enacts the renewal of mining agreements for Somair and Cominak in accordance with the Nigerien mining law of 2006 (with neutralization of the value-added tax impact);
- the Imouraren deposit cannot be operated profitably at current uranium price levels. The State of Niger and AREVA established a joint strategic committee which will decide on the schedule for the start of production, based on market conditions;
- AREVA will provide financial support to local infrastructure and development projects:
  - o financing for the road between Tahoua and Arlit,
  - construction of an office building for the mining companies that will belong to the State of Niger,
  - strengthening of an agricultural development program in the Irhazer Valley of northern Niger.

#### Somaïr

Société des mines de l'Aïr (Somaïr, the mining company of the Aïr) was established in 1968. The company is operated by AREVA, which owns 63.4% of the share capital; the remaining 36.6% is held by Société du patrimoine des mines du Niger (Sopamin, the Nigerien national mining company).

Somair has operated several uranium deposits near the town of Arlit since 1971. The ore is extracted from open pit mines and heap leached or processed mechanically at the front end of the Arlit mill. In both cases, the uranium solutions are processed at the back end part of the mill, whose capacity was raised to 3,000 metric tons of uranium per year in 2011 (7.8 million pounds of  $U_qO_g$ ).

#### **Cominak**

Cominak (Compagnie Minière d'Akouta) is 34% owned by AREVA, which operates it. The other shareholders are Sopamin of Niger (31%), Ourd (25%), and Enusa Industrias Avanzadas SA of Spain (Enusa, 10%). The ore is extracted underground and is then processed in the site's mill, producing approximately 1,500 metric tons of uranium per year (3.9 million pounds of  $U_2O_2$ ).

#### Imouraren project

Located 80 kilometers south of Arlit, this deposit was discovered in 1966 and constitutes one of the largest deposits in the world today (174,196 metric tons of reserves). The feasibility study was completed in December 2007 and submitted in April 2008. AREVA received the mining permit for the deposit in early January 2009. The Imouraren SA mining company was established, with AREVA NC Expansion (86.5% AREVA and 13.5% Kepco/KHNP) holding a 66.65% interest and Sopamin of Niger holding the remaining 33.35%.

In view of market conditions, construction work was suspended. The site, equipment and facilities are currently put under care and maintenance,, and all demobilization operations should be completed in the first quarter of 2015.

#### Kazakhstan

Katco, a company headquartered in Almaty, was established in 1997 to develop and mine the Muyunkum and Tortkuduk deposits in southern Kazakhstan, approximately 250 kilometers north of Shymkent.

Shareholders include AREVA (51%) and the Kazakh company Kazatomprom (49%), the national natural uranium producer of Kazakhstan.

Development of the two mining sites, located approximately 60 kilometers apart, started in April 2004 after the signature of agreements between the two shareholders. The in situ recovery (ISR) technology was chosen, which allows the uranium to be solubilized directly in the rock.

In 2008, Katco received a permit to raise production to 4,000 metric tons of uranium per year; it has maintained this level since 2013 (see below). In April 2014, thanks to this increased capacity, Katco celebrated its 20,000th metric ton of uranium produced since the beginning of mine production.

In 2013, Katco had produced 3,558 metric tons of uranium, with 447 metric tons awaiting calcination at the end of 2013. A significant share of these volumes was drummed in 2014, giving total production of 4,322 metric tons of uranium in 2014. The production gap does not call into question the nominal capacity of the mine of 4,000 metric tons of uranium per year.

#### Namibia

The Trekkopje deposit is located in Namibia. AREVA has owned 100% of the property since its acquisition in 2007. In 2012 and 2013, a pilot phase demonstrated the feasibility of the selected technical solutions and confirmed the production cost objectives. Nonetheless, due to unfavorable uranium market conditions, AREVA decided to put the project on hold in October 2012. Equipment and facilities are currently under care and maintenance.

#### Mongolia

For more than 15 years, AREVA has successfully conducted mineral exploration operations in the Sainshand Basin at two sites, Dulaan Uul and Zoovch Ovoo (certification of inferred resources in 2011 and 2013 respectively).

All future project management and mining functions will be consolidated in AREVA Mines LLC. Mon-Atom, a government-owned company supervised by the Commission for State Assets, acquired a 34% interest in that company in 2013, as allowed under the Mongolian nuclear energy law.

An operating license was requested for Dulaan Uul in August 2011 following the successful in situ recovery test. The license application for the Zoovch Ovoo deposit was filed in June 2014. AREVA is currently assessing the mining project with its partners. In the Zoovch Ovoo area, AREVA continues to conduct the necessary works and studies to confirm the project's technical, economic and environmental feasibility and to define the most suitable mining process. In this regard, the feasibility study completed in accordance with Mongolian standards was submitted to the competent authorities in December 2014 and approved in February 2015.

#### Australia

Exploration work launched in early 2012 under a partnership agreement with Mitsubishi Corporation continues.

#### Gabon

In Gabon, exploration work resumed a few years ago at AREVA's former mining sites continues.

#### Other

In connection with the AREVA group's decision in October 2014 to sell non-strategic operations or minority interests to strengthen its financial situation and manage debt, the Mining Business Group is considering the sale of its minority interest in the Euronimba iron ore project in Guinea, for which a purchase agreement was signed in July 2014.

#### **AREVA'S EQUITY INTERESTS IN URANIUM PROJECTS**

					AREVA share	
Country	Site	Type* Operator		Share in JV (%)	Available to AREVA** (%)	Financial consolidation*** (%)
Australia	Koongarra	n.d.	AREVA	100.00%	100.00%	100.00%
Canada	Cigar Lake	UG	Cameco	37.10%	37.10%	37.10%
Canada	Dawn Lake	n.d.	Cameco	23.09%	23.09%	23.09%
Canada	Key Lake	OP/UG	Cameco	16.67%	16.67%	16.67%
Canada	Kiggavik-Sissons Schultz	OP/UG	AREVA	64.80%	64.80%	64.80%
Canada	McArthur River	UG	Cameco	30.195%	30.195%	30.195%
Canada	McClean	OP	AREVA	70.00%	70.00%	70.00%
Canada	Midwest	OP	AREVA	69.16%	69.16%	69.16%
France	AREVA Mines	n.d.	AREVA	100.00%	100.00%	100.00%
Kazakhstan	Katco	ISR	AREVA	51.00%	100.00%	100.00%
Mongolia	Zoovch Ovoo	ISR	AREVA	66.00%	66.00%	100.00%
Mongolia	Dulaan Uul	n.d.	AREVA	66.00%	66.00%	100.00%
Namibia	Trekkopje Project	OP	AREVA	100.00%	100.00%	100.00%
Niger	Arlit Concession	n.d.	AREVA	100.00%	100.00%	100.00%
Niger	Cominak	UG	AREVA	34.00%	34.00%	-%
Niger	Imouraren	OP	AREVA	57.66%	57.66%	100.00%
Niger	Somaïr	OP	AREVA	63.40%	63.40%	100.00%
CAR	Bakouma	OP	AREVA	100.00%	88.00%	100.00%

\* Type of operation: ISR: In-Situ Recovery; OP: Open Pit; UG: Underground; n.d.: not defined.

\*\* Quantity of uranium likely to be sold/distributed to AREVA by the mining joint venture.

\*\*\* Share of production consolidated in AREVA's financial statements in 2014.

Source: AREVA.



#### **AREVA MED**

#### Radio-immunotherapy

AREVA Med is an AREVA subsidiary created in 2009 to develop innovative therapies to fight cancer. Based on an R&D program started in 2005, AREVA Med developed a unique process for producing high-purity lead-212 (212Pb), a rare isotope. Lead-212 is currently the focus of promising research projects in nuclear medicine to develop new treatments against cancer. This innovative approach is better known as alpha therapy (or radio-immunotherapy when combined with the use of an antibody).

#### Activities

AREVA Med's ambition is to develop effective, targeted therapies to fight cancer. Three lines of action are helping to achieve that objective:

- the production of high-purity lead-212 to meet clinical development needs;
- the conduct of pre-clinical studies and clinical trials to broaden the future applications of innovative treatments with lead-212;
- the supply of lead-212 to the global scientific community.

AREVA Med built the Maurice Tubiana Laboratory in Bessines-sur-Gartempe, in the Limousin region, to produce high-purity lead-212 for clinical development needs. Production began in 2013.

In 2012, AREVA Med entered into a strategic alliance with Roche, a pharmaceuticals laboratory, to create a new advanced platform for alpha radio-immunotherapy. The alliance is currently focusing on the treatment of the most aggressive cancers, for which the medical requirements are still far from being met. As part of their partnership, Roche and AREVA Med built a joint research laboratory called ARCoLab (AREVA Med Roche Common Laboratory) in the Limousin region of France, which began operating in 2013.

In 2012, AREVA Med also began the first Phase 1 clinical trial with lead-212, targeting intra-abdominal HER-2 expressing cancers (such as ovarian cancer or pancreatic cancer). The preliminary results of the trail were published in the Journal of Nuclear Medicine in October 2014.

In 2014, the urban area of Caen-la-Mer was chosen for AREVA Med's future industrial development in France.

#### **MARKET AND COMPETITIVE POSITION**

#### Market

Reactor requirements, expressed in natural uranium equivalent, were about 66,000 metric tons of uranium in 2014 (source: WNA 2013), a slight increase from 2013, led in particular by demand from Asia (e.g. China), after declining from 2010 to 2013 due to the shutdown of Japanese and German reactors and the closure of some US reactors, led in particular by demand from Asia (e.g. China).

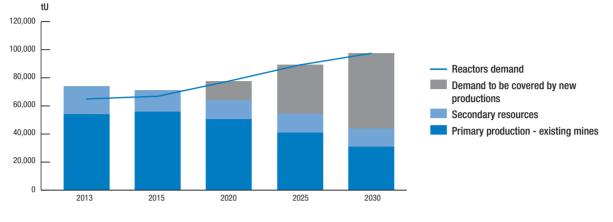
Supply consists of:

- mining production, which was around 56,000 metric tons of uranium, down from 2013 due to reduced production at existing mines and projects put under care and maintenance (e.g. Kayelekera, Honeymoon);
- secondary resources, consisting of highly enriched uranium (HEU) from dismantled Russian and US weapons, materials recovered from used fuel recycling, US Department of Energy uranium inventory market-out, the re-enrichment of tails and uranium from underfeeding.

Despite the end in 2013 of the HEU program, in which AREVA participated for several years, secondary resources - including uranium from underfeeding - should continue to play a role in the market in the coming years.



#### WORLD DEMAND AND SUPPLY



Source: WNA 2013.

#### Estimated world production in 2014

#### TOP TEN URANIUM PRODUCING COUNTRIES

Rank	Producer	<b>Production</b> (MTU)	%*
1	Kazakhstan	22,800	41%
2	Canada	9,000	16%
3	Australia	5,000	9%
4	Niger	4,100	7%
5	Namibia	3,300	6%
6	Russia	3,000	5%
7	Uzbekistan	2,500	4%
8	United States	1,900	3%
9	China	1,500	3%
10	South Africa	600	1%
	TOTAL TOP 10	53,700	97%
	Other	2,300	3%
	Worldwide production	56,00	100%

Source: Companies' annual reports (rounded to the nearest 100 metric tons) and AREVA estimates.

\* Rounded to the nearest bp.

#### TOP TEN URANIUM PRODUCERS

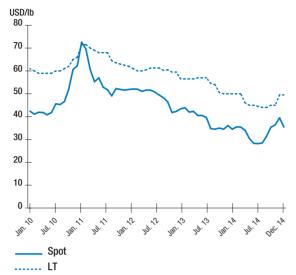
Rank	Producer	Available share of production (MTU)	%*
1	Kazatomprom	11,900	21%
2	Cameco	9,000	16%
3	ARMZ/Uranium One	8,500	15%
4	AREVA	7,307	13%
5	BHP Billiton	3,400	6%
6	Navoi	2,500	4%
7	Rio Tinto	2,300	4%
8	CNNC	2,300	4%
9	Paladin	1,800	3%
10	CGNPC	600	1%
	TOTAL TOP 10	49,500	88%
	Other	6,500	12%
	Worldwide production	56,000	100%

Source: Companies' annual reports (rounded to the nearest 100 metric tons) and AREVA estimates.

\* Rounded to the nearest bp.

In 2014, AREVA produced 7,307 metric tons of uranium (in share of available production).

### URANIUM PRICE INDICATORS 2010-2014 (IN CURRENT US DOLLARS)



Source: UxC, Trade Tech.

The spot market, which covers about 15% of uranium supplies, weakened in the summer of 2014 to \$28 per pound. It recovered in the fall, reaching \$44 per pound. These relatively low levels reflect an imbalance between supply and demand, currently offset by opportunistic purchases and inventory-in. The surplus of materials available on the market did not push to the signature of multiyear contracts in 2014, with the result that the average of long-term indicators stood at \$49.50 per pound at the end of 2014, compared with \$50 per pound at the end of 2013.

Since 2012, with the decline of market indicators, producers have announced numerous project postponements and the closure and/or mothballing of producing mines (e.g. Kayelekera in Malawi and Honeymoon in Australia). This restructuring is expected to continue in the coming months.

Longer term, the market is still expected to grow, with demand 35% higher in 2025 than in 2014 according to the World Nuclear Association (WNA), in particular with the restart of the Japanese reactors and growing reactor requirements from the Chinese nuclear program. Rising demand is expected to raise market prices and enable new projects to be launched.

#### **RESOURCES, RESERVES AND PRODUCTION SITES**

#### Uranium

AREVA has 186,540 metric tons of uranium reserves in its deposits (joint venture share).

The volume of the best-known resources (measured or indicated resources) is 98,623 metric tons of uranium (joint venture share). The volume of inferred resources available to AREVA is 173,046 metric tons of uranium (joint venture share).

#### Estimating methods

AREVA's resources and reserves are estimated based on data gathered by the group's teams or taken from audited reports. An internal group department is in charge of these estimates.

The mission of the Resources and Reserves Committee, which reports to the Executive Board, is to validate the schedule for updating resources and reserves, to validate the resources and reserves published by AREVA each year, and to ensure that the means, organization, and internal and external estimating methods enabled a comprehensive and objective estimate of resources and reserves, in accordance with international practices.

In Canada, the group's reserves are the subject of independent estimates or audit reports by the shareholders of the companies operating the mines.

In 2010, AREVA decided to conform to international standards for the classification of its resources and reserves. At December 31, 2014, 100% of its resources and 45% of its reserves were in conformance. The conformance of its reserves reached 99% following supplementary studies completed in early 2015.

#### DEFINITION OF RESOURCES

**Mineral Resources:** Concentrations whose form, quantity and grade or quality are such that they present reasonable prospects for economic recovery. The location, quantity, grade, geological characteristics and continuity of the mineral resources are known, estimated, or interpreted based on specific geological evidence and data. Mineral resources are subdivided into resources that are measured, indicated and inferred.

**Measured Resources:** Share of mineral resources for which the characteristics<sup>(1)</sup> are known such that they can be estimated with a high level of confidence to enable appropriate application of technical and economic parameters to support production planning and assessment of the economic viability of the deposit. The estimate is based on detailed, reliable information with sufficient detail to confirm both the continuity of the geology and the grades.

**Indicated Resources:** Share of mineral resources for which the characteristics<sup>(1)</sup> are known such that they can be estimated with a sufficient level of confidence to enable appropriate application of technical and economic parameters to support mining operation planning and assessment of the economic viability of the deposit. The estimate is based on detailed, reliable information with sufficient detail to issue a reasonable assumption on the continuity of the geology and the grades.

**Inferred Resources:** Share of mineral resources for which the quantity, concentration and grade can be estimated based on geological evidence and limited sampling, and which can be reasonably relied upon for assumptions of geological continuity and grades, without however verifying them.

#### **DEFINITION OF RESERVES**

**Mineral Reserves:** Economically and technically recoverable share of measured or indicated resources, as demonstrated by at least one preliminary feasibility study or mining project. The study includes adequate information about mining and processing operations, metallurgy, the economic aspects and other relevant factors to demonstrate that mining is profitable at the that time the report was written. Mineral reserves include dilution factors and the allowance for mining losses incurred during mining operations.

**Proven Mineral Reserves:** Economically and technically recoverable share of measured mineral resources.

Probable Mineral Reserves: Economically and technically recoverable share of indicated mineral resources and, in some cases, of measured mineral resources.

(1) Tonnage, grade, density, form and physical characteristics.

#### SIGNIFICANT CHANGES IN RELATION TO 2013 (JOINT VENTURE SHARE)

In 2014, AREVA renewed its reserves, adding 2,551 metric tons of uranium (joint venture share) from December 31, 2013 to December 31, 2014. Over that same period, measured and indicated resources fell by 5,581 metric tons of uranium, and inferred resources rose 3,448 metric tons of uranium.

Aside from the depletion of production, the following changes (joint venture share) occurred:

- Cigar Lake: The information collected during freezing operations led to an increase in reserves of 2,599 metric tons of uranium;
- Somair: Measured and indicated resources in Artois South and in stockpiles of marginal ore to be processed by heap leaching were changed to reserves (with a negative impact on ore grade and average recovery rate of Somair reserves);
- Katco: Measured and indicated resources in 12K block were converted to reserves (2,524 metric tons of uranium) and new resources were classified as inferred, measured and indicated on several blocks (for a total of 6,508 metric tons of uranium).

AREVA has no longer published the "Other Resources" category since 2012. As a reminder, historical estimates of resources for the Midwest deposit in Canada and the Dulaan Uul deposit in Mongolia, which were done before the adoption of international standards, totaled about 10,000 metric tons of uranium (joint venture share). These deposits have good potential but are not priorities and would require additional work to establish a resource estimate compliant with international standards.

#### MINERAL RESERVES IN THE GROUND IN METRIC TONS OF URANIUM (MTU) (YEAR-END 2014 ESTIMATES)

			Proven			Probable	•		Total reserves			
Country	Site	<b>Ore</b> KT	Grade ‰U	<b>Metal</b> <i>MTU</i>	Ore KT	Grade ‰U	<b>Metal</b> <i>MTU</i>	Ore KT	Grade ‰U	<b>Metal</b> <i>MTU</i>	Recovery %	Metal (after application of yields) MTU
Canada	Cigar Lake	206	203.57	41,853	392	123.82	48,489	597	151.28	90,342	98.50%	88,987
Canada	Key Lake	67	4.26	287	-	-	-	67	4.26	287	98.70%	283
Canada	McArthur River	498	158.64	78,970	555	96.92	53,809	1,053	126.10	132.778	98.70%	131,052
Canada	McClean	90	3.01	271	1	43.20	22	91	3.23	293	96.00%	281
Canada	Total	861	140.98	121,381	947	108.01	102,319	1,808	123.71	223,701		220,604
Kazakhstan	Katco	-	-	-	18,052	0.72	13,009	18,052	0.72	13,009	80,37%	10,455
Kazakhstan	Total	-	-	-	18,052	0.72	13,009	18,052	0.72	13,009		10,455
Niger	Cominak	771	3.36	2,594	2,569	3.70	9,506	3,340	3.62	12,100	93.10%	11,265
Niger	Imouraren	-	-	-	306,048	0.70	213,722	306,048	0.70	213,722	81.51%	174,196
Niger	Somaïr	15	1.27	19	5,292	1.46	7,752	5,307	1.46	7,771	83.40%	6,481
Niger	Total	786	3.32	2,613	313,909	0.74	230,980	314,695	0.74	233,593		191,942
	TOTAL	1,647	75.27	123,994	332,908	1.04	346,308	334,556	1.41	470,302		423,000

Source: AREVA.

		AREVA	share
Country	Site	Share in JV MTU	Available to AREVA* MTU
Canada	Cigar Lake	33,014	33,014
Canada	Key Lake	47	47
Canada	McArthur River	39,571	39,571
Canada	McClean	197	197
Canada	Total	72,829	72,829
Kazakhstan	Katco	5,332	10,455
Kazakhstan	Total	5,332	10,455
Niger	Cominak	3,830	3,830
Niger	Imouraren	100,439	100,439
Niger	Somaïr	4,109	4,109
Niger	Total	108,378	108,378
	TOTAL	186,540	191,663

\* Share available to AREVA: share of resources and production likely to be sold/ distributed to AREVA by the mining joint venture. For reserves, this share is expressed in concentrates, i.e. after taking into account mining and milling recovery. Source: AREVA.

#### MINERAL RESOURCES IN THE GROUND IN METRIC TONS OF URANIUM (MTU) (YEAR-END 2014 ESTIMATES)

		t	Measured	ļ	r r	Indicated	ļ	Meas	ured + indicate	ed	
								1			
Country	Site	Ore KT	Grade ‰U	Metal MTU	Ore KT	Grade ‰U	Metal MTU	Ore KT	Grade ‰ປ	Metal MTU	
Canada	Cigar Lake	5	100.91	474	20	68.57	1,344	24	74.82	1,818	
Canada	Dawn Lake	-	-	_ ]	184	37.46	6,885	184	37.46	6,885	
Canada	Kiggavik	-	-	_	10,418	4.70	48,953	10,418	4.70	48,953	
Canada	McArthur River	101	30.05	3,032	12	85.36	1,024	113	35.93	4,056	
Canada	McClean	82	30.23	2,479	242	14.13	3,424	324	18.21	5,903	
Canada	Midwest	-	-	_ ]	463	4.81	2,227	463	4.81	2,227	
Canada	Total	188	31.91	5,986	11,339	5.63	63,857	11,526	6.06	69,843	
Kazakhstan	Katco	-	-		6,310	1.03	6,510	6,310	1.03	6,510	
Kazakhstan	i Total		-	-	6,310	1.03	6,510	6,310	1.03	6,510	
Mongolia	Zoovch Ovoo	-	-	_ ]	ı	-	-		-	-	
Mongolia	Total		-	_ ]	r –	-	-	· -			
Namibia	Trekkopje Project			_	-	_	_	-			
Namibia	Total		-	_ ]	ı –	-	-	ı –			
	Arlit			+				ı			
Niger	Concession	-	-	_ ]	-	-	-		-	-	
Niger	Cominak	-	-	_ ]	ı =	-	-		-	-	
Niger	Imouraren	-	-	_ ]	108,668	0.58	62,584	108,668	0.58	62,584	
Niger	Somaïr	-	-	_ ]	20,532	1.41	28,919	20,532	1.41	28,919	
Niger	Total	-	-		129,200	0.71	91,503	129,200	0.71	91,503	
CAR	Bakouma	-	-		-	-	-	-	-	-	
CAR	Total	-	-	-	-	-	-	-	-	-	
Gabon	Bagombe		-	_	-	-	-	-	-		
Gabon	Total		_		ı	-		·	-		
	TOTAL	188	31.91	5,986	146,849	1.10	161,870	147,036	1.14	167,856	

\* Share available to AREVA: share of resources and production likely to be sold/distributed to AREVA by the mining joint venture.

\*\* Average grade after dilution of the ore to be leached.

Source: AREVA estimates.

AREVA		Inferred		AREVA	share	
JV share measured + indicated <i>MTU</i>	Available to AREVA Measured + indicated* <i>MTU</i>	<b>Ore</b> <i>KT</i>	Grade ‰U	<b>Metal</b> <i>MTU</i>	Inferred share in JV MTU	Inferred Available to AREVA* <i>MTU</i>
675	675	294	137.61	40,402	14,989	14,989
1,590	1,590	46	8.44	385	89	89
31,722	31,722	731	2.82	2,059	1,334	1,334
1,225	1,225	351	62.59	21,962	6,631	6,631
4,132	4,132	38	10.07	382	267	267
1,540	1,540	9	180.65	1,662	1,149	1,149
40,883	40,883	1,468	45.53	66,852	24,461	24,461
3,320	6,510	26,729	0.84	22,355	11,401	22,355
3,320	6,510	26,729	0.84	22,355	11,401	22,355
-	-	525,000	0.10**	50,000	33,000	33,000
	-	525,000	0.10	50,000	33,000	33,000
-	-	250,000	0.10	26,000	26,000	26,000
-	-	250,000	0.10	26,000	26,000	26,000
		10.045	1 50	00.400	00.400	00.400
-	-	12,845	1.59	20,403	20,403	20,403
-	-	355	2.70	958	326	326
36,085	36,085	4,394	0.66	2,879	1,660	1,660
18,335	18,335	13,069	1.68	21,925	13,900	13,900
54,420	54,420	30,663	1.51	46,165	36,289	36,289
-	-	17,974	2.03	36,475	36,475	32,098
-	-	17,974	2.03	36,475	36,475	32,098
-	-	2,000	2.71	5,420	5,420	5,420
· ·	-	2,000	2.71	5,420	5,420	5,420
98,623	101,813	853,834	0.30	253,267	173,046	179,623

#### Mining site rehabilitation

Since the start of the group's mining operations, several hundred million euros have been spent on facility dismantling and rehabilitation of mining sites in France, Gabon, the United States and Canada. The purpose of rehabilitation is to ensure that residual environmental impacts are as low as reasonably achievable.

Site surveillance continues after rehabilitation, in particular monitoring of air quality, surface water and groundwater quality, bio-indicators and the food chain. The monitoring provided under post-closure management plans for the mine sites is of variable duration, depending on the pace of improvement and the stabilization of chemical and radiological parameters. These plans are discussed with national administrations and local stakeholders. The period is specific to each site, based on its characteristics. Experience to date indicates that this period is generally not less than 10 years. For sites located in emerging countries and/or countries where there are strong expectations of local economic support, AREVA also leads societal initiatives designed to generate income and create jobs for communities affected by mine closures.

#### **RELATIONS WITH CUSTOMERS AND SUPPLIERS**

The group sold 12,602 metric tons of uranium in 2014, versus 17,623 metric tons in 2013. This decrease reflects the exceptionally high volumes delivered in 2013 (last sales of uranium under the HEU agreement and reduction of natural uranium inventories).

The Mining Business Group had an order uptake of 534 million euros, bringing the backlog to 9.539 billion euros at the end of 2014. The backlog is diversified among customers in different uranium-consuming regions.

#### **Suppliers**

The Mining Business Group offers its customers uranium from the mineral resources of the companies in which AREVA has an equity interest, or from uranium bought on the market.

#### **Development outlook and challenges**

In a post-Fukushima environment, and despite a slower pace of growth in demand, AREVA intends to remain a key supplier of natural uranium. Its objective is to continue to optimize the competitiveness of existing sites and to develop its project portfolio by conducting the necessary studies in order to be able to launch new investment when a sustainable recovery in uranium prices is observed.

In this way, AREVA intends to strengthen its position in the uranium market while remaining one of the most competitive producers.

#### 6.4.2. FRONT END BG

#### **KEY FIGURES**

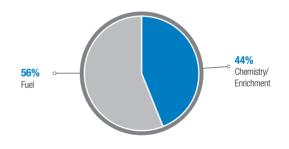
	2014	2013
Revenue* (in millions of euros)	2,235	2,074**
Operating income (in millions of euros)	(416)	61**
Workforce at year end	8,080	7,596***

\* Contribution to consolidated revenue.

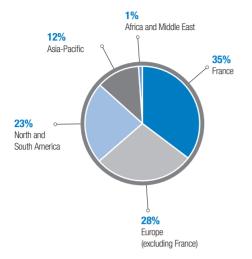
\*\* In application of IFRS 5 and IFRS 11, the financial statements at December 31, 2013 were restated to present pro forma data at comparable consolidation scope at December 31, 2014

\*\*\* After implementation of a new tool to consolidate workforce information, the number of employees for 2013 was restated to reflect the financial consolidation scope and to include early retirees, who were not taken into consideration until now.

#### 2014 REVENUE BY BUSINESS AND GEOGRAPHICAL AREA



Source: AREVA.



Source: AREVA.

#### **OVERVIEW**

The Front End Business Group combines all of the operations required to convert uranium concentrates into nuclear fuel assemblies designed to generate electricity. In 2014, it represented 27% of the group's revenue and had a backlog equivalent to approximately nine years of revenue.

AREVA operates in every segment of the nuclear fuel cycle and is a leading player in the front end of the supply chain.

The Business Group operates in the three major stages of fuel fabrication:

- chemical conversion of the ore (U<sub>3</sub>O<sub>8</sub>) into uranium hexafluoride (UF<sub>6</sub>);
- enrichment of the natural uranium hexafluoride in uranium-235; and
- design and fabrication of nuclear fuel.

The Business Group's business model is characterized by significant capital expenditure in industrial facilities using very advanced technologies, made possible by customer commitments through multiyear contracts.

The Business Group's customers are primarily operators of nuclear power plants. During all of these operations, the customers retain ownership of the nuclear materials; they buy commercial uranium transformation services (conversion, enrichment and fuel fabrication) from AREVA.

#### **HIGHLIGHTS OF THE PERIOD**

#### **Buoyant sales**

The order intake came to more than 4.5 billion euros during the year, bolstering the backlog, which reached 19 billion euros at the end of the year while giving the Front End Business Group very good visibility on future operations.

Sales were particularly buoyant in fuel fabrication, with new multiyear contracts signed for a total of more than 3.6 billion euros. The major contract signed with EDF for fuel design and fabrication over the 2015-2021 period will secure fuel supply for a significant share of the French reactor fleet. Other fabrication contracts were signed with utility customers including Vattenfall in Sweden, TVO in Finland, RWE in Germany, Electrabel in Belgium, and Duke, XCEL, TVA, FP&L and Entergy in the United States.

Several contracts were signed in Europe, Asia and the United States in the conversion and enrichment activities.

#### **STRATEGY AND OUTLOOK**

#### Context

The conversion and enrichment markets are structured around a small number of international players, mainly in North America, Europe and Russia. Global reactor demand for uranium calls for having nearly 62,000 metric tons per year of UF<sub>6</sub>, which requires more than 49 million separative work units (SWU – see *Glossary*) to enrich the uranium.

In the fuel business, the Business Group mainly serves the market for Westerndesigned light water reactors, of which there are about 300 worldwide. These reactors require approximately 6,000 metric tons of fuel each year.

#### Outlook

The conversion and enrichment markets, currently in a surplus situation, are expected to grow over time. AREVA's industrial assets have been replaced in anticipation of growth in demand:

- AREVA launched in 2007 the replacement of its conversion production capabilities with the Comurhex II project.
- With respect to the Enrichment business, the group's gaseous diffusion enrichment plant was shut down permanently in 2012 and was replaced by the new Georges Besse II plant, which produced its first SWU in 2011. As of the end of 2014, this plant had reached production capacity of 6.4 million SWU.

The global fuel market is expected to be stable; growth prospects will depend on the number of new power plants connected to the grid.

#### Strategy

The strategic priorities of the Front End activity are:

#### To regain the profitability of conversion by successfully shifting from Comurhex I facility to Comurhex II, capitalizing on our existing domestic customers and on the growth of the Chinese market

Ensuring the full use of the Comurhex II plant's nominal capacity of 15,000 metric tons per year is the activity's primary objective and will be based on the growth of AREVA's market share, particularly in France and China. Chinese market growth will be exploited by structuring a long-term partnership with China which will also promote the experience and facilities of Comurhex II.

#### To strengthen the profitability of investments in enrichment by taking action on costs and the commercial portfolio

In the near term, AREVA aims to secure the commercial backlog of the Georges Besse II plant to ensure that the plant's workload reaches its capacity of 7.5 million SWU per year. Optimizing the competitiveness of industrial assets will be one of the activity's operational priorities. Adapting the commercial strategy, in particular by rebalancing the customer portfolio, will also be a driver for profitability.

#### To strengthen its leadership position in fuel assembly fabrication

AREVA wants to remain the leading supplier of EDF.

The development of its presence in Asia will also be a key driver for leadership: the Front End activity's ambition is to step up the development of existing joint ventures in China (e.g. CAST) and to expand its footprint to other manufacturing and design fields.

Outside China, maintaining AREVA's share of its traditional markets will be based on the development of its technological assets (e.g. through the GAIA and ATRIUM™11 products).

#### 6.4.2.1. CHEMISTRY-ENRICHMENT

#### **Key figures**

	2014	2013
Revenue* (in millions of euros)	988	780
Workforce at year end	4,019	4,315

\* Contribution to consolidated revenue.

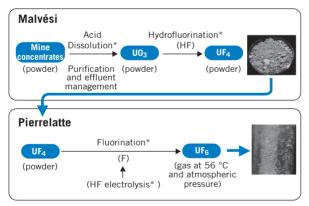
#### **Businesses**

### Conversion of natural uranium $(U_3O_8)$ into uranium hexafluoride $(UF_6)$

The Chemistry business' primary activity is to convert natural uranium ( $U_3O_8$ ) into uranium hexafluoride (UF<sub>6</sub>). Uranium enrichment, the necessary next step in nuclear fuel fabrication, requires uranium in the chemical form of UF<sub>6</sub> as feed material for all types of enrichment technologies.

Uranium concentrates shipped from the mine for conversion are owned by the electric utility customer. They are converted in a two-stage process:

- in the first stage, the uranium is converted into uranium tetrafluoride (UF<sub>4</sub>). This
  involves dissolving the mine concentrates in acid, then purifying them to produce
  UO<sub>3</sub> powder. This powder is then hydrofluorinated with hydrofluoric acid, which
  converts it into UF<sub>4</sub>. These operations are carried out in AREVA's plant at the
  Malvési site in the Aude department of southern France;
- In the second stage, the UF₄ is converted through fluorination into uranium hexafluoride (UF<sub>6</sub>), a chemical compound that exists in gaseous form at relatively low temperature. The fluorine used in this process is produced through electrolysis of anhydrous hydrofluoric acid. These operations are carried out in AREVA's plant at the Tricastin site in the Drôme and Vaucluse departments of southern France.



\* Purely chemical operations (no change to the uranium's isotopic composition).

#### Source: AREVA

#### Enrichment of natural uranium in uranium-235

Enrichment operations consist of increasing the uranium-235 assay of natural uranium from its initial 0.7% to the assay specified by the customer, within a range of 3 to 5%, depending on the type and operating mode of the reactor. Molecules of gaseous uranium hexafluoride (UF<sub>6</sub>) undergo isotopic separation to achieve the desired enrichment assay. AREVA supplies the enrichment service to the customer, with the latter retaining ownership of its material.

An enrichment plant's production is expressed in separative work units (SWU). This unit is proportionate to the quantity of uranium processed and is a measure

of the work required to separate the fissile uranium-235 isotope. The SWU is a standard international unit of measurement for enrichment services and sales, and is independent of the separation technology used.

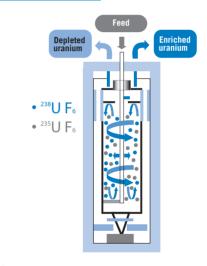
### Implementation of a new, more efficient enrichment technology that uses less energy

Following the shut-down of Eurodif's gaseous diffusion enrichment plant in 2012, AREVA invested in the new Georges Besse II plant and has now deployed the centrifuge enrichment technology, which meets increasingly stringent nuclear safety, environmental protection and competitiveness requirements.

In using this new technology, the Georges Besse II plant consumes 50 times less electricity than that consumed by the gaseous diffusion process. Another advantage is its modular construction, enabling rapid ramp-up of production and adjustment of production capacity to market demand.

At the same time, the PRISME program, designed to reduce residual radioactivity in Eurodif's gaseous diffusion enrichment plant in preparation for its dismantling, will continue until the end of 2015. AREVA is also preparing the dismantling permit application.

#### **CENTRIFUGATION CONCEPT**



#### Source: AREVA

The gaseous diffusion process takes advantage of the difference in the atomic weight of  $^{235}\text{U}$  and  $^{238}\text{U}$  to separate those two isotopes in the UF\_6.

The centrifugal force concentrates the heaviest particles at the cylinder walls, creating isotopic separation. The gas enriched in the lighter isotope, located closer to the center of the bowl, flows towards the top of the machine, while the gas with the heavier isotope flows towards the bottom. The enriched and depleted products are recovered at either end of the machine.

#### Conversion of depleted uranium hexafluoride into an oxide

The enrichment of uranium generates uranium hexafluoride (UF<sub>6</sub>) depleted in the uranium-235 isotope. This depleted uranium is converted into stable, insoluble, non-corrosive uranium oxide that can be safely stored pending reuse, either in its depleted state or after a new enrichment stage. Very few defluorination facilities in the world are able to convert depleted uranium hexafluoride into an oxide on a production scale.

The conversion of depleted uranium hexafluoride into an oxide generates an ultrapure, aqueous, 70% hydrofluoric acid, which is marketed. AREVA earns a return from its internationally recognized expertise in depleted uranium defluorination through technology sales agreements with world-class companies. AREVA's know-how enables customers to store this reusable material safely and to produce hydrofluoric acid that can be marketed to the chemical industry. AREVA's know-how led to the signature of contracts for the sale and installation of defluorination lines with Tenex and URENCO.

#### Recycling of uranium from used fuel treatment

After a reactor residence time of nearly four years, uranium constitutes 95% of the remaining content of the used nuclear fuel. The uranium is recovered through treatment operations performed at the AREVA la Hague plant (see Section 6.4.4.1. *Recycling*) and is shipped in the form of liquid uranyl nitrate for chemical conversion into a stable oxide powder. Uranium from used fuel treatment (reprocessed uranium, or RepU) may then be reconverted into uranium hexafluoride and re-enriched for reuse in the fabrication of fresh fuel, in which case it is called enriched recycled uranium (ERU).

#### Other fluorine derivatives

The know-how needed for conversion, particularly in the field of uranium fluorination, has served to develop fluorination activities such as the production of chlorine trifluoride, used to clean enrichment barriers from the Eurodif plant, which was shut down permanently in 2012.

#### Manufacturing and human resources

The Front End Business Group's Chemistry-Enrichment operations are split between two industrial sites in France, *i.e.* Malvési and the integrated platform at Tricastin:

- the Malvési plant produces UF<sub>4</sub> in five furnaces, which operate concurrently (annual capacity of about 14,000 metric tons);
- UF<sub>6</sub> is produced at the Tricastin site in two flame reactors (annual capacity of about 14,000 metric tons);
- UF<sub>6</sub> is enriched at the Georges Besse II plant at the Tricastin site operated by Société d'Enrichissement du Tricastin (SET) (annual capacity of 7.5 million SWU after completion of the project);
- depleted uranium is defluorinated in four production lines in a facility (called "W") at the Tricastin site (annual capacity of about 13,000 metric tons);
- uranyl nitrate is converted into oxide in another facility (called "TU5"), also at the Tricastin site (annual capacity of about 1,250 metric tons)
- the Tricastin integrated platform also pools all of the logistical, laboratory, waste and effluent treatment, and equipment repair resources in the Department of Industrial Services, enabling all of the sites plants to be served more efficiently and in a more cost-effective manner.

Integration of the Tricastin platform was completed in 2013 with the pooling of support functions and the creation of industrial services for the entire site. In October 2013, the French nuclear safety authority ASN approved the new safety organization. With this integration, AREVA will reap the benefits of bringing together

on a single platform all operations related to the transformation of uranium, such as UF<sub>6</sub> shipments between the different plants, at a lower cost and under better safety conditions. The personnel employed in the facilities are certified for the use of hazardous chemicals and for the special aspects of uranium work.

AREVA is the majority owner of SET. Six partners own a total of 12% of the company's capital (5% for GDF SUEZ, 2.5% for Kansai Electric Power together with Sojitz, 2.5% for Korea Hydro & Nuclear Power Co. Ltd, 1% for Kyushu Electric Power and 1% for Tohoku Electric Power), demonstrating our utility customers' dedication to this major project.

AREVA is a 50% shareholder in Enrichment Technology Company (ETC) alongside URENCO, which manufactures the centrifuges used for uranium enrichment.

#### **Relations with customers and suppliers**

#### Customers

At the request of utility customers, the average term of recently signed conversion contracts is on an upward trend. In 2014, AREVA made deliveries to more than 35 customers across the globe, mostly in Europe, Asia and the United States. The volume of the transactions remained stable compared with 2013 but was down significantly in relation to the volume of the previous years, given that the utilities have already largely covered their needs and in view of buoyant trading activities in 2011.

The enrichment market is structured around multiyear commitments. The order book for enrichment includes close to 37 utility customers, primarily in the United States, Europe and Asia, corresponding to the supply of an average of about sixty reactors worldwide each year.

#### **Suppliers**

The risk of supply interruptions of the chemical reagents needed for its production operations are minimized by contracting with suppliers based in Europe and in the rest of the world.

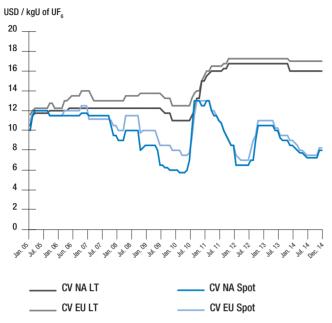
#### Market and competitive position

#### CONVERSION MARKET

Annual global demand for conversion in 2014 is estimated at about 62,000 metric tons of natural UF<sub>6</sub>, including 18,100 metric tons in Western and Central Europe (Euratom area), 10,500 metric tons in Eastern and Southeastern Europe, 17,300 metric tons in North America, and 16,100 metric tons in Asia. China's uranium conversion requirements are rising quickly, largely contributing to the growth in global demand for these services. According to the World Nuclear Association (WNA), Chinese demand for UF<sub>6</sub> will be around 12,500 metric tons in 2020 (Source: 2013 WNA Report).

Despite the post-Fukushima market context, representative indicators for multiyear transactions remained stable after the rising trend started in mid-2010, at about 17 dollars per kilo of uranium. They express the perception of a weak long-term conversion market combined with the need to replace aging production facilities.

#### UF6 CONVERSION PRICES (LONG-TERM AND SPOT)



Source: UxC.

#### COMPETITIVE POSITION IN CONVERSION

With nominal production capacity of 14,000 metric tons of UF<sub>6</sub> in 2014, AREVA is a major global player in conversion services. Its main competitors are TVEL in Russia, Converdyn in the United States and Cameco in Canada. The State-owned China National Nuclear Corporation (CNNC) still had limited capacity in 2014 but strong growth potential for the future.

Two notable events impacted world supply of conversion in 2014: TVEL closed the Angarsk plant in Russia, and the Springfields plant was shut down after non-renewal of its contract with Cameco.

The current capacities of AREVA's competitors are thus estimated as follows:

- 12,000 metric tons for TVEL;
- 15,000 metric tons for Converdyn;
- 12,000 metric tons for Cameco;
- 4,000 metric tons for CNNC.

It should be noted, however, that most of the plants do not operate at their nominal capacity. Plants in Western countries operated at an average of 60% of their nominal capacity over the past 10 years, mainly due to outages for maintenance and safety upgrades. AREVA's production was close to 90% of its nominal capacity during that same period. (Source: *Ux, December 2013*).

The conversion plants therefore have enough existing and future capacity to meet current demand through 2018-2020. After that time, available nominal capacities will have to be increased to meet growing demand adequately, especially in Asia, the Middle East and Eastern Europe.

Two incidents occurred at Converdyn's Metropolis plant in 2014: a conflict between management and labor that lasted almost half of 2014, and a UF<sub>6</sub> leak which caused the plant to be shut down for more than three weeks. After this incident, the plant announced that it would be closed for 90 days beginning in January 2015.

#### ENRICHMENT MARKET

Global annual demand for enrichment is estimated at more than 49 million SWU in 2013 (*source: WNA 2013*). Market growth will remain limited in volume, but will also be relatively steady, essentially driven by Asia, where nuclear power programs are growing faster than in the other three major regions of the world.

Prices had begun to rise significantly in 2005, but have sagged in the past two years. The Fukushima accident triggered a drop in spot market indicators due to reduced demand in Japan and Germany and a drop in long-term indicators, particularly until Japan announces the restart of its reactors. Tensions related to the situation in Ukraine could weigh on the market and cause prices to rise.

The market is traditionally regulated by geopolitical considerations, but they have less and less impact. In Europe, the Euratom Supply Agency monitors the supply of uranium and enrichment services within the framework of the Corfu Declaration. In the United States, since the US Congress amended the Suspension Agreement in 2008, the Russian supplier Rosatom is allowed to supply up to 20% of the US utilities' requirements starting in 2014 and concluded several contracts with these customers.

However, in Russia, Rosatom's competitors are still unable to access the Russian uranium enrichment market.

#### **COMPETITIVE POSITION IN ENRICHMENT**

Operator	Estimated installed capacity	Process
Georges Besse II (France)	6.4 million SWU/year	Centrifugation
Rosatom (Russia)	26.0 million SWU/year	Centrifugation
URENCO (UK, Germany, Netherlands, USA)	18.1 million SWU/year	Centrifugation
CNNC (China)	4.1 million SWU/year	Centrifugation
Other (Japan, Brazil)	0.1 million SWU/year	Centrifugation
TOTAL (AT 12/31/2014)	54.7 MILLION SWU/YEAR	

Source: AREVA estimates based on available data.

AREVA, URENCO and Rosatom are the leading players in the enrichment market.

The Georges Besse II plant had already achieved an installed production capacity of 6.4 million SWU at year end 2014. Given the modularity of the centrifugation technology, Georges Besse II will gradually increase its production capacity and will reach its nominal capacity of 7.5 million SWU in 2016.

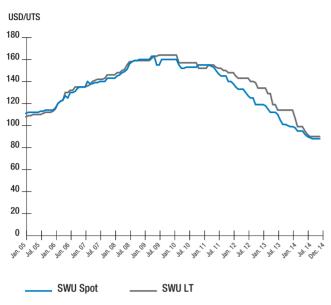
On September 30, 2014, the US bankruptcy court approved the reorganization plan of Usec Inc., which could thus continue its operations under the new name Centrus Energy Corp. At this point, Centrus is a trader rather than a producer: no direct production is planned before the construction of the American Centrifuge Plant (ACP), with the planned schedule showing delays until at least 2020.

URENCO, whose shareholders are German, British and Dutch, announced that its installed capacity in Europe and the United States reached 18.1 million SWU per year in 2014.

In former USSR countries, for historical reasons, demand is chiefly met by Rosatom, whose enrichment plants are split among four combines: Angarsk, Zelenogorsk, Seversk and Novouralsk. All of these plants use centrifugation technology.

GE-Hitachi has drastically reduced financing for its laser enrichment project and is now concentrating on its Wilmington project.

#### SPOT AND LONG-TERM SWU PRICES FROM 2005 TO 2014 (IN CURRENT US DOLLARS)





## Outlook and development goals

One of the strategic objectives for the Chemistry-Enrichment operations is to bolster AREVA's position as a major player on the global uranium conversion market. It will continue to benefit from the integration of the group's operations and its physical proximity to Europe's enrichment plants.

To achieve this goal, AREVA decided in 2007 to replace its uranium conversion production capabilities by investing in a new conversion plant at the Malvési and Tricastin sites; known as the Comurhex II project, both sites are concerned. The new plant will have a full production capacity of 15,000 metric tons, with the possibility of increasing capacity later to 21,000 metric tons. At this point, Comurhex II is the only new conversion plant project to be launched in the world. It will replace the existing capacity of Comurhex I. The Comurhex II plant is designed to offer maximum security of supply to our customers. In addition, it meets the most recent safety standards, particularly in terms of its ability to withstand earthquakes and flooding. Comurhex II also received triple ISO 9001, ISO 14001 and OHSAS 18001 certification. Recently, the plant demonstrated its energy efficiency innovations when it was certified for ISO 50001 for an electrolysis facility used to heat the buildings.

With Comurhex II, the environmental footprint will decrease considerably:

- 75% reduction in ammonia effluents, 50% for nitric acid and fluorine, and 60% for potassium hydroxide thanks to the lsoflash process;
- 90% reduction in the annual consumption of water.

In 2014, the Comurhex II project continued after reaching major milestones in 2013:

- at the Malvési site, the new facilities were tested with uranium, in particular the thermal denitration process, which will replace chemical denitration;
- at the Tricastin site, construction continued for the fluorination functions.

In addition, AREVA's objective is to start up its new Comurhex II plant and win market share in growth regions – principally China.

The enrichment market offers 15 to 20 years of visibility, given the known operating period of reactors in the current fleet. Growth in volume is relatively secure. The sharp upturn in demand in Asia will largely offset an expected decline in demand in Europe.

For the coming years, the goal of the Enrichment business is to successfully ramp up production at the Georges Besse II plant in order to reach full production capacity in 2016 and to consolidate the profitability of the investments made with operational and commercial levers.

## 6.4.2.2. **FUEL**

## Key figures

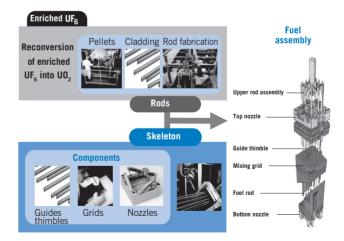
	2014	2013
Revenue* (in millions of euros)	1,246	1,294
Workforce at year end	4,061	4,240

\* Contribution to consolidated revenue.

## Businesses

The Fuel business designs, fabricates and markets fuel assemblies and provides fuel-related services for power generating stations with light water reactors (commonly called PWR for pressurized water reactors and BWR for boiling water reactors). In addition to conventional enriched uranium oxide fuel (UO<sub>2</sub>), the Fuel business markets MOX fuel (a mix of uranium and plutonium oxides) and enriched recycled uranium fuel (ERU – see Glossary) containing fissile materials from the used fuel recycling process. The Back End Business Group's Recycling Operations Department fabricates the MOX fuel (see Section 6.4.4. *Back End Business Group*).

# PRINCIPAL STAGES IN LIGHT WATER REACTOR FUEL ASSEMBLY FABRICATION



Source: AREVA, PWR reactor system.

Reactor safety is a function of several requirements:

- containment, in the nuclear safety sense, of radioactive products under both normal and accidental operating conditions;
- control of the chain reaction; and
- cooling of the reactor core.

Fuel assemblies contribute to reactor safety by sealing fissile materials and radioactive fission products inside zirconium alloy cladding, which forms the primary containment barrier.

Once unloaded from the reactor, the fuel assembly must continue to provide containment for the fissile materials and fission products, allow for residual heat dissipation and fuel handling, even after having been stored for relatively long periods, and allow for treatment when the closed fuel cycle has been chosen. The number of assemblies periodically replaced simultaneously (every 12 to 24 months) constitutes a fuel reload.

The Fuel business has expertise in every aspect of the fuel design and fabrication process, from the production of zirconium and its alloys to fabrication of the final fuel assembly. A large number of high-level scientific and technical skills must be pooled to achieve flawless design and fabrication quality, an absolute requirement. The Fuel business has expertise in three key areas:

- fuel design: This brings into play neutronic, thermohydraulic and mechanical design codes and databases built on lessons learned from many years of reactor operations. Fuel designs are referenced in reactor operating license applications, making the fuel designer one of the utility's most important partners in its relations with its national or local safety authority;
- zirconium and zirconium alloy production: This draws on expertise in chemical and metallurgical processes and technologies;
- fuel assembly fabrication: This requires knowledge of chemistry, powder metallurgy, various assembly techniques, including advanced welding, mechanical systems and machining, and numerous non-destructive examination methods and physico-chemical analyses.

The Fuel business also manufactures zirconium-based products and semi-finished products that may be sold to some competing fuel fabricators. In addition, the Fuel business markets fuel-related engineering services, fabrication services and onsite services.

## **Operations and highlights**

Production plant streamlining and performance improvement continues.

In the United States, after the 2011 transfer to Richland of fuel fabrication activities carried out in Lynchburg until then, and the shutdown of the Erwin site in 2013, an operating excellence program involving the pellet manufacturing operations is being deployed in Richland.

In Europe, the phase-out of the Dessel plant in Belgium is proceeding according to the initial schedule. The Lingen site in Germany is pursuing an optimization plan to keep its production costs at the current level against a backdrop of the phaseout of the German reactors. The site is also completing a certification process for gadolinium pellet manufacturing. In France, the Romans plant continues to implement an ambitious action plan to secure its commitments in terms of safety and to increase capacity.

Concerning the zirconium tubes production activity, the diversification project at the Duisburg site in Germany concluded with the sale to an industrial investor. In addition, the CAST joint venture in China with SGTC (a subsidiary of the Chinese

nuclear group CNNC) recorded its first orders in 2014 and entered the production phase, in accordance with the original schedule.

Also, FBFC (fuel fabrication for power reactors), CERCA (fuel fabrication for research reactors) and CEZUS (manufacturing of zirconium products) merged with AREVA NP in 2014, thus contributing to legal and administrative simplification in the AREVA group.

## Manufacturing and human resources

The Fuel business is organized into six business lines with facilities in Europe and the United States:

- Fuel Design;
- Contracts & Services, which also includes the development of fuel-related service offers;
- Supply Chain;
- Products and Technologies;
- Zirconium, encompassing the full range of manufacturing processes, from the zircon ore to the finished product, with five plants in France and one in Germany as well as two joint ventures in Japan and China, each plant specializing in one aspect of zirconium metallurgy or forming;
- Fuel Fabrication, organized into six production sites, one in the United States and five in Europe, which mainly supply US and European utilities. In Japan, production from a joint venture site serves the Japanese market.

## **Relations with customers and suppliers**

## Customers

Sales contracts are generally concluded for multiple years and for one or more reactors of a single utility. These contracts may include services such as shipping and handling, technical support for fuel loading and unloading operations, fuel inspection during scheduled outages, and even in-core repair of defective fuel rods or assemblies at the utility's reactor site. Given their importance for the customer's operations, the contracts normally include warranties. These warranties are provided for:

- fuel integrity under all normal operating conditions and up to the contractual burnup (see Glossary);
- satisfactory fuel performance in the reactor at nominal power;
- compatibility with fuel assemblies already in the reactor, recognizing that the reactor core is refueled in sections; and
- fuel transportability and the ability to store the fuel safely after irradiation.

## Suppliers

After rising sharply in 2011, the market for zircon sand – a staple commodity from which zirconium metal is extracted at the Jarrie plant – stabilized in 2012, fell slightly in 2013 and remained stable in 2014. A new supplier was certified in South Africa.

The price of nickel, which is used in inconel alloys, followed a similar trend during the first three quarters of 2014. It started to increase in the 4th quarter. The price of carbon black remained stable in 2014 despite the fluctuations in the price of oil, to which is pegged.

The group's supplies of other materials or key components – magnesium and niobium or the components needed to manufacture rod cluster control assemblies

(silver-indium-cadmium bars) and stainless steel tubing – are secured with multiyear contracts.

The rising electricity rates recorded since 2007 lessened significantly in 2014. Industrial gas prices (argon, nitrogen, hydrogen) are stable. Despite a supply deficit in the helium market, the price impact was contained in 2014.

The workload of subcontractors for rod clusters and spacer grid cutting will stabilize over the 2013-2015 period.

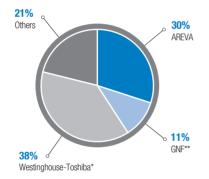
### Market and competitive position

The Fuel business's target market is that of fuel assemblies for light water reactors (LWR). It represents most of the world's operating reactors and is divided into two groups: pressurized water reactors (PWR) and boiling water reactors (BWR).

Following the industrial reorganizations in the fuel industry of the past few years, approximately 79% of the requirements for light water reactors (excluding VVER fuel) are supplied mainly by AREVA, Toshiba-Westinghouse <sup>(1)</sup> and Global Nuclear Fuel (GNF) <sup>(2)</sup>. As of the end of 2014, AREVA had supplied a total of more than 221,300 assemblies.

The Fuel business is still ranked number one in Europe despite the closure of the German reactors, most of which it served, and it is the leading challenger in the US market. It is also a long-standing technology partner of key nuclear companies in China. It should be noted that AREVA does not serve the VVER fuel segment, in which TVEL remains the majority supplier.

# MARKET SHARE OF LIGHT WATER REACTOR FUEL SUPPLIERS, EXCLUDING VVER REACTORS, IN 2014



\* Westinghouse-Toshiba including NFI and the part of fuel outsourced to ENUSA (Europe).
\*\* GNF including GNF-A (USA), GNF-J (Japan) and the part of fuel outsourced to GENUSA (Europe).

Source: NAC (Fuel Trac November 2014 edition) ; average values on 2014 +/- 1 year, based on new fuel loaded annually in reactors.

Considering that a number of the world's power plants were taken offline or shut down (in Japan, Germany and the United States), and despite the growth of nuclear power in China, the fuel market remained stable at less than 6,500 metric tons of heavy metal (uranium or plutonium contained in the fuel assemblies) and less than 6,000 metric tons excluding the VVERs. There will be no noticeable increase in fuel demand until a sufficient number of new power plants have been connected to the grid.

## Outlook and development goals

The first objective of the Fuel business is to ensure fuel reliability. Beyond this major requirement, the Fuel business is pursuing efforts to improve its operating performance, whether in design and fabrication or in terms of nuclear safety, industrial safety and environmental impacts, with excellence as its objective.

Innovation is key to the group's development. As a result, marketing of the nextgeneration GAIA (PWR) and ATRIUM<sup>™</sup>11 (BWR) fuel assemblies continues: after deployment of demonstration assemblies in Europe over the past three years, test assemblies are scheduled to be loaded in the United States in 2015, starting with the utilities Duke and TVA. For GAIA in particular, six major US utilities – Duke, Dominion, Exelon, FENOC, PSEG and Southern Company – formed a Technical Advisory Board for the deployment of this next-generation fuel design.

In China, AREVA is building on more than 20 years of cooperation to pursue its development, directly or through joint ventures. Highlights for 2014 include the start of production at the CAST joint venture (zirconium tube manufacturing and marketing) and the active continuation of development projects with Chinese companies in the front end of the cycle.

In Kazakhstan, AREVA and Kazatomprom continue the partnership initiated with the creation of the Ifastar joint venture for the marketing and sale of fuel assemblies. They are actively seeking markets in Asia in order to create the Kazakhstan Fuel Fabrication Company (KFFC) as a second joint venture.

The streamlining of its production facilities and the development of partnerships in Asia, the deployment of a new generation of products combined with a very comprehensive range of fuel services, will enable the Fuel business to optimize its position in an evolving market and to secure its market share by expanding its commercial positions in all regions.

<sup>(1)</sup> Toshiba-Westinghouse including NFI and the share of fuel subcontracted to Enusa in France.

<sup>(2)</sup> GNF including GNF-A (USA), GNF-J (Japan) and the share of fuel subcontracted to Genusa in Europe.

## 6.4.3. REACTORS & SERVICES BG

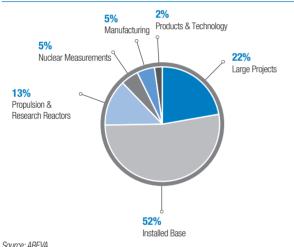
## **KEY FIGURES**

	2014	2013
Revenue* (in millions of euros)	3,119	3,293**
Operating income (in millions of euros)	(1,235)	(547)**
Workforce at year end	14,745	15,425***

\* Contribution to consolidated revenue

\*\* In application of IFRS 5 and IFRS 11, the financial statements at December 31, 2013 were restated to present pro forma data at comparable consolidation scope at December 31, 2014.

\* \*\* After implementation of a new tool to consolidate workforce information, the number of employees for 2013 was restated to reflect the financial consolidation scope and to include early retirees, who were not taken into consideration until now.



1%

Africa and Middle Fast

49%

France

## 2014 REVENUE BY BUSINESS DIVISION AND GEOGRAPHICAL AREA

## Source: AREVA.

# OVERVIEW

The Reactors & Services Business Group, which represents 37% of the group's revenue, designs and builds the two leading types of power generation reactors currently in use around the world – pressurized water reactors (PWR) and boiling water reactors (BWR) – as well as naval propulsion and research reactors. It also offers products and services for the modernization, inspection and servicing of all types of nuclear reactors.

As part of the new organization deployed in February 2014 in the Reactors & Services Business Group, activities are now organized around four profit centers (Business Divisions), two cost centers (Operating Divisions) and crosscutting operating functions:

- the Large Projects Business Division: management and execution of large nuclear reactor projects;
- the Installed Based Business Division: solutions and services for existing and future nuclear reactor fleets;
- the Propulsion and Research Reactors Business Division: defense nuclear, civilian nuclear and integration of complex systems;
- the Nuclear Measurements Business Division: design and manufacturing of radioactivity detection and measurement systems;
- the Manufacturing Operations Division: manufacturing of components for the nuclear steam supply system and nuclear safety instrumentation and control systems for nuclear facilities;
- the Products and Technology Operations Division: design studies, R&D, product certification and management, design authority and licensing.

In terms of installed capacity, AREVA supplied a significant share of the global fleet of pressurized water reactors (PWR). PWRs represent nearly two-thirds of the world's nuclear generating capacity. Reactors designed by AREVA are located in key regions of the world: Western Europe, South America, China, South Korea and South Africa. Its main competitors are groups such as Toshiba-Westinghouse, General Electric, KHNP of South Korea and Rosatom of Russia in the field of new power plant construction; Mitsubishi Heavy Industries, the alliance between General Electric and Hitachi, and Toshiba-Westinghouse for the Installed Base; and engineering companies specialized in technology and systems such as Tractebel, Babcock and KAERI for business related to Propulsion and Research Reactors.

The group's German teams also have solid experience in boiling water reactors (BWR), for which General Electric is the world leader. There is a more limited market for BWRs than for PWRs; BWR power plants are in service in the United States, Germany, Northern Europe, Spain and Switzerland in particular.

## STRATEGY AND OUTLOOK

The Reactors & Services Business Group aims to assert itself as one of the world's leading nuclear companies by aiming for profitable growth founded on the complementarity between a strong installed base and the construction of new power plants.

To achieve this objective, the Reactors & Services Business Group is building on its construction projects in Finland, France and China. AREVA is currently building the world's first generation III reactors, where its advance positions it favorably on all markets, in particular in the United Kingdom, where the group plans to play an important role in building new power plants.

The group traditionally has very strong positions in France and Germany, but it has also developed close ties with major operators around the world, as in Brazil to complete the construction of the Angra 3 reactor.

13%

21%

North and

South America

Asia-Pacific

16%

Europe (excluding France)

The Reactors & Services Business Group also relies on the United States for its growth, which has the world's largest installed base despite the nuclear market slowdown. In that country, AREVA has conquered considerable market share, both in maintenance services to the installed base and in engineering services.

In Asia, which continues to have the highest growth potential, AREVA is concentrating its commercial efforts on China, Japan, South Korea and India.

The group has been in China for more than 25 years, where it is building the first two EPR nuclear islands at Taishan in Guangdong Province after winning the contract at the end of 2007. In India, AREVA signed major framework agreements at the end of 2010 concerning the construction of two EPR reactors.

To achieve its development goals, the Reactors & Services Business Group is pursuing five strategic lines of action:

- secure the profitability of the Large Projects activity;
- increase the profitability of the services activities and play a major role in EDF's "Grand Carénage" program;
- develop differenciating and innovative solutions;
- reinforce AREVA's industrial footprint in China;
- respond to the utilities' heightened sensitivity to prices by being competitive.

At the same time, it is paving the way for the reactors of the future by participating in international research and development programs on generation IV fast neutron reactors and high temperature reactors (see Section 11.1.4. *Future directions in technology*), for which the group has a strong base of expertise from past efforts in France, the United States and Germany.

## 6.4.3.1. LARGE PROJECTS

## **Key figures**

	2014	2013
Revenue* (in millions of euros)	681	649
Workforce at year end	2,700	3,124
Workforce at year end	2,700	

\* Contribution to consolidated revenue.

## **Businesses**

The missions of the Large Projects Business Division are to:

- submit structured, comprehensive offers for reactor projects in support of the Marketing and Sales teams;
- carry out construction projects by assuming responsibility for executing reactor projects, *i.e.*, engineering, procurement, construction and commissioning;
- manage purchasing and procurement for the construction projects;
- provide project services (standard project schedule, project management office, cost estimating, contract management, risks and opportunities, industrial and operational plan) to the proposal and project teams; and
- continuously improve the competitiveness of new reactor projects in terms of both costs and schedule, particularly by optimizing execution planning.

### **OPERATIONS AND HIGHLIGHTS**

#### **Reactors under construction**

## China

The Taishan project met major milestones in 2014.

The last design documents required for installation were submitted to the customer at the beginning of the year. An engineering team is at the site to provide ready support for the customer's installation and testing activities. In June 2014, the reactor control simulator was installed at the site to allow the operators to begin their training.

The Final Safety Analysis Report is under review with the customer and the Safety Authority to get authorization for fuel loading.

Installation of electro-mechanical systems continues at a brisk pace in both units.

Regarding unit 1:

- the pumping station was filled with water;
- cabinets for the SPPA T-2000 operating instrumentation & control system were delivered to the site and the customer is currently installing them in preparation for power-up by the end of the year;
- the first pump of the reactor coolant pump set was installed in the reactor building.

Regarding unit 2:

- the heavy primary system components are at the site; the last two steam generators were delivered at the beginning of 2014 and the pressurizer was delivered in June;
- the reactor vessel was installed in the vessel pit on October 30.

## Finland

The project met key milestones in 2014:

- in February, the reactor containment leak tests were completed successfully;
- in April, the Finnish nuclear regulator STUK approved the detailed architecture of the instrumentation and control system for the Olkiluoto 3 EPR reactor. At the same time, testing of instrumentation and control system cabinets began as scheduled at AREVA's Erlangen site. These tests continue as planned;
- on August 29, the AREVA-Siemens consortium submitted an updated schedule to its customer TVO which calls for the completion of electro-mechanical installation by mid-2016 and commissioning in 2018. Detailed work sessions are held with TVO to optimize the testing phase.

#### France

Work continues at the Flamanville 3 EPR reactor project:

- regarding the engineering activities, AREVA reached a major milestone by submitting support documentation to EDF for the application to commission the EPR reactor. This work was the outcome of almost two years of studies, including safety and accident studies, demonstration of equipment qualification, and operating procedures for the EPR reactor;
- all primary components have been delivered;
- at the beginning of the year, the reactor vessel was installed in the vessel pit, marking the beginning of the installation of primary system components;
- the pace of auxiliary cooling system installation was stepped up in the middle of the year and is set to accelerate at the beginning of 2015;

- installation of the instrumentation and control cabinets and power-up activities continued throughout the year;
- the power plant control room was placed in service in May as per the project's master schedule, and the first commissioning tests from the control room were carried out successfully.

## Brazil

In 2013, AREVA signed a contract valued at 1.25 billion euros with the Brazilian utility Eletrobrás Eletronuclear to complete the construction of the Angra 3 reactor.

This contract is for the supply of engineering services, components and the power plant's digital instrumentation and control system.

The first components, were delivered to the site in the third quarter of 2014. Design reviews of the first instrumentation and control systems were completed successfully.

In early 2015, AREVA won a contract valued at 75 million dollars to supply additional mechanical and electrical equipment for the Angra 3 reactor. The contract includes diesel engines, electrical equipment and switches, and equipment for used fuel storage.

## **New Build projects**

## Saudi Arabia

Saudi Arabia plans to build several sets of reactors for generating capacity of 17.6 GWe by 2032.

In 2014, Saudi Arabia signed nuclear cooperation agreements with several countries. At the same time, AREVA worked with its partners, in particular EDF, to prepare for a potential call for bids while contributing to the project development managed by the customer, King Abdullah City for Atomic and Renewable Energy (KACARE). Included in this program is the hosting of Saudi interns in liaison with the universities, education and training programs, localization, preparation for activities, etc.

The next stage will be to create a regulatory authority and a legal framework for the construction and operation of nuclear reactors in Saudi Arabia.

## **United States**

Throughout the year, AREVA worked closely with the Nuclear Regulatory Commission (NRC) to examine the request for certification of the EPR reactor and to obtain a design license.

## Finland

In May 2014, TVO asked the Finnish government for an addition five-year extension, until 2020, of the deadline to submit the construction license application for the Olkiluoto 4 project.

The Finnish government rejected TVO's request at the end of September 2014.

In the near future, TVO will have to decide whether to terminate the project or to submit a construction license application by July 2015 at the latest. AREVA could be called upon to respond to a solicitation from TVO and to propose a work schedule.

## India

In February 2014, AREVA submitted an updated offer to the Indian utility Nuclear Power Corporation of India Limited (NPCIL) to supply two EPR reactors at the Jaitapur site.

In the summer of 2014, during a French minister's visit, the new Indian government confirmed its support for the Jaitapur project. It welcomed AREVA's proposal for new working sessions with the customer NPCIL to move the negotiations forward.

During their discussions in October and November, NPCIL and AREVA agreed to establish a work schedule for 2015 with a view to bringing the negotiations to a conclusion.

## Poland

Poland wishes to include nuclear power in the country's energy mix and is considering the installation of 6 GWe of nuclear generating capacity by 2035. The technology could be selected by the end of 2016 or the beginning of 2017.

In 2014, AREVA worked with EDF to prepare for the call for tender for construction of the first nuclear power plant in Poland, expanded its network of suppliers and developed initiatives involving Polish academia and nuclear safety specialists.

## United Kingdom

The negotiations between AREVA and the customer Nuclear New Build Generating Company (NNB) continued to finalize contracts for the nuclear steam supply system, the instrumentation and control system, and the fuel supply for two EPR units at Hinkley Point.

In October, the European Commission approved the agreements between the EDF group and the British government for the construction of two EPR reactors in the United Kingdom.

The contracts would come into effect after EDF makes a final decision to invest and the British government settles the financing.

## Turkey

The agreement signed between the government of Turkey and the government of Japan in 2013 for the construction of four ATMEA1 reactors in Sinop led to exclusive negotiations between a group of French and Japanese investors (GDF SUEZ, Itochu and MHI) and the consortium identified for Engineering, Procurement and Construction (EPC).

The conditions for implementing the project were defined in the Host Government Agreement (HGA) signed in the summer of 2014, which must be ratified by the Turkish parliament.

In September, the investors shared the project's development plan with the industrial partners (*i.e.* the EPC consortium, which includes AREVA). The first two phases concern the production of an initial scope of work and the submittal of an initial proposal.

## Manufacturing and human resources

The Large Projects Business Division's teams are located in France, Germany, Finland, the United States, China and Brazil.

## **Relations with customers and suppliers**

The Large Projects Business Division's customers are utilities from all over the world, whether well-established companies or newcomers to the market.

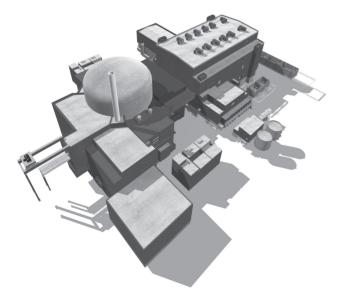
The entity offers reactor solutions that are synergistic with the group's other businesses, such as the Manufacturing and Installed Base Business Divisions. It also works closely with the Mining, Front End and Back End Business Groups.

#### Market and competitive position

## AREVA's generation III reactor offer

AREVA's line of pressurized water reactors includes the EPR reactor and the ATMEA1 reactor. These are generation III reactors that feature simplified operating systems and offer significant breakthroughs in terms of competitiveness, safety, and reduced environmental impacts. AREVA's reactors capitalize on proven technologies while integrating innovative systems. These reactor models feature a very high level of nuclear safety due to strengthened incident and accident prevention measures (redundancies, diversity, combination of active and passive systems, geographic separation, bunkering, etc.) and environmental protection measures (containment, core catchment systems, hydrogen recombiners, etc.). They are also designed to withstand earthquakes and the crash of a wide-body commercial aircraft. The reactors are designed to be operated for at least 60 years, compared with the reactors currently in operation in France, which were initially designed to operate for 40 years, although their robustness makes their lifecycle extension foreseeable. Measures were taken from the beginning of the design phase to reduce environmental impacts by aiming for better fuel utilization and waste volume reduction, for example by optimizing fuel burnup or authorizing plutonium recycling in the form of mixed oxide fuel (MOX). In reducing the production of longlived radioactive waste by 15%, the EPR reactor helps shrink the environmental footprint. The EPR reactor is the most powerful PWR marketed by AREVA. It uses fuel made with uranium oxide enriched up to 5% or MOX fuel; in particular, it may use a 100% MOX core (see Glossary). Its net electrical output is in the range of 1,650 MWe. As part of the ATMEA joint venture formed in November 2007 by Mitsubishi Heavy Industries, Ltd (MHI) and AREVA in equal shares, AREVA and Mitsubishi Heavy Industries, Ltd developed ATMEA1 reactor, with a power level of about 1,150 MWe. This reactor will meet the demand for medium-power nuclear reactors. It features advanced nuclear and industrial safety systems, high thermal vields, and a flexible 12 to 24 month operating cycle. The reactor, which is now being marketed, was the subject of an assessment by the French nuclear safety authority ASN.

## EPR REACTOR



Source: AREVA

The generation III reactors under construction and designed by AREVA are currently among the most advanced in the world. Its competitors are Westinghouse/Toshiba, General Electric of the United States, Hitachi of Japan, Mitsubishi of Japan, FAAE of Russia, AECL of Canada, KHNP of South Korea and Rosatom of Russia.

Despite a slowdown attributable to the Fukushima accident, reactor construction is still a market with substantial growth prospects. See Section 6.1.2 for a discussion of nuclear power markets.

### **Outlook and development goals**

In addition to these activities, and with the objective of always offering high-quality services and assistance, the entity set up a program to optimize and improve the EPR reactor's competitiveness. This program, established jointly by AREVA and EDF and endowed with shared resources, illustrates the Large Projects Business Division's decision to bring together under a single leadership all optimization activities undertaken by the two groups since 2008 to harvest operating experience and evolve the concept to reduce costs and secure project execution.

## 6.4.3.2. **INSTALLED BASE**

### **Key figures**

	2014	2013
Revenue* (in millions of euros)	1,634	1,617
Workforce at year end	6,209	6,135

Contribution to consolidated revenue.

## Businesses

The Installed Based Business Division offers:

- products and services to maintain, upgrade and extend the operating period of reactors in service;
- solutions and products for the installation and commissioning of new reactors;
- equipment including heavy components, mobile components, and large forgings and castings.

The Installed Base Business Division's portfolio of solutions and services is designed to improve facility availability and productivity while reinforcing reactor safety conditions.

## **Operations and highlights**

Key highlights of 2014 include the following:

#### South Africa

AREVA signed a contract with the South African utility Eskom to replace steams generators at the Koeberg nuclear power plant. AREVA's scope includes the design and manufacturing of six steam generators, their installation in the power plant's two reactors, and related engineering services.

## United States

In unit outages and maintenance services, AREVA signed multiyear contracts with several US utilities, strengthening AREVA's position as a service provider for all reactor technologies.

## France

AREVA achieved at world first by replacing the reactor pipe elbows of unit 4 at the Dampierre power plant. This operation was carried out using a robot designed especially for this purpose which combines several technology innovations.

In parallel, the teams carried out a number of maintenance operations, modifications and recurring services to EDF's reactor fleet.

Studies to modernize the instrumentation and control system of the 1,300 MWe reactors are almost complete. The documentation and procedures were validated through exhaustive tests on a dedicated platform representative of installations in nuclear power plants. The first instrumentation and control system installation is scheduled for the spring of 2015 at Paluel as part of EDF's "Grand Carénage" program (major retrofits), which is designed to extend the operating period of the reactors beyond 40 years.

#### Bulgaria

Kozloduy Nuclear Power Plant (KNNP) selected AREVA to supply services to units 5 and 6 of the Kozloduy VVER reactors related to electrical systems and to digital instrumentation and control. The group will also provide expertise for the replacement or upgrade of the main power generators to achieve a 10% increase in the power of each reactor. This contract strengthens AREVA's position on the VVER reactor modernization market and, more generally, on all types of reactors.

#### Switzerland

AREVA will carry out two new projects for Kernkraft Gösgen-Däniken AG at the Gösgen nuclear power plant in Switzerland. The contract concerns the expansion of the used fuel assembly storage facility and the modernization of electrical systems and of the instrumentation and control system for the backup diesel generators. This work is in addition to modernization projects already undertaken by AREVA.

## South Korea

The South Korean utility Korea Hydro & Nuclear Power (KHNP), a subsidiary of Korea Electric Power Corporation (KEPCO), awarded a contract to AREVA for the supply and replacement of six stators for units 3 and 4 of the Kori nuclear power station. These components ensure the reliability of the reactor coolant pump sets, which are essential for the safe and efficient operation of the reactors' primary cooling system.

#### The Safety Alliance and Forward Alliance programs

Under the Safety Alliance program, which offers solutions for improving safety, 750 million euros in orders have been received at end 2014 from 53 customers in 19 countries since the program started in 2011.

AREVA is a global leader in filtrated ventilation systems and signed several contracts in Europe, Asia and South America in this field.

The Forward Alliance program combines products and solutions developed by AREVA to allow nuclear plant operators to achieve maximum safety throughout the reactor operating period. Since its creation in 2012, the program has generated 1.6 billion euros in orders at end 2014 from utilities around the world.

#### Manufacturing and human resources

For historical reasons, the Installed Base Business Division's teams are located mostly in France, the United States and Germany, but also in China, Sweden, Spain,

Canada, Slovakia, South Africa and elsewhere. These decentralized units are staffed with highly qualified specialists. They offer personalized, localized service to their customers to help them comply with national regulations.

In addition, the Business Division has workshops in Europe and the United States for offsite maintenance, to develop its equipment and to store its tools, as well as three facilities dedicated to personnel training and instruction, one in France co-owned by the EDF group and AREVA (Cetic), one in Germany, and one in the United States.

#### **Relations with customers and suppliers**

#### Customers

Customers include power companies on five continents – Europe, North America, South America, Asia and Africa. The Installed Base Business Division maintains and modernizes more than 250 reactors around the globe.

Changes in the energy environment, the pressures of deregulation and the consequences of the Fukushima accident all weigh on the utilities' profitability. Their objective is to optimize their costs and increase the operating period of their power plants while ensuring an optimum level of safety.

#### Suppliers

Orders to suppliers represent a significant share of the Installed Base's cost structure. They concern:

- subcontracted labor for outage and design activities;
- the supply of products or equipment such as instrumentation and control systems or parts and tooling to replace steam generators in the framework of component replacement or power plant modernization activities.

## Market and competitive position

As part of its services to the installed base, AREVA brings solutions for all types of reactor technologies, whether:

- PWRs, including Russian-designed VVERs;
- BWRs;
- CANDU pressurized heavy water reactors (CANada Deuterium Uranium).

Outages are scheduled for these reactors every 12 to 24 months for fuel reloading, for servicing and maintenance, and sometimes to replace heavy components or install capital items to improve their performance and extend their operating period while ensuring a maximum level of safety.

The market is led in particular by activities related to power plant aging, such as upgrades to prolong the operating period of the power plants, engineering work, and programs to enhance safety.

In services to the installed base, AREVA and Toshiba-Westinghouse are the leading players, followed by Mitsubishi Heavy Industries of Japan and the alliance formed by General Electric of the United States and Hitachi of Japan.

Other large local companies may be present at the regional level, such as KPS in South Korea, SNC Lavalin in Canada, Tecnatom in Spain and numerous other specialized companies in every country with nuclear power plants, in particular the subsidiaries of utilities in China for example. In some segments – most notably non-destructive examination and general maintenance – the competition is rising, particularly in Europe and the United States. At a global level, services to nuclear power plants is an increasingly competitive market.

AREVA's business is to supply heavy components (steam generators, pressurizers, reactor vessels, etc.) and mobile components (reactor coolant pump sets and control rod drive mechanisms) to operators of pressurized water reactors and of boiling water reactors. The nuclear equipment market is divided into two segments: the component maintenance and replacement market, and the new builds market.

The equipment segment is characterized by international competition in all areas of the equipment market, whether for heavy components, mobile components or forgings, in Japan, Germany, South Korea, China, India, Italy, etc., with companies such as Japan Steel Works (JSW), Toshiba-Westinghouse, Doosan, MHI, ENSA, Mangiarotti (formerly Ansaldo), Curtis Wright, KSB and Babcock & Wilcox.

## Outlook and development goals

In an unfavorable global energy market, prospects for the installed base are down, particularly in the United States and Germany. Nevertheless, operators have confirmed their intention of continuing to operate their reactor fleets with optimum reliability, to extend their operating periods, and to improve their performance. This is the case in France, for instance, with the start of EDF's "Grand Carénage" (major retrofits) program in 2015.

To increase business volume, the Installed Base Business Division is pursuing a strategy of localization beyond its traditional domestic markets (France, Germany and the United States), with a particular focus on Asia, Europe and South Africa. In parallel, it continues to develop innovative, high value-added solutions enabling its customers to improve their competitiveness and productivity, with access to its global network of experts.

In the equipment business, the main objective is still to deliver primary system equipment for nuclear reactors that comply with nuclear safety standards and have the requisite level of quality, at the lowest possible cost.

## 6.4.3.3. PROPULSION AND RESEARCH REACTORS

## **Key figures**

	2014	2013
Revenue* (in millions of euros)	414	420
Workforce at year end	1,978	2,054

\* Contribution to consolidated revenue.

## **Businesses**

#### Nuclear energy supply systems for naval propulsion

The core business of the Propulsion and Research Reactors Business Division is to design, manufacture and maintain naval nuclear propulsion reactors for the French Navy, and to provide related fuel, services and equipment. This business meets stringent safety, reliability and availability requirements. It is a strategic activity for France's nuclear deterrence.

The market consists of nuclear-powered vessels and related testing and production facilities. This market requires mastery of key methodologies and technologies, such as systems architecture, project management, digital safety systems, safety analysis, thermohydraulics and neutronics, and integrated logistical support. Nuclear reactors designed by the Propulsion and Research Reactors market segment have powered several of the French Navy's submarines and aircraft carriers during all of the fleet's operating missions for 40 years.

The Business Division also meets propulsion-related requirements: control systems, monitoring systems, and acoustic discretion of systems and facilities and their components. It has unique experience as a designer and facilities operator for the CEA. In addition to reactor design and related fuel design and fabrication, the Business division provides support to the operator of onboard reactors in the form of training, services and maintenance. This includes in-service support and operation of qualification, training and test reactors, whose role is to prevent technological and human risks at several levels (validation of onboard reactors before sea duty, full-scale testing of innovations, endurance tests, predictive maintenance, and operator training).

## Engineering of nuclear facilities and major scientific research instruments for complex facilities (research reactors, scientific research facilities and industrial facilities)

The Propulsion and Research Reactors Business Division offers engineering solutions for the design, construction and commissioning of complex facilities to customers in the defense and civilian nuclear industries.

For example:

- its teams can take charge of the engineering and construction of a research reactor;
- the Business Division is also responsible for the supply of a certain number of equipment items related to the construction of the Mégajoule Laser in Bordeaux and now provides support to the teams assisting the CEA as prime contractor;
- its expects to be in charge of design studies for the low-power small modular reactor (SMR) as part of the AREVA/EDF/CEA/DCNS consortium (preparation of the preliminary design report and of the corresponding R&D phase in progress).

# Fabrication and sale of research reactor fuel and medical targets

Since December 2012, the subsidiary CERCA has been part of the Propulsion and Research Reactors Business Division's organization. It main activity is to fabricate and sell fuel elements for research reactors. It also manufactures and sells enriched uranium fuel targets. The molybdenum extracted after the irradiation of some of these targets is used for medical applications.

## Design of electronic and instrumentation and control systems

The Propulsion & Research Reactors Business Division offers high-tech electronics and instrumentation and control systems to customers in the defense, nuclear and other industries.

In the rail transportation market, the subsidiary Elta is still manufacturing equipment for Alstom Transport, which took over AREVA TA's business in this area.

## **Operations and highlights**

Some of the highlights of 2014 are as follows:

In the nuclear defense segment:

- ongoing work for the Barracuda program:
  - the forward safety module was brought on board, the first core was manufactured, and all required documentation was delivered and is now under review by the nuclear regulatory authority for the first submarine in the Barracuda series, the Suffren,
  - installation of the NSSS module began for the *Duguay Trouin* (the second submarine in the series), as did construction of the pool for the *Tourville* (the third submarine in the series);

- continuation of finishing work and testing of the instrumentation and control system of the RES, the future land-based test reactor at the Cadarache nuclear propulsion center, and start of phase 2 testing with the first systems tests;
- significant industrial support to the fleet in service, including upgrading components for two NSSS and servicing for the Charles de Gaulle aircraft carrier;
- receipt of certain equipment for the Mégajoule Laser experimental chamber and support to the teams assisting the CEA as prime contractor to ensure the success of the first experiment.

In the civilian nuclear power segment:

- for the Jules Horowitz Reactor program (RJH):
  - Milestones were met for all detail design reviews relating to the components of the reactor block in preparation for the review prior to the start of manufacturing,
  - ongoing negotiations of contractual and financial terms between AREVA and the CEA and schedule update calling for core loading in October 2019 based on the conclusions of the project review carried out at the French Prime minister's request (Dupraz report).
- for the SMR program: ongoing discussions with the General Commissioner for Investment in the framework of the Future Investment Program, relating to the preliminary design of land-based SMR, including a multipurpose NSSS to be built by the consortium formed by CEA, AREVA, EDF and DCNS;
- research fuel fabrication: start of the detailed preliminary design phase of the project to renovate the Romans production facility, with solicitation of financing from customers.

## Manufacturing and human resources

The Propulsion and Research Reactors Business Division has five main manufacturing and engineering locations in France:

- Saclay: support functions and project operations;
- Aix-en-Provence: mainly engineering activities;
- Cadarache: in-service support to and operation of onboard reactors;
- Toulouse: electronic equipment operations of the subsidiary Elta;
- Romans: fabrication of fuel for nuclear research reactors and medical targets.

It is also based in the harbor towns of Toulon, Brest and Cherbourg, and near the DCNS Indret in Nantes and the CEA in Bordeaux.

## **Relations with customers and suppliers**

The principal customers of the Propulsion and Research Reactors Business Division are:

- in the defense sector: the CEA, the Direction générale de l'armement (DGA, the French defense procurement agency), and DCNS (French naval defense company);
- in the civilian sector: CEA, ANSTO of Australia, JAEA of Japan, NRG of the Netherlands, SCK-CEN of Belgium, TUM of Germany and NECSA of South Africa.

Since most of the Propulsion and Research Reactors Business Division's operations are focused on defense activities, its principal suppliers are French companies, including DCNS, Sogeti, AREVA NP and Technoplus Industries.

### Market and competitive position

The Propulsion and Research Reactors Business Division operates in the defense market, primarily in navy nuclear propulsion and defense facilities, exclusively in France.

It is also positioned in France and abroad in low-power reactors for scientific research and medical applications, whether for new construction, services to the installed base, or the supply of targets and fuel.

Its main competitors for its civilian activities are other major constructors such as INVAP, Rosatom and Kaeri, and technology and systems engineering companies such as Tractebel, Westinghouse, Nukem and Babcock.

The Propulsion and Research Reactors Business Division also provides expertise and solutions to support power reactors in the energy market. It was also active in the transportation market until the sale of part of its activities in the aerospace and rail business at the end of 2014.

## Outlook and development goals

The Business Division initiated a process to refocus on its nuclear operations, based on a two-pronged model.

In nuclear defense, the Business Division intends to keep its design, construction, maintenance, dismantling and fuel supply activities for nuclear propulsion reactors, as well as its engineering activities for defense facilities, making sure to maintain its expertise at the highest level of excellence.

In the civilian nuclear field, the Business Division's mission is to develop its operations by capitalizing on its experience and references in design and engineering meeting the highest requirements in terms of safety and availability, focusing on:

- the design and construction of low-power reactors and, in the future, of small modular reactors (SMR) – and nuclear facilities devoted to research and medical applications, and the supply of the related fuel;
- engineering services for systems and equipment for power reactors, in particular in the field of instrumentation and control.

Consistent with the decision to refocus its operations on the nuclear field, the Business Division continued to implement its assets sale program targeting non-core operations, including two product lines: Command and Control for Transportation, which was sold to Alstom Transport, and Aerospace Assembly Lines, which was sold to the US firm of AIP Aerospace. Both transactions closed in the last quarter of 2014. It also purchased 34% of the share capital of AREVA TA's subsidiary Elta.

## 6.4.3.4. NUCLEAR MEASUREMENTS

## **Key figures**

	2014	2013
Revenue* (in millions of euros)	171	179
Workforce at year end	971	1,003

Contribution to consolidated revenue.

### **Businesses**

The Nuclear Measurements Business Division designs, manufactures and markets equipment and systems under the Canberra trademark to detect and measure radioactivity in order to protect employees and the general public. Applications include nuclear facility monitoring, waste characterization, laboratory measurements, radiation protection and nuclear safeguards. Its products and full range of services meet customer requirements for nuclear safety, occupational safety and monitoring of their customers' production operations.

### **Operations and highlights**

- United States: a multiyear service contract for Exelon Nuclear for consulting services, training, maintenance and on-site technical support;
- United Kingdom: EDF selected Canberra UK for phase I of a contract for the design, manufacturing and supply of new gas activity monitors (GAM). The GAM system is used to detect the gas activity of a reactor's activation and fission products;
- PAKS NPP, the operator of Hungary's sole nuclear power plant, ordered whole body contamination counters with plastic detectors;
- in South Korea, the Yangyang underground laboratory acquired ultra-low noise detectors manufactured by Canberra in Lingolsheim, France.

#### Manufacturing and human resources

The Nuclear Measurements Business Division has five manufacturing sites in the United States, France, Belgium and Canada, as well as sales offices and service facilities in those same countries as well as in Japan, the United Kingdom, Germany and Russia. In addition, the entity has a global network of sales agents and service centers.

## **Relations with customers and suppliers**

#### Customers

The Nuclear Measurements Business Division's traditional customers are divided among a large number of diversified segments: nuclear fuel fabricators, nuclear power generators, radiochemical laboratories, environmental monitoring laboratories, and laboratories of national and international agencies for oversight and regulation.

### Suppliers

Canberra buys from local and international suppliers. Depending on the raw materials or the equipment involved, purchase contracts are awarded to regional or national suppliers, including low-cost countries for standard supplies.

#### Market and competitive position

The world market for nuclear measurements is estimated at 800 million euros per year. Of that, the market available to AREVA is estimated at about 600 million euros. The group is one of the market leaders, with a global market share of about 30% and a similar market share in France.

Its major competitors are Thermo Fisher, Mirion and Ametek/Ortec.

#### **Outlook and development goals**

The Nuclear Measurements Business Division continues to pursue cost control efforts, improving its competitiveness and its ability to withstand revenue fluctuations. These efforts aim to provide Canberra with the necessary flexibility to adapt to changes in the Japanese market, which is becoming a market for solutions and services, particularly in the field of dismantling. In the medium term, the entity also plans to expand in the radiation monitoring systems field, whether for reactor fleet replacements in France and the United States or for new builds.

## 6.4.3.5. MANUFACTURING

## **Key figures**

	2014	2013
Revenue* (in millions of euros)	166	374
Workforce at year end	1,969	2,047

Contribution to consolidated revenue.

#### **Businesses**

The Manufacturing Business Division designs and manufactures mainly:

- large forgings, castings and machined parts used in the manufacture of heavy components for the nuclear island and in process industries such as petrochemicals;
- heavy components: reactor vessels, vessel heads and vessel internals, steam generators, pressurizers and support structures <sup>(1)</sup> which are the main components required to manufacture a nuclear steam supply system; and
- mobile components: reactor coolant pump sets (pump, motor and sealing system) for the primary cooling system and control rod drive mechanisms that regulate the functioning of the reactor core;
- nuclear safety instrumentation and control systems (TELEPERM<sup>™</sup> XS, in-core instrumentation and monitoring/diagnostic systems).

#### **Operations and highlights**

- AREVA delivered the vessel head for the Callaway nuclear power plant in Missouri (United States).
- Manufacturing of in-core instrumentation for the Taishan 1 and 2 EPR reactors began at the Karlstein plant.
- AREVA delivered the four reactor coolant pump sets for Taishan 1.
- AREVA manufactured and delivered ten reactor coolant pump sets for the CPR1000 reactors in China, including Ningde 4, Yangjiang 4, Fangchenggang 1 and Fangchenggang 2.
- On June 20, French Prime Minister Manuel Valls toured the AREVA Le Creusot site and inaugurated the new 9,000 metric ton hydraulic press.

<sup>(1)</sup> Equipment used to support and hold the main components of the primary cooling systems. It also reduces the vibration to which the components are subjected during earthquakes or accident conditions.

## Manufacturing and human resources

#### Heavy equipment

The Creusot plant in France's Saône-et-Loire department has production capacity for forged and machined parts. Its production resources consist mainly of machining facilities and a forge equipped with two presses (9,000 metric tons and 11,300 metric tons). In recent years, capital spending programs have been carried out to increase the production capacity of the sites. At the same time, the capital spending program deployed at the Industeel steel works (ArcelorMittal group) enabled AREVA's dedicated supplier to manufacture larger and better quality ingots in a shorter period of time.

The Chalon/St-Marcel plant near Chalon-sur-Saône, France, is dedicated to the manufacturing of heavy nuclear equipment. The main building covers a surface area of 39,000 m<sup>2</sup> and has a hoisting capacity of 1,000 metric tons.

#### Mobile equipment

The Jeumont plant <sup>(1)</sup> in northern France manufactures mobile equipment for the nuclear island. Established in 1898, it specializes in the design and manufacture of reactor coolant pump sets and control rod drive mechanisms, as well as the replacement parts for this equipment. The Jeumont plant has a reactor coolant pump set test center in Maubeuge.

AREVA is also present in China through the AREVA Dongfang Joint Venture formed between AREVA and the DEC group to manufacture Jeumont-designed reactor coolant pump sets for the Chinese market.

#### Instrumentation and control system

The Karlstein plant industrializes and assembles instrumentation systems for the reactor core as well as specialized mechanical equipment. It also designs and assembles the valve malfunction prevention system.

The Erlangen site assembles instrumentation and control cabinets for the TELEPERM<sup>™</sup> XS safety instrumentation and control system. It also develops and manufactures diagnostic systems and automated control systems.

## Market and competitive position

#### Heavy equipment

The nuclear forgings market has long been split between Creusot Forge and its leading competitor, the Japanese company Japan Steel Works (JSW), which supply a large part of the Western world's demand for forged products. Competition has increased since 2006, with large capital projects in Germany, Italy, South Korea, China and India.

The market for heavy components is characterized by substantial international competition made up of six leading companies: Toshiba-Westinghouse, Doosan, MHI <sup>(2)</sup>, ENSA, Mangiarotti (formerly Ansaldo, bought out by Toshiba-Westinghouse) and Babcock & Wilcox. AREVA is able to respond to customer requirements for all engineering and project management services.

AREVA is one of the leaders in the French market, where the EDF group has opened up the competition for the manufacture of replacement steam generators.

#### Mobile equipment

The leading competitors in the mobile components market are Toshiba-Westinghouse, MHI, Curtis Wright, KSB and Andritz.

Extension of the power plant operating period and optimization of maintenance strategies are two important issues for operators, who are becoming more demanding in terms of performance improvement, reliability and maintenance costs for reactor coolant pumps.

#### INSTRUMENTATION AND CONTROL SYSTEM

The leading competitors in the instrumentation and control system market are Toshiba-Westinghouse, Rolls Royce and GE.

For safety instrumentation and control system products, the group's strategy is to keep the design and development work in-house and to subcontract a significant portion of the manufacturing work.

As regards sensitive in-core instrumentation products, the goal is to keep control of the entire value chain in order to ensure the overall performance of the systems developed.

## **Outlook and development goals**

The Manufacturing Business Division's primary mission concerns PWRs of all types, but also BWRs. The nuclear equipment market is divided into two segments: the component maintenance and replacement market, and the new builds market.

The key challenge for the manufacturing sites is to optimize industrial performance. As for the Reactors & Services Business Group as a whole, the objective is still to deliver primary cooling system components for nuclear reactors on time, at the lowest possible cost, and with the requisite level of quality. Efforts in favor of nuclear and occupational safety will also continue. Lastly, maintaining skills and know-how remains a constant priority.

## 6.4.3.6. PRODUCTS AND TECHNOLOGY

#### Key figures

	2014	2013
Revenue* (in millions of euros)	54	54
Workforce at year end	918	1,230

Contribution to consolidated revenue.

#### **Businesses**

The Products and Technology Business Division ensures the certification (licensing) and technical performance of its products and supplies advanced products and technologies offering high performance levels. Activities range from follow-up of the Safety Audits initiative to identification of the impacts on reactor design for new builds or for power plants in operation.

<sup>(1)</sup> Previously called JSPM.

<sup>(2)</sup> Mitsubishi Heavy Industries.

## **Research & Development**

This entity coordinates R&D teams responsible for key technologies and products supporting PWR and BWR reactors. It is also responsible for the development of new systems and technologies for next-generation reactors, particularly for high temperature reactors and fast breeder reactors.

In 2014, the preliminary design study for the Astrid reactor nuclear island and instrumentation and control system continued in partnership with the CEA. During this same period, Japan became a partner in the Astrid cooperation project, which led to the signing of an agreement between CEA, JAEA, AREVA and MHI/MFBR.

The development of new technology tools and solutions continued in support of the Reactors & Services Business Group. Highlights include the beginning of use of the Arcadia neutron simulation code, the completion of the program to update the S-RELAP code, advances in the program to ensure the compliance of accident analysis methods with nuclear regulatory requirements in the United States, the certification of high-efficiency filters to limit emissions during serious accidents, the development of passive residual heat removal systems for spent fuel pools, etc.

## **Design Authority**

The entity is the authority when it comes to the Business Group's products (reactor models and products and services offered by the Installed Base Business Division). For reactors, it ensures the consistency of the models under construction or in development. For products and services of the Installed Base Business Division, it provides independent verification of the technical risk assessment.

The Design Authority is also working on instrumentation and control system architecture with a cross-Business division to define instrumentation and control models and recommend a strategy.

The Generic Detailed Design project for the ATMEA1 reactor designed by AREVA and Mitsubishi Heavy Industries, which was launched at the beginning of 2012, also falls under the purview of the Design Authority. This design phase should end in 2015. The success of this development illustrates the strong spirit of partnership between the European and Japanese teams working on the design. It also points to the leading role that the ATMEA1 reactor plays in the portfolio of generation III products offered by AREVA, as demonstrated by exchanges with Turkish and Vietnamese authorities for the construction of reactors in those countries.

## **Technical Center**

The Technical Center brings a wide range of skills, test facilities and laboratories to the development and testing of advanced solutions and methods.

The Technical Center's facilities are located in Erlangen and Karlstein, Germany, in Le Creusot and Chalon/St-Marcel in France, and in Lynchburg, Virginia in the United States. Among other missions, the American center tests the resistance of equipment to major earthquakes.

## **Certification (Licensing)**

This entity is in charge of relations with the regulators.

For the French regulatory context, it is also in charge of relations with French nuclear safety authority ASN as regards the monitoring of pressurized nuclear equipment manufacturing. In addition to the first certificates of compliance obtained under the very strict requirements of the new "ESPN order" for the manufacturing of pressurized nuclear equipment, in this instance for steam generators for the Chinon B2 and Blayais 4 power plants, the application of the ESPN decree in our design, manufacturing and installation processes is an important step towards strengthening the group's position as a "manufacturer", as defined in the decree.

## Instrumentation & Control Systems and Electrical Products

Working cooperatively with the representatives of the Reactors & Services Business Group's stakeholders, the Instrumentation & Control and Electrical Products entity develops technology-based products in the field of electrical systems and nuclear instrumentation and control systems to meet the needs of new builds projects and of the installed based. It handles their qualification and their long-term operating cycle.

The entity leads research and development activities in these fields, including coordination of R&D programs and strategic directions with the group's main players through a multiyear Instrumentation & Control System Development Plan deployed since 2011. In particular, it is developing the next generation of safety instrumentation and control systems, which will be made available to the market by 2020.

It is also the design authority and licensing support for major projects.

#### Manufacturing and human resources

The technical units are comprised of international teams and have testing and engineering facilities in France (Paris, Chalon, Le Creusot and Montpellier), Germany (Erlangen, Offenbach and Karlstein) and the United States (Lynchburg, Charlotte and Cranberry).

## 6.4.4. BACK END BG

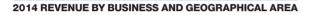
## **KEY FIGURES**

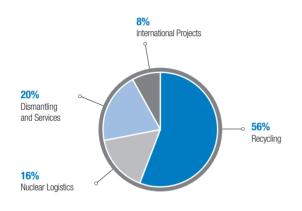
	2014	2013
Revenue* (in millions of euros)	1,531	1,742**
Operating income (in millions of euros)	(495)	308**
Workforce at year end	12,325	12,500***

\* Contribution to consolidated revenue.

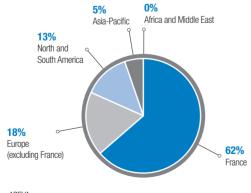
\*\* In application of IFRS 5 and IFRS 11, the financial statements at December 31, 2013 were restated to present pro forma data at comparable consolidation scope at December 31, 2014

\* \*\* After implementation of a new tool to consolidate workforce information, the number of employees for 2013 was restated to reflect the financial consolidation scope and to include early retirees, who were not taken into consideration until now.





Source: AREVA



Source: AREVA

## **OVERVIEW**

In 2014, the Back End Business Group put in place a new organization to adapt to changes in its markets. The goal is to further improve customer satisfaction and the execution of its major projects.

The Back End Business Group, which represents 18% of the group's revenue and whose backlog is discussed in Section 9, offers efficient solutions for the responsible management of nuclear materials and waste.

It is organized into four operating departments: Recycling Operations, Nuclear Logistics Operations, Dismantling and Services Operations, and International Operations.

The Back End Business Group's mission is to:

- provide recycling solutions and in particular to recycle used fuel for their reuse in the reactor;
- develop storage systems and organize and supervise the transportation of nuclear materials and waste;
- dismantle nuclear facilities at the end of the operating period and offer industrial operator services.

The Business Group is also contributing to the development of recycling around the world by drawing on its unique know-how. The Business Group plays a key role in reducing the nuclear industry's environmental footprint and in increasing public acceptance.

The Back End Business Group's technological and industrial lead has enabled it to be a major player in markets for the back end of the nuclear cycle and to comply with the highest standards for nuclear and occupational safety.

## Responsible management of the end of the lifecycle

Power companies can manage their used fuel in one of two ways:

- recycling: this solution responds to the objective of conserving natural resources and limiting environmental impacts. After removal from the reactor and cooling in a storage pool, the fuel is treated to recover materials that still have energy potential in order to fabricate fresh fuel. Uranium and plutonium, which represent 95 to 96% of the materials contained in the used fuel, are thus recycled into new fuels called MOX (fuel containing a mixture of uranium and plutonium oxides) and ERU (enriched recycled uranium fuel). Final waste, which represents 4 to 5% of the materials, is incorporated into the glass and packaged for safe and stable disposal in a geologic repository. Countries such as France, the Netherlands, Russia, China and Japan have opted to recycle their used fuel;
- direct disposal: the used fuel is stored temporarily in pools or at dry storage sites. Storage is not a lasting solution and must be followed by deep geologic disposal. For the medium term, direct disposal solutions for used fuel are under assessment as a component of national nuclear waste management policies. However, these solutions are not available on an industrial scale today. The direct disposal policy is currently being implemented in two countries: Sweden and Finland.

Used fuel recycling contributes to the conservation of natural uranium resources and to non-proliferation, and it facilitates radioactive waste management by considerably reducing its volume and radiotoxicity. Waste is packaged in universal canisters designed specifically to prevent the release of contamination over very long periods of time.

The sustainability of nuclear power requires implementation of a used fuel management policy accepted by all stakeholders. Many countries currently plan to recycle their used fuel or are interested in doing so. Some countries seeking to deploy large-scale nuclear power programs are turning to recycling technology as an important factor in energy self-sufficiency. Some of them, such as China, even want to acquire their own facilities when warranted by their power programs.

Recycling is also a response to non-proliferation issues. AREVA can offer utilities global services consisting of removing the used fuel from the power plant and producing the corresponding recycled fuel, returning to the client country only

final waste that does not contain materials subject to International Atomic Energy Agency (IAEA) safeguards.

In addition, recycling allows utilities to constitute reserves of nuclear materials that could be used in future generation IV reactors.

## Positioning of activities

The Back End Business Group's operating departments are organized into three interrelated areas of activity:

The Recycling business uses processes allowing its customers to recycle used fuel into fresh fuel and to package final waste in standardized containers in a safe and stable manner.

The Nuclear Logistics business designs and manufactures casks and other specialized equipment for the transportation and/or storage of nuclear materials and waste from the front end and back end of the cycle, and of sources used for scientific purposes. It also offers solutions to organize and carry out shipments of nuclear materials and waste and, as needed, manages the related equipment.

The Dismantling and Services business offers comprehensive nuclear services in France. it operates waste treatment and decontamination facilities, provides logistics for maintenance at nuclear power plants, and performs specialized maintenance. It designs and supervises nuclear site dismantling and rehabilitation after production or manufacturing has been discontinued, for purposes of site reuse.

The International Projects Department brings the technical and industrial know-how developed in the Back End Business Group's facilities to international markets, together with dismantling know-how. In particular, it designs and builds new recycling plants in partnership with foreign countries seeking to acquire their own production capability.

## **STRATEGY AND OUTLOOK**

The Back End Business Group maintains the highest level of nuclear safety and occupation safety in its activities while minimizing its environmental impacts by aiming for zero waste.

The Back End Business Group has strong industrial expertise that builds on a continuous improvement and technology development approach. Its six objectives are to:

- reestablish competitiveness by focusing as a priority on the cost basis of the plants;
- continue to innovate selectively to optimize and prolong plant operations and to develop new offers;
- support EDF in the replacement of its reactor fleet using MOX and promote the use of treatment and recycling to increase the use of the French facilities;
- support the development of treatment and recycling platforms internationally;
- strengthen AREVA's position in the logistics markets;
- develop the dismantling operations internationally (fuel cycle plants and reactors) and become the leader in critical dismantling operations.

## 6.4.4.1. **RECYCLING**

## Key figures

	2014	2013
Revenue* (in millions of euros)	857	1,030
Workforce at year end	5,751	5,742

Contribution to consolidated revenue.

#### Businesses

After nuclear fuel has been used in a light water reactor, 95 to 96% of its content consists of recyclable materials: 1% is plutonium and 94 to 95% is uranium. The first step in fuel recycling is to separate these reusable materials from the final waste. The latter is packaged in universal waste canisters for safe storage and transportation. The package is designed for high durability and containment performance for purposes of geologic disposal. Following the treatment stage, the reusable materials are recovered for recycling. Depending on the utility's strategy, the recycled uranium from used fuel treatment, also called RepU, may be re-enriched and recycled in the form of enriched recycled uranium fuel (ERU), or stored in stable form, constituting a uranium stockpile. The plutonium is used to fabricate another type of fuel: MOX, of which AREVA is the world's leading producer.

## **Operations and highlights**

The treatment and recycling agreement between AREVA and EDF defines the terms of the industrial cooperation between the two groups in this field. The agreement runs through 2040 and is reviewed every five years. In 2014, AREVA and EDF laid the foundations for a new agreement for the 2013-2020 period. It covers the transportation, treatment and recycling of used nuclear fuel. The agreement increases the duration of the contract from five years to height years (2013-2020), with an increase in annual volumes. While it has a short-term negative impact on the group's financial performance, the agreement provides visibility to AREVA's industrial facilities and confirms EDF's decision to recycle.

In 2014, as part of its facilities' review, the Recycling business continued to implement the action plans submitted to French nuclear safety authority ASN in June 2012. These measures are intended to strengthen nuclear safety in the event of extreme circumstances at the la Hague and MELOX sites.

## Manufacturing and human resources

The Recycling business has two main industrial sites, the AREVA la Hague site in northern France and the MELOX site in southern France.

The installed capacity of the la Hague and MELOX plants along with AREVA's cumulative experience rank the group number one worldwide in recycling.

## AREVA la Hague

The la Hague site is in charge of the first step in recycling: recyclable materials and waste in used fuel from French and foreign power plants and research reactors are first separated, and then these recyclable materials and final waste are packaged in a safe and stable form.

Some 4,000 AREVA employees and 1,000 subcontractors work at the site.

The plant has two production lines, UP2-800 and UP3, which have a combined licensed capacity of 1,700 metric tons of used fuel per year, corresponding to the generation of 600 TWh per year of electricity.

Productive capacity, given the burn-up rate of the used fuel and without investment in additional capacity, is currently around 1,250 metric tons.

In 2014, the la Hague plant achieved its highest level of production in 10 years, with 1,217 metric tons of used fuel treated – 35 metric tons more than the initial objective. The site beat its own record by producing 1,100 universal canisters of vitrified waste (CSD-V).

## AREVA MELOX

The AREVA MELOX site is the global market leader for the fabrication of recycled nuclear fuel, or MOX. More than 800 employees and 400 subcontractors work at the site.

In 2014, MELOX produced 134 metric tons of MOX fuel for French and foreign customers and met all of its delivery commitments for the year.

At the end of 2014, AREVA delivered the 4,000  $^{\rm th}$  MOX fuel assembly to its customer EDF.

## Market and competitive position

The world market for used fuel recycling is highly restricted by stringent technical and regulatory requirements. The market's main features are:

- stringent emissions and environmental impact requirements;
- a concentrated industry with a limited number of suppliers of recycling services;
- the very high level of technological expertise required;
- capital-intensive operations; and
- services under multiyear contracts.

## **Outlook and development goals**

In 2015, the Recycling business's objectives are to:

- continue to sell and supply recycling solutions in France and internationally;
- promote the recycling technology abroad;
- develop innovative offers to strengthen nuclear and occupational safety in used fuel management;
- participate in the establishment of appropriate infrastructure in partner countries.

## 6.4.4.2. NUCLEAR LOGISTICS

## **Key figures**

	2014	2013
Revenue* (in millions of euros)	247	282
Workforce at year end	1,247	1,245

\* Contribution to consolidated revenue.

#### **Businesses**

The Nuclear Logistics activity, known by the trade name of AREVA TN, has two main business lines:

- design and management of the fabrication of casks and specialized equipment to transport and/or store nuclear materials and waste;
- organization of nuclear materials and waste transportation and supply chain management as needed, including that of the related equipment.

It operates both in the front end and the back end of the nuclear cycle, for commercial customers as well as for research reactors and laboratories. It was also tasked with the supervision transportation operations for the group and its customers to ensure that they are carried out according to the highest safety standards.

The Nuclear Logistics business also supplies nuclear fuel storage rack solutions for power plant cooling pools as well as neutron shield systems for reactors.

## **Operations and highlights**

In the front end of the nuclear cycle, the Nuclear Logistics business continues to open up new maritime shipping lanes to China, in particular from Canada and from Niger. An important contract was signed for shipments of natural uranium in North America in 2014-2015.

In the back end of the cycle, several used fuel and nuclear waste shipments were carried out for French, Swiss and Dutch customers in 2014. Nuclear Logistics business continued to be brisk, with as usual close to 200 used fuel shipments between EDF's power plants and AREVA's recycling plant at la Hague.

In used fuel storage, the Nuclear Logistics activity continues to grow, delivering heavy casks to customers in Europe in 2014.

In Spain, the Nuclear Logistics activity won a contract to manufacture four TN81 casks.

In new products, the nuclear safety authority NRC licensed the TN NOVA cask for transportation purposes. The cask will be used to ship and store used fuel in Switzerland.

In the United States, the Nuclear Logistics business continued its expansion with the delivery of several dozen NUHOMS® onsite used fuel storage casks and several new orders. A number of service contracts were also signed this year to commission and load the NUHOMS® systems.

## Manufacturing and human resources

The Nuclear Logistics activity carries out nearly 6,000 shipments each year. It is based in several regions of the world:

- in Europe, the activity offers expertise in every aspect of logistics, designs casks and manages the transportation of radioactive materials; its subsidiaries LMC and Mainco carry out road transportation projects (LMC) and provide industrial logistics services (Mainco);
- in the United States, the entity and its subsidiary CHT design, manufacture and sell storage casks to US nuclear utilities. They are also active in the front end of the nuclear cycle, with operations based at three sites, in Columbia, Maryland; Aiken, South Carolina, and Greensboro, North Carolina;
- in Japan, its entity provides engineering, transportation and the sale and maintenance of reactor fuel casks;

- in Niger, the Nuclear Logistics business conducts shipments of mining concentrates;
- in China, the entity operates in all of its business areas.

The Nuclear Logistics activity has the necessary resources to manufacture shipping and storage casks. It owns transportation equipment, including casks and road equipment, and operates road, rail and sea terminals.

To accomplish its mission of supervising the group's transportation operations, the business has an organization that minimizes risks and establishes appropriate action plans to manage any emergency at any location. Its real-time transportation tracking center provides it with a continuous stream of information on transportation operations.

## **Relations with customers and suppliers**

Customers are nuclear operators seeking solutions for radioactive materials transportation and for materials storage and supply chain management. The Nuclear Logistics business, through its entities, counts among its customers the majority of the world's utilities, research reactor operators, fuel cycle companies and research centers, institutes and laboratories.

The business has developed a diversified international network of partners and suppliers for all of its shipments and key components.

## Market and competitive position

The Nuclear Logistics business is a world leader in both of its main businesses and is active in every stage of the nuclear fuel cycle on an international level.

The business of nuclear materials transportation and design of nuclear materials storage and shipping casks is characterized by the diversity of materials involved, the international and competitive nature of the markets, and the strict and changing regulatory framework, which differs according to each transportation mode and each country.

Sales were evenly distributed among France, Europe, North America and Asia.

The Nuclear Logistics business offers comprehensive management of the logistics chain and has strengthened its position in securing supplies to the nuclear sites.

Activities related to the front end of the fuel cycle are deployed around the globe. In recent years, the Nuclear Logistics business strengthened its position in this market, in particular with shipments for AREVA's uranium mines and fuel fabrication plants, drawing support from solid partners.

In the back end of the fuel cycle:

- in Europe, EDF continues to be the leading shipper of used fuel to the la Hague recycling plant, followed by other utilities that have opted for recycling and certain research reactors;
- in the United States, the Nuclear Logistics business is a market leader in the dry storage of used fuel;
- in Asia, the Logistics activity is mainly present in Japan, where it carries out fuel and nuclear waste shipments between Europe and Japan. It also supplies storage racks to nuclear reactors in China.

## Outlook and development goals

The Nuclear Logistics activity continues to develop internationally to strengthen its position as a leading player in its business areas.

## 6.4.4.3. DISMANTLING AND SERVICES (D&S)

## **Key figures**

	2014	2013
Revenue* (in millions of euros)	306	310
Workforce at year end	4,676	4,117

Contribution to consolidated revenue.

## Businesses

D&S offers a broad range of services covering two main areas:

 nuclear facility dismantling activities across the entire value chain: cleanup, legacy waste retrieval and processing, effluent treatment, facility operations and dismantling, land reclamation and building repurposing.

Numerous facilities built in the 1950s and 1960s have reached the end of their operation. Their dismantling and rehabilitation of their host sites, in particular to allow new projects to be located there, represent a major industrial challenge. The Dismantling and Services activity is responsible for operating facilities that have been shut down, design studies, project management and project execution.

More specifically, D&S's offering includes the cleanup and dismantling of shut-down facilities, in cooperation with the customers or, depending on circumstances, other operating departments of AREVA, with operations ranging from scenario design and development to actual dismantling work and management of the related projects; The Dismantling and Services business also handles the outsourced operation of nuclear waste and nuclear effluent treatment facilities;

 services to nuclear operators: nuclear logistics and on-site support, facility maintenance, and radiation protection expertise and measurements.

These activities involve nuclear facilities that are currently in operation, where operators must ensure the best nuclear safety performance at all times while complying with increasingly strict safety requirements, preserving assets, preparing for the future and controlling costs.

## **Operations and highlights**

In 2014, D&S bolstered its leadership position by capturing new strategic markets while increasing its economic and operational performance, strengthening its presence near customers, and developing its skills.

In the marketing area, D&S achieved significant order intake with major contracts awarded during the year:

- operation of the decontamination workshop at the Marcoule site, of CEA facilities in Saclay and of EDF's Chemistry and Environmental Laboratory in Creys-Malville;
- contract to dismantle the Ulysse reactor at the Saclay site (CEA/DEN);
- dismantling of the R7 evaporator at la Hague;
- first dismantling contract for the Célestin reactors at the Marcoule site;
- award of the Solid Waste Packaging contract for the CEA at Marcoule;
- renewal of the operating contract for the CEA's waste treatment station at Cadarache;
- logistics contract awarded for EDF's Chooz A site (being dismantled);

- renovation of heavy cranes in EDF's Gravelines NPP machine room;
- several contracts for decontamination activities across EDF's reactor fleet;
- non-destructive testing of steam generators (2014-2016);
- several important contract awards for on-site support in preparation for the "Grand Carénage" program (major retrofits) at EDF's Paluel and Cattenom sites.

#### Manufacturing and human resources

The D&S Operations Department provides services to practically all of the French nuclear sites operated by AREVA, CEA, EDF and ANDRA. Its personnel are present at all sites to ensure the quality of the services provided in compliance with nuclear and industrial safety requirements, schedule and budget.

It has expertise in the vast majority of techniques for low-, medium- and high-level effluent and waste processing, volume reduction and safe packaging.

The Dismantling and Services business has operated the Triade environmentally regulated facility (see Glossary) since 1994, where it maintains machinery and equipment used in controlled areas, recertifies equipment, dismantles tooling and processes waste. Facilities are made available to customers so that they may maintain their tools and equipment in a secure environment.

D&S has conducted cleanup and dismantling operations for the CEA at Marcoule since 2005 under an industrial partnership agreement set to expire in 2015. At the CEA's request, a competitive bidding process will be phased in for the operation and production of workshops supporting the dismantling projects. The consequence of this opening of competition by the CEA for a share of the projects at Marcoule is a foreseeable downturn in business for AREVA at this site beginning in 2016. To deal with this new situation, D&S continues discussions with the CEA with the objective of positioning itself to win these projects.

# Retrieval of legacy waste and dismantling of old AREVA facilities

In 2014, D&S managed projects to retrieve legacy waste and dismantle old AREVA facilities:

## AREVA la Hague plant – UP2-400 facility

Following the receipt of three decrees in late 2013, work continued to ramp up this year to dismantle the facilities of the old used fuel treatment plant, UP2-400, which was shut down in 2003, and to retrieve and package legacy waste. The operations mainly concerned two large dismantling projects involving the MAU and MAPu workshops and the start of construction of the waste retrieval and packaging cell at the HAO workshop.

## Cadarache site

Production was discontinued at the old MOX fuel fabrication plant at the Cadarache site in 2003. Repackaging operations and the removal of reusable materials were completed in June 2008. The Dismantling and Services business is now the contracting authority for cleanup and dismantling operations at the site's plutonium technology shop (ATPu) and at the chemical purification laboratory (LPC) before their transfer to the CEA. This step occurs before the cleanup and dismantling of civil works begin.

#### SICN's Annecy and Veurey sites

Work to return the Annecy site to industrial usage has now been completed. Decommissioning of INB-65 and INB-90 at the Veurey site should be pronounced in 2015 following the regulatory process begun in 2014. Actions are in progress for complete reindustrialization of the site.

## Eurodif's uranium enrichment plant at Tricastin

The Dismantling and Services business is currently preparing the project to dismantle the Eurodif enrichment plant, which operated for 30 years and was shut down in 2012.

### Miramas site

D&S is responsible for soil cleanup at this former AREVA chemical plant whose principal activity was the isotopic separation of lithium and lithium product manufacturing. One of the project's objectives is to minimize waste production. The project should be completed in late 2015/early 2016.

#### **Relations with customers and suppliers**

To improve the cost-competitiveness of its projects, The Dismantling and Services business is engaged in dialogue with its suppliers to strengthen their visibility on the future workload over the short and medium terms and to work on improving performance.

### Market and competitive position

In France, the Dismantling and Services market is driven by new requirements from customers who turn to us for know-how. D&S is a leading player on the French market.

For facility dismantling, the net present value of provisions for the three main contracting authorities – CEA, AREVA and EDF – is approximately 30 billion euros. The market will grow significantly in the coming years, driven by the ramp-up of decommissioning programs, although the general economic situation sometimes leads to a reconsideration of the some project schedules. The Dismantling and Services business is a major player in this effort.

## Outlook and development goals

D&S' ambition is to confirm its position as a leading player on the French market and to showcase its know-how to participate in growing dismantling markets abroad.

The Dismantling and Services business will grow by continuing to expand its offering based on activities underpinned by in-house expertise, and by developing partnerships.

The competitiveness of D&S also depends on its investment in technology innovation to serve its customers.

#### 6.4.4.4. INTERNATIONAL PROJECTS

#### Key figures

	2014	2013
Revenue* (in millions of euros)	121	119
Workforce at year end	651	479

Contribution to consolidated revenue.

## **Businesses**

The engineering and operating know-how developed by AREVA t its French sites is without equivalent in the world. All countries with nuclear activities must define and implement solutions to manage the back end of the cycle. The International Projects business offers its assistance to customers for the management of existing sites or for the construction of new facilities to secure their management of the back end of the nuclear cycle and related waste management.

Numerous facilities built in the 1950s and 1960s have reached the end of their operation. Their dismantling and the rehabilitation of the sites that host them is a major industrial challenge, especially to allow new projects, whether nuclear or conventional, to be located at these sites.

#### **Operations and highlights**

The group is involved in projects in several key countries:

- China confirmed its intention of supporting the development of its nuclear power program with a high-capacity treatment and recycling plant. In 2013, this strategy led to the signature of a letter of intent between the Chinese utility CNNC and AREVA. This is an essential step forward in the technical and commercial negotiations for the project. AREVA would design the plant and provide assistance to CNNC for its construction and commissioning. The negotiations continued throughout 2014;
- in the United States, under the US Plutonium Disposition Program, a MOX fuel fabrication facility is under construction for the US Department of Energy (DOE) to recycle US defense plutonium (the MFFF project). As one of the two members of the consortium in charge of this project, AREVA is providing engineering and technology know-how. Civil works for the plant under construction were completed in 2013. The project enjoys significant bi-partisan support in the US Congress. In 2014, construction activities continued with an exceptional occupational safety record, with more than 20 million hours work without a lost time injury.

AREVA was also awarded a contract for the design and construction of a low-level waste disposal facility at the Idaho National Laboratory and a nuclear cleanup and dismantling contract for a Hanford site facility.

In addition, AREVA is conducting several technical studies in support of US utilities that have shut down some of their reactors;

- in Japan, the group has had a major technical assistance program with its customers since 1987. This partnership culminated in the construction of a used fuel treatment plant at the Rokkasho Mura site by Japan Nuclear Fuel Limited (JNFL), with support from AREVA. The plant is currently waiting for review of its report on compliance with new safety regulations for cycle facilities to be issued by the Nuclear Regulation Authority. In 2014, AREVA and JNFL continued their partnership with the extension of the operating support contract for the reprocessing plant. In addition, the partners signed two agreements for the J-MOX mixed oxide fuel fabrication plant currently under construction;
- in the United Kingdom, in the framework of the management contract for the Sellafield site managed by Sellafield Ltd., AREVA and its partners in the Nuclear Management Partners (NMP) consortium continued their partnership in 2014. AREVA seconded experts to contribute expertise to improve the site's performance.

At the end of 2014, AREVA and its British partners Atkins and Mace signed a major new contract for the design and construction of an intermediate-level waste

packaging facility at Sellafield. The Silos Direct Encapsulation Plant (SDP) is a priority for Sellafield Ltd. activities.

AREVA continued its discussions with the NDA on the solution offered by the group to manage the existing plutonium inventory in the United Kingdom and submitted several reports;

 in Spain, the engineering contract for the design of a centralized used fuel and waste disposal center (the ATC project) was finalized. AREVA's services allowed the customer Enresa to accelerate the submission of the preliminary safety analysis report for the ATC facility and associated facilities comprised of a spent fuel examination laboratory and a shipping cask maintenance shop.

#### Manufacturing and human resources

The International Projects Department offers customized solutions to its clients and implements them by drawing on its industrial and human resources, located mainly at the la Hague and MELOX sites in France, in the United States and in Germany.

For France, the la Hague, MELOX and Marcoule sites and the Engineering & Projects Department provide teams of experts whose role is to bring technical support for the preparation of international bids and to implement the projects of the operating department. Customers are offered training to support the operation of their recycling facilities.

Internationally, the International Projects Department has a commercial and technical network in direct contact with its customers. In the United Kingdom, operating managers and engineering specialists were embedded at the Sellafield site to provide their expertise in site operations. For this purpose, an "Engineering & Operations" entity is being staffed. Specialists are also available in the United States and in Germany. In Japan, a team is available at all times at the Rokkasho-Mura site, bringing expertise and experience from the la Hague plant to the operator, JNFL.

## **Relations with customers and suppliers**

Relying on its local presence in the United Kingdom, Japan and the United States, the International Projects Department maintains very close partnership relations with its customers. Its involvement in several international teams brings customers a wide variety of skills at the global level.

### Market and competitive position

Having opted in favor of the closed fuel cycle, China, the United Kingdom and Japan are natural customers. The International Projects Department is able to offer solutions to all nuclear operators seeking to implement their back end projects, in particular in the European countries and in the United States.

The International Projects Department is also responsible for offering solutions for the construction of new storage and disposal facilities in France and in international markets.

In dismantling, more than a hundred of the world's nuclear power plants have reached the end of their operating life. Nuclear installations also include dozens of research facilities, in addition to fuel fabrication and recycling plants. The value development of these shut-down sites adds up to a significant market. The biggest markets are in Europe and the United States. Japan is a special case because of the Fukushima accident and the site's dismantling needs. In the United Kingdom, although business is currently slow, the market represents significant potential and is a priority for the group. Significant growth is expected in Germany in a few years due to the shutdown of eight of its power plants in 2011.

### **Outlook and development goals**

In the recycling field, the department is still in technical negotiations with CNNC for the construction of a used fuel treatment and recycling plant in China. The construction of the MFFF will also be a major goal for the department.

In the dismantling field, the strategic objective is to consolidate its position as a major player in the management of dismantling projects and to bring solutions to its customers, particularly in the United States, the United Kingdom, Germany and Japan.

In the United Kingdom, the group's development continues with the planned opening of an office in Cumbria, near Sellafield, in early 2015, with a number of commercial proposals in progress or to come, and ramp-up of the Engineering & Operations platform.

In the United States, the objective of International Projects is to maintain its presence with the US Department of Energy, particularly at the Hanford and Savannah River sites, despite the budget restrictions imposed on this government agency. In addition, the group is seeking to strengthen its presence with operators who recently announced the closure of some of their power plants, including Kewaunee, Crystal River, San Onofre 2 & 3, Oyster Creek and Vermont Yankee.

Lastly, in Japan, the Department continued to develop industrial solutions, in particular for soil decontamination. In 2014, AREVA and the Japanese company ATOX created a joint venture called Anadec dedicated to the joint development of innovative solutions focused primarily on the rehabilitation of the Fukushima site and region. The Japanese Ministry of Energy selected three innovative projects proposed by AREVA to decontaminate Fukushima harbor, to develop filtration barriers and decontaminate soil, and to develop scenarios for the dismantling of the damaged reactors. AREVA also signed partnership agreements with other Japanese companies, such as Chivoda and JAEA, to offer proven technical solutions.

## 6.4.5. RENEWABLE ENERGIES BG

## **KEY FIGURES**

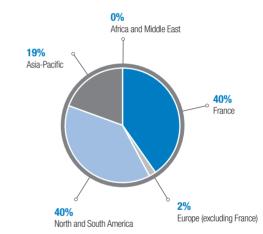
In application of IFRS 5, and in view of the creation of the Adwen joint venture with Gamesa in the field of offshore wind, the creation of the AREVA H2Gen joint venture with Smart Energies and Ademe in the energy storage field, and the decision to discontinue operations in the solar energy field at the end of ongoing construction projects unless a proposal is received in the short term for a takeover, the Wind Energy, Energy Storage and Solar Energy activities are no longer included in consolidated revenue or in other consolidated data of the Business Group. The Wind Energy and Solar Energy operations already met the criteria of IFRS 5 for classification as "assets and liabilities of discontinued operations" at December 31, 2013. Accordingly, 2013 data was restated to present pro forma information using the 2014 consolidation scope, and income from these operations is presented on a separate line.

	2014	2013
Revenue* (in millions of euros)	52	68**
Operating income (in millions of euros)	(43)	(31)* *
Workforce at year end	217	401***

\* Contribution to consolidated revenue.

- \*\* In application of IFRS 5 and IFRS 11, the financial statements at December 31, 2013 were restated to present pro forma data at comparable consolidation scope at December 31, 2014.
- \* \* After implementation of a new tool to consolidate workforce information, the number of employees for 2013 was restated to reflect the financial consolidation scope and to include early retirees, who were not taken into consideration until now.

## **2014 REVENUE BY GEOGRAPHICAL AREA**



Source: AREVA.

## **OVERVIEW**

The Renewable Energies Business Group had 49 million euros in backlog at December 31, 2014. Revenue totaled 52 million euros in 2014, a decrease of 24% from 2013 (21% like-for-like). As a reminder, the Business Group offers solutions in the Bioenergy field. A limited review of Offshore Wind, Energy Storage and Concentrated Solar Power (CSP) operations will be provided in this section, as they are no longer included in consolidated revenue or in other consolidated data.

#### **Relations with customers and suppliers**

## Customers

Customers of the Renewable Energies Business Group mainly include major power companies, project developers, independent power producers and electricity-intensive industrial customers.

#### Suppliers

Purchased items represent a significant portion of the Renewable Energies Business Group's product offering. The supply chain management function provides an essential contribution to the Business Group's financial performance. It centralizes requirements, identifies the best global sources of supply and negotiates the best terms in all areas, including:

- equipment, components and mechanical systems;
- electricity, electronics and instrumentation;
- castings, boilers and piping;
- steel, composite materials and intermediate products;
- civil engineering and installation;
- intellectual services.

The supply chain management organization contributes to the Business Group's profitable growth. It focuses its activities on:

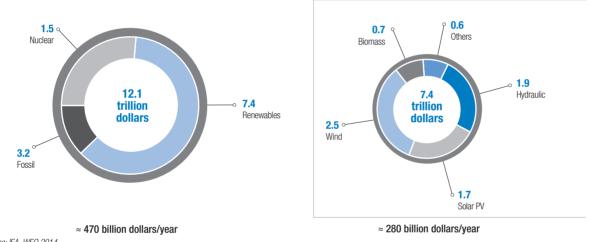
- implementing robust processes for managing supplier quality and controlling supplier risk;
- helping to reduce costs and developing technical optimizations programs.

## Market and competitive position

The central scenario in *World Energy Outlook 2014* published by the International Energy Agency (IEA) – the "New Policies Scenario" <sup>(1)</sup> – foresees a transformation of the electricity mix, with the share of non-hydro renewable energies expected to rise from 5% in 2012 to more than 17% of global electricity generation In 2040. This growth is expected to occur alongside an increase of more than 76% in global demand for electricity over that same period.

Renewable energies (including hydro) are expected to represent more than 60% of all capital spending devoted to new power plants from 2014 to 2040. Major investments are planned in China, India, Europe and the United States.

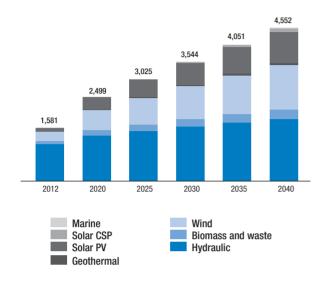
# INVESTMENT IN RENEWABLE-BASED ELECTRICITY GENERATION BY TECHNOLOGY, 2014-2040 - NEW POLICIES SCENARIO (IN BILLIONS OF 2013 US DOLLARS)



Source: IEA, WEO 2014

As explained in section 6.1.1, governments throughout the world are urging utilities to increase the share of renewable energies in their portfolios. Installed capacity from biomass plants would practically triple over the 2012-2040 period under the New Policies Scenario in the *World Energy Outlook*.

<sup>(1)</sup> According to the IEA, further efforts would need to be undertaken beyond those highlighted in the New Policies Scenario to limit the impact of global climate change to a temperature increase of less than 2°C. As detailed in its 450 Scenario, such efforts would imply the implementation of additional nuclear and renewable energy capacities around the world.



#### INSTALLED GENERATING CAPACITY FROM RENEWABLE ENERGIES - NEW POLICIES SCENARIO (GWE)

Source: IEA, WEO 2014.

The World Energy Outlook also notes that the intermittent nature of some renewable energy production technologies assures the future of energy storage technologies as a way to stabilize power grids.

With its positioning in Proton Exchange Membrane electrolysis (PEM) – held through its share in the AREVA H2Gen joint venture – and its R&D programs in flow batteries, AREVA is well positioned to benefit from the growth of this market.

## 6.4.5.1. BIOENERGY

## **KEY FIGURES**

	2014	2013
Revenue* (in millions of euros)	52	68
Workforce at year end	217	342

\* Contribution to consolidated revenue.

## **Businesses**

The Bioenergy Business Unit offers integrated technology solutions for the design, construction and commissioning of biomass power plants. It also offers solutions for the construction of biomass torrefaction units for "green coal" production. Its principal customers are in Europe, South America and Asia. Carbon-neutral biomass power plants convert organic residues (wood, bagasse, straw, etc.) into energy.

## **Operations and highlights**

The Bioenergy Business Unit signed a contract with the Brazilian utility Bolt Energias in connection with a project to build the Campo Grande biomass power plant in the State of Bahia. Once the project is completed, this 150 MWe power plant will be the largest biomass installation in the country.

Also, the Bioenergy Business Unit started up the prototype implementing AREVA's torrefaction technology at a site belonging to AREVA's French partner, LMK Energie. This important milestone confirmed the redevance of the process on an industrial scale including the use of proprietary extraction equipment designed by AREVAThis process should be ready for marketing in 2016.

In June, the Business Unit successfully delivered a biomass power plant to its customer U-Thong Bio Power Co., Ltd. in Thailand. The facility, located in Suphanburi Province 160 kilometers north of Bangkok, was built by AREVA and its partner Ensys. The plant will supply green electricity from rice husks, possibly mixed with bagasse, to 6,000 to 8,000 households with green electricity.

In addition, as part of the reorganization of AREVA's bioenergy activities, the Business Unit's Brazilian operations were relocated to São José do Rio Preto in the State of São Paulo following the sale of the unit's electrical panel activities.

## Manufacturing and human resources

The Bioenergy BU is organized around three regional units and one cross-business technical center:

- Europe: locations in France and Germany;
- Asia: locations in India, Singapore and the Philippines;
- Latin America: location in Brazil;
- Bioenergy technical center: located in Bordeaux, France.

With operating excellence at the heart of the Business Unit's strategy, the Business Unit's occupational safety performance is also exemplary (accident frequency rate: zero).

Positioned as a key player for solutions with a strong technology component, the Bioenergy Business Unit focuses on innovation to differentiate itself and improve its competitiveness. The development of the biomass torrefaction technology reflects this approach.

## Market and competitive position

## Market

The global installed base for bioenergy installations is set to increase by 45 GWe from 2013 to 2018 (Source: 2014 IEA Renewable Energies Report).

The biomass market is growing on every continent, albeit at a slower pace than other types of renewable energy. The market is highly fragmented in terms of customers and types of biomass, and it requires local expertise. Emerging countries, in particular Brazil and the countries of Southeast Asia, are high-growth markets for biomass.

With the industrialization and commercial development of AREVA's torrefaction process, the group is positioned in two high-potential markets: biomass cocombustion in coal-fired power plants, and heat production using biomass. The biomass-based heat production market for residential, urban and industrial heating is growing steadily in Europe and may become a key market for torrefied products. Torrefied biomass (hydrofuge wood panels) are another potential market.

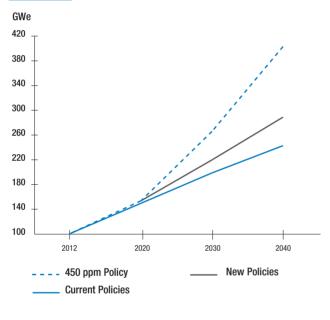
### Position

The Bioenergy BU is an industrial pioneer in the field of power engineering, especially as concerns biomass combustion and cogeneration technologies. The power plants commissioned by the Business Unit in Europe, Latin America and Asia represent installed electrical generating capacity from biomass of 2.5 GWe. The BU plans to consolidate its position as a leading supplier of technology solutions in its target markets:

- sugarcane residue and wood in Latin America (notably Brazil);
- wood and straw residues in Europe;
- agricultural residues in Asia (wheat and rice straw, palm stalks, coconut shells).

With its industrial torrefaction technology, the Business Unit is also one of the leaders in this innovative bioenergy sector. The BU recently broadened its offering to torrefaction to extend the group's technology portfolio and anticipate market trends aims, which is one of the BU's key missions.

# GLOBAL INSTALLED GENERATING CAPACITY FROM BIOMASS AND WASTE



Source: WEO 2014

## Outlook and development goals

The market for biomass power plants will continue to grow, led by abundant agricultural and forestry residues and stimulated by government subsidies. The Bioenergy Business Unit seeks to conquer new markets through innovation, in particular by optimizing the processes and technologies it uses in its bioenergy power plants and by developing its torrefaction process. For instance, the Bioenergy Business Unit developed an optimized modular solution for low-capacity biomass power plants (~5 MWe), which is particularly well-suited to the French and European markets.

AREVA is studying the possibility of entering in one or more partnerships for the bionergy business to strengthen its competitive position and its market access.

## 6.4.5.2. WIND ENERGY

## **Businesses**

The Wind Energy entitiy designs, manufactures, assembles, erects and commissions turbines for the offshore wind market. The group also offers installation and maintenance services to its customers.

## **Operations and highlights**

The Wind Power entity carried out its first two large-scale projects in the German North Sea with the completion of the sea installation phase in the summer of 2014 of 40 turbines for the Trianel Borkum offshore wind farm and 80 turbines for the Global Tech 1 project. These two projects have now entered the startup phase, before the acceptance of the wind farms by our customers, scheduled for the summer of 2015.

AREVA and the Deutsche Offshore-Testfeld und Infrastruktur GmbH & Co. KG (DOTI) operating consortium signed a five-year maintenance and servicing contract for AREVA turbines installed at the Alpha Ventus wind farm, which was the first offshore wind farm built in Germany. This contract renews the previous agreement, which came into effect in 2009 when the six M5000-116 5-MWe turbines were commissioned.

The entity also met several milestones in expanding its market reach:

In France, the group and its partner, the consortium of GDF SUEZ, EDP Renewables and Neoen Marine, were selected for the second offshore wind tender concerning the wind farms off the coasts of the Tréport and the islands of Noirmoutier and Yeu. The consortium will install and operate these two offshore wind farms (496 MWe each), which will be equipped with AREVA turbines. The partners confirmed their goal of developing innovative and environmentally friendly offshore wind projects in consensus with stakeholders, creating some 6,000 direct and indirect jobs and involving local businesses;

Strengthered by its success in the second French offshore wind call for bids, the Wind Energy entity confirmed its intention to install two plants in Le Havre, one for turbines and the other for blades, where the group has reserved land with direct access to sea. Also, the group is building a network of suppliers throughout the country, particularly in western France, to establish long-term partnerships and develop a comprehensive industry in France. Supply agreements have already been signed with Schneider Electric for mechanical equipment and with CMP Dunkerque and Fouré Lagadec for the wind turbine mast;

- In Germany, Iberdrola selected AREVA's wind turbines for its Wikinger project, to be installed 35 kilometers off the Baltic sea coast. On December 17, 2014, AREVA and Iberdrola signed a contract for the supply, installation and five-year maintenance of 70 M5000-135 turbines for this project;
- In the United Kingdom, AREVA now has a dedicated sales team and is participating in major tenders, including the Round 3 development projects.

In addition, AREVA and Gamesa signed binding agreements in July to create a global leader in offshore wind, finalizing exclusive negotiations begun last January. On March 9, 2015, they have signed the definitive agreements and have closed the transaction for the creation of Adwen. Combining both Gamesa and AREVA wind expertise and extensive track-record, Adwen, 50-50 owned by its two parent companies, is ideally positioned to become a leading player in the offshore wind segment while contributing to the development of this huge potential market. The two groups will pool their personnel and technologies in offshore wind.

## Manufacturing and human resources

The group's industrial footprint in the offshore wind business reflects its longstanding presence in Germany, where the group has nacelle manufacturing plants in Bremerhaven, blade manufacturing in Stade, and commissioning and maintenance services units.

Outside Germany, AREVA has announced plans to build new industrial sites in Le Havre.

### Market and competitive position

## Market

The offshore wind market is growing quickly. In Europe, installed offshore wind capacity is expected to rise to more than 25 GWe by 2020. Development prospects are excellent in Asia as well, especially in China, where the installed base is expected to be close to 18 GWe in 2020.

#### UNITED KINGDOM

The United Kingdom is Europe's leading offshore wind market, with 2.7 GWe of installed capacity and a target of 13 GWe by 2020.

#### GERMANY

With a target of 6.5 GWe of installed offshore wind capacity in the North Sea and Baltic Sea by 2020, Germany is the second largest European market. The insufficiencies of the transmission grids delayed the commissioning of several offshore wind farms. The German government is currently working on a solution to avoid similar difficulties with planned new facilities.

#### FRANCE

The French government decided to increase offshore wind capacity in France by announcing a second call for bids in March 2013. It concerns the installation and operation of a total of approximately 1,000 MWe off Le Tréport in Normandy and the Yeu and Noirmoutier islands in the Pays-de-Loire region. AREVA and the GDF SUEZ- EDP Renewables - Neoen Marine consortium were selected to carry out these two projects. AREVA will offer its next-generation 8-MWe wind turbine for the two wind farms, which will be built and gradually commissioned by 2021-2023.

### OTHER MARKETS

Other European countries are planning to develop large wind farms by 2020, including Belgium, the Netherlands and Denmark. In Asia, fast-track development programs were adopted in countries such as China, South Korea and Japan.

#### Position

In the offshore wind field, AREVA pioneered the development of offshore turbines with medium-speed drive-trains and permanent magnet technology. It was also the first to install six 5-MWe turbines in the German North Sea as early as 2009, in the difficult sea conditions of the Alpha Ventus pilot site (40 kilometers from the shore at a depth of 30 meters). The successful operation of the Alpha Ventus project and the manufacturing and installation of more than 120 5-MWe machines made the group a major player on the market, doubling the installed base in Germany in 2014 and leading to the development of a new generation of 8-MWe turbines based on a demonstrated technology. The business model rests primarily on the delivery and maintenance of high-power wind turbines. The business is also building strategic partnerships with installers to offer integrated solutions to customers seeking to minimize interface risks.

#### Outlook and development goals

To boost its development in offshore wind, AREVA announced on January 20, 2014, the start of exclusive negotiations to create a joint venture (50% AREVA, 50% Gamesa) destined to become a leading global player. Binding agreements were signed by the two parties last July. On March 9, 2015, Gamesa and AREVA have signed the definitive agreements and have closed the transaction.

By uniting their strengths, AREVA and Gamesa enable the Adwen joint venture to become a leading player in the global offshore wind market and will contribute to the development of this fast growing segment by:

- providing expertise, innovation and R&D funding to develop competitive and reliable technologies for the future;
- offering their capacity for industrialization and their expertise in the development of and internal and external supply chain;
- applying best practices developed in onshore wind to the offshore segment.

The joint venture will be able to harvest substantial synergies:

- the wind experience gained by AREVA from several wind projects since 2004, in particular with the installation of 120 5-MWe turbines in the North Sea; and
- Gamesa's technology assets in onshore and offshore wind based on 20 years
  of experience as an industrial leader across the entire value chain. The company
  also has a strong capacity for industrialization, based on its proven expertise and
  experience in supply chain development.

AREVA and Gamesa will pool their personnel and technologies in offshore wind:

- for AREVA: the German Bremerhaven (turbine assembly) and Stade (blade manufacturing) plants, as well as its offshore wind technology and commercial contracts;
- for Gamesa: high-capacity technologies applicable to offshore wind, the 5 MWe platform and the Arinaga turbine prototype, as well as its skills in engineering, operation and maintenance;
- additionally, the joint venture will enter into a preferred supplier agreement with Gamesa for certain key components.

Adwen offers its customers a comprehensive products and services portfolio, providing solutions adapted to project specific requirements with:

- The Adwen 8MW platform, initiated by AREVA and further optimized thanks to Gamesa's technological expertise, will reach serial production in 2018. With its 1GW project pipeline and an outstanding energy production, the AD 8 MW is set to be a market frontrunner.
- The Adwen 5MW platform offers two complementary 5 MW turbines available for immediate projects: the AD 5-135 and AD 5-132. The AD 5-135, formerly called M5000-135, is AREVA's 5MW technology with an installed base of 650 MW which will reach 1GW with Wikinger wind farm installation. The AD 5-132, developed by Gamesa and formerly called G132-5.0 MW Offshore, complements the product portfolio with a competitive turbine.

The company will fulfill industrial commitments engaged by AREVA and Gamesa, in France and in the UK, comprising the creation of factories in Le Havre and the implementation of a network of suppliers and partners throughout the country.

From the start, the joint venture will bring several customers, including Iberdrola<sup>(1)</sup>, which selected the M5000 turbine for its offshore wind farms in Saint-Brieuc, France and Wikinger, Germany

<sup>(1)</sup> Iberdrola has a 20% shake in Gamesa

## 6.4.5.3. ENERGY STORAGE

#### Partnership in hydrogen electrolysis with PEM technology

In May, AREVA Energy Storage, Smart Energies and Ademe signed an agreement creating the AREVA H2Gen joint venture, which designs and manufactures proton exchange membrane electrolyzers. This technology uses water and electricity to produce hydrogen. AREVA and its partners aim to make it a global leader in the hydrogen production market using electrolysis technology. The company is based in France, where it will operate a dedicated engineering and production site.

The market for hydrogen production by electrolysis, traditionally focused on industrial applications, is evolving with the opening of hydrogen vehicle supply stations. Other applications, such as Power-to-Gas, offer additional and important avenues for this business.

## Transfer of other energy storage activities to the Research, Development & Innovation Department

On January 1, 2015, energy storage activities other than PEM electrolysis were transferred to AREVA's Research, Development & Innovation Department to speed up their development under joint technology programs. These activities relate to two main programs:

### Development of a continuous flow battery technology based on

In 2014, AREVA Energy Storage launched a joint R&D development program with Schneider Electric and ENStorage to develop a new energy storage solution continuous flow battery technology. This technology combines hydrobromic acid and hydrogen to produce and store electricity. In July 2014, AREVA Energy Storage completed the preliminary evaluation phase for this new solution. The prospects for technical performance, cost reduction and market opportunities were confirmed, and European financing was secured for the development of a 150-kW pilot.

## Ongoing development of fuel cells via partnerships

In 2014, AREVA and Schneider Electric signed a partnership agreement to develop energy storage and energy management solutions based on hydrogen production and fuel cells. In addition, AREVA increased the capacity of the MYRTE experimental platform by installing its Greenergy Box™ solution. This solution supplements the existing system commissioned in early 2013 by raising the ability to inject power into the grid from the stored energy to 150 kW, thereby enhancing grid quality and reliability.

In La Croix Valmer, after the election of a new municipal council in April 2014 and in view of the city's serious financial difficulties, the city administration informed AREVA in July of its intention to terminate the Janus project. In early November, the parties signed a termination agreement which preserves the interests of both parties.

In fuel cells, AREVA worked diligently to advance preliminary discussions for the outline of a major French player in fuel cell design and manufacturing. The entity could bring together several companies that are active in the field.

## 6.4.5.4. SOLAR ENERGY

The Solar Energy entity deploys its concentrated solar power solutions (CSP) based on the Compact Linear Fresnel Reflector (CLFR) technology.

In the first half of 2014, AREVA continued the discussions launched in 2013 with potential partners to set up a strategic partnership agreement or to sell an equity interest in AREVA Solar. At the end of June 2014, AREVA noted that conditions were not conducive to the creation of a joint venture with a partner in this field with satisfactory technical development prospects and sales opportunities in the short to medium term. Consequently, in July 2014, AREVA decided to discontinue this business after the completion of current construction projects, unless a takeover offer is received in the short term. All property, plant and equipment and intangible assets dedicated to this business were written off, for a total amount of 58 million euros.

Having received different signs of interest in purchasing this business, AREVA entered into negotiations in the second half of 2014 with a potential partner which is currently a minority shareholder in AREVA Solar Inc. in order to determine the conditions in which the business could continue if that partner were to acquire a majority interest in the company. These discussions were ongoing on an exclusive basis as of the date of year-end closing and have a good chance of success in 2015.

## 6.4.6. OTHER

#### Engineering & Projects Organization (E&P)

The integrated model created by AREVA to carry out its projects successfully is founded on the know-how of the 5,000 professionals in the Engineering & Projects team, a staff unparalleled in size in the nuclear field. Backed by 50 years of experience in nuclear engineering and major projects, the Engineering & Projects Organization (E&P) is actively contributing to the success of AREVA's integrated business model. The objective of this crosscutting organization is to guarantee the reliable, safe and competitive performance of the facilities of AREVA's customers. Its international teams are armed with standardized tools, methods and procedures that capitalize on operating experience from more than 3,000 projects led every year in every aspect of the fuel cycle. Depending on the risk-sharing requirements of its customer in the

Business Groups, the Engineering & Projects Organization commits to completing turnkey projects or work packages under cost-plus or fixed-price contracts, either as a sole contractor or as an integrator of different partners on a local or international level. To that end, and to support AREVA's customers in integrating local resources into the projects while ensuring the global competitiveness of AREVA's offering, the Engineering & Projects Organization develops strategic partnerships with engineering firms and construction companies across the globe.

The project execution capabilities of the Engineering & Projects Organization together with the technical expertise of its teams, who are familiar with the technologies developed by the group as well as with those of its competitors, give AREVA a major advantage. Skills management, adjusting the skills mix to

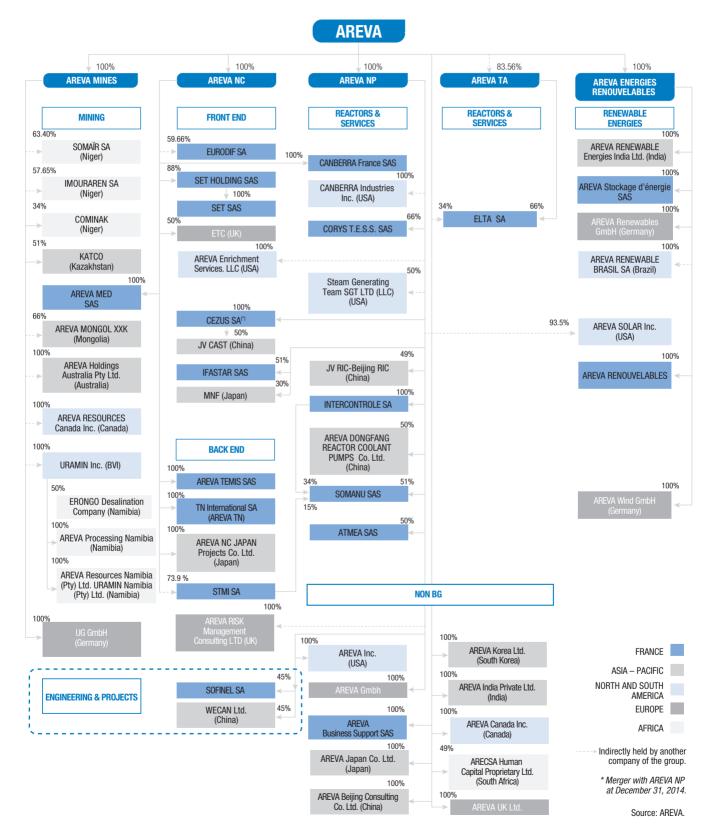
meet market demand, and offering attractive careers are the core mission of Engineering & Project's four centers of competence in project management, design and engineering, construction and testing, and inspection. They also draw on AREVA's global network of experts, who contribute to the success of the projects by developing innovative technologies, transferring know-how and training technical contributors to the projects.

## **Consulting and Information Systems Business Unit**

The Consulting and Information Systems Business Unit operated commercially under the brand names Euriware and Open Cascade, its subsidiary. It led integration projects (information systems, industrial IT, and instrumentation and control systems) and provided consulting services, IS outsourcing for business, and infrastructure applications (hosting, monitoring, operation, administration and expertise) to AREVA and to customers outside the group.

AREVA and Capgemini had entered into exclusive negotiations in October 2013 and signed agreements on May 7, 2014 involving 1) a commercial partnership in the form of a major IS outsourcing and systems integration contract in the amount of 1 billion euros over a period of 10 years, and 2) the acquisition of Euriware and its subsidiaries by the Capgemini group. Through this long-term partnership with Capgemini, AREVA is able to count on a leading player offering the highest level of performance and security for the operation and transformation of its information system. ORGANIZATIONAL STRUCTURE

## SIMPLIFIED ORGANIZATION CHART OF THE GROUP AT DECEMBER 31, 2014



07



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8.2. ENVIRONMENTAL ISSUES THAT MAY AFFECT THE ISSUER'S USE OF PROPERTY, PLANT AND EQUIPMENT

103

# 8.1. PRINCIPAL SITES OF THE GROUP

Pursuant to Appendix I, point 8 of European Commission Regulation no. 809/2004 of April 29, 2004 and recommendation 146 of the European Securities and Markets Authority (ESMA), information is provided hereunder on the real estate properties and rentals used by the group in connection with its operations.

The group's principal worldwide plant sites at December 31, 2014 are listed below. The primary criterion for listing sites is the size of the operation conducted there. It should be noted that several different operations are performed at some of these sites.

## 8.1.1. CORPORATE

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area
Tour AREVA, 1 place Jean-Millier – Paris-La-Défense (92) France	Offices (registered office)	Lease	No	93,457 m²
33, rue La-Fayette – Paris (75) France	Offices	Lease	No	27,419 m <sup>2</sup>
1-5, rue du Débarcadère – Colombes (92) France	Offices	Lease	No	13,477 m <sup>2</sup>



# 8.1.2. MINING BUSINESS GROUP

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
Arlit	Offices + production and	Long-term concession/			
Niger	storage facilities	Full ownership	No	72.1 ha	Uranium concentrates
<b>Akokan</b> Niger	Offices + production and storage facilities	Long-term concession/ Full ownership	No	49.9 ha	Uranium concentrates
<b>lmouraren</b> Niger	Mining site	Long-term concession/ Full ownership	No	19,761 ha	Under development
<b>Trekkopje</b> Namibia	Mining site	Long-term concession/ Full ownership	No	37,367 ha	Care and maintenance
<b>Trekkopje</b>	Deceliaction plant		No	Land: 20 ha Building:	Conveter decelipation
Namibia	Desalination plant	Full ownership	No	12,945 m <sup>2</sup>	Seawater desalination
<b>McClean</b> Canada	Mill + base camp	Long-term concession/ Full ownership	No	4,600 ha	Uranium concentrates
<b>Muyunkum</b> Kazakhstan	Offices + production and storage facilities	Long-term concession/ Full ownership	No	72.2 ha	Eluates
<b>Tortkuduk</b> Kazakhstan	Offices + production and storage facilities	Long-term concession/ Full ownership	No	103.43 ha	Eluates + uranium concentrates (U <sub>2</sub> O <sub>2</sub> )

# 8.1.3. FRONT END BUSINESS GROUP

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
Tricastin (26) France (nuclear regulated, security regulated, environmentally regulated facility)	Plant and storage areas	Full ownership	No	Land: 625.64 ha Building: 109.24 ha	Conversion of $UF_6$ , defluorination and denitration of $TU_5$ , $TU_2$ and depleted $UO_2$ , related services (effluent treatment, equipment maintenance), storage and enrichment services
Malvési (11) France (nuclear regulated, environmentally regulated facility)	Mill	Full ownership	No	Land: 144.68 ha Building: 31,192 m <sup>2</sup>	UF <sub>4</sub> conversion services
<b>Romans-sur-Isère</b> (26) France (regulated nuclear facility)	Mill	Full ownership	No	Land: 32.6 ha Building: 59,789 m²	PWR fuel assemblies
<b>Paimbœuf</b> (44) France (environmentally regulated facility)	Mill	Full ownership	No	Land: 64,366 m <sup>2</sup> Building: 18,170 m <sup>2</sup>	Zirconium tubes for fuel assemblies
<b>Jarrie</b> (38) France (environmentally regulated facility)	Mill	Full ownership/ Lease	No	Land: 10.13 ha Building: 41,813 m <sup>2</sup>	Zirconium sponge
<b>Rugles</b> (27) France (environmentally regulated facility)	Mill	Full ownership	No	Land: 73,491 m <sup>2</sup> Building: 12,630 m <sup>2</sup>	Zirconium products
<b>Ugine</b> (73) France (environmentally regulated facility)	Mill	Full ownership	No	Land: 56,465 m <sup>2</sup> Building: 33,550 m <sup>2</sup>	Intermediate products in zirconium and titanium Plug rods
<b>Lyon</b> (69) France	Offices	Lease	No	Building: 19,335 m <sup>2</sup>	Engineering
<b>Dessel</b> Belgium (nuclear facility)	Mill	Full ownership	No	Land: 10.39 ha Building: 17,851 m <sup>2</sup>	Site undergoing dismantling
<b>Richland</b> Washington – United States (nuclear facility)	Mill	Full ownership	No	Land: 134.42 ha Building: 36,900 m <sup>2</sup>	Powder and pellet production (UO <sub>2</sub> , Gad & BLEU <sub>)</sub> , Assemblies and various components.
Lingen Germany (nuclear facility)	Mill	Full ownership	No	Land: 44.13 ha Building: 14,260 m <sup>2</sup>	Fuel assemblies for BWRs and PWRs



# 8.1.4. REACTORS & SERVICES BUSINESS GROUP

		Lease/full	Existence of encumbrances on the real		
Location	Type of asset	ownership	estate	Surface area	Products manufactured
<b>Saint-Marcel</b> (71) France (environmentally regulated facility)	Mill	Full ownership	No	Land: 18.54 ha Building: 56,814 m <sup>2</sup>	Heavy components (reactor vessel, vessel head, steam generator, pressurizer)
<b>Jeumont</b> (59) France (environmentally regulated facility)	Mill	Full ownership	No	Land: 92,483 m <sup>2</sup> Building: 40,678 m <sup>2</sup>	Reactor coolant pump sets, control rod drive mechanisms
<b>Maubeuge</b> (59) France (nuclear regulated, environmentally regulated facility)	Mill	Full ownership	No	Land: 96,390 m <sup>2</sup> Building: 11,429 m <sup>2</sup>	Services related to contaminated component maintenance: reactor coolant pump assembly & testing
<b>Le Creusot</b> (71) France (environmentally regulated facility)	Plant, offices, workshop	Full ownership/ Lease	No	Land: 12.48 h <sup>a</sup> Building: 73,131 m <sup>2</sup>	Forgings and machining of large parts for the nuclear and petrochemicals industries Technical center - testing
<b>Chalon-sur-Saône</b> (71) France (environmentally regulated facility)	Offices, CEDEM, CEMO, CETIC (50/50 JV with EDF)	Full ownership	Information not available		Robotics, tooling, decontamination, storage of tooling (contaminated/decontaminated)
<b>Cadarache</b> (13) France (INBS)	Production plant, offices	CEA host site	No	Land: 15.31 h <sup>a</sup> Building: 53,357 m <sup>2</sup>	Nuclear fuel
<b>Aix-en-Provence</b> (13) France	Offices	Full ownership	No	Land: 10.6 hª Building: 12,168 m²	Design/Engineering
<b>Saclay</b> (91) France	Offices	Full ownership/ Lease	No	Land: 1.1 h <sup>a</sup> Building: 7,298 m <sup>2</sup>	Design/Engineering
<b>Loches</b> (37) France (environmentally regulated facility)	Production and services site	Full ownership	No	Land: 16,844 m <sup>2</sup> Building: 4,800 m <sup>2</sup>	Standard products
<b>Lyon</b> (69) France	Offices	Lease	No	Building: 15,552 m <sup>2</sup>	Engineering
<b>Deyang</b> Sichuan, China	Mill	JV 50 JSPM/ 50 Dongfang Electric Machinery	No	Land: 36,729 m <sup>2</sup> Building: 16,435 m <sup>2</sup>	Reactor coolant pumps
<b>Lynchburg</b> Virginia – United States (nuclear facility)	Offices, hot facilities, Training Center	Full ownership/ Lease	No	Land: 99,636 m <sup>2</sup> Building: 23,172 m <sup>2</sup>	Decontamination Hot maintenance facility
<b>Meriden</b> Connecticut – United States	Production and services site	Full ownership	No	Building: 16,200 m <sup>2</sup>	Standard products, systems
<b>Canberra Oak Ridge</b> Tennessee – United States	Production and services site	Full ownership	No	Land: 9,915 m <sup>2</sup> Building: 3,160 m <sup>2</sup>	Crystal growth
<b>Olen</b> Belgium	Production and services site	Full ownership	No	Land: 9,400 m <sup>2</sup> Building: 2,494 m <sup>2</sup>	Standard detectors
Harwell United Kingdom	Production and services site	Lease	No	Land: 8,665 m <sup>2</sup> Building: 2,262 m <sup>2</sup>	Standard products, systems
<b>Erlangen</b> Germany	Offices, facilities	Lease	No	Building: 71,990 m <sup>2</sup>	Robotics/tooling, Technical Center – testing, Engineering

## 8.1.5. BACK END BUSINESS GROUP

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>La Hague</b> (50) France (regulated nuclear facility)	Plant site	Full ownership	No	Land: 384.2 ha Building: 77.72 ha	Used fuel treatment
<b>Valognes</b> (50) France	Offices, Warehouse	Full ownership	No	Land: 39,023 m <sup>2</sup> Building: 12,900 m <sup>2</sup>	-
<b>Saint-Sauveur-le-Vicomte</b> (50) France	Office, workshop	Full ownership/ Lease	No	Land: 27,094 m <sup>2</sup> Building: 9,638 m <sup>2</sup>	Machining and mechanical fabrication
<b>Cadarache</b> (13) France (regulated nuclear facility)	Plants, offices	Full ownership	No	Building: 4,995 m <sup>2</sup>	Site undergoing dismantling
<b>Miramas</b> (13) France (environmentally regulated facility)	Mill	Full ownership	No	Land: 31.3 ha Building: 19,910 m²	Site undergoing cleanup
<b>Marcoule</b> (30) France (regulated nuclear facility)	Plants, offices	Full ownership	No	Land: 11.47 ha Building: 54,576 m²	MOX fabrication
<b>Bollène</b> (84) France (environmentally regulated facility)	Mill	Full ownership	No	Land: 19,483 m <sup>2</sup> Building: 9,644 m <sup>2</sup>	Machine maintenance, waste processing, equipment recertification

## 8.1.6. RENEWABLE ENERGIES BUSINESS GROUP

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Aix-en-Provence</b> (13) France	Offices, Plant	Lease	No	Land: 1,230 m <sup>2</sup> Building: 1,870 m <sup>2</sup>	Fuel cells
<b>Bremerhaven</b> Germany	Offices, Plant	Lease/ Full ownership	No	Land: 10.22 hª Building: 15,955 m²	5 MWe wind turbines/test bench
<b>Stade</b> Germany	Offices, Plant	Full ownership/ Lease	No	Land: 7.64 hª Building: 29,530 m²	Blade manufacturing for offshore wind turbines and biomass
<b>Chennai</b> India	Offices, Plant	Lease	No	Building: 12,286 m <sup>2</sup>	Biomass manufacturing and assembly

## 8.1.7. ENGINEERING & PROJECTS

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
Saint-Quentin-en-Yvelines (78) France	Offices	Lease	No	Building: 27,472 m <sup>2</sup>	Engineering
<b>Erlangen</b> Germany	Offices	Lease	No	Land: 27,500 m <sup>2</sup> Building: 53,632 m <sup>2</sup>	Engineering
<b>Offenbach</b> Germany	Offices	Lease	No	Building: 27,325 m <sup>2</sup>	Engineering

## 8.1.8. SCHEDULED INVESTMENTS

Please refer to Section 5.2. Investments, and to the appropriate sections of Chapter 6. Business overview for more detailed information on scheduled investments by Business Group.

# 8.2. ENVIRONMENTAL ISSUES THAT MAY AFFECT THE ISSUER'S USE OF PROPERTY, PLANT AND EQUIPMENT

Please refer to Section 4. Risk factors.

# **ANALYSIS OF AND COMMENTS** ON THE GROUP'S FINANCIAL POSITION AND PERFORMANCE

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# 9.1. OVERVIEW

The following comments are based on financial information for fiscal years 2013 and 2014 and must be read in conjunction with AREVA's consolidated financial statements for the years ended December 31, 2013 and December 31, 2014. These comments were drafted based on the group's consolidated financial statements, prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union on December 31, 2014.

AREVA's information by business segment is presented for each operating Business Group (BG), which is the level at which information is examined by the group's governance bodies, as per the requirements of IFRS 8.

Information by business segment therefore corresponds to AREVA's five operating Business Groups: Mining, Front End, Reactors & Services, Back End and Renewable Energies.

## 9.1.1. BUSINESS TRENDS

# STRATEGIC POSITIONING AND CHANGES IN THE SCOPE OF CONSOLIDATION

The AREVA group is a global leader in solutions for low-carbon power generation and a major player in solutions for nuclear power generation, and aims through partnerships to become a leading player on the renewable energies market. The group's customers include some of the world's largest utilities, with which AREVA does a large share of its business under medium and long term contracts.

In 2014, the group continued to reorganize part of its Renewables operations. Consequently, the Wind Energy, Solar Energy and Energy Storage businesses are consolidated under "Discontinued operations", in application of IFRS 5. The disposals of Euriware, the Duisburg fuel cladding manufacturing plant, AREVA TA's Command and Control for Transportation business and Aerospace Assembly Lines business, the electrical panels business in Brazil, and the land-based wind turbine business resulted in their treatment as "discontinued operations" in the consolidated financial statements.

## **MARKET TRENDS**

Recurring business represents about 90% of AREVA's consolidated revenue, equivalent to the level of 2013, mainly in reactor services and in the fuel cycle.

The group's remaining operations concern the construction of new nuclear facilities and renewable energy production units. These two businesses have very specific market dynamics.

Government programs, particularly in the United States, the United Kingdom, India and China, provide considerable stimulus to the nuclear and renewables markets.

In 2014, AREVA's markets in nuclear power were affected by:

- a decrease in spot and long-term prices in the natural uranium market (Mining Business Group) and in the conversion and enrichment markets (Front End Business Group), even though the spot price for natural uranium recovered in the second half;
- delays in the restart of Japanese reactors, in spite of some progress achieved recently concerning the restart of the first two units;
- changes of assumptions in the schedule relating to the launch of new reactor construction projects (Reactors & Services Business Group) and for export contracts in the recycling activity and international projects (Back End Business Group), based on existing visibility in the market;
- persistent weakness in the installed base services market, including France.

## 9.1.2. KEY FEATURES OF AREVA'S BUSINESS MODEL

The group's continuing operations are represented by five Business Groups (BGs): Mining, Front End, Reactors & Services, Back End and Renewable Energies.

The **Mining Business Group** operates under multiyear contracts covering periods that may exceed 15 years. Consequently, its backlog already represents some 10 years of future production. This long-term contractual approach is necessary given the significant amount of capital expended to develop new mines, which are operated over very long periods of time.

The **Front End Business Group**, which covers uranium conversion and environment, fuel assembly fabrication and related services, is also characterized by multiyear contracts equivalent to an average backlog of more than five years, and sometimes more than 15 years for Enrichment. The contracts contain standard price escalation clauses.

The **Reactors & Services Business Group** designs and manufactures the two leading reactor technologies for power generation currently in use around the world, as well as naval propulsion and research reactors and the products and services needed to modernize, control and service all types of reactors. It is characterized by recurring business (services and engineering) based on long-term or frequently renewed contracts and represents approximately 80% of the Business Group's total activity. The Business Group also has attractive prospects for non-recurring business, in particular as relates to nuclear power plant construction; independent organizations such as the International Atomic Energy Agency (IAEA) and the World Nuclear Association (WNA) are forecasting increases in installed capacity by 2040. The group gives warranties in significant amounts due to the types of products and services sold by the main Business Divisions of the Reactors & Services Business Group.

The **Back End Business Group** manages all of the operations associated with used nuclear fuel recycling and value development of nuclear facilities through cleanup and dismantling, and offers transportation solutions for each segment of the nuclear cycle. It is characterized by multiyear contracts with a limited number of customers. The Back End Business Group's operations involve large industrial facilities which must be kept in operational readiness through regular and heavy capital expenditure financed by customers through long-term contracts. In addition, the Business Group provides industrial know-how to international projects involving the creation of or support to other treatment and recycling platforms. In parallel, the Business Group continues to deploy know-how in the dismantling and cleanup of nuclear sites and in the shipment of nuclear materials.

Concerning the Renewable Energies Business Group, in the bioenergy segment, where the technology is mature and the market fragmented, the group offers turnkey solutions for the design, construction and commissioning of biomass power plants. In the energy storage segment, AREVA develops solutions for hydrogen production by electrolysis through AREVA H2Gen, a joint venture company. In the field of offshore wind, AREVA and Gamesa signed binding agreements on July 7, 2014 for the creation of a joint venture, Adwen, which was effectively created on March 9, 2015. Lastly, in the solar energy segment, at the end of June 2014, AREVA noted that conditions were not conducive to the creation of a joint venture with a partner in this field with satisfactory technical development prospects and sales opportunities in the short to medium term. Consequently, in July 2014, AREVA decided to discontinue this business upon the completion of current construction projects, unless a full takeover bid is received in the short term. Having received different signs of interest in purchasing this business, AREVA entered into negotiations in the second half of 2014 with a potential partner which is currently a minority shareholder in AREVA Solar Inc. in order to determine the conditions in which the business could continue if that partner were to acquire a majority interest in the company.

## 9.1.3. HIGHLIGHTS OF THE PERIOD

The information provided in this section concerns the AREVA group as a whole. Highlights related to contracts recorded over the period are described in the business segment review.

# CONCERNING BUSINESS STRATEGY AND CAPITAL EXPENDITURES

- On January 20, AREVA and Gamesa announced that they had begun exclusive negotiations to create a 50/50 joint venture in the offshore wind field.
- On March 3, an additional 1 million euros were contributed to the share liquidity agreement between AREVA and Natixis.
- On March 12, AREVA priced and launched a 750-million-euro bond issue with an annual coupon of 3.125% maturing in 9 years, on March 20, 2023.
- On April 1, Advanced Nuclear Fuels GmbH, an AREVA subsidiary, sold its fuel cladding production plant in Duisburg, Germany.
- On April 17, after the Czech utility CEZ announced the cancellation of a tender from which the group had been unjustly excluded in 2012, AREVA announced the withdrawal of the appeal that had been filed with the Regional Tribunal Court of Brno. This allows the relationship with CEZ to return to normal.
- On May 7, AREVA and Capgemini signed agreements involving a commercial partnership in the form of a major IS outsourcing and systems integration contract in the amount of 1 billion euros over a period of 10 years, and the acquisition of Euriware and its subsidiaries by the Capgemini group.
- On May 23, AREVA, Smart Energies (via its subsidiary CETH2) and Ademe announced the creation of the AREVA H2Gen joint venture, which will manufacture proton exchange membrane electrolyzers.
- On June 30, AREVA finalized financing arrangements for Société d'Enrichissement du Tricastin (SET), which owns and operates the Georges Besse II enrichment plant. A 10-year loan in the amount of 650 million euros was established with a group of 10 international banks.
- On July 7, AREVA and Gamesa signed binding agreements to create a 50/50 joint venture in the field of offshore wind.
- On August 1, on the occasion of the publication of its half-year results, AREVA announced the decision to discontinue the Solar Energy business upon the completion of current construction projects, unless it receives a full takeover bid in the short term.
- On October 7, AREVA announced new measures to strengthen its balance sheet and manage its debt. These measures include a 200-million-euro reduction in cumulative capital spending for the 2015-2016 period, the sale of non-strategic operations or minority interests in projects for a minimum amount of 450 million euros by the end of 2016 and, depending on market conditions, a hybrid bond issue.
- On October 27, as part of the International Chamber of Commerce arbitration procedure concerning the construction of the OL3 nuclear power plant, the AREVA-Siemens consortium announced on October 23 that it had adjusted

the amount of its claim against its Finnish customer TVO to reflect updated cost estimates and interest accrued to date.

- On October 31, Alstom acquired AREVA TA's Command & Control for Transportation (CCT) business, which includes the design and implementation of signaling solutions for tram and metro systems, an onboard electronic safety system and radio communications technology.
- On November 18, in the framework of planning and forecasting activities performed regularly by the Executive Board, AREVA announced that it was suspending its financial outlook for the years 2015 and 2016, pending the conclusion of these activities.
- On December 1, AREVA TA closed the sale of its Aerospace Integration business to AIP Aerospace.

## IN THE FIELD OF GOVERNANCE

 Highlights regarding changes in the group's governance are reported in Section 14. Administrative, management and supervisory bodies and senior management.

## IN THE COMMERCIAL ARENA

• The group's commercial highlights are mentioned in Section 9.2.8. *Business Group Review.* 

## **IN THE NUCLEAR FIELD**

- On January 24, installation of the EPR reactor vessel was completed at the Flamanville 3 construction site.
- On February 3, the Comurhex II facilities were placed in full service at Malvési.
- On February 12, the success of the leak tightness test of the EPR containment building at Olkiluoto 3 was confirmed.
- On February 12, AREVA announced that it had decided to site its second lead-212 production unit in the town of Caen la Mer, France. The new AREVA Med production unit in Lower Normandy, whose construction will be confirmed upon the conclusion of important ongoing scientific programs, will add its industrial production capacity to that of the Maurice Tubiana Laboratory in Bessines, in the Haute-Vienne department.
- On March 13, a first batch of uranium ore produced by the Cigar Lake mine operated by Cameco in the Canadian province of Saskatchewan was shipped to AREVA's McClean Lake mill.
- On March 26, during the visit to France of President Xi Jinping of the People's Republic of China, AREVA signed a series of agreements with its Chinese partner CNNC.
- On April 1, testing of the instrumentation and control system for the Olkiluoto 3 EPR reactor began at AREVA's Erlangen site in Germany.

- On April 11, AREVA was pleased to learn that STUK, the nuclear safety authority
  of Finland, had validated the general layout of the OL3 EPR's instrumentation
  and control system.
- On May 5, during the visit to France of Prime Minister Shinzo Abe of Japan, AREVA and Atox announced the creation of the Anadec joint venture, which will supply dismantling solutions and services to Fukushima and other Japanese power plants to be shut down.
- On May 26, in Niamey, AREVA and the State of Niger signed an agreement renewing their strategic partnership.
- On June 5, initial commissioning tests began in the control room of the Flamanville 3 EPR reactor under construction.
- On June 20, Prime Minister Manuel Valls of France visited AREVA's Creusot Forge site, which specializes in the manufacture of large forgings and castings, and inaugurated the site's new 9,000-metric-ton hydraulic press.
- On June 26, at the Maurice Tubiana Laboratory, AREVA Med produced the first batch of lead-212 used in cancer treatment.
- On June 30, the Borssele nuclear power plant in the Netherlands started generating electricity from MOX fuel supplied by AREVA.
- On July 11, testing of the safety instrumentation and control system for the Olkiluoto 3 EPR reactor began at AREVA's Erlangen site in Germany.
- On July 15, the French nuclear safety authority ASN renewed the operating license of AREVA's MELOX plant after completion of the 10-year safety review.
- On July 15, AREVA announced the creation of a steering committee with six American utilities for the deployment in the United States of GAIA, AREVA nextgeneration nuclear fuel.
- On September 1, in Finland, the AREVA-Siemens consortium submitted an updated schedule for the Olkiluoto 3 EPR reactor project to its customer TVO. The schedule calls for the completion of construction in mid-2016, followed by a testing phase and connection of the power plant to the grid in 2018.
- On September 17, in Haiyan, China, AREVA inaugurated its wholly owned subsidiary AREVA China Nuclear Services (ACNS), which is dedicated to supplying products and services for the maintenance of Chinese reactors already in service.
- On October 2, AREVA and EDF signed a groundbreaking framework agreement for the future operation of the French nuclear reactor fleet. The agreement calls for the design and fabrication of fuel for EDF nuclear reactors in France from 2015 to 2021.
- On October 8, the McClean Lake mill operated by AREVA in Canada started to process uranium ore from the Cigar Lake mine, located 70 kilometers from the mill.
- On October 8, the European Commission approved the Hinkley Point C project of construction of two EPR reactors in the United Kingdom.
- On October 14, the governments of France and South Africa signed an intergovernmental cooperation agreement for the development of civilian nuclear power.

- On October 30, the reactor vessel for the Taishan 2 EPR reactor was installed in the reactor building.
- On November 5, AREVA announced that it had provided EDF with the documentation to support the operating license application concerning the Flamanville 3 EPR reactor, which corresponds to the documentation submitted to ASN to demonstrate the safety of the reactor's operations.
- On November 24, the Corys joint venture between AREVA and EDF commissioned the full-scale simulator for the Taishan power plant. The simulator will be used to train the future operators of the two EPR units under construction.

#### IN THE RENEWABLE ENERGIES FIELD

- On January 31, AREVA inaugurated the Bio Golden Raand biomass power plant built in partnership with the Dutch civil engineering company Ballast Nedam Industriebouw and the Finnish company and boiler supplier Metso Power Oy.
- On February 6, AREVA and Schneider Electric signed a strategic partnership agreement to develop energy storage and energy management solutions based on hydrogen production and fuel cells.
- On February 20, AREVA announced the successful installation of 20 of the 40 turbines in the German wind farm of Trianel Borkum in the North Sea. Installation of AREVA's 5-MW M5000 turbines had begun in September 2013. The Trianel Borkum wind farm covers an area of 56 km<sup>2</sup> some 45 kilometers off the coast of Germany.
- On March 12, AREVA selected Schneider Electric as a preferred supplier of electrical equipment for its offshore wind turbines, in particular for its fleet of 100 5-MW wind turbines in the bay of Saint-Brieuc and for ongoing bids for the Dieppe Le Tréport and Yeu-Noirmoutier projects in France.
- On May 7, after a national call for bids, the French Government selected the grouping formed by GDF Suez, EDP Renewables, Neoen Marine and AREVA for the installation and operation of offshore wind farms near Le Tréport, Normandy (500 MW) and the Yeu and Noirmoutier islands in the Pays-de-Loire region (500 MW).
- On June 5, the 40 AREVA M5000 5-MW wind turbines were successfully installed at the Trianel Borkum wind farm in the German North Sea.
- On August 29, the 80 AREVA M5000-116 5-MW wind turbines were successfully installed at the Global Tech I offshore wind farm in Germany.
- On October 2, AREVA and Schneider Electric signed an R&D agreement to develop a new energy storage solution using continuous flow battery technology.
- On November 14, the Reliance project's concentrated solar power plant in Rajasthan, India was connected to the grid.

9.2.

### SITUATION AND ACTIVITIES OF THE COMPANY AND ITS SUBSIDIARIES BY BUSINESS SEGMENT DURING THE YEAR

The 2014 consolidated financial statements were prepared in accordance with IFRS 5 as regards the Energy Storage activity, given that a joint venture was established in this field in the first half of 2014. They were also prepared by applying IFRS 11 to joint ventures, resulting in the use of the equity method for joint ventures that were previously consolidated proportionately. This concerns in particular the joint ventures of Cominak (Mining Business Group), ETC (Front End Business Group), ATMEA and AREVA Dongfang (Reactors & Services Business Group).

Accordingly, the businesses in question no longer contribute to revenue or to consolidated data (EBITDA, operating income, free operating cash flow). Data for 2013 were therefore restated to present pro forma information based on a consolidation scope comparable to that for 2014 results.

The strategic partnership agreement signed between the State of Niger and AREVA on May 26, 2014 calls for work to be scheduled to open the Imouraren deposit no later than January 1, 2017 in order to launch production by March 31, 2020, subject to natural uranium market conditions, and for the establishment of a joint strategic committee in which the State of Niger and AREVA are equally represented, which is in charge of analyzing market conditions. In consideration for the new schedule for opening Imouraren, AREVA agreed to invest 100 million euros in the country's infrastructure. This amount was recognized as an intangible asset in the financial statements for the period ended December 31, 2014. In addition, a provision for expenses in the amount of 26 million euros was constituted at December 31, 2014 based on an estimate of costs associated with the deferral of work to open the deposit; these costs are not eligible for capitalization.

AREVA and EDF reached an agreement in June 2014 on the main financial terms of the treatment and recycling contract for the 2013-2020 period. The terms of this agreement apply retroactively to January 1, 2013 and are reflected in the financial statements for the period ended December 31, 2014. In view of the financing method agreed upon with EDF, impairment was recognized in the total amount of 105 million euros, corresponding to additional depreciation of fixed assets associated with the la Hague and MELOX plants. Detailed contractual terms with EDF for the 2013-2020 period should be finalized in the first half of 2015.

On November 18, 2014, in the framework of planning and forecasting activities performed regularly by the Executive Board, AREVA suspended its financial outlook for the years 2015 and 2016, pending the conclusion of these activities. This suspension was motivated by the following items:

- the consequences in terms of free operating cash flow in 2015 and beyond of the new schedule for completion of the Olkiluoto 3 project and the current impossibility of adjusting the payment schedule with the customer;
- delays in the restart of Japanese reactors, in spite of some progress achieved recently concerning the restart of the first two units;
- changes of assumptions in the schedule relating to the launch of new reactor construction projects (Reactors & Services Business Group) and for export

contracts in the recycling activity and international projects (Back End Business Group), based on existing visibility in the market;

• persistent weakness in the installed base services market, including France.

As part of the 2015 budget process, AREVA worked to strengthen its performance plan in order to adapt to current market conditions, which remain unfavorable. It began revising its medium-term strategic outlook and financial plan, which will be examined in the framework of its governance.

In connection with the review undertaken in late 2014-early 2015 of the business outlook for the different Business Groups, and considering (i) the current market environment, (ii) changes in the application of regulations related to end-of-lifecycle operations, and (iii) difficulties experienced on certain construction or modernization contracts in progress:

- the recoverable value of certain current assets (inventories) and non-current assets (goodwill, intangible assets, property plant and equipment, deferred tax assets, joint venture and associates) was lowered significantly, leading to recognition of impairment in the total amount of 2.6 billion euros (without impact on cash position).
- an additional provision was made for end-of-lifecycle operations in the amount 289 million euros;
- provisions for losses at completion and contingencies rose significantly for certain construction (Olkiluoto 3 EPR reactor, construction of a test reactor) or modernization contracts (modernization of a nuclear power plant in Northern Europe) in the Reactors & Services Business Group, and for turbine supply contracts in the Wind Energy business (classified as discontinued operations).

At December 31, 2014, the net loss attributable to owners of the parent was 4.834 billion euros. AREVA's consolidated equity became negative as of that same date. Nevertheless, AREVA SA's equity in the corporate financial statements remains positive at December 31, 2014, in view of future prospects in some of the group's subsidiaries taken into consideration to estimate the recoverable value of equity associates and loans to affiliates held by AREVA SA.

All amounts are expressed in millions of euros unless otherwise indicated. Due to rounding adjustments, some totals may not be strictly accurate. Financial indicators are defined in the *Financial glossary*.

### 9.2.1. SUMMARY OF KEY DATA

(in millions of euros, except workforce)	2014	2013	Change 2014/2013
Results			
Reported revenue	8,336	9,062	-725
Gross margin	(390)	1,227	-1,617
Percentage of reported revenue	ns	13.5%	ns
Operating income	(2,645)	34	-2,679
Net financial income	(397)	(248)	-149
Share in net income of associates and joint ventures	(154)	(13)	-141
Net income from discontinued operations	(648)	(256)	-392
Net income attributable to owners of the parent	(4,834)	(494)	-4,340
Comprehensive income attributable to equity owners of the parent	(5,155)	(562)	-4,593
Cash flow			
Reported EBITDA	711	991	-280
Percentage of reported revenue	8.5%	10.9%	-2.4 pts.
Restated EBITDA (1)	735	991	-257
Percentage of reported revenue	8.8%	10.9%	-2.1 pts.
Change in operating working capital requirement	43	552	-508
Net operating Capex	(1,160)	(1,371)	+211
Reported free operating cash flow before tax	(403)	165	-568
Restated free operating cash flow before tax (1)	(372)	165	-537
Miscellaneous			
Backlog	46,866	41,440	+5,426
Net cash (debt)	(5,809)	(4,468)	-1,340
Equity attributable to owners of the parent	(673)	4,574	-5,247
Capital employed	5,564	7,657	-27.3%
Workforce at year end	41,847	44,743	-6.5%
Dividend per share		-	-

(1) Restated for the impacts of 2014 disposals.

### 9.2.2. SUMMARY DATA BY BUSINESS SEGMENT

#### 2014

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(in millions of euros, except workforce)	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services, Engineering	Total
Results							
Contribution to consolidated revenue	1,297	2,235	3,119	1,531	52	103	8,336
Operating income	(73)	(416)	(1,235)	(495)	(43)	(384)	(2,645)
Cash flow							
EBITDA	451	421	(227)	232	(24)	(142)	711
Percentage of contribution to consolidated							
revenue	34.8%	18.8%	ns	15.2%	ns	ns	8.5%
Change in operating WCR	(29)	(120)	132	23	(1)	38	43
Net operating Capex	(440)	(441)	(100)	(141)	(3)	(34)	(1,160)
Free operating cash flow before tax	(14)	(140)	(210)	114	(28)	(126)	(403)
Miscellaneous							
Property, plant and equipment							
and intangible assets (including goodwill)	4,244	5,730	2,299	2,246	48	85	14,653
Capital employed	3,340	4,939	(366)	(1,573)	12	(788)	5,564
Workforce at year end	3,915	8,080	14,745	12,325	217	2,565	41,847

#### 2013

		Front Front	Reactors	Deale Fred	Renewable	Corporate, Shared Services,	
(in millions of euros, except workforce)	Mining	Front End	& Services	Back End	Energies	Engineering	Total
Results							
Contribution to consolidated revenue	1,717	2,074	3,293	1,742	68	168	9,062
Operating income	499	61	(547)	308	(31)	(256)	34
Percentage of contribution to consolidated revenue	29.1%	2.9%	ns	17.7%	ns	ns	0.4%
Cash flow							
EBITDA	647	296	(283)	532	(26)	(175)	991
Percentage of contribution to consolidated							
revenue	37.7%	14.3%	ns	30.6%	ns	ns	10.9%
Change in operating WCR	206	217	174	67	2	(114)	552
Net operating Capex	(328)	(748)	(128)	(115)	(12)	(40)	(1 371)
Free operating cash flow before tax	513	(235)	(234)	484	(34)	(329)	165
Miscellaneous							
Property, plant and equipment and							
intangible assets (including goodwill)	3,996	6,034	2,630	2,204	63	78	15,006
Capital employed	3,308	5,364	647	(1,258)	13	(416)	7,657
Workforce at year end	4,125	7,596	15,425	12,500	401	4,697	44,743

# 09

### SUMMARY OF REVENUE BY REGION AND BUSINESS GROUP

(in millions of euros)	2014	2013	Change 2014/2013
France	3,587	3,760	<b>-4.6</b> %
Mining Business Group	220	383	-42.4%
Front End Business Group	782	784	-0.2%
Reactors & Services Business Group	1,528	1,521	+0.4%
Back End Business Group	957	932	+2.7%
Renewables Business Group	21	7	+210.8%
Corporate, Shared Services, Engineering	79	135	-41.1%
Europe (excluding France)	1,618	1,903	-15.0%
Mining Business Group	188	119	+58.2%
Front End Business Group	635	571	+11.2%
Reactors & Services Business Group	494	645	-23.5%
Back End Business Group	283	514	-45.0%
Renewables Business Group	1	28	-96.9%
Corporate, Shared Services, Engineering	18	26	-30.1%
North and South America	1,680	1,486	+13.1%
Mining Business Group	260	311	-16.4%
Front End Business Group	524	356	+47.1%
Reactors & Services Business Group	670	581	+15.4%
Back End Business Group	205	213	-3.6%
Renewables Business Group	20	25	-18.6%
Corporate, Shared Services, Engineering		-	ns
Asia-Pacific	1,360	1,813	-25.0%
Mining Business Group	598	850	-29.6%
Front End Business Group	270	349	-22.6%
Reactors & Services Business Group	396	520	-23.9%
Back End Business Group	81	78	+4.3%
Renewables Business Group	10	9	+14.5%
Corporate, Shared Services, Engineering	5	7	-37.3%
Africa and Middle East	92	100	<b>-8.3</b> %
Mining Business Group	30	54	-43.4%
Front End Business Group	24	14	+64.3%
Reactors & Services Business Group	32	27	+20.6%
Back End Business Group	5	4	+16.2%
Renewables Business Group		-	ns
Corporate, Shared Services, Engineering	0	1	-59.1%
Other countries		-	ns
TOTAL	8.336	9,062	-8.0%

Additional information on Germany and Japan at December 31, 2014:

(in millions of euros)	Revenue by customer location	Percentage of the group's consolidated revenue
Germany	484	5.8%
Japan	473	5.7%

Additional information on Germany and Japan at December 31, 2013:

(in millions of euros)	Revenue by customer location	Percentage of the group's consolidated revenue
Germany	670	7.4%
Japan	322	3.6%

### 9.2.3. COMPARABILITY OF FINANCIAL STATEMENTS

#### **GENERAL PRINCIPLES**

In addition to the discussion and analysis of results reported in the consolidated financial statements, the group also presents revenue information on a comparable basis over consecutive periods, excluding the impact of changes in:

- consolidation scope;
- exchange rates; and
- accounting standards and methods.

The group provides this additional information to assess changes in the organic growth of its operations. However, this information does not constitute a method of assessing operations under the international accounting standards (IAS) and international financial reporting standards (IFRS). Excluding exceptions (e.g. material inability to reconstitute figures), changes in comparable revenue figures are calculated as follows: the consolidation scope, exchange rates and accounting methods and standards of the prior year are adjusted to reflect the consolidation scope, exchange rates and accounting methods and standards of the current year.

These include:

- to compare 2014 revenue with that of 2013, the group calculates what the 2013 revenue of the different businesses would have been when average exchange rates for 2014 are applied;
- the resulting revenue is then adjusted for the consolidation effect, and the group calculates what the 2013 revenue from the different businesses would have been based on the applicable consolidation scope at year-end 2014.

Like for like changes (abbreviated "LFL") signify "at constant exchange rates and consolidation scope".

# FACTORS POTENTIALLY IMPACTING THE COMPARABILITY OF THE FINANCIAL STATEMENTS

The following operations meet the criteria of IFRS 5 for classification as assets and liabilities of discontinued operations at December 31, 2014:

 Wind energy: on July 7, 2014, AREVA and Gamesa signed binding agreements for the creation of a joint venture in the field of offshore wind. The Adwen joint venture was effectively established on March 9, 2015. In view of governance rules agreed upon with Gamesa, the future joint venture will be recognized under the equity method;

- Solar energy: in July 2014, AREVA decided to discontinue this business upon the completion of current construction projects, unless a full takeover bid is received in the short term. Having received different signs of interest in purchasing this business, AREVA entered into negotiations in the second half of 2014 with a potential partner which is currently a minority shareholder in AREVA Solar Inc. in order to determine the conditions in which the business could continue if that partner were to acquire a majority interest in the company. These discussions were ongoing on an exclusive basis as of the date of year-end closing and have a good chance of success in 2015;
- Energy Storage: on May 23, 2014, AREVA, Smart Energies (via its subsidiary CETH2) and Ademe announced the creation of the AREVA H2Gen joint venture. In 2014, AREVA continued to look for partners for the creation of joint ventures dedicated to the development of its others activities in the field of energy storage.

Detailed information on the impacts of IFRS 5 is provided in Notes 9 and 37 to the consolidated financial statements. The Wind Energy and Solar Energy businesses already met the criteria of IFRS 5 for classification as "assets and liabilities of discontinued operations" at December 31, 2013.

The Energy Storage business no longer contributes to revenue or to consolidated data (EBITDA, operating income, free operating cash flow). Data for 2013 were therefore restated to present pro forma information based on a consolidation scope comparable to that for 2014 results.

#### Change in the consolidation scope

Application of IFRS 11 led to join ventures leads to the use of the equity method for the consolidation of joint ventures that were previously consolidated proportionately. This concerns in particular the joint ventures of Cominak (Mining Business Group), ETC (Front End Business Group), ATMEA and AREVA Dongfang (Reactors & Services Business Group).

Detailed information on the impacts of IFRS 11 is provided in Notes 36 and 37 to the consolidated financial statements.

The group's consolidated financial statements for the years ended December 31, 2014 and December 31, 2013 were affected by the transactions described in Note 2 to the consolidated financial statements.

Estimated impact of changes in consolidation scope, exchange rate and accounting methods and standards on revenue for fiscal year 2013

The table below presents the estimated impact of changes in exchange rate, the group's consolidation scope, and valuation methods for 2014 compared with 2013.

(in millions of euros)	2013 pro forma revenue	Exchange rate impact	Consolidation scope impact	Changes in valuation method	Recalculated 2013 revenue
Mining Business Group	1,717	2	-	-	1,718
Front End Business Group	2,074	(2)	-	-	2,072
Reactors & Services Business Group	3,293	(3)	(8)	-	3,282
Back End Business Group	1,742	1	-	-	1,742
Renewables Business Group	68	(3)	-	-	66
Corporate, Shared Services, Engineering	168	-	(62)	-	106
TOTAL CONTINUING OPERATIONS	9,062	(5)	(70)	-	8,987

### 9.2.4. BACKLOG

(in millions of euros)	2014	2013	Change 2014/2013
Backlog	46,866	41,440	+5,426
Mining Business Group	9,539	9,602	-63
Front End Business Group	19,019	16,775	+2,244
Reactors & Services Business Group	8,593	9,024	-431
Back End Business Group	9,665	5,886	+3,779
Renewables Business Group	49	68	-19
Corporate, Shared Services, Engineering	1	85	-84

The group's combined backlog totaled 46.866 billion euros at December 31, 2014, sharply up from that at December 31, 2013. The year-on-year order uptake was 13.4 billion euros. This amount reflects in particular the treatment and recycling agreement with EDF for the 2013-2020 period covering the transportation and

recycling of used fuel and the fabrication of MOX assemblies. The backlog does not include any amount in respect of agreements signed in October 2013 for the Hinkley Point EPR reactor in the United Kingdom and related fuel.

### 9.2.5. STATEMENT OF INCOME

#### 9.2.5.1. **REVENUE**

In 2014, AREVA generated consolidated revenue of 8.336 billion euros, a decrease of 8.0% (-7.2% like for like) compared with 2013.

Revenue from the nuclear operations was 8.210 billion euros in 2014, compared with 8.864 billion euros in 2013, a 7.4% decrease (-7.3% like for like). Revenue rose 7.8% in the Front End Business Group (+7.8% like for like). Revenue fell 24.4% in the Mining Business Group (-24.5% like for like), 5.3% in the Reactors & Services Business Group (-5.0% like for like) and 12.1% in the Back End Business Group (-12.1% like for like).

The Renewable Energies Business Group had 52 million euros in revenue, down 24.4% from 2013 (-21.4% like for like).

In 2014, revenue in France totaled 3.587 billion euros, a decrease of 4.6% in relation to 2013. Revenue from international operations totaled 4.749 billion euros over the same period, a decrease of 10.4% in relation to 2013.

Foreign exchange had a negative impact of 5 million euros over the period. The change in consolidation scope had a negative impact of 70 million euros, due in particular to the sale of Euriware (information systems subsidiary) to Capgemini in May 2014.

(in millions of euros)	2014	2013	Change 2014/2013
Consolidated revenue	8,336	9,062	-725
Mining Business Group	1,297	1,717	-419
Front End Business Group	2,235	2,074	+161
Reactors & Services Business Group	3,119	3,293	-174
Back End Business Group	1,531	1,742	-210
Renewables Business Group	52	68	-17
Corporate, Shared Services, Engineering	103	168	-66

#### 9.2.5.2. GROSS MARGIN

The group's gross margin was -390 million euros, compared with 1.227 billion euros in 2013.

(in millions of euros)	2014	2013	Change 2014/2013
Gross margin	(390)	1,227	-1,617
Percentage of consolidated sales	ns	13.5%	ns

#### 9.2.5.3. RESEARCH AND DEVELOPMENT

The group's Research and Development expenses represented 231 million euros in 2014, or 2.8% of consolidated revenue. This indicator is down compared with 2013, when they totaled 273 million euros, or 3.0% of revenue, due to greater selectivity in R&D programs.

#### 9.2.5.4. MARKETING, SALES, GENERAL AND ADMINISTRATIVE, MARKETING AND SALES EXPENSES

The group's marketing, sales, general and administrative expenses totaled 504 million euros in 2014, down from 601 million euros in 2013. In particular, general and administrative expenses totaled 316 million euros in 2014, in contrast to 388 million euros in 2013. As a percentage of revenue for the period, they fell from 4.3% to 3.8%, partially reflecting the impact of efforts to reduce organizational and support function costs under the ACTION 2016 Plan (a significant share of the support function costs are classified in commercial expenses and reduce gross margin).

#### 9.2.5.5. OTHER OPERATING INCOME AND EXPENSES

Other operating income and expenses represented a net expense of 1.520 billion euros in 2014, compared with a net expense of 319 million euros in 2013. This change is due to a higher amount for impairment of property, plant and equipment and intangible assets, and for impairment of goodwill, for a total of 1.239 billion euros in 2014 compared with 164 million euros in 2013.

Impairment of goodwill in 2013 and 2014 is described in Note 10 to the consolidated financial statements. Impairment of intangible assets and property, plant and equipment in 2013 and 2014 is described in Notes 11 and 12 respectively to the consolidated financial statements.

#### 9.2.5.6. **OPERATING INCOME**

The group had a restated operating loss<sup>(1)</sup> of 2.624 billion euros in 2014, compared with income of 34 million euros in 2013. In 2014, operating income included provisions for impairment of assets in the nuclear operations in all four Business Groups (1.460 billion euros), additional losses on three major nuclear projects in the Reactors & Services BG (1.097 billion euros, including 720 million euros for the OL3 EPR project) and provisions for end-of-lifecycle operations in the Back End BG (289 million euros).

The group reported an operating loss of 2.645 billion euros in 2014, compared with operating income of 34 million euros in 2013.

#### 9.2.5.7. NET FINANCIAL INCOME

Net financial income came to -397 million euros in 2014, compared with -248 million euros in 2013. Net borrowing costs were -243 million euros in 2014, compared with -213 million euros in 2013. The change in net financial income is attributable to the share related to end-of-lifecycle operations, which deteriorated over the period (31 million euros in 2014 versus 165 million euros in 2013).

<sup>(1)</sup> Restated for asset disposals (Euriware, Duisburg, AREVA TA's Command & Control for Transportation (CCT) and Aerospace Assembly Line activities, electrical panels business in Brazil, and land-based wind turbine business)

(in millions of euros)	2014	2013
Net borrowing costs [(expense)/income]	(243)	(213)
Other financial income and expenses	(155)	(35)
Of which share related to end-of-lifecycle operations	31	165
Of which share not related to end-of-lifecycle operations	(186)	(200)
NET FINANCIAL INCOME	(397)	(248)

#### 9.2.5.8. **INCOME TAX**

The net tax expense reached 1 billion euros in 2014, compared with net tax income of 59 million euros in 2013. It includes a provision for impairment of deferred tax assets at the beginning of the period in the amount of 938 million euros pursuant to the revision of the group's activity and profitability outlook in the regions consolidated for tax purposes of France and Germany, consistent with assumptions used for the impairment tests of certain assets.

# 9.2.5.9. SHARE IN NET INCOME OF JOINT VENTURES AND ASSOCIATES

The share in net income of joint ventures and associates was -154 million euros in 2014, compared with -13 million euros in 2013.

(in millions of euros)	2014	2013
ATMEA	(82)	(2)
ETC	(17)	(30)
MNF	(64)	(4)
Other	9	23
TOTAL	(154)	(13)

#### 9.2.5.10. MINORITY INTERESTS

Minority interests in the group's net income were -11 million euros in 2014, compared with 71 million euros in 2013. This share mainly includes the contribution of minority shareholders in the mining and enrichment businesses.

# 9.2.5.11. NET INCOME ATTRIBUTABLE TO OWNERS OF THE PARENT

The net loss attributable to owners of the parent was 4.834 billion euros in 2014, compared with a loss of 494 million euros in 2013.

The net loss from discontinued operations attributable to owners of the parent was 635 million euros in 2014, compared with a loss of 246 million euros in 2013. It was impacted by impairment of fixed assets (including goodwill) in Wind Energy and Solar Energy pursuant to the revised commercial outlook for these businesses in the total amount of 135 million euros; by losses at completion set up for several contracts in the Wind Energy and Solar Energy businesses in the total amount of 215 million euros; and by provisions for contingencies and warranties on contracts in the Wind Energy and Solar Energy businesses in the amount of 205 million euros.

# 9.2.5.12. COMPREHENSIVE INCOME ATTRIBUTABLE TO EQUITY OWNERS OF THE PARENT

Comprehensive income attributable to owners of the parent was -5.155 billion euros in 2014, compared with -562 million euros in 2013. This change is primarily due to the drop in net income described above.

### 9.2.6. CASH FLOW

#### 9.2.6.1. CHANGE IN NET DEBT

Items contributing to the change in the group's net debt for the year are presented below. It was calculated according to the French Accounting Board definition (sum of "cash and cash equivalents" less "current and non-current borrowings").

(in millions of euros)	2014
Reported net debt at beginning of period (December 31, 2013)	(4,415)
Restated net debt at beginning of period (December 31, 2013)	(4,468)
Free operating cash flow before tax	(403)
Cash flow from end-of-lifecycle operations	12
Acquisitions/disposals of investment securities maturing in more than 3 months	(3)
Financing of discontinued operations	(366)
Impact of net financial income	(322)
Income tax paid	(140)
Other items	(119)
For the year ended December 31, 2014	
(NET DEBT)/NET CASH AT THE END OF THE PERIOD (INCLUDING PUT OPTIONS OF MINORITY INTERESTS)	(5,809)
CHANGE IN NET DEBT IN 2014	-1,340

The net cash-flow of fiscal year 2014 was -1.340 billion euros, compared with -162 million euros for fiscal year 2013.

#### 9.2.6.2. COMPARATIVE TABLE OF OPERATING CASH FLOWS AND CONSOLIDATED CASH FLOWS

The group analyzes cash flows from operating activities separately from flows relating to end-of-lifecycle operations and other cash flows.

#### RECONCILIATION OF OPERATING CASH FLOWS AND CONSOLIDATED CASH FLOWS

The following table distinguishes operating cash flows from the other cash flows presented in the consolidated statement of cash flows for 2014.

(in millions of euros)	Operating	End-of-lifecycle operations <sup>(1)</sup>	Other <sup>(2)</sup>	Total
EBITDA (i)	711			
Income from the sale of non-current operating assets and other non- cash operating items (ii)	3			
Cash flow from operations after interest and taxes (i + ii)	714	(112)	(612)	(10)
Change in working capital requirement (iii)	43	-	156	199
Net cash flow from operating activities (i + ii + iii)	757	(112)	(456)	190
Cash from (used in) investing activities, net of disposals (iv)	(1,152)	124	(48)	(1,076)
Net cash from (used in) financing activities (v)	(8)	-	947	939
Impact of changes in consolidation scope, rates and securities held for trading (vi)	-	-	18	18
Net cash from (used in) operations held for sale (vii)	-	-	(97)	(97)
Cash flow (i + ii + iii + iv + v + vi+ vii)	(403)	12	365	(26)

(1) Includes expenses for end-of-life-cycle operations incurred on-site and for final waste disposal, flows relating to the financial asset portfolio earmarked for end-of-life-cycle operations, and flows resulting from the signature of agreements with third parties for the funding by such parties of a share of end-of-life-cycle operations.

(2) That is, non-operating flows not relating to end-of-life-cycle operations and primarily corresponding to financing flows, including exceptional flows relating to external growth operations, dividends paid, and tax flows.

#### 9.2.6.3. OPERATING CASH FLOW

#### 2014 AND 2013

	Reported		requir	orking capital		ted net Ig Capex	Reported fro cash flow	
(in millions of euros)	2014	2013	2014	2013	2014	2013	2014	2013
Mining	451	647	(29)	206	(440)	(328)	(14)	513
Front End	421	296	(120)	217	(441)	(748)	(140)	(235)
Reactors & Services	(227)	(283)	132	174	(100)	(128)	(210)	(234)
Back End	232	532	23	67	(141)	(115)	114	484
Renewable Energies	(24)	(26)	(1)	2	(3)	(12)	(28)	(34)
Corporate, Shared Services, Engineering	(142)	(175)	38	(114)	(34)	(40)	(126)	(329)
TOTAL GROUP	711	991	43	552	(1,160)	(1,371)	(403)	165

# EARNINGS BEFORE INCOME TAX, DEPRECIATION AND AMORTIZATION (EBITDA)

Restated EBITDA<sup>(1)</sup> was down compared to 2013, going from 991 million euros in 2013 to 735 million euros in 2014 due to the downturn in activity and an unfavorable basis of comparison in relation to 2013, when it had benefitted from non-recurring contracts in the Mining and Back End BGs. These items were offset only in small part by a lower level of spending on the Olkiluoto 3 EPR project.

Reported EBITDA went from 991 million euros in 2013 to 711 million euros in 2014, a reduction of 280 million euros.

#### CHANGE IN OPERATING WORKING CAPITAL REQUIREMENT (OPERATING WCR)

The restated change in operating WCR<sup>(1)</sup> was positive, reaching 39 million euros in 2014 compared with 552 million euros in 2013, when it had benefitted from significant decreases in inventory and actions to control trade accounts payable.

The reported change in operating WCR was positive, reaching 43 millions euros in 2014 compared with 552 millions euros in 2013.

#### **NET OPERATING CAPEX**

The group's gross operating Capex was controlled at 1.159 billion euros in 2014, compared with 1.423 billion euros in 2013. This decrease is in line with the progress achieved in the construction of the Georges Besse II and Comurhex II plants.

Restated net operating Capex<sup>(1)</sup> after optimization measures amounted to 1.151 billion euros in 2014, versus 1.371 billion euros in 2013, a decrease of 220 million euros.

Reported net operating Capex amounted to 1.160 billion euros in 2014, versus 1.371 billion euros in 2013.

#### FREE OPERATING CASH FLOW BEFORE TAX

Restated free operating cash flow before tax<sup>(1)</sup> decreased by 537 million euros compared with 2013 (-372 million euros in 2014 versus 165 million euros in 2013).

Reported free operating cash flow before tax was -403 million euros in 2014 versus 165 million euros in 2013.

# 9.2.6.4. CASH FLOWS RELATED TO END-OF-LIFECYCLE OPERATIONS

In 2014, cash flows for end-of-lifecycle operations totaled 12 million euros, compared with -22 million euros in 2013.

<sup>(1)</sup> Restated for asset disposals (Euriware, Duisburg, AREVA TA's Command & Control for Transportation (CCT) and Aerospace Assembly Line activities, electrical panels business in Brazil, and land-based wind turbine business)

#### 9.2.6.5. CONSOLIDATED STATEMENT OF CASH FLOWS

The simplified consolidated statement of cash flows is presented below.

(in millions of euros)	2014	2013	Change 2014/2013
Cash flow from operations before interest and taxes	348	823	-57.7%
Interest expense and taxes paid	(358)	(335)	-6.9%
Cash flow from operations after interest and taxes	(10)	488	-102.0%
Change in working capital requirement	199	541	-63.2%
Cash from operating activities	190	1,030	-81.6%
Cash used in investing activities	(1,076)	(1,371)	+€295m
Cash from (used in) financing activities	939	250	+€689m
Change in Consolidated group, foreign exchange adjustments, etc.	19	(16)	ns
Changes in securities held for sale	(2)	211	ns
Cash from discontinued operations	(97)	26	-€123m
INCREASE/(DECREASE) IN NET CASH	(26)	130	-€156m
Net cash at the beginning of the period	1,582	1,451	+€131m
CASH AT THE END OF THE YEAR	1,556	1,582	-€26m

#### **CASH FLOW FROM OPERATING ACTIVITIES**

Net cash from operating activities went from 1.030 billion euros in 2013 to 190 million euros in 2014. This decrease is due to a combined deterioration in cash provided by operations and in the change in the working capital requirement.

#### **CASH USED IN INVESTING ACTIVITIES**

Net cash from investing activities came to -1.076 billion euros in 2014 compared with -1.371 billion euros in 2013, reflecting the maturity of the key strategic capital

projects in progress (Georges Besse II and Cigar Lake in particular) and the mothballing of the Imouraren project pursuant to the agreement signed with the State of Niger in May 2014.

#### **CASH FROM (USED IN) FINANCING ACTIVITIES**

Cash provided by financing activities totaled 939 million euros in 2014, a net improvement compared with 2013 (250 million euros). Two major financing transactions boosted the total in 2014.

### 9.2.7. BALANCE SHEET ITEMS

#### CONDENSED BALANCE SHEET

(in millions of euros)	December 31, 2014	December 31, 2013
Assets	20,188	22,213
Net goodwill	3,667	3,764
Property, plant and equipment (PP&E) and intangible assets	10,986	11,241
End-of-lifecycle assets (third party share)	188	199
Assets earmarked for end-of-lifecycle operations	6,015	6,057
Investments in associates and joint ventures	143	254
Other non-current financial assets	273	261
Deferred taxes (assets - liabilities)	371	1,099
Operating working capital requirement	(1,830)	(1,305)
Assets of discontinued operations	375	643
Shareholders' equity and liabilities	20,188	22,213
Equity attributable to owners of the parent	(673)	4,574
Minority interests	428	408
Provisions for end-of-lifecycle operations (third party share)	188	199
Provisions for end-of-lifecycle operations (AREVA share)	6,797	6,238
Other current and non-current provisions	5,975	4,779
Net borrowings	5,809	4,468
Liabilities of discontinued operations	392	389
Other assets and liabilities	1,272	1,158
TOTAL – CONDENSED BALANCE SHEET	20,188	22,213

#### 9.2.7.1. NON-CURRENT ASSETS

#### Net goodwill

Net goodwill went from 3.764 billion euros at December 31, 2013 to 3.667 billion euros at December 31, 2014, for a net decrease of 97 million euros, mainly due to impairment, currency translation adjustments and other items.

#### Property, plant and equipment (PP&E) and intangible assets

PP&E and intangible assets went from 11.241 billion euros at December 31, 2013 to 10.986 billion euros at December 31, 2014, for a net decrease of 255 million euros.

#### Other non-current financial assets

Other non-current financial assets went from 261 million euros in 2013 to 273 million euros in 2014, mainly due to the change in the value of loans to associates.

#### 9.2.7.2. OPERATING WORKING CAPITAL REQUIREMENT

The group's operating working capital requirement (operating WCR) was negative (resource), at -1.830 billion euros at December 31, 2014, versus -1.305 billion euros one year earlier.

#### 9.2.7.3. **NET CASH (DEBT)**

The group's net borrowings totaled 5.809 billion euros at December 31, 2014, compared with 4.468 billion euros at December 31, 2013. In addition to negative free operating cash flow before tax for the year, the increase in net borrowings is explained by tax disbursements (-140 million euros), increased net debt in the discontinued operations of Wind Energy and Solar Energy (-366 million euros), and the impact on cash of net financial income (-322 million euros).

The group's cash flow was -1.340 billion euros in 2014, compared with -162 million euros in 2013.

#### RECONCILIATION BETWEEN NET CASH REPORTED IN THE STATEMENT OF CASH FLOWS AND NET CASH (DEBT) REPORTED IN THE STATEMENT OF FINANCIAL POSITION

(in millions of euros)	2014	2013	Change 2014/2013
Net cash per statement of cash flows	1,556	1,582	-26
Short-term bank facilities and non-trade current accounts (credit balances)	122	106	+16
Net cash from (used in) operations held for sale	9	4	+5
Borrowings	(7,494)	(6,160)	-1,334
NET CASH (DEBT)	(5,809)	(4,468)	-1,340

#### SCHEDULE OF BORROWINGS

(in millions of euros)	2014	2013	Change 2014/2013
Interest-bearing advances	93	91	+2
Borrowings from lending institutions and commercial paper	1,259	734	+525
Bond issues	5,994	5,174	+820
Short-term bank facilities and other credit balances	122	106	+16
Financial derivatives	5	33	-28
Miscellaneous debt	22	21	+1
TOTAL BORROWINGS	7,494	6,160	+1,334

#### 9.2.7.4. **EQUITY**

Equity attributable to owners of the parent was -673 million euros at December 31, 2014, compared with 4.574 billion euros at December 31, 2013. This change mainly reflects the effect of comprehensive income attributable to owners of the parent for 2014 in the amount of -5.155 billion euros. No dividends were paid by the group to its shareholders in 2014 on 2013 income.

#### 9.2.7.5. ASSETS AND PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS

The change in the balance sheet from December 31, 2013 to December 31, 2014 with regard to assets and liabilities for end-of-lifecycle operations is summarized in the table below.

(in millions of euros)	December 31, 2014	December 31, 2013
Assets		
End-of-lifecycle assets	533	432
AREVA share (to be amortized in future years)	345	233
Third-party share	188	199
Assets earmarked for end-of-lifecycle operations	6,203	6,256
Shareholders' equity and liabilities		
Provisions for end-of-lifecycle operations	6,985	6,437
Provisions to be funded by AREVA	6,797	6,238
Provisions to be funded by third parties	188	199

At December 31, 2014, earmarked assets covered 95.3% of the provisions for end-of-lifecycle operations.

The change in assets and provisions for end-of-lifecycle operations is described in Note 13 to the consolidated financial statements.

#### 9.2.7.6. CAPITAL EMPLOYED AND RETURN ON AVERAGE CAPITAL EMPLOYED (ROACE)

#### **CAPITAL EMPLOYED**

The following table shows the determination of average capital employed by year:

	0.000	0.504
Net intangible assets	2,266	2,534
Goodwill	3,667	3,764
Net property, plant and equipment	8,719	8,708
Prepayments and borrowings funding non-current assets	(1,293)	(1,256)
Operating working capital requirements, excluding advances to fund non-current assets	(1,830)	(1,319)
Provisions for contingencies and losses	(5,965)	(4,774)
Total capital employed	5,564	7,657
AVERAGE CAPITAL EMPLOYED OVER THE PERIOD	6,611	7,800

Note: The method used takes into account a definition of capital employed after deduction of all provisions for contingencies and losses.

#### **RETURN ON AVERAGE CAPITAL EMPLOYED (ROACE)**

The following table presents changes in the group's ROACE by year:

(in millions of euros)	December 31, 2014	December 31, 2013
Average capital employed	6,611	7,800
Net operating income	(1,761)	28
ROACE	-26.6%	0.4%

Considering the impact of non-recurring items on operating income, ROACE for 2013 and 2014 is not significant.

### 9.2.8. REVIEW OF THE BUSINESS GROUPS

#### 9.2.8.1. MINING BUSINESS GROUP

(in millions of euros)	2014	2013	Change 2014/2013	Change 2014/2013 like for like
Backlog	9,539	9,602	-0.7%	-
Contribution to consolidated revenue	1,297	1,717	-24.4%	-24.5%
EBITDA	451	647	-30.3%	
Percentage of contribution to consolidated revenue	34.8%	37.7%	-2.9 pts.	-
Operating income	(73)	499	-114.7%	-
Free operating cash flow before tax	(14)	513	-102.8%	-

#### 2014 performance

The Mining Business Group had 9.539 billion euros in backlog at December 31, 2014. Order uptake was modest in 2014 due to uncertain uranium market conditions, despite the recent increase in natural uranium prices (spot price indicator <sup>(1)</sup>: from \$28/lb. at the end of June 2014 to \$35.50/lb. at December 31, 2014, after peaking at \$39.50/lb. at the end of November; long term price

indicator <sup>(1)</sup>: from \$44.50/lb. at the end of June 2014 to \$49.50/lb. at December 31, 2014).

For the full year of 2014, the Mining Business Group posted revenue of 1.297 billion euros, a decrease of 24.4% (-24.5% like for like) compared with 2013.

<sup>(1)</sup> Source: UxC/TradeTech.

This change is the net result of two developments:

- the anticipated drop in volumes sold (-28%) following the completion of sales under HEU agreements at the end of 2013, and the large inventory drawdowns carried out over the same period in 2013;
- a slight decrease in the average price of uranium sold under long-term contracts compared with 2013.

In the Mining BG, EBITDA reached 451 million euros in 2014 compared with 647 million euros in 2013. This change is essentially due to the anticipated drop in volumes sold (-28%) following the completion of sales under the HEU agreements at the end of 2013 and the large inventory decreases carried out over the same period in 2013 and to a lesser extent to an increase in production costs related among other things to the application in 2014 of the 2006 mining law in Niger and the one-time impact of the delayed calciner startup in Kazakhstan; to a slight decrease in the average price of uranium sold under contract compared with 2013; and to demobilization costs for the Imouraren project in Niger connected with the decision to postpone it pending better market conditions.

The change in the Mining BG's operating WCR was negative by 29 million euros (versus a positive contribution of 206 million euros in 2013 following significant decreases in inventory).

9.2.8.2. FRONT END BUSINESS GROUP

Net operating Capex in the Mining BG totaled 440 million euros in 2014, compared with 328 million euros in 2013. This increase continued at a high level due to the ramp-up of the Cigar Lake mine in Canada and the end of capital spending on the Imouraren project, where it was decided to postpone the project pending more favorable market conditions.

The Mining BG reported an operating loss of 73 million euros, versus operating income of 499 million euros in 2013. Operating income was affected by:

- a partial write-down of goodwill in the Uranium Mines cash-generating unit (CGU) in the amount of 200 million euros resulting from the calculation of the value in use of the Mining BG's CGU based on a downward revision of natural uranium price forecasts compared with that of June 30, 2014;
- the write-down of Somair mining assets in Niger in the amount of 25 million euros related to the change in the mine's operational framework, partially offset by the expected impacts of the cost savings plan developed in the second half of 2014;
- the write-down in the amount of 100 million US dollars (75 million euros) of the Trekkopje mining assets in Namibia following revision of natural uranium price forecasts used by AREVA.

(in millions of euros)	2014	2013	Change 2014/2013	Change 2014/2013 like for like
Backlog	19,019	16,775	+13.4%	-
Contribution to consolidated revenue	2,235	2,074	+7.8%	+7.8%
Chemistry - Enrichment	988	780	+26.7%	+27.0%
Fuel	1,246	1,294	-3.7%	-3.7%
Reported EBITDA	421	296	+42.2%	
Percentage of contribution to consolidated revenue	18.8%	14.3%	+4.6 pts.	-
Restated EBITDA (1)	431	296	+45.8%	
Percentage of contribution to consolidated revenue	19.3%	14.3%	+5.0 pts.	-
Reported operating income	(416)	61	-780.2%	
Restated operating income <sup>(1)</sup>	(405)	61	-762.9%	
Reported free operating cash flow before tax	(140)	(235)	+40.5%	
Restated free operating cash flow before tax <sup>(1)</sup>	(130)	(235)	+44.7%	

(1) Restated for asset disposals (Duisburg).

#### 2014 performance

The Front End Business Group had 19.019 billion euros in backlog at December 31, 2014. The main new orders in 2014 were as follows:

- a major contract with EDF for the supply of fuel assemblies and related services for the French nuclear reactor fleet over the 2015-2021 period;
- a contract with the utility Vattenfall to supply fuel assemblies for four of its seven reactors in Sweden;
- a contract with the utility RWE to supply fuel assemblies to the Emsland nuclear power plant in Germany over the 2016-2020 period;
- a contract with the Finnish utility Teollisuuden Voima (TVO) to supply fuel assemblies to reactors already in service at the Olkiluoto power plant;
- a contract with Electrabel to supply fuel assemblies to the Tihange 1 reactor until the end of its operating period;
- contract renewals for the supply of fuel assemblies to Xcel Energy (Monticello power plant), FP&L (Saint Lucie 1&2), Entergy (Palisades) and Duke Energy Progress (Brunswick) in the United States;
- a contract with the American utility Tennessee Valley Authority (TVA) to supply nuclear fuel to the three boiling water reactors of the Browns Ferry power plant in Alabama;
- enrichment contracts with various utilities in Europe and the United States, including a contract with Enusa for the 2015-2021 period and a contract with Duke Energy Progress for the 2018-2021 period.

For the full year of 2014, the Front End Business Group posted revenue of 2.235 billion euros, an increase of 7.8% (+7.8% like for like).

• The Chemistry-Enrichment activity posted strong growth due to:

#### 9.2.8.3. REACTORS & SERVICES BUSINESS GROUP

- a substantial increase in volumes sold in the United States and France in enrichment in parallel with production spin-up at the Georges Besse II plant;
- o a slight increase in conversion activity in France over the period.
- Revenue is down in the Fuel activity due to a drop in business in France.

Restated EBITDA<sup>(1)</sup> in the Front End BG amounted to 431 million euros in 2014 compared with 296 million euros in 2013. This significant increase is explained in particular by the higher level of activity compared with the same period in 2013; by the ramp-up of the Georges Besse II enrichment plant, which operated at 88% of its nominal capacity at the end of 2014; and by the positive impact of performance improvement plans across all of the BG's operations.

The change in the Front End BG's operating WCR was negative by 120 million euros, compared with a positive contribution of 217 million euros in 2013, when it had benefitted from actions to control trade accounts payable.

Net operating Capex in the Front End BG came to 441 million euros, down from 2013 (748 million euros), in accordance with the planned pace of construction and ramp-up of the enrichment and conversion facilities.

Restated operating income<sup>(1)</sup> in the Front End BG amounted to a loss of 405 million euros, compared with income of 61 million euros in 2013. It was affected in particular by the impairment of Comurhex II assets in the amount of 599 million euros pursuant to the increase in the cost to completion of the first phase of that capital investment program in the first half of 2014, and by the decision made in the second half of 2014 to postpone beyond 2030 the increase in plant production capacity from 15,000 metric tons to 21,000 metric tons per year following a study of the outlook for supply and demand in the uranium conversion market.

(in millions of euros)	2014	2013	Change 2014/2013	Change 2014/2013 like for like
Backlog	8,593	9,024	-4.8%	-
Contribution to consolidated revenue	3,119	3,293	-5.3%	-5.0%
Large Projects	681	649	+4.8%	+4.8%
Installed Base	1,634	1,617	+1.0%	+1.1%
Manufacturing	166	374	-55.7%	-55.7%
Products and Technology	54	54	-0.4%	-0.4%
Nuclear Measurement	171	179	-4.7%	-3.5%
Propulsion and Research Reactors	414	420	-1.4%	+0.6%
Reported EBITDA	(227)	(283)	+20.0%	
Percentage of contribution to consolidated revenue	ns	ns	ns	-
Restated EBITDA (1)	(229)	(283)	+19.0%	
Percentage of contribution to consolidated revenue	ns	ns	ns	-
Reported operating income	(1,235)	(547)	-125.7%	
Restated operating income <sup>(1)</sup>	(1,240)	(547)	-126.7%	-
Reported free operating cash flow before tax	(210)	(234)	+10.3%	-
Restated free operating cash flow before tax <sup>(1)</sup>	(204)	(234)	+12.6%	-

(1) Restated for asset disposals (AREVA TA's Command and Control for Transportation business and Aerospace Assembly Line business, land-based wind turbine business).

<sup>(1)</sup> Restated for the asset disposal (Duisburg).

#### 2014 performance

The Reactors & Services Business Group had 8.593 billion euros in backlog at December 31, 2014. The main new orders in 2014 were as follows:

- a contract in the amount of 300 million euros signed with the South African utility Eskom to replace steam generators at the Koeberg nuclear power plant;
- a contract valued at approximately 75 million euros with the Brazilian utility Eletrobrás Eletronuclear (ETN) to supply additional mechanical and electrical equipment for the Angra 3 reactor;
- a contract extension through 2022 from PSEG Nuclear for outage and maintenance activities at the two reactors of the Salem power plant and the Hope Creek reactor in New Jersey;
- a contract won by the AREVA-BRIC consortium with the Chinese utility China Nuclear Power Engineering (CNPEC) to supply in-core instrumentation for four reactors under construction;
- several contracts in the framework of the Safety Alliance and Forward Alliance programs.

The Reactors & Services Business Group reported 3.119 billion euros in revenue for 2014, a decrease of 5.3% (-5.0% like for like). Consolidation scope and accounting method had a negative impact of 8 million euros.

- Revenue in the installed base services operations was down compared with 2013, when it benefitted from strong business in France. In addition, business declined in the United States, Germany and France due to deteriorated market conditions.
- Revenue from Large Projects was up compared with 2013 and is evolving in line with the progress of the major projects. This unit benefits from the ramp-up of the project to complete the Angra 3 reactor in Brazil and from the increased revenue associated with the Flamanville 3 EPR project in France, thus offsetting the expected decrease in revenue associated with the Taishan 1&2 EPR project in China. In addition, in accordance with the provisions of paragraph 32 of IAS 11, which have been applied since the second half of 2013, no revenue was recognized for the Olkiluoto 3 EPR project in Finland during 2014.

In the Reactors & Services BG, restated EBITDA<sup>(1)</sup> was -229 million euros in 2014, an improvement in comparison to 2013 (-283 million euros). This change is due in particular to a lower level of activity on the Olkiluoto 3 EPR project, which was focused on the critical path constituted by the instrumentation and control system in 2014, and to cost-reduction actions undertaken by the BG.

The change in restated operating WCR<sup>(1)</sup> in the Reactors & Services BG was positive by 128 million euros (compared with a positive contribution of 174 million euros in 2013), reflecting the optimization of customer account)

The Reactors & Services BG posted restated net operating Capex<sup>(1)</sup> in the total amount of 101 million euros in 2014, down from 128 million euros in 2013. The decrease is due to lower spending on development of the group's line of reactors.

The Reactors & Services BG reported a restated operating loss<sup>(1)</sup> of 1.240 billion euros, compared with a loss of 547 million euros in 2013. The BG's operating income is impacted by:

- provisions for losses at completion totaling 782 million euros for several reactor construction and modernization projects, including:
  - 576 million euros for the Olkiluoto 3 EPR in view of the detailed revaluation of costs to be incurred and residual project risks (chiefly related to the completion of reactor construction) connected with the finalization in the second half of 2014 of the detailed reactor completion schedule, to which the customer TVO did not make any major objection. Added to these provisions for project losses at completion are 144 million euros in costs for the period that did not effectively contribute to the project's completion, in application of paragraph 32 of IAS 11;
  - 155 million euros for a reactor modernization contract in Europe to reflect the deferral of the project's completion date due to the complexity of the work environment, software configuration changes requested by the customer, and the deferral of the operator training program at the customer's initiative. The amount of the additional provision does not reflect the value of any of AREVA's claims submitted to the customer for these items.
- a provision for contingencies in the amount of 187 million euros constituted for the Jules Horowitz Reactor construction project for the CEA as part of the search for a negotiated solution to the dispute between AREVA and its customer concerning payment of existing and probable project cost overruns, both in the scope of the two contracts held by AREVA TA, a subsidiary of AREVA, and in contracts awarded by the CEA to other industrial companies;
- write-downs of capitalized R&D expenses in the amount of 362 million euros for several components of the generation III nuclear reactor line, and in particular the design of the US EPR, in view of the lack of identified opportunities for this particular model in the United States or elsewhere abroad in the foreseeable future.

<sup>(1)</sup> Restated for asset disposals (AREVA TA's Command and Control for Transportation business and Aerospace Assembly Line business, land-based wind turbine business)

#### 9.2.8.4. BACK END BUSINESS GROUP

(in millions of euros)	2014	2013	Change 2014/2013	Change 2014/2013 like for like
Backlog	9,665	5,886	+64.2%	-
Contribution to consolidated revenue	1,531	1,742	-12.1%	-12.1%
Recycling	857	1,030	-16.8%	-16.8%
Dismantling & Services	306	310	-1.3%	+1.1%
Nuclear Logistics	247	282	-12.4%	-12.4%
International Projects	121	119	+1.6%	-4.8%
EBITDA	232	532	-56.4%	-
Percentage of contribution to consolidated revenue	15.2%	30.6%	-15.4 pts.	-
Operating income	(495)	308	-260.5%	-
Free operating cash flow before tax	114	484	-76.4%	-

#### 2014 performance

The Back End Business Group had 9.665 billion euros in backlog at December 31, 2014. Of particular note in 2014 are the following:

- the agreement reached with EDF in June 2014 on the main terms and conditions concerning the treatment and recycling activity over the 2013-2020 period;
- a contract with its partners Mace and Atkins for the construction of a retrieval and packaging facility for legacy waste at the Sellafield site in the United Kingdom;
- several contracts with American utilities to supply of used nuclear fuel storage solutions;
- a cask supply contract with the Dutch utility EPZ.

The Back End Business Group reported revenue of 1.531 billion euros in 2014, down from 2013 (-12.1% in reported data and -12.1% like for like).

- Revenue from the Recycling activity fell sharply over the period. This change is the net result of two developments:
  - an unfavorable basis of comparison in relation to 2013, when it had benefitted from strong business under contracts signed with foreign customers for MOX fuel fabrication campaigns;
  - the one-time impact of the agreement reached with EDF on the financial terms of the treatment and recycling agreement for the 2013-2020 period, with commercial concessions granted to EDF in exchange for greater schedule visibility and increased volumes.
- Revenue in the Nuclear Logistics activity was down slightly due to a lower level of transportation business in Europe.
- Revenue in the Dismantling and Services business was up slightly over the period after an increase in site support services in France.

The Back End BG recorded EBITDA of 232 million euros in 2014, compared with 532 million euros in 2013. This sharp decrease is the result of an unfavorable basis of comparison in relation to 2013, when the BG's EBITDA had benefitted from strong business under contracts signed with foreign customers for MOX fuel fabrication campaigns; of the one-time negative impact of the agreement reached with EDF on the terms of the treatment and recycling agreement for the 2013-2020 period, in particular as concerns commercial concessions; and this despite high volumes in the la Hague and MELOX plants and good production cost control.

The change in operating WCR in the Back End BG was positive by 23 million euros (compared with a positive contribution of 67 million euros in 2013).

The Back End BG had 141 million euros in net operating Capex, an increase compared with 2013 (115 million euros), due to increased Capex on the la Hague facilities.

The Back End BG recorded an operating loss of 495 million euros in 2014, compared with income of 308 million euros in 2013. Operating income was affected by:

- the one-time negative impact of the agreement signed with EDF on the terms of the treatment and recycling agreement for the 2013-2020 period. Added to the impact on EBITDA was the impairment of industrial assets at la Hague and MELOX, given the capital financing terms agreed upon with EDF for these sites in 2013;
- additional provisions for end-of-lifecycle obligations (i) in the amount of 289 million euros to strengthen the coverage of potential contingencies in project execution connected with dismantling and waste retrieval and repackaging operations, pursuant to formal discussions with the regulator in the first and second halves of 2014; (ii) in the amount of 138 million euros to cover risks identified in dismantling and waste retrieval and packaging projects; and (iii) in the amount of 15 million euros for the triennial revision of the future dismantling cost estimate for the MELOX plant.

#### 9.2.8.5. RENEWABLE ENERGIES BUSINESS GROUP

(in millions of euros)	2014	2013	Change 2014/2013	Change 2014/2013 like for like
Backlog	49	68	-27.7%	-
Contribution to consolidated revenue	52	68	-24.4%	-21.4%
Reported EBITDA	(24)	(26)	+5.1%	-
Percentage of contribution to consolidated revenue	ns	ns	ns	-
Restated EBITDA (1)	(24)	(26)	+6.5%	-
Percentage of contribution to consolidated revenue	ns	ns	ns	-
Reported operating income	(43)	(31)	-37.1%	-
Restated operating income <sup>(1)</sup>	(42)	(31)	-35.8%	-
Reported free operating cash flow before tax	(28)	(34)	+18.6%	-
Restated free operating cash flow before tax <sup>(1)</sup>	(29)	(34)	+14.3%	-

(1) Restated for asset disposals (electrical panel business in Brazil).

#### 2014 performance

The Renewable Energies Business Group had 49 million euros in backlog at December 31, 2014. Of particular note in 2014 was the signature of a contract with the Brazilian utility Bolt Energias in connection with a project for the construction of the Campo Grande biomass power plant, which will be the largest biomass facility in the country once the project is completed.

The Renewable Energies Business Group reported revenue of 52 million euros for 2014, down 24.4% on a reported basis and down 21.4% like for like compared with 2013, due to decreased Bioenergy business in Europe.

EBITDA in the Renewable Energies BG was -24 million euros in 2014, unchanged from 2013 (-26 million euros). The performance improvement plans in the Bioenergy business helped offset the costs of restructuring and litigation related to old customer contracts

The change in operating WCR in the Renewable Energies BG was negative by 1 million euros (compared with a positive contribution of 2 million euros in 2013).

Restated net operating Capex<sup>(1)</sup> in the Renewable Energies BG came to 4 million euros in 2014, down from 2013 (12 million euros).

The Renewable Energies BG had an operating loss of 42 million euros in 2014, compared with a loss of 31 million euros in 2013. This includes goodwill impairment in the amount of 14 million euros in Bioenergy.

#### 9.2.8.6. CORPORATE, SHARED SERVICES, ENGINEERING

(in millions of euros)	2014	2013	Change 2014/2013	Change 2014/2013 like for like
Contribution to consolidated revenue	103	168	-39.0%	-3.6%
Reported EBITDA	(142)	(175)	+19.0%	-
Restated EBITDA (1)	(127)	(175)	+27.8%	-
Reported operating income	(384)	(256)	-50.0%	-
Restated operating income <sup>(1)</sup>	(368)	(256)	-43.9%	-
Reported free operating cash flow before tax	(126)	(329)	+61.8%	-
Restated free operating cash flow before tax <sup>(1)</sup>	(108)	(329)	+67.0%	-

(1) Restated for asset disposals (Euriware).

<sup>(1)</sup> Restated for asset disposals (electrical panel business in Brazil).



### 9.3. EVENTS SUBSEQUENT TO YEAR-END CLOSING FOR 2014

- On January 5, 2015, AREVA announced that it had signed a contract with the Brazilian utility Eletrobrás Eletronuclear (ETN) valued at approximately 75 million euros for the supply of additional mechanical and electrical equipment for the Angra 3 reactor. The contract includes diesel engines, electrical equipment and switches, and equipment for used fuel storage.
- On January 8, 2015, AREVA SA's Extraordinary General Meeting of Shareholders decided to transform the company's governance from that of a corporation with a Supervisory Board and an Executive Board into a corporation with a Board of Directors. On that same day, the newly appointed Board of Directors decided to split the positions of Chairman of the Board and Chief Executive Officer. Mr. Philippe Varin was appointed Chairman of the Board of Directors and Mr. Philippe Knoche was appointed CEO of AREVA.
- On January 13, 2015, AREVA signed a long-term contract with the American utility FirstEnergy Nuclear Operating Company (FENOC) for outage services, maintenance and engineering services for the Davis-Besse nuclear power plant in Ohio. This service contract includes fuel reloading operations, steam generator inspections, and examination of materials and mitigation of their degradation.
- On January 30, 2015, during the visit to China of Manuel Valls, Prime Minister of France, AREVA and CNNC signed a memorandum of understanding to establish a joint venture in nuclear logistics and transportation. Under the agreement, AREVA will bring know-how, experience and skills to the deployment of a used fuel transportation and logistics system in China. This agreement will facilitate the group's access to this fast-growing market.

- On February 9, 2015, AREVA and Excelon signed a contract under which the latter will adopt a new maintenance techniques designed to extend the service life of nuclear reactor components. This process, called cavitation peeing, will be used for the very first time in the reactor vessels at Byron and Braidwood in Illinois.
- On February 18, 2015, AREVA announced the suspension of the design certification process for the US EPR reactor.
- On February 23, 2015, in view of the financial information that had been circulated in the media, AREVA made it clear that the 2014 financial statements would not be approved by the Board of Directors until March 3, 2015. The unaudited preliminary financial information examined on February 18, 2015 by the Audit and Ethics Committee shows negative net consolidated income attributable to owners of the parent for 2014 of around -4.9 billion euros (versus -0.5 billion euros in 2013).
- On March 9, 2015, AREVA and Gamesa announced that they have signed the definitive agreements and have closed the transaction for the creation of Adwen, a joint venture 50-50 owned by its two parent companies. The joint-venture is responsible for the design, manufacturing, installation, commissioning and services of offshore wind turbines.



For information on cash flow and equity, please refer to Sections 9.2.6. Cash flow and 9.2.7. Balance sheet data.

# **RESEARCH AND DEVELOPMENT PROGRAMS,** PATENTS AND LICENSES

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#### 11.1. RESEARCH AND DEVELOPMENT

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# **11.1. RESEARCH AND DEVELOPMENT**

### 11.1.1. KEY FIGURES

Research and Development expenses are capitalized if they meet the capitalization criteria established by IAS 38 and are recognized as research and development expenses if they do not. In the income statement, research and development expenses appear below gross margin and represent non-capitalizable expenses incurred exclusively by the group; the expenses relating to programs funded wholly or partly by customers, together with projects carried out in partnership where AREVA has commercial rights of use of the results, are recognized in the cost of sales. All Research and Development costs, whether capitalized or expensed during

the period, are combined to determine the group's total Research and Development expenditure.

The group's Research and Development expenses, excluding mineral exploration and mining study expenses, represented 194 million euros in 2014, or 2.3% of the contribution to revenue. This indicator is down compared with 2013, when Research and Development expenses excluding mineral exploration and mining studies were 223 million euros, or 2.5% of revenue.

(in millions of euros)	2014	Percentage of sales	2013	Percentage of sales
		0.0000		
Research and Development recognized as expenses under gross margin, after RTC <sup>(1)</sup>	231	2.8%	273	3.0%
Of which expenses for mineral exploration and mining studies	38		51	-
Research and development recognized as expenses under gross margin, excluding expenses for mining studies and mineral exploration, after RTC <sup>(1)</sup>	194	<b>2.3</b> %	223	2.5%
RTC1	58		50	-
Research and development recognized as expenses under gross margin,				
excluding expenses for mining studies and mineral exploration, before RTC <sup>(1)</sup>	251	3%	272	3.0%
Capitalized research and development costs	65	0.8%	115	1.3%
TOTAL	317	3.8%	387	4.3%
Number of registered patents	82		117	-

(1) Research tax credit.

Taking into account capitalized development costs, the total Research and Development expenditure was 317 million euros in 2014, or 3.8% of revenue for the period, down from 2013, when it represented 4.3% of revenue.

This amount reflects ongoing long-term projects, including:

- the development and modernization of production capabilities in the front end of the cycle and the development of advanced fuel;
- optimization of the EPR reactor and the continuation of licensing activities in the United States and the United Kingdom;
- the generic detailed design for the ATMEA1 reactor;
- the development of advanced instrumentation and control products and systems for new power plants or the renovation of existing power plants;

- the development of advanced tools, methods and products to support the design and services provided to operators;
- the evaluation of advanced concepts such as fast neutron reactors and small modular reactors;
- performance improvement in equipment manufacturing;
- preliminary design of new treatment and recycling plant processes, and maintenance and performance improvement at existing plants;
- development of new shipping casks for nuclear materials and waste;
- development of methods and tools to support dismantling activities.

### **11.1.2. OVERALL ORGANIZATION OF RESEARCH AND DEVELOPMENT**

AREVA sets the pace for the global competition in terms of technology, with dynamic programs to harness advanced technologies and integrate them into its products and services. Ever since the first industrial applications of nuclear energy were developed, the group has worked continuously to build up and recognize major intellectual assets, maintain its strong technological lead and bolster its international positions. AREVA has pooled its Research and Development functions to tap into the synergies inherent in the group and to protect and multiply its technology assets. By functioning in integrated mode, the group is able to share best practices among all entities and boost the effectiveness of research and development in areas as wide-ranging as technology management, knowledge and expertise management, intellectual asset protection, innovation, and leadership for a portfolio of research and development projects. It also helps initiate and ultimately manage and fund projects at the corporate level when they serve several group subsidiaries or are longer term.

In 2014, the Research and Development Department continued to deploy the technological roadmaps to:

- ensure that commercial and technological development actions within AREVA are well coordinated;
- upstream, identify the divergences between market expectations and the group's technical and technological capacities; and

 structure the integration of new technologies and technical resources in the group to support the development of key products when necessary and set up a ranking system for the group's R&D programs to support its growth strategy.

The R&D project portfolio is a key element in controlling operational performance, as it facilitates investment management, the allocation of resources, and planning. Management of the overall R&D project portfolio was redefined to meet the following goals:

- align the projects with the strategy defined by the group;
- rank the R&D projects to facilitate arbitration and decision making;
- achieve efficient overall budget control and allocate resources based on priorities;
- provide a full view of the R&D project portfolio to facilitate internal and external communications.

The R&D projects cover a broad spectrum of technological fields, from uranium ore extraction to renewable energy production. All of these R&D projects help to improve existing products, services and processes, or to create new ones.

#### **AREVA'S INNOVATION INITIATIVE**

#### InnovAction project

The internal "InnovAction" project relies on an extensive network of contacts within the operational and functional entities to achieve a common goal: transform our employees' innovative ideas into drivers for performance and differentiation, to catalyze new activities for AREVA.

InnovAction is organized around five major goals:

- reinforce our culture of innovation;
- encourage employees to propose innovative ideas and help them to develop them;
- speed up the time-to-market for innovative technical and non-technical solutions to boost development and ensure business continuation;
- help develop disruptive technological solutions and new businesses for AREVA;
- strengthen AREVA's ties with external partners laboratories, small businesses, start-ups, venture capital funds, etc. – to develop innovative solutions.

The project's main actions are:

- involving our customers more in our innovation processes (e.g. customer workshops on their unmet needs);
- networking for employees engaged in innovation (network coordination, collaborative platforms, etc.);
- reinforcing the processes for generating and capturing innovative ideas (training sessions, suggestion boxes, etc.);

- fostering the incubation of ideas through to their implementation (business incubators);
- deploying tools to forge ties with external partners (AREVA Small Business Innovation, venture capital funds, etc.).

#### Many examples of AREVA's strong innovation potential

This year, AREVA created two internal innovation laboratories, one in Saint-Quentinen-Yvelines and the other in Lyon. The purpose of the labs is to foster creativity and business initiatives within the group.

Thanks to ideas submitted by AREVA employees, in part under various innovation programs launched by the entities, several thousand innovations are implemented in the field each year to improve our operating performance.

Some examples include the rollout of mobile solutions (tablet computers) for operators in the field to simplify data entry and transfer, in particular during reactor outages and major retrofits; the Sibag glove box operations simulator, a virtual reality training experience to enhance training for operators at the MELOX site; the portable concentration analysis solution for uranium samples developed by the Mining BG that delivers results to the mines much more quickly; the new process developed by the Front End BG to insert fuel rods into fuel skeletons using a waterbased lubrication system for the cladding tubes; and two solutions developed by the Reactors & Services BG: a stress relaxation system based on water-jet cavitation to improve reactor vessel corrosion resistance in the USA, and the manufacturing process for complex parts using hot isostatic pressing, implemented to create prototypes for the ITER fusion reactor's primary wall.

### **11.1.3. PARTNERSHIPS**

On the strength of some 30 years of commercial as well as technology successes, AREVA is positioned as an international group and one of the world leaders in the nuclear industry. Today, the group has a solid base of operations on three continents. Scientific and technical partnerships reflecting the group's international dimension will be a cornerstone of its continued growth.

The External Partnerships Department of the Corporate Research and Development Department works closely with the regional research and development centers in France, Germany and the United States on the following main tasks:

- developing and managing long-term partnerships with major research organizations, finding the best external partners for the group's research and development projects, and drawing up cooperative programs;
- providing support for the group's internal research and development initiatives by identifying additional appropriate external partners;
- reviewing external research and development capabilities and the possibilities for participating in externally funded cooperative projects (government agencies, European Commission, etc.).

AREVA already has a broad network of partnerships with the world's leading research laboratories, In particular:

- in France: the CEA's research centers at Saclay, Cadarache, Grenoble and Marcoule, EDF's Research and Development laboratories, the CNRS, IRSN, and engineering schools and universities (Chimie Paris, Mines Paritech, the Écoles Centrales, the University of Montpellier, INSA Lyon, etc.);
- in Poland: Warsaw University of Technology (WUT) together with EDF, the CEA and ANDRA;

- in Germany: the University of Zittau and the Karlsruhe, Rossendorf and Julich research centers;
- in the United States: the Massachusetts Institute of Technology (MIT), the California Institute of Technology (CalTech), the Universities of Florida and Berkeley (Center for Advanced Engineering and Research), Idaho, Texas and Virginia, and the Department of Energy's national laboratories (Sandia, Idaho, etc.);
- in China: Tsinghua University in Beijing and Xi'An Jiaotong University;
- in Russia: the Kurchatov, VNIINM and Khlopin research institutes;
- in Australia: Ian Wark Research Institute, University of South Australia;
- in India: IIT Bombay and the University of Jadavpur in Calcutta.

AREVA is a participant, via the CEA (representing the French parties), in the Generation IV International Forum (GIF), a US initiative. The multilateral agreement signed by several countries in 2005 provides a framework for international collaboration on research and development dedicated to Generation IV nuclear reactor concepts. AREVA is keenly interested in this initiative, alongside its French, European and international partners, especially as concerns fast spectrum reactors, which push the envelope of resource conservation. AREVA is participating in the agreement signed between France and Japan in May 2014 on design studies and R&D for the fast neutron ASTRID reactor.

### **11.1.4. FUTURE DIRECTIONS IN TECHNOLOGY**

The AREVA group's research and development programs focus on developing competitive power generation technologies with low CO<sub>2</sub> emissions that meet our customers' requirements. The programs' main goals are to continuously improve nuclear safety, reduce capital and operating costs, and reduce environmental impacts. This includes the necessary means to manage waste responsibly, preserve natural resources, and develop next-generation technologies for nuclear power and renewable energies, along with the complementarity between the two types of energy, such as electricity storage systems.

A summary of 2014 research and development projects and results is presented below. It confirms the value of an integrated approach to research and development requirements centered on sustainable energies with low CO<sub>2</sub> emissions, together with the related products and services.

#### **R&D ACTIVITIES IN THE MINING FIELD**

R&D in the mining operations covers all four main areas: geological prospecting, mining techniques, ore processing, after-mines, and the environment. In ore processing, for example, R&D covers all of the techniques that AREVA uses for dynamic ore processing, heap leaching, and in-situ leaching.

The Mining Business Group also carries out research programs in partnership with other companies to assess the technical feasibility of extracting uranium from so-called "non-conventional" resources, such as polymetallic ores or phosphates.

#### Mineral exploration and outlook

AREVA continued its mineral exploration efforts in 2014. Nevertheless, due to deteriorating market conditions, AREVA will concentrate on targets with the most potential over the next few years.

#### Near term

The first action items are to accelerate development work near active mining sites, conduct exploration for projects under development, and prepare new exploration campaigns in uranium-rich provinces identified by the group.

In addition to Canada, particularly the Athabasca basin, a historical uraniumproducing region that is still among the most promising, AREVA is pursuing exploration programs in countries in which the group is a producer (Canada, Niger and Kazakhstan) as well as in Mongolia, Gabon and Australia.

#### Medium and long term outlook

Teams of geologists, mining engineers, chemists and economists are working on selecting and developing emerging and previously identified projects, particularly in Africa, North America, Central Asia and Australia. These projects will be launched when the technical, regulatory and economic conditions are suitable.

#### **R&D ACTIVITIES IN THE FRONT END FIELD**

Research and Development efforts for the Front End Business Group focus in particular on upgrading industrial tools in the conversion and enrichment businesses by improving safety and productivity and by reducing the environmental footprint of the processes, and on optimizing nuclear fuel performance.

# Development and modernization of production means in the front end of the fuel cycle

Natural uranium conversion facilities that have been operating for several decades now will probably be subject over the short term to higher maintenance costs and to availability problems.

To guarantee conversion services to its current and future customers under enhanced control conditions, AREVA is the only converter to have invested in a new plant, Comurhex II. At the Malvési site, the Isoflash direct denitration process was started up successfully in July 2014. The new process significantly reduces the site's ammonia consumption and enables easy recycling of the nitric acid; it also eliminates the ammonium nitrate effluent generated by the old process.

New developments within the scope of Enrichment Technology Company (ETC), the AREVA-URENCO joint venture, have moved centrifugation enrichment technology forward. In an approach rooted in sustainable development, technology solutions have been found to facilitate future stages of dismantling.

#### Improving nuclear fuel performance

AREVA has ongoing, ambitious Research and Development programs to adapt its products to its customers' requirements in the areas of mechanical, thermalhydraulic and thermo-mechanical performance up to high burnup levels. At the same time, the group continues to improve fuel reliability and to guarantee the highest level of safety. Research and development involves:

- adapting to changes in operating conditions, both in terms of cladding or structural materials (new alloys for better resistance to corrosion and deformation) and the fuel itself (advanced microstructures to reduce the release of fission gases at high burnups);
- developing new fuel assemblies, and in particular study new, more accidenttolerant fuel concepts;
- responding to questions from safety authorities about fuel performance in accidental situations, keeping in mind the changing post-Fukushima nuclear safety standards;
- working with scientific partners, in particular the CEA, to improve the modeling
  of physical phenomena occurring in the fuel when it is irradiated, and to integrate
  these models in advanced simulation software.

AREVA continues to develop a new generation of more robust fuel assemblies with enhanced performance and safety margins for boiling water reactors (BWR) and pressurized water reactors (PWR), called ATRIUM™11 and GAIA respectively:

 after the first ATRIUM<sup>™</sup>11 test assemblies started their third irradiation cycle in the core of the German reactor of Gundremmingen (RWE), other demonstration assemblies were loaded into the Swiss reactor of Leibstadt (AXPO) in 2013 and in the Finnish reactor of Olkiluoto 1 (TVO) in 2014;

- the first GAIA test assemblies delivered to the Vattenfall utility in Sweden completed their second irradiation cycle in the Ringhals 3 reactor core;
- the rollout of the GAIA and ATRIUM<sup>™</sup>11 technologies in the United States is being considered through the introduction of demonstration assemblies, initially by the utilities Duke and TVA, starting in 2015.

#### **R&D ACTIVITIES IN THE REACTORS & SERVICES FIELD**

# Widening the range of light water reactors and supporting their deployment

#### EPR reactor

Economic optimization of the EPR reactor design continued in partnership with EDF based on construction experience from ongoing projects (Olkiluoto 3, Flamanville 3, Taishan 1 and 2) and projects undergoing certification (US EPR, UK EPR) to define an optimized reference design for which proposal and project teams may define the adaptations required to meet customer specifications. In addition to simplifications based on construction experience, the design will benefit from lessons learned from the supplementary safety assessments performed after the Fukushima accident and from reviews by the nuclear safety authorities in the countries that have evaluated the EPR reactor. The result will be a design that incorporates all optimizations and is robust with respect to the different regulatory requirements.

The certification process vis-à-vis the US Nuclear Regulatory Commission (NRC) is pursued, at a lower pace being given the lack of strength of the nuclear market in the US.

The Research and Development teams are also active in providing support to the EPR projects under construction, particularly as concerns experimental validation of certain components or in response to specific requirements.

#### ATMEA1 reactor

Within the framework of ATMEA, a joint company established in 2007 by AREVA and Mitsubishi Heavy Industries (MHI), AREVA is developing ATMEA1, This 1,100 MWe pressurized water reactor (PWR) combines the know-how of both companies. ATMEA1 is designed for medium capacity power grids. Following the French nuclear safety authority ASN's validation of the baseline options for this reactor in 2012, the companies continued to work jointly on the detailed generic design to have a model ready for construction in 2015, consistent with the outlook for projects (e.g. Sinop site in Turkey).

#### SMR (Small Modular Reactor)

AREVA pursued the pre-conceptual design of a small capacity power reactor. This modular, integrated reactor is in the 100-150 MWe range. The ongoing design combines solutions used for high capacity PWRs and innovative design bases in terms of technologies, industrial optimization, construction and operating flexibility. A technical and economic study aimed at specifying the conditions for market development of such a reactor was carried out with AREVA's habitual partners, with which cooperation on a more detailed concept is foreseeable. A review of potential partnerships in countries likely to be interested in this technology is also in progress.

#### Research reactor

AREVA created a technical model (nuclear safety model, development or adaptation of design codes and drawings for research reactors with the CEA's support) to be able to submit proposals for international research reactors to countries wishing to invest in R&D or nuclear education, and for the production of medical isotopes.

#### Generation IV Sodium-cooled Fast Reactors (SFR)

In connection with the international generation IV reactor initiative, and with sustainable development objectives in mind, AREVA launched an innovation phase in 2006 designed to overcome the technology hurdles presented by sodium-cooled fast neutron reactors. The innovation phase is being carried out as part of a cooperative program with the CEA and EDF and is focusing primarily on core safety issues and in-service inspection and repairs. In the fall of 2010, AREVA and the CEA also signed a cooperation agreement for part of the design studies of the ASTRID generation IV demonstrator (Advanced Sodium Technological Reactor for Industrial Demonstration), a sodium-cooled fast reactor (SFR) that will be used for technology and industrial demonstrations.

The second preliminary design phase (AVP2) for the Astrid reactor started in 2013, with the Preliminary Design Report and the Nuclear Safety Review scheduled to be handed over in late 2015. Under the agreement between France and Japan on RNR Na and ASTRID technology development, AREVA participated in its capacity as a French industrial producer in the implementation agreement among JAEA, CEA, AREVA, Mitsubishi Heavy Industrie (MHI) and its subsidiary MFBR.

#### High Temperature Reactor (HTR)

AREVA is validating of its experience with this type of reactor by participating in the US Department of Energy's Next Generation Nuclear Plant (NGNP) project. The goal of that project is to design a commercial high temperature reactor to be used for the co-generation of industrial process heat and electricity. AREVA also continues to follow through with its commitments with regard to European HTR projects.

#### International Thermonuclear Experimental Reactor (ITER)

AREVA also participated in the studies on the experimental fusion facility ITER, in particular in the area of primary equipment (primary wall, vacuum vessel, remote handling systems for Tokamak components – see *Glossary*) and the circuits, and is now supplying some of this equipment. AREVA signed a major contract in 2014 to build a first-wall panel prototype for the ITER project. The panel is a highly technical component made of beryllium tiles directly facing the plasma and therefore subjected to intense heat.

# Increasing the cost-competitiveness of our products and methods and matching them to operator requirements

AREVA continues to improve products and services for operators of all types of nuclear power plants (PWRs as well as BWRs, VVERs and CANDU reactors), particularly in the following areas:

- safety control and instrumentation systems (TELEPERM® XS), measurement and diagnostic products, safety-related sensors and backup electrical systems;
- services to utilities to extend operating periods (diagnostics and operating period validation for components and structures, component maintenance and replacement, techniques to increase the resistance of components to external events or for *in situ* repair, etc.): The related range of products is presented to utilities in AREVA "Forward Alliance" catalog;

- safety reassessments (10-year reassessments, supplementary safety assessments) and products to improve nuclear safety (complete range of all types of reactor containment filters, hydrogen risk management, improving cooling safety for the core or the used fuel storage pools, new leak-proof systems for primary coolant pump seals, instrumentation and situation management tools, etc.): The related range of products is presented to utilities in AREVA "Safety Alliance" catalog;
- value creation for reactor operators: increased availability, maintenance automation and efficiency, increased power or performance, flexibility and load following, new products giving customers increased operational savings and performance measures as well as enhanced worker safety such as dose reduction: The related range of products is presented to utilities in AREVA "Value Alliance" catalog;
- increased performance of non-destructive examinations and in situ work;
- optimizing the design, manufacturing and assembly of replacement components,
- products providing customers with increased measurement performance and operational savings, as well as enhanced worker safety;
- development of new radiation monitoring systems (RMS), systems providing comprehensive control around the reactor designed to monitor effluents and to make power plant operation safer, continued development of Canberra's range of advanced radiological protection and nuclear measurement systems.

#### Participating in advanced research programs

AREVA is contributing to the development nuclear power units for European missions to explore the solar system, in cooperation with the European Space Agency and the French space agency CNES.

AREVA's nuclear measurement subsidiary Canberra develops products and provides expertise by participating in major international research projects: detecting and measuring weak nuclear particle interaction to better understand the fundamental matter model.

#### **R&D ACTIVITIES IN THE BACK END FIELD**

# Developing sustainable solutions for the back end of the fuel cycle

# Supporting and adapting manufacturing and production facilities

The la Hague industrial platform consisting of the la Hague and MELOX plants is the culmination of more than 30 years of industrial research and development. It attains the highest levels of performance for treatment and recycling facilities worldwide. The Research and Development programs are defined based on the design of these facilities and operating experience from the daily operation of these plants, with the goal of continuously improving the platform's performance and flexibility.

Programs are in progress to anticipate plant aging (corrosion, plugging), meet new post-Fukushima regulatory requirements, and optimize intervention means for hostile environments in order to increase the effective production time of the plants. In that frame of reference, related R&D programs have enabled new, faster and more efficient preventive rinsing procedures for the head equipment at the la Hague facility; the procedures were successfully implemented this year. Equipment and process studies and development are making good progress, in particular to adapt the facilities for the treatment of new types of fuel (highburnup UOx fuels, MOX fuels, fuels from research reactors, etc.). This technology development will enable AREVA to expand its commercial offering and further broaden the range of products that may be treated.

#### Optimizing fuel treatment and reducing final waste volumes

This research focuses on reducing final waste volumes, on packaging technology, and on work supporting ANDRA demonstrations of the performance of the geological repository under construction.

A program to develop a thermal treatment technology for long-lived waste is ongoing. The initial tests with the scale-1 mockups were successful.

In parallel, work continued on programs to further reduce environmental impacts by improving existing effluent treatment processes or by developing new solutions.

#### Improving used fuel shipping and storage

AREVA is developing casks for the shipment of nuclear materials and waste. The development work keeps up with changes in regulations and in the materials being shipped (higher burnups, new designs, etc.). The new products are also designed to improve and reinforce services relating to the shipment and storage of radioactive materials and waste.

The TN®G3 is still under development and will eventually replace the current TN®12/13 shipping casks. These new casks will ship used fuel that has higher burnup and a shorter cooling time, giving our customers greater flexibility.

To support the development of used fuel storage solutions, in particular in the United States, a new Extended Optimized Storage (EOS) canister is being developed. Its optimized design helps meet greater utility demand for disposal capacities.

These new product designs are based on the development and qualification of new materials and their implementation to fulfill the functions of containment, neutron and radiation protection, heat dissipation and protection against the risk of cask drops.

#### Proposing management solutions for nuclear facilities at the end of their operating lives – Cleanup, Dismantling and Decommissioning (D&D)

Research and Development programs in this field are designed to come up with performance-enhancing solutions and to improve nuclear and occupational safety at every stage of a project, from initial characterization to facility decommissioning, both at AREVA's own facilities and those of its customers. They also seek to secure an edge over the competition, which is strong in this sector, whether in France or internationally. For example, progress has been made in cementitious systems for immobilizing reactive metals. A specific process to treat radioactive oils was developed for LLW/MLW at Cadarache; ANDRA and nuclear safety authority ASN are examining the design study. In the area of inspection, AREVA developed and patented an innovative tool for paired reconstruction of radiological and spatial maps.

#### **CROSSCUTTING RESEARCH AND DEVELOPMENT ACTIVITIES**

#### Improving fuel and reactor design tools

AREVA puts considerable effort into its modeling tools and design codes, both on its own and in collaboration with the CEA. These projects prioritize the development of advanced physical models that make use of expanding computer modeling capabilities. They are designed to cover the state of the art in terms of knowledge on PWR and BWR extended validity ranges, to broaden the architectures for modular applications, and to develop the human-engineered graphical interfaces used. Such evolutions help to improve the accuracy of code-based predictions, reduce cask and reload design costs, and improve design quality. The ultimate goal of this research is to design and validate fuels and reactors that deliver even better performance.

#### Understanding and forestalling aging

AREVA carries out large-scale research and development programs with the CEA and EDF to gain a better understanding of and greater control over the aging of equipment and materials in the reactor environment, where radiation, pressure, high temperature and mechanical loads are factors. The end result will be more accurate predictions on materials capabilities and solutions for extending the operating period of reactors and reactor components that meet the needs of power generation companies.

#### **R&D ACTIVITIES IN THE RENEWABLES FIELD**

#### Wind energy

The Wind Energy Business Unit continued to pursue the development started in 2012 of its new generation of 8 MWe wind turbines with detailed design studies. The new turbine, based on the group's demonstrated technology, will be one of the most powerful in the world and will help to significantly reduce power generation costs from offshore wind. The GDF-SUEZ, EDP Renewables and Neoen Marine consortium chose the turbine for its successful second bid in the French call for tender to equip two wind projects for a total 1,000 MWe. The first prototype will be installed on land in early 2016, and offshore sometime in 2017.

The Wind Energy Business Unit also optimized the performance of its new generation of 5 MWe M5000 wind turbines by enlarging the rotor diameter from 116 to 135 meters, reducing the cost, and preserving the same high level of reliability and availability. The prototype was installed and tested in 2014, and type certification was obtained on September 15. The model is designed for projects that are currently under negotiation and which should start up some time before 2017.

AREVA also acquired an equity stake in Nénuphar, a company that designs floating wind turbines. Nénuphar developed an innovative vertical-axis turbine design suitable for floating turbines. AREVA will contribute its offshore experience to the development of this technology. The use of floating technologies will expand offshore wind prospects by enabling the installation of offshore wind turbines where depths are greater than 50 meters and sea bed mounted turbines are no longer economically viable. In 2014, a first prototype (< 1 MWe) was installed on land in southern France to test the designs already developed, with a view to developing an offshore prototype for a 2 MWe turbine by 2017, and then a prototype for a 5MWe-plus turbine.

#### Solar energy

In 2014, AREVA Solar focused its development efforts on thermal energy storage to increase the technology's competitiveness via two initiatives. One initiative was developed in partnership with the Atomic and Alternative Energy Commission (CEA) in Grenoble (France), and involves a phase-change thermal energy storage solution using molten salts. A demonstrator was built and tested. The aim of the second initiative, developed in partnership with Sandia National Laboratories in the United States, is to implement compact linear Fresnel reflector (CLFR) technology by replacing the water and steam with molten salts. A demonstrator was installed in the United States. Due to unfavorable market developments vis-à-vis this type of investment, AREVA decided to withdraw from CLFR solar projects and is no longer pursuing these developments.

In 2014, AREVA Solar continued with the final calibrations of its CLFR-DSG (direct steam generation) technology for the 125 MWe turnkey solar cell array that it is building in the State of Rajasthan, India for its customer, Reliance. The solar power plant started up and was connected to the grid on November 4, 2014. The calibration activities will continue until early 2015.

AREVA also is involved along with the CEA in the assessment of the photovoltaic technology based on high-efficiency silicon heterojunction technology (Si-HJT) that the CEA's "Lab Fab" is implementing. This technological solution offers significantly higher conversion efficiencies than standard PV panel technology. The goal was to model the development and industrialization costs of the Si-HJT solution and assess the capability over 3-5 years to compete with suppliers of standard PV panels (from Asia in particular). The results of the study and the continuous downward trend of market prices showed that the profitability target could not be reached within the desired time frame.

#### Bioenergy

In 2014, the Bioenergy Business Unit continued developing the Thermya torrefaction process acquired in 2012. This solution significantly increases the heating values of the product processed. In the case of wood, the torrefied biomass, or "green coal", can replace coal or wood pellets, and can also serve as a new type of fuel for co-combustion power plants and for industrial and residential heating solutions.

The 2.5 t/h wood torrefaction prototype unit at the Mazingarbe site was started up, tested and put into operation at the end of summer 2014. It produced 300 metric tons of green coal. Troubleshooting will continue in 2015. A partnership with a manufacturer is in the works and will result in a first commercial pilot unit by the end of 2015.

#### Energy Storage

AREVA Energy Storage continues to operate the Myrte platform in Corsica (electrolyzer, hydrogen and oxygen storage, and a 100 kWe fuel cell). From February to September 2014, a second unit was delivered, installed and put into operation. The unit will double the facility's storage capacity. Data on operation and maintenance of a "live" site were compiled, as well as on the service life of the systems. A complete set of laboratory and test bench experiments was developed to fully understand the parameters that affect the life duration of fuel cell assemblies and to make the necessary corrections to the system.

In May, AREVA Energy Storage, Smart Energies and Ademe created the AREVA H2Gen, a joint venture, which designs and manufactures proton exchange membrane electrolyzers. AREVA H2GEN aims to increase the economic competitiveness of the electrolyzers by increasing the stack capacity and subsystem integration and modularity. The entity's business plan includes the implementation of an important R&D program so as to increase the system's present capacity of 60 Nm3/h to 200 Nm<sup>3</sup>/h by 2015-16.

#### R&D ACTIVITIES BY ENGINEERING & PROJECTS: SUPPORTING THE RESEARCH AND DEVELOPMENT ACTIVITIES OF AREVA'S BUSINESS GROUPS

Engineering & Projects (E&P) is a key partner in the Business Groups' Research and Development programs. Specifically, E&P brings in the expertise and engineering skills that are needed in the phases that precede the industrial roll-out of the processes and products resulting from the Business Groups' R&D: feasibility and preliminary studies for innovative installations, final development and qualification of simulation tools and of processes, products and equipment for use in AREVA's facilities or its customers' facilities, and operational support. The Beaumont-Hague development and testing laboratory (HRB), an E&P technical center located near the la Hague recycling plant, houses the activities for the two main divisions: Technology, which develops specific tools and response scenarios and also develops and qualifies mechanical equipment; and Chemistry, which deals with a broad range of topics, including the development and qualification of chemical engineering equipment and of waste treatment/packaging processes (cementation, vitrification, drying, etc.), for the Front End and Back End Business Groups and for the Renewable Energies Business Group. The development and testing lab also houses many pilot projects for the applications of the different Business Groups.

# **11.2. INTELLECTUAL PROPERTY**

Intellectual property, licenses, patents, trademarks and technical expertise in general play an important part in the group's daily operations and thus in the production and protection of AREVA products, services and technology. Protecting the group's knowledge and unique know-how requires a comprehensive system

for developing and managing AREVA's technology assets. This is also the key to negotiating successful technology transfer and process license agreements, now standard practice for large-scale international projects.

### **11.2.1. PATENTS AND KNOW-HOW**

Several years ago, AREVA set the goal of building a portfolio of patent rights consistent with its strategies and right-sized in terms of both quality and quantity, in keeping with the group's research and development efforts.

Today, the group has a portfolio of some 8,000 patents derived from more than 1,300 inventions pertaining to the nuclear fuel cycle, nuclear reactors, renewable energies and related services. The AREVA group registered 82 new patents in 2014.

In addition to the patent portfolios, AREVA has elected to maintain the confidentiality of some of its technology innovations. Accordingly, the group owns and uses valuable know-how recognized for its technical excellence that contributes to AREVA's leadership in its businesses and bolsters the group's technical and commercial offering.

### **11.2.2. TRADEMARKS**

AREVA owns several trademarks. The best known are the AREVA brand name, the figurative mark A and the semi-figurative mark AREVA.

These trademarks designate all the group's operations and are protected in all countries in which the group conducts its operations.

As the group's activities develop, it files for new trademarks.

The communication program undertaken to support and accompany the group's development is based on deployment of the AREVA trademarks A and AREVA.

Actions taken in this regard – advertising, websites, brochures, sponsorships and press relations – help strengthen the group's brand awareness in France and abroad and position AREVA as a leading brand in the energy sector. With respect to the trademark defense policy, in particular on the Internet, the Arbitration and Mediation Center of the World Intellectual Property Organization (WIPO) has emphasized the well-known nature of the AREVA brand.

AREVA identifies its products and protects them with registered trademarks (e.g. the mark  $\widehat{E_{PR}}$ ).



### **11.2.3. LEGAL ACTIVITIES**

In 2014, AREVA entered into several research and development and partnership agreements in international markets for which balanced and profitable intellectual property strategies were devised in the interests of the group as well as its partners.

AREVA endeavors to protect its intellectual property rights in all agreements with third parties, particularly license agreements and technology transfer contracts, to optimize the management of its intellectual property and prevent unauthorized use.

To protect its industrial property rights, AREVA's policy is both proactive and reactive.

### 11.2.4. IN 2015

The group intends to pursue, strengthen and organize its intellectual property initiative to support the growth of its research and development efforts and the development of new partnerships, in keeping with the group's industrial and

marketing strategies, and with the goal of making intellectual property a fundamental tool of the group's strategy.

# TREND INFORMATION

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# **12.1. CURRENT SITUATION**

Please refer to Section 6.1. The markets for nuclear power and renewable energies, which deals in particular with the current economic situation and how it affects the group's operations.

# **12.2.** FINANCIAL OBJECTIVES

Following data are at constant consolidation scope and foreign exchange, excluding the impacts of asset disposals, equity-based transactions and refinancing.

For 2017 and 2018, in a context of a slight increase in activity (modest growth of organic revenue), and taking into account remaining expenses for the three large loss-making projects, the costs for deployment of the competitiveness plan and expected future gains, AREVA's objectives are:

- positive operating cash flow in 2017;
- positive net cash flow in 2018.

For 2015, in a context of a slight decrease in activity (with a decrease in organic revenue of up to -5%), and taking into account remaining expenses for the three large loss-making projects, AREVA's objective is:

 net cash flow, excluding the competitiveness plan and related deployment costs, of between -1.7 and -1.3 billion euros.



Not applicable.

# ADMINISTRATIVE, MANAGEMENT AND SUPERVISORY BODIES AND SENIOR MANAGEMENT

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On January 8, 2015, AREVA's General Meeting of Shareholders decided to transform the company's governance from a corporation with a Supervisory Board and an Executive Board into a corporation with a single Board of Directors.

This section reports on the composition of the Executive Board and the Supervisory Board until January 8, 2015 and presents the composition of the Board of Directors set up on January 8, 2015.

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### 14.1. COMPOSITION OF THE EXECUTIVE BOARD PRIOR TO THE CHANGE OF GOVERNANCE

#### LUC OURSEL

On the recommendation of the Compensation and Nominating Committee, the Supervisory Board renewed the term of Mr. Luc Oursel as member of the Executive Board on June 21, 2011, effective June 30, 2011. The Supervisory Board appointed Mr. Oursel Chief Executive Officer on June 30, 2011. Mr. Luc Oursel died on December 3, 2014.

Mr. Oursel was a graduate of École nationale supérieure des mines of Paris and was *Ingénieur en chef* in the Corps des mines.

Until 1993, Mr. Oursel was a senior civil servant with the Ministry of Industry and then with the cabinet of the Minister of Defense, where he served as technical advisor in charge of industrial affairs, armament programs and research. Beginning in 1993, he held various positions with the Schneider, Sidel and Geodis groups. In particular, he was President of Schneider Shanghai Industrial Control, CEO of Schneider Electric Italia, Executive Vice President of Sidel and President of Geodis.

A member of the AREVA Executive Board since March 22, 2007, Mr. Oursel served as AREVA Executive Officer in charge of nuclear operations. He was appointed Chief Operating Officer of AREVA, International Marketing and Projects, in January 2011.

#### Other offices held in 2014, up to December 3, 2014

- Chairman of the Board of Directors of AREVA NC SA.
- Chairman of the Board of Directors of Fondation d'Entreprise AREVA.
- Chairman of the Association Nationale de la Recherche et de la Technologie (ANRT).
- Chairman of the Fondation Besse.
- Member of the Board of Directors of the Institut des hautes études de défense nationale (IHEDN).

#### Other offices held during the past five years

- Chairman of AREVA Mines SAS until May 9, 2012.
- Member of the Supervisory Board of AREVA GmbH until December 13, 2011.
- Member of the Supervisory Board of Souriau and Souriau Technologies Holding SAS until October 25, 2011.
- Member of the Board of Directors of ATMEA until September 12, 2011.
- Chairman of the Board of AREVA Inc. until July 11, 2011.
- Chairman of the Board of AREVA NP USA Inc. until July 8, 2011.
- Chairman of AREVA NP SAS until July 8, 2011.
- Permanent representative of AREVA to the Supervisory Board of Safran until April 21, 2011.
- Member of the Board of Directors of AREVA NP SAS until March 18, 2011.

#### **PHILIPPE KNOCHE (AGE 45)**

On the recommendation of the Compensation and Nominating Committee, the Supervisory Board appointed Mr. Philippe Knoche to the Executive Board and appointed him Chief Operating Officer on June 21, 2011, effective June 30, 2011. On October 22, 2014, the Supervisory Board granted him the same powers as the Chairman of the Executive Board, particularly as concerns representation of the company vis-à-vis third parties and reporting lines, with the title of Chief Executive Officer. His term as a member of the Executive Board ended on January 8, 2015 upon the adoption of a corporate form with a Board of Directors as sole governance body.

Mr. Knoche is a graduate of École polytechnique and of École des mines. He began his career in 1995 as an anti-dumping case reporter for the European Commission. In 2000, he joined Cogema (which later became AREVA NC) as Director of Industrial Holdings. He joined AREVA in 2001 as Senior Vice President of Corporate Strategy. In 2004, he was appointed Director of the Treatment Business Unit. In 2006, he took over as Project Director for the Olkiluoto 3 EPR project in Finland. Mr. Knoche was appointed Senior Executive Vice President of the Reactors & Services Business Group in 2010.

#### Other offices held

- CEO and Director of AREVA NC SA/Chairman of the Board of Directors of AREVA NC since January 22, 2015.
- Chairman of AREVA NP SAS.
- Member of the Supervisory Board of AREVA GmbH.
- Chairman of the Board of AREVA Inc.

#### Other offices held during the past five years

None.

#### **PIERRE AUBOUIN (AGE 44)**

After approval to join the AREVA group by the Business Ethics Commission <sup>(1)</sup>, on July 12, 2011, the Supervisory Board appointed Mr. Pierre Aubouin to the Executive Board and appointed him Chief Financial Officer on July 27, 2011. His term as a member of the Executive Board ended on January 8, 2015 upon the adoption of a corporate form with a Board of Directors as sole governance body.

Mr. Aubouin is a graduate of the ESSEC Business School. He also holds an advanced degree in accounting and finance (DESCF). He began his career as an

auditor with KPMG in 1992. Promoted to manager in 1997, he was responsible for a large portfolio of French and foreign industrial customers, particularly in the high-tech sector. From 2000 to 2006, he was consultant, project manager and later project director for McKinsey & Company, where he was a member of the corporate finance and strategy, high technology and media expertise groups. In late 2006, Pierre Aubouin joined Agence des participations de l'État (APE, the French government shareholding agency) as Head of the Aeronautics and Defense unit. In 2008, he was appointed division director for Services, Aeronautics and Defense shareholdings.

#### Other offices held

Chairman of AREVA Business Support SAS.

#### Other offices held during the past five years

 Director of Safran SA, DCNS, Sogepa SA, Sogeade Gérance SAS, SNPE SA, Imprimerie Nationale SA and EPFR (a government-owned enterprise) until July 2011.

#### **OLIVIER WANTZ (AGE 54)**

The Supervisory Board appointed Mr. Olivier Wantz to the Executive Board and appointed him Senior Executive Vice President, Operations Support, on June 30, 2011. His term as a member of the Executive Board ended on January 8, 2015 upon the adoption of a corporate form with a Board of Directors as sole governance body.

Mr. Wantz was appointed Senior Executive Vice President, Mining Business Group on March 31, 2012.

Mr. Wantz holds an advanced graduate diploma from the Institut d'administration des entreprises (IAE) of Paris and is a graduate of the Chamber of Commerce and Industry of Nuremberg, Germany. In 1983, in joined Siemens, where he served in different functions in the medical engineering division and, starting in 1995, in the Australian subsidiary of the telecommunications division. In 2000, he was appointed Administrative and Financial Director of Siemens Transportation Systems. Mr. Wantz joined the AREVA group in 2005 as Chief Financial Officer of AREVA NP. In 2010, he was appointed Senior Executive Vice President of Engineering & Projects at AREVA.

#### Other offices held

- CEO of AREVA Mines SA.
- CEO of CFMM SA.
- Member of the Board of AREVA CANADA Inc.
- Member of the Supervisory Board of AREVA GmbH.
- Vice Chairman of the Board of WECAN.
- Member of the Board of AREVA Beijing Consulting.
- Member of the Supervisory Board of AREVA Med LLC.

#### Other offices held during the past five years

- Chairman of the Supervisory Board of AREVA GmbH until October 16, 2012.
- Member of the Board of Directors of La Mancha Resources Inc. until August 28, 2012.
- Member of the Board of Directors of AREVA Federal Services LLC until April 11, 2012.
- Member of the Board of Directors of AREVA Inc. until March 16, 2012.
- Chairman of the Board of Directors of SGN SA until July 1, 2013.

<sup>(1)</sup> The role of the Business Ethics Committee (Commission de déontologie de la fonction publique), a French independent public institution, is to control the departure of civil servants and certain employees of the private sector, who plan to exercise an activity in the private sector and in the competitive public sector. It examines whether or not the private activities they plan to exercise are compatible with their previous functions.

### 14.2. COMPOSITION OF THE SUPERVISORY BOARD PRIOR TO THE CHANGE OF GOVERNANCE

The composition of the Supervisory Board until the change of governance appears in Section 3.1 of the *Report of the Chairman of the Board of Directors on governance,* 

internal control procedures and risk management (Appendix 1 of this Reference Document).

### 14.3. COMPOSITION OF THE BOARD OF DIRECTORS AS FROM THE CHANGE OF GOVERNANCE

The composition of the Board of Directors as from the change of governance appears in Section 4.1 of the *Report of the Chairman of the Board of Directors on* 

governance, internal control procedures and risk management (Appendix 1 of this Reference Document).

### 14.4. SENIOR MANAGEMENT AS FROM THE CHANGE OF GOVERNANCE

Under the provisions of article L. 225-51-1 of the French Commercial Code, the Board of Directors opted to dissociate the positions of Chairman of the Board of Directors and Chief Executive Officer, with Mr. Philippe Varin serving as Chairman of the Board and Mr. Philippe Knoche as CEO.

Executive management procedures are described in Section 4.4. *Report of the Chairman of the Board of Directors on governance, internal control procedures and risk management* (Appendix 1 of this Reference Document).

### 14.5. LEGAL INFORMATION, CONFLICTS OF INTEREST AND SERVICE CONTRACTS

As of the date of this Reference Document and to the best of AREVA's knowledge:

- there are no potential conflicts of interest concerning AREVA between the duties of the members of the Board of Directors and the company's senior management on the one hand, and their private interests or other duties on the other. The Board of Directors' rules of procedure include a procedure for preventing conflicts of interest applicable to all directors. In addition, the company has set up a specific procedure to prevent and settle situations which might risk creating a conflict of interest for the chairman of the Board of Directors; because of his service as a director on the EDF Board of Directors;
- member of the Board of Directors or senior management has been convicted of fraud over the past five years. None of these members participated in any bankruptcy, receivership or liquidation proceeding in an executive capacity

during the past five years, and none was indicted and/or officially sanctioned by a statutory or regulatory authority, including professional organizations officially appointed. Over the past five years, no court has barred any of these members from becoming a member of an administrative, executive or supervisory body of a securities issuer, nor from participating in the management or business operations of an issuer;

- no member of the Board of Directors or senior management has been retained as a corporate officer or board member of a major shareholder, customer or supplier pursuant to an arrangement or an agreement; and
- no service agreement contemplating any benefit has been concluded between AREVA or any of its subsidiaries and any member of the Board of Directors or senior management.

## **COMPENSATION** AND BENEFITS

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## **15.1.** COMPENSATION OF DIRECTORS AND OFFICERS

The compensation of AREVA's officers and directors is determined in accordance with the provisions of the French Commercial Code and the Afep-Medef Code of Governance, with which AREVA complies (see Appendix 1 of this Reference Document).

Until the change of governance <sup>(1)</sup>, the Supervisory Board set compensation for the Chief Executive Officer and the members of the Executive Board on the proposal of the Compensation and Nominating Committee, and the Shareholders set the amount of directors' fees paid to members of the Supervisory Board.

Since the change of governance, the Board of Directors sets the compensation for the Chairman and the Chief Executive Officer on the proposal of the Compensation and Nominating Committee, and the Shareholders set the total amount of directors' fees paid to members of the Board of Directors, which divide it among themselves.

The components of compensation are approved by the Minister of Economy pursuant to the decree no. 53-707 of August 9, 1953, amended, on government control of national public sector companies and certain organizations serving an economic or social purpose.

In addition, as provided in article 3 of the decree, the gross annual compensation of directors and officers is capped at 450,000 euros.

In accordance with applicable regulations, the tables below include the compensation and benefits of any kind paid to officers and directors in 2013 and 2014 by AREVA SA. No compensation or benefits are paid to these individuals by companies controlled by AREVA SA.

#### **15.1.1. COMPENSATION OF MEMBERS OF THE EXECUTIVE BOARD** UNTIL THE CHANGE OF GOVERNANCE

Until the change of governance, the compensation of the members of the Executive Board consisted of a fixed component and, for some members, a variable component.

In 2014, the gross fixed annual compensation was unchanged from 2013, *i.e.* 450,000 euros for Mr. Luc Oursel, 420,000 euros for Mr. Philippe Knoche, 360,000 euros for Mr. Olivier Wantz, and 300,000 euros for Mr. Pierre Aubouin.

Concerning Mr. Luc Oursel, the Supervisory Board allocated exceptional compensation to him on December 17, 2014 in the amount of 112,500 euros, equivalent to one quarter of his 2014 gross annual compensation, to be paid to his widow in 2015. This deliberation was approved in a ministerial decision dated January 12, 2015.

<sup>(1)</sup> On January 8, 2015, AREVA's General Meeting of Shareholders decided to transform the company's governance from one of a Supervisory Board and an Executive Board into one of a single Board of Directors (See Section 14 and Appendix 1 of this Reference Document).

Only Messrs. Olivier Wantz and Pierre Aubouin were eligible for variable compensation, capped at 60,000 euros and 120,000 euros annually respectively, subject to the achievement of quantitative and qualitative objectives.

In 2014, the quantitative criterion represented 65% of total variable compensation and the qualitative criterion represented 35%. The quantitative objectives to be achieved in 2014 were a function of revenue (15%), backlog (10%), operating margin (20%) and the ratio of operating cash flow to net debt (20%). Success criteria were set for each quantitative objective. Detailed criteria have been established to determine the level of achievement of the quantitative and qualitative objectives, but are not disclosed to the public for reasons of confidentiality.

AREVA does not have any system for performance-based share allotments, or any stock option or stock purchase plan, either for employees or for officers.

Messrs. Philippe Knoche and Pierre Aubouin did not have employment contracts, nor did Mr. Luc Oursel, who died on December 3, 2014. Mr. Olivier Wantz elected to have his employment contract suspended while he serves as a member of the Executive Board.

#### 15.1.1.1. SUMMARY OF COMPENSATION AND BENEFITS OF EXECUTIVE BOARD MEMBERS

(euros) AREVA directors and officers	Compensation due in 2013 <sup>(1)</sup>	Compensation paid in 2013 <sup>(2)</sup>	Compensation due in 2014 <sup>(1)</sup>	Compensation paid in 2014 <sup>(3)</sup>
Luc Oursel, Chief Executive Officer	450,000	846,372	417,718 (4)	415,658 (5)
Philippe Knoche, Chief Operating Officer	420,000	671,265	420,000	420,976 (7)
Olivier Wantz, Senior Executive Vice President, Mining				
Business Group	415,650	504,840	360,000 (6)	415,650
Pierre Aubouin, Chief Executive Financial Officer	411,960	441,925	300,000 (6)	412,260 (8)

(1) Sum total of compensation due for the year, including the variable component, if applicable.

(2) Sum total of compensation paid during the year, including the variable component for the previous year, if applicable, paid in 2013.

(3) Sum total of compensation paid during the year, including the variable component for the previous year, if applicable, paid in 2014.

(4) Mr. Oursel died on December 3, 2014.

(5) Sick leave beginning on October 17, 2014 (impact of daily Social Security payments) and death on December 3, 2014.

(6) In the light of the financial situation of the company, no variable compensation which the former members of the Executive Board may have been entitled for the fiscal

year 2014 will be paid.

(7) The difference, i.e. 976 euros, was settled in 2015.

(8) The difference, i.e. 300 euros, was settled in 2015.

#### 15.1.1.2. SUMMARY OF COMPENSATION AND BENEFITS FOR EACH EXECUTIVE BOARD MEMBER

(euros)	Summary of compensation and benefits for Luc Oursel						
	201;	2014					
AREVA directors and officers	Amounts due (1)	Amounts paid <sup>(2)</sup>	Amounts due (1)	Amounts paid <sup>(2)</sup>			
Fixed compensation	445,488	414,360	413,206 (4)	411,146 (5)			
Variable compensation	NA	427,500 <sup>(3)</sup>	NA	NA			
Exceptional compensation	NA	NA	NA	NA			
Directors' fees	NA	NA	NA	NA			
Non-cash benefits (company car)	4,512	4,512	4,512	4,512			
TOTAL	450,000	846,372	417,718	415,658			

(1) Compensation paid for the reporting year, irrespective of the date of payment.

(2) Sum total of compensation paid during the fiscal year, including that paid for the previous year.

(3) Amount of variable compensation until September 30, 2012, paid in 2013. Mr. Oursel was no longer eligible for variable compensation, as from October 1, 2012.
(4) Mr. Oursel died on December 3, 2014.

(5) Sick leave beginning on October 17, 2014 (impact of daily Social Security payments) and death on December 3, 2014.



#### Summary of compensation and benefits for Philippe Knoche

	201	3	2014		
AREVA directors and officers	Amounts due (1)	Amounts paid (2)	Amounts due (1)	Amounts paid (2)	
Fixed compensation	417,060	416,325	417,060	417,060	
Variable compensation	NA	252,000 <sup>(3)</sup>	NA	NA	
Exceptional compensation	NA	NA	NA	NA	
Directors' fees	NA	NA	NA	NA	
Non-cash benefits (company car)	2,940	2,940	2,940	3,916 (4)	
TOTAL	420,000	671,265	420,000	<b>420,976</b> <sup>(5)</sup>	

(1) Compensation paid for the reporting year, irrespective of the date of payment.

(2) Sum total of compensation paid during the fiscal year, including that paid for the previous year.

(3) Amount of variable compensation until September 30, 2012, paid in 2013. Mr. Knoche is no longer eligible for variable compensation, as from October 1, 2012.

(4) Adjustment of the company vehicle benefit in kind in May 2014.

(5) The difference, i.e. 976 euros, is reversed in 2015.

(euros)

(euros)	Summa	ry of compensation an	d benefits for Olivier Wa	antz	
	201	2013			
AREVA directors and officers	Amounts due (1)	Amounts paid <sup>(2)</sup>	Amounts due <sup>(1)</sup>	Amounts paid <sup>(2)</sup>	
Fixed compensation	354,360	375,450	354,360	354,360	
Variable compensation (3)	55,650	123,750 <sup>(4)</sup>	O <sup>(5)</sup>	55,650	
Exceptional compensation	NA	NA	NA	NA	
Directors' fees	NA	NA	NA	NA	
Non-cash benefits (company car)	5,640	5,640	5,640	5,640	
TOTAL	415,650	504,840	360,000	415,650	

(1) Compensation paid for the reporting year, irrespective of the date of payment.

(2) Sum total of compensation paid during the fiscal year, including that paid for the previous year.

(3) Maximum theoretical amount for 2013 and 2014: 60,000 euros.

(4) Amount of variable compensation until September 30, 2012, paid in 2013. Mr. Wantz did not receive variable compensation for the fourth quarter of 2012.

(5) In the light of the financial situation of the company, no variable compensation which the former members of the Executive Board may have been entitled for the fiscal year 2014 will be paid.

(euros)	Summary of compensation and benefits for Pierre Aubouin					
	201	3	2014	l i		
AREVA directors and officers	Amounts due (1)	Amounts paid (2)	Amounts due (1)	Amounts paid <sup>(2)</sup>		
Fixed compensation	296,400	325,875	296,400	296,700 <sup>(5)</sup>		
Variable compensation (3)	111,960	112,500 (4)	O <sup>(6)</sup>	111,960		
Exceptional compensation	NA	NA	NA	NA		
Directors' fees	NA	NA	NA	NA		
Non-cash benefits (company car)	3,600	3,600	3,600	3,600		
TOTAL	411,960	441,925	300,000	412,260		

(1) Compensation paid for the reporting year, irrespective of the date of payment.

(2) Sum total of compensation paid during the fiscal year, including that paid for the previous year.

(3) Maximum theoretical amount for 2013 and 2014: 120,000 euros.

(4) Amount of variable compensation until September 30, 2012, paid in 2013. Mr. Aubouin did not receive variable compensation for the fourth quarter of 2012.

(5) The difference, i.e. 300 euros, is reversed in 2015.

(6) In the light of the financial situation of the company, no variable compensation which the former members of the Executive Board may have been entitled for the fiscal year 2014 will be paid.

#### 15.1.1.3. SEVERANCE AND NON-COMPETITION PAYMENTS

#### Severance pay

The following rules were adopted and subsequently amended by the Supervisory Board on October 21, 2011 and December 19, 2012 on the recommendation of the Compensation and Nominating Committee:

- members of the AREVA Executive Board without an employment contract – Messrs. Luc Oursel, Philippe Knoche and Pierre Aubouin – could have had the benefit of severance pay in the maximum amount of twice the cumulative total of their annual compensation on the date of termination of their duties. Severance pay would have been based on the latest fixed compensation for Messrs. Luc Oursel and Philippe Knoche and, in the case of Mr. Pierre Aubouin, on the cumulative total of his last fixed compensation and the average of his variable compensation for the last three fiscal years. Mr. Olivier Wantz had elected to have his employment contract suspended while he served as a member of the Executive Board; he was therefore not subject to the above provisions;
- members of the Executive Board were not entitled to severance pay in the following circumstances: (i) if they elected to retire, or were required to do so, for any reason shortly after the end of their term, or (ii) if their term expired prematurely because of the transformation of the company into a *société anonyme* with a Board of Directors, or (iii) if they were appointed to another function within the AREVA group;
- the above-mentioned severance pay would have been paid only if a member of the Executive Board was terminated, except in the event of termination for just cause, in particular in the event of a change of control or strategy, and would have been subject to the following performance conditions:

For Messrs. Luc Oursel and Philippe Knoche:

- severance compensation would have been paid automatically if the rate of achievement of quantitative and qualitative objectives were more than 60% on average for the two previous years,
- if the rate of achievement of quantitative and qualitative objectives were less than 60% on average for the two previous years, the Supervisory Board would have assessed the performance of the person concerned based on circumstances that had impacted the company's business during the year ended.

#### For Mr. Pierre Aubouin:

- severance compensation would have been paid automatically if more than 70% of the maximum variable component of compensation (based on quantitative and qualitative objectives) were paid for two of the three previous years,
- severance compensation would not have been paid if less than 60% of the maximum amount of the variable component of compensation has been paid for two of the three previous years,
- the Supervisory Board would have decided whether or not to grant all or part of the severance pay if 70% or less of the maximum amount of the variable component of compensation had been paid for two of the three previous years and 60% to 70% of the maximum amount of the variable component had been paid for at least one year.

If the termination or forced departure of Mr. Pierre Aubouin had occurred before the completion of three years of service following his appointment, the severance pay would have been subject to performance-based conditions as follows:

- severance pay would have been paid if the average variable component paid during his term (prorated for partial years) had been greater than 70% of the maximum amount of the variable component of compensation,
- severance pay would not have been paid if the average variable component paid during his term (prorated for partial years) had been less than 60% of the maximum amount of the variable component of compensation,
- the Supervisory Board would have decided whether or not to grant all or part of the severance pay if 60% to 70% of the average maximum amount of the variable component had been paid during his term (prorated for partial years);
- Mr. Philippe Knoche would have been offered an employment contract with similar responsibilities if his position as a member of the Executive Board had been terminated before its current term or was not renewed. Such a contract could not have been in addition to the payment of severance pay at the end of his term.
- All severance payments had to have been approved first by the Supervisory Board in accordance with article L. 225-90-1, paragraph 5 of the French Commercial Code and by the minister of the Economy in application of the above-mentioned decree no. 53-707 of August 9, 1953.

	Employment contract		Supplemental retirement benefits		Compensation or benefits due or that may be due in the event of termination or change in position, including payments related to a non-competition clause	
Executive officers	YES	NO	YES	NO	YES	NO
Luc Oursel, CEO		Х		Х	Х	
Philippe Knoche, COO		Х		Х	X <sup>(2)</sup>	
Olivier Wantz, SEVP Mining	X <sup>(1)</sup>			Х		Х
Pierre Aubouin, SEVP Finance		Х		Х	Х	

(1) Employment contract suspended during his term.

(2) No severance pay if an employment contract with similar responsibilities is offered.



#### Non-competition payments

The Supervisory Board did not grant any payment to members of the Executive Board in consideration of a non-competition clause.

#### 15.1.1.4. PENSIONS AND RETIREMENT BENEFITS

The company did not subscribe to any supplemental retirement plan with defined benefits for the members of the Executive Board. They participated in the supplemental retirement plans applicable to the company's executive employees.

#### 15.1.1.5. UNEMPLOYMENT INSURANCE

Effective December 1, 2011, the company subscribed to an unemployment insurance plan sponsored by Medef and underwritten by Garantie Sociale des Chefs et Dirigeants d'Entreprise (GSC) in favor of directors and officers without an employment contract. Membership guarantees twelve months of severance payments to the officers, with a payment level of 70% of net revenue from employment received for the calendar year preceding the membership in the case of tax brackets A and B, and 55% for tax bracket C. Insurance coverage is subject to a waiting period of 12 months. Premiums for this insurance are paid 65% by AREVA and 35% by the beneficiary.

#### **15.1.2. COMPENSATION OF MEMBERS OF THE SUPERVISORY BOARD** UNTIL THE CHANGE OF GOVERNANCE

The members of the Supervisory Board received directors' fees during their terms, except for the Chairman of the Supervisory Board, the representatives of the French State, and Messrs. Béhar, Bigot and Gégout (the latter representing the CEA), who had waived them.

In addition, the Chairman of the Supervisory Board received gross fixed annual compensation of 120,000 euros for these duties.

On May 20, 2014, the Shareholders set the total amount of annual directors' fees at 400,000 euros.

The Shareholders' Meeting of January 8, 2015 set the total amount of directors' fees allocated to the members of the Supervisory Board at 50,000 euros for the period beginning January 1, 2015 and ending January 8, 2015.

The distribution of directors' fees had been done by the Supervisory Board on February 26, 2014, according to the following rules:

- for meetings of the Supervisory Board:
- a) a flat fee of 16,000 euros per year in consideration for their duties. This sum could be withheld in the event of repeated absences;
- b) 2,000 euros per meeting, provided the member was effectively present (physically or by electronic means);
- for the meetings of the Board's specialized committees:
- a) 1,600 euros per meeting for the Committee chairmen, provided they were in attendance (physically or by means of telecommunication);
- b) 1,200 euros per meeting for the Committee members (excluding the chairman of the Committee), provided they were in attendance (physically or by means of telecommunication).

For members residing outside Europe, the amounts indicated in points a) and b) above are doubled if the member was physically present at the meetings.

In accordance with article 3 of decree no. 53-707 of August 9, 1953, the Supervisory Board's deliberations of February 26, 2014 had been approved by the Minister of Economy on March 26, 2014.

#### 15.1.2.1. SUMMARY OF DIRECTORS' FEES PAID DURING THE YEAR

Members of the Supervisory Board (1)	<b>2013</b> <sup>(2)</sup>	<b>2014</b> <sup>(3)</sup>
Sophie Boissard <sup>(4)</sup>	48,000	48,400
François David <sup>(4)</sup>	45,600	44,000
Agnès Lemarchand <sup>(4)</sup>	42,800	42,000 (5)
Jean-Michel Lang	43,200	48,000
Françoise Pieri	46,000	48,800
Philippe Pinson	42,000	45,600
Guylaine Saucier	80,800	76,400
TOTAL	348,400	353,200

(1) List of members of the Supervisory Board who received directors' fees.

(2) Directors' fees allocated in 2013, including the balance for December 2012.

(3) Directors' fees allocated in 2014, including the balance for December 2013.

(4) Mrs. Boissard, Mrs. Lemarchand and Mr. David were appointed by the Supervisory Board to lead the ad-hoc committee on the UraMin case. Each of them received 10,000 euros for serving on the committee in 2013.

(5) In 2014, Mrs. Agnès Lemarchand received an adjustment for her presence during a Supervisory Board meeting held in 2013.

#### 15.1.2.2. SUMMARY OF COMPENSATION PAID TO MEMBERS OF THE SUPERVISORY BOARD DURING THE YEAR (GROSS COMPENSATION AND DIRECTORS' FEES)

Pursuant to applicable regulations, the following information is provided:

- the total gross compensation paid to Pierre Blayau corresponds to the annual compensation that had been paid by AREVA for his service as Chairman of the Supervisory Board. He did not receive directors' fees;
- the total gross compensation paid to Bernard Bigot, Christophe Béhar and Christophe Gégout (the latter representing the CEA) corresponds to their compensation (including bonuses and exceptional payments) paid by the CEA for

their duties with the CEA, which controls AREVA. They received no directors' fees from AREVA for their services as members of the Supervisory Board. Bernard Bigot received no compensation from AREVA for his duties as Vice Chairman of the Supervisory Board;

the total gross compensation paid to Jean-Michel Lang, Françoise Pierri and Philippe Pinson, who were members of the Supervisory Board elected by company personnel in 2012, corresponds to the compensation (including profitsharing) paid by the AREVA subsidiary that employed them during their terms and to the directors' fees paid for their services as members of the Supervisory Board. At their request, their directors' fees may be paid by AREVA to the labor organization to which they belong.

(euros)		2013			2014		
Supervisory Board	Gross compensation	Directors' fees	Total gross compensation	Gross compensation	Directors' fees	Total gross compensation	
	(a)	(b)	(c = a + b)	(a)	(b)	(c = a + b)	
Pierre Blayau (1)	62,234	-	62,234	120,000		120,000	
Bernard Bigot	235,334	-	235,334	236,274	-	236,274	
Christophe Béhar (2)	166,211	-	166,211	156,205	-	156,205	
Sophie Boissard	-	48,000	48,000	-	48,400	48,400	
François David	-	45,600	45,600	-	44,000	44,000	
Christophe Gégout	163,729	-	163,729	169,810	-	169,810	
Agnès Lemarchand	-	42,800	42,800	-	42,000	42,000	
Jean-Michel Lang	45,300	43,200	88,500	46,356	48,000	94,356	
Françoise Pieri	42,053 (3)	46,000	88,053	46,074	48,800	94,874	
Philippe Pinson	127,419	42,000	169,419	133,653	45,600	179,253	
Guylaine Saucier	-	80,800	80,800	-	76,400	76,400	
Philippe Varin (4)	-	-	-	-	_ (5)	-	

(1) Coopted by the Supervisory Board on June 24, 2013.

(2) Resigned on November 26, 2014.

(3) Out of the 13<sup>th</sup> month, accounted in time.

(4) Coopted by the Supervisory Board on November 26, 2014.

(5) Philippe Varin will not receive directors' fees for 2014.

#### **15.1.3. COMPENSATION OF THE CHIEF EXECUTIVE OFFICER** SINCE THE CHANGE OF GOVERNANCE

#### 15.1.3.1. COMPENSATION OF THE CHIEF EXECUTIVE OFFICER - SEVERANCE AND NON-COMPETITION PAYMENTS

The components of Mr. Philippe Knoche's compensation as Chief Executive Officer will not be known until after the date that this document was filed. AREVA does not have any system for performance-based share allotments, or any stock option or stock purchase plan, either for employees or for officers. Mr. Philippe Knoche does not have an employment agreement.



#### 15.1.3.2. PENSIONS AND RETIREMENT BENEFITS

The company did not subscribe to any supplemental retirement plan with defined benefits for the CEO. He participates in the supplemental retirement plans applicable to the company's executive employees.

#### 15.1.3.3. UNEMPLOYMENT INSURANCE

The company subscribed to an unemployment insurance plan sponsored by Medef and underwritten by Garantie Sociale des Chefs et Dirigeants d'Entreprise (GSC) in favor of the CEO. Membership guarantees twelve months of severance payments to the officers, with a payment level of 70% of net revenue from employment received for the calendar year preceding the membership in the case of tax brackets A and B, and 55% for tax bracket C. Premiums for this insurance are paid 65% by AREVA and 35% by the beneficiary.

#### **15.1.4. COMPENSATION OF THE CHAIRMAN AND MEMBERS OF THE BOARD OF DIRECTORS** SINCE THE CHANGE OF GOVERNANCE

## 15.1.4.1. COMPENSATION OF THE CHAIRMAN OF THE BOARD OF DIRECTORS

The components of Mr. Philippe Varin's compensation as Chairman of the Board of the Directors will not be known until after the date that this document was filed.

#### 15.1.4.2. COMPENSATION OF THE MEMBERS OF THE BOARD OF DIRECTORS

The members of the Board of Directors receive directors' fees in respect of their terms.

In accordance with the wish they expressed to the Board, the Board of Directors decided that Philippe Varin, Philippe Knoche and Daniel Verwaerde would not receive directors' fees for 2015.

The directors fees for Jean-Michel Lang, Françoise Pieri and Odile Matte, who are elected by company personnel, are paid by AREVA at their request to the labor organizations to which they belong.

The Shareholders' Meeting of January 8, 2015 set the total amount of directors' fees allocated to the members of the Board of Directors at 610,000 euros for the period beginning as from January 8, 2015 and ending at the end of fiscal year 2015.

To ensure that a majority of the compensation received by each director is linked to a variable component, the distribution of directors' fees is done according to the following rules:

members of the Board of Directors are entitled to compensation including a fixed component for their duties as directors and a variable component based on their effective attendance at Board meetings and, if applicable, meetings of the committees (or the select committee) of which they are members. Also, the Board may allocate additional directors fees to directors residing outside France in consideration of their travel requirements.

#### 1/ Amounts for meetings of the Board:

- a) a flat fee of 10,000 euros per year in consideration for their duties. This sum may be withheld in the event of repeated absences;
- b) 1,500 euros per meeting, provided the member was physically in attendance.

2/ Amounts paid for meetings of Board Committees (and the select committee), provided the member was physically in attendance:

- a) 3,000 euros per session for the chairman of the Audit and Ethics Committee;
- b) 2,500 euros per session for the chairman of the Strategy and Investments Committee;
- c) 2,500 euros per session for the chairman of the Nominating and Compensation Committee;
- d) 2,500 euros per session for the chairman of the End-of-lifecycle Obligations Monitoring Committee;
- e) 1,500 euros per session for each member of a committee (except for the committee chairman and excluding the select committee of the Strategy and Investments Committee);
- f) a flat fee capped at 10,000 euros per year for each of the members of the Strategy and Investment Committee's select committee tasked with reviewing major sales proposals (including the chairman of said committee). The Committee must meet at least four times for the payment to be made. The member must physically attend all sessions of the committee to receive payment. In the event of the member's absence, the fee will be prorated based on the member's presence in committee sessions held during the year.

For members residing outside France, the amounts indicated in points 1 b) and 2 above are doubled when the member physically attends the sessions.

The fee is paid within 45 days of year-end closing.

A director who participates in a meeting of the Board of Directors or a committee meeting (or the select committee) by teleconference or videoconference receives a fee equal to half of the fee paid to a director residing in France an participating in the meeting in person.

As an exception, only one director fee is paid for two sessions when the Board of Directors meets both before and after a General Meeting of Shareholders.

## **15.2.** STOCK OWNED BY DIRECTORS AND OFFICERS

Until the change of governance, the CEA had lent 10 shares to each member of the Supervisory Board, except for members representing the French State.

Among the members of the Executive Board, Messrs. Philippe Knoche and Pierre Aubouin each held 1,000 AREVA shares.

Since the change of governance, Mr. Philippe Knoche, CEO, still holds 1,000 AREVA shares.

## Stock options allowing subscription or acquisition of shares for no consideration

The AREVA group does not presently have a stock option plan. No bonus issue of shares was undertaken or authorized.

## 15.3. AUDIT FEES

The fees listed in the table below include the fees related to discontinued operations and exclude the fees related to companies consolidated using the proportionate consolidation method.

		2013 Fe	es			2014 Fee	es	
(in thousands of euros)	EY Audit	Mazars	Other	Total	EY Audit	Mazars	Other	Total
Statutory Auditors								
lssuer	483	431	0	914	465	510	0	975
Subsidiaries	1,502	1,968	1,771	5,241	2,113	2,241	712	5,066
Other reviews and services directly linked to the Statutory Auditors' mission								
lssuer	54	0	0	54	125	40	0	165
Subsidiaries	121	345	39	505	3	125	13	141
Sub-total	2,160	2,744	1,810	6,714	2,706	2,916	725	6,347
Other services rendered by the networks to fully consolidated subsidiaries								
Legal, tax, labor	636	30	0	666	464	26	0	480
Other	639	0	0	639	200	0	0	200
Sub-total	1,275	30	0	1,305	664	26	0	690
TOTAL	3,435	2,774	1,810	8,019	3,370	2,942	725	7,037

The other services provided in 2014 concern work performed abroad by members of the statutory auditors' network related to 1) the preparation of income tax returns and 2) critical reviews of information systems in connection with proposed

disposals of subsidiaries, and of an analysis of a foreign subsidiary's cash forecasts in connection with a partnership.

## FUNCTIONING OF ADMINISTRATIVE, MANAGEMENT AND SUPERVISORY BODIES AND SENIOR MANAGEMENT

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On January 8, 2015, AREVA's General Meeting of Shareholders decided to transform the company's governance from a corporation with a Supervisory Board and an Executive Board into a corporation with a single Board of Directors.

This section reports on the functioning of the Executive Board and the Supervisory Board until January 8, 2015 and presents the functioning of the Board of Directors and senior management set up on January 8, 2015.

# **16.1.** FUNCTIONING OF THE EXECUTIVE BOARD UNTIL THE CHANGE OF GOVERNANCE

Until January 8, 2015, full authority was vested in the Executive Board to act on behalf of AREVA in all circumstances with regard to third parties, except when authority is expressly attributed by law or the by-laws to the Supervisory Board or to the shareholders. The Executive Board convened the General Meetings of shareholders.

The Executive Board relied on six coordination and steering committees (see Appendix 1, Section 5.2.1. *Organization of the AREVA group*) and met as often as AREVA's interests dictated it, at the corporate office or at any other place indicated in the notice of meeting.

In 2014, the Executive Board met 28 times with an average attendance rate of 88.4%.

For the decisions of the Executive Board to be valid, at least half of the members had to be present. Decisions were made on a majority vote of the members present or represented.

Management duties could be distributed among the members of the Executive Board on a recommendation of the chairman of the Executive Board and with the authorization of the Supervisory Board. For example, Mr. Luc Oursel, Chief Executive Officer and Chairman of the Executive Board, was in charge of the group's executive management and represented AREVA in its relations with third parties. The Renewable Energies Business Group, the North America Region, and the functional departments of Marketing and Sales, Communications, Executives Career and Organization, Human Resources, General Counsel and Administration, and Strategy, Mergers and Acquisitions reported to him.

Mr. Philippe Knoche was Chief Operating Officer. The Front End, Reactors & Services and Back End Business Groups reported to him, as did the Engineering & Projects organization, the Safety, Security and Operations Department, the Research and Development Department and the Germany Region. He reported to Mr. Luc Oursel. Subsequent to Luc Oursel's unavailability, the Supervisory Board granted the same powers as the Chairman of the Executive Board to Mr. Philippe Knoche on October 22, 2014, particularly as concerns representation of the company vis-à-vis third parties and reporting lines, with the title of Chief Executive Officer.

Mr. Olivier Wantz was Senior Executive Vice President of the Mining Business Group. He reported to Mr. Luc Oursel.

Mr. Pierre Aubouin was Chief Executive Financial Officer. The Audit and Mergers & Acquisitions Departments reported to him. He reported to Mr. Luc Oursel.

## **16.2.** FUNCTIONING OF THE SUPERVISORY BOARD UNTIL THE CHANGE OF GOVERNANCE

Information concerning the functioning of the Supervisory Board until the change of governance appears in Section 3.2 of the *Report of the Chairman of the Board* 

of Directors on governance, internal control procedures and risk management (Appendix 1 of this Reference Document).

## **16.3.** FUNCTIONING OF THE FIVE COMMITTEES ESTABLISHED BY THE SUPERVISORY BOARD UNTIL THE CHANGE OF GOVERNANCE

Information on the functioning and activities of the five committees instituted by the Supervisory Board – the Strategy and Investments Committee, the Audit Committee, the Compensation and Nominating Committee, the End-of-Lifecycle Obligations Monitoring Committee and the Ethics Committee – until the change of governance

is presented in Section 3.5 of the *Report of the Chairman of the Board of Directors on governance, internal control procedures and risk management* (Appendix 1 of this Reference Document).

# **16.4.** FUNCTIONING OF THE BOARD OF DIRECTORS SINCE THE CHANGE OF GOVERNANCE

Information concerning the functioning of the Board of Directors since the change of governance appears in Section 4.2 of the *Report of the Chairman of the Board* 

of Directors on governance, internal control procedures and risk management (Appendix 1 of this Reference Document).

## **16.5.** FUNCTIONING OF THE COMMITTEES INSTITUTED BY THE BOARD OF DIRECTORS SINCE THE CHANGE OF GOVERNANCE

Information concerning the functioning of the committees instituted by the Board of Directors on January 8, 2015 appears in Section 4.3 of the *Report of the Chairman* 

of the Board of Directors on governance, internal control procedures and risk management (Appendix 1 of this Reference Document).

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## **16.6.** REPORT OF THE CHAIRMAN OF THE BOARD OF DIRECTORS ON GOVERNANCE, INTERNAL CONTROL PROCEDURES AND RISK MANAGEMENT

The Report of the Chairman of the Board of Directors on governance, internal control procedures and risk management appears in Appendix 1 of this Reference Document.

## 16.7. REPORT OF THE STATUTORY AUDITORS PREPARED IN APPLICATION OF ARTICLE L. 225-235 OF THE FRENCH COMMERCIAL CODE <sup>(1)</sup>

Article L. 225-235 of the French Commercial Code provides, among other things, that the statutory auditors shall present their observations on the chairman of the Board of Directors' report on internal control procedures.

These observations may be found in Appendix 2 of this Reference Document.

<sup>(1)</sup> Statutory auditors' report on the report prepared by the Chairman of the Board of Directors of AREVA with respect to internal control procedures related to the preparation and treatment of financial and accounting information



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In order to monitor the level of commitment of the group's employees, the AREVA group carried out the third edition of its internal survey, Voice of Employees. The survey is sent to all of the group's employees worldwide. It is translated into 13 languages. Forty-five percent of all employees participated in the survey, down three percentage points compared with the 2013 survey.

Overall, the indicators were stable compared with 2013. They are a sign of continued employee mobilization at a time of transformation for the group. The involvement of all personnel is illustrated by the resolute commitment to achieving the group's assigned objectives. The results were shared with all employees in December 2014.



## **17.1. EMPLOYMENT**

#### 17.1.1. TOTAL WORKFORCE AND DISTRIBUTION BY GENDER, AGE AND GEOGRAPHICAL AREA

The AREVA group had 41,847 employees at December 31, 2014, versus 44,743\* employees at the end of December 2013.

Distribution of employees by businesses within the group's consolidation scope	2014	2013 restated*	2013
Mining	3,915	4,125	4,463
Front End	8,080	7,596	8,555
Reactors & Services	14,745	15,425	15,592
Back End	12,325	12,500	11,583
Corporate, Shared Services and Engineering	2,565	4,697	4,697
Renewable Energies	217	401	451
TOTAL	41,847	44,743	45,340

\* After implementation of a new tool to consolidate workforce information, the number of employees for 2013 was restated to reflect the financial consolidation scope (-1,550) and to include early retirees, who were not taken into consideration until now (+995).

The five most important countries for the group represent more than 95% of the global workforce: France, Germany, the United States, Niger and Kazakhstan.

Engineers and managers represent more than one third of the workforce (40.0%), while technical and administrative personnel account for a little less than half

(45.6%). Blue collar workers represented 14.4% of the workforce at December 31, 2014. As of the end of December 2014, 21.7% of the group's worldwide engineers and management staff were women, an increase of one percentage point from the previous year.

Distribution of employees by gender		
Percentage calculated based on active permanent employees	2014	2013
Women (global)	21.1%	20.5%
Men (global)	78.9%	79.5%
Women in executive positions*	16%	15.4%
Women in governance bodies (Executive Board and Supervisory Board)	33%	31%
Women in management positions	21.7%	20.7%
Women in non-management positions	20.8%	20.3%
Distribution of employees by age group		
Less than age 21	0.1%	0.2%
21 to 30 years	13.2%	16.7%
31 to 40 years	27.1%	25.6%
41 to 50 years	25.8%	27.1%
51 to 60 years	29.1%	27.3%
More than age 60	4.6%	3.1%
Distribution of employees by geographical area		
France	67.0%	64.8%
Europe (excluding France)	13.7%	14.3%
North and South America	11.3%	10.7%
Africa and Middle East	4.1%	6.2%
Asia-Pacific	4.0%	3.9%
Distribution of employees by occupational category		
Engineers and management staff	40.0%	40.4%
Technical and administrative personnel	45.6%	44%
Skilled workers	14.4%	15.6%

#### **17.1.2. STAFFING AND LAYOFFS**

The analyses of the Professions Observatory for 2013-2016 guide the group's human resources policies and provide background for strategic management decisions. The analyses concerned all of the entities in the European footprint and were performed in the first quarter of 2014. The trend they reveal is that an estimated 7,000 employees will leave the group, change position or be hired during these three years. These movements will translate into opportunities offered by the group to employees while helping them to build motivating career paths.

Throughout the year, the group continued to promote and reward internal mobility with a communication campaign directed at employees and mobility forums everywhere in France showing the diversity of career paths and employees supported within the group.

On December 10, the group announced a freeze on external recruitment except when necessary to the short-term maintenance of key skills in the safety field and to the development of high-growth operations. The group relies extensively on internal mobility to meet its skills requirements, and all systems to monitor and support mobility were strengthened.

Over the course of 2014, AREVA recruited 2,611 employees externally (open-ended and fixed-term employment contracts), a sharp decrease in comparison to 2013. Overall, most of the recruitments were to replace three quarters of the departing workers, with a net decrease in the workforce of 933 employees (excluding the impact of activities sold). The group terminated 352 employees out of a total of 44,743 employees. With a total employee turnover rate of 6.8% in 2014, AREVA has a good level of talent retention and is securing its know-how.

In France, AREVA held a spring campaign dedicated to work-study opportunities consisting of more than ten forums in every region of France from March to May. This effort kept the number of work-study trainees at the group's target level 1,300, *i.e.* 4.7% of the workforce (vs. a legal requirement of 4%).

	2014	2013
Number of external hires (total external hires of permanent and temporary staff)	2,611	5,445
Number of layoffs	352	568

#### **17.1.3. COMPENSATION AND TRENDS**

The compensation policy aims to attract, retain and reward employees around the world, based on their collective and individual performance. This policy is founded on four pillars: rewarding performance, remaining on budget, ensuring that all employees are compensated according to the same principles, and reflecting going rates.

In France, total compensation is broken down into:

- fixed compensation: base salary, seniority benefits, etc.;
- variable compensation: linked to specific jobs (hardship allowances, on-call pay, etc.) or to individual performance (bonus/variable component or allowance);
- benefits: health and insurance benefits that are identical for all companies in France;
- mandatory and optional profit-sharing: based on criteria for rewarding collective performance.

Compensation is based on industry agreements and collective bargaining agreements. Every year, the budget for wage increases is negotiated with the labor organizations. In 2014, considering its economic results, the group decided to eliminate salary reviews in most countries for 2015.

In Germany, the compensation of "tariff" employees is negotiated at the regional level. Fixed compensation for tariff employees consists of the base salary and variable components linked to performance.

In the United States, compensation is regulated by several state and federal laws. The most important is the Fair Labor Standards Act (FLSA), which defines employee classifications, eligibility for overtime pay, and the minimum wage. Compensation is pegged to the market, including bonuses and variable compensation, which evolve as a function of the employee's position in the organization. Collective bargaining negotiations resulted in the signature of an agreement on compensation and benefits in three entities based in Washington State and California, where labor organization representation is strong and influential.

In China, compensation is based on market conditions. Every year, AREVA China participates in a wage review organized by a local consulting firm, which examines compensation levels for different positions in the organization. AREVA also signed a collective bargaining agreement on equal compensation for women and men.

#### 17.1.3.1. BONUSES AND VARIABLE COMPENSATION

The group's variable compensation program, based on both collective financial performance and individual objectives, is gradually being brought into alignment and expanded to include all of the group's entities around the world. The target percentages for variable compensation depend on local practices and are structured by level of responsibility.

An HR information system tool interfaced with the annual performance interview is used to collect individual objectives. It is used by the majority of the group's entities in Belgium, Canada, China, India, Germany, India, Slovakia, the United Kingdom and the United States.

In Germany, non-tariff employees are eligible to participate in the group's variable compensation program. Tariff employees receive variable pay based on the AREVA group's financial objectives.

In the United States, all employees (except for those of a few entities) participate in the group's financial performance under the All Employee Incentive Program (AEIP). Profits generated by the group at the regional level are redistributed to the employees if objectives are met. Since 2011, the amount of this incentive varies according to a regional and collective safety objective and based on each individual's performance.

In China, since early 2013, employees are eligible to participate in the group's variable compensation program. The variable compensation system connects team objectives to individual objectives.

#### 17.1.3.2. EMPLOYEE SAVINGS PLANS AND COLLECTIVE PERFORMANCE

The group establishes collective compensation systems based on economic indicators and entity-specific criteria, according to local practices and regulations.

In France, compensation based on collective performance takes the form of performance-related plans and of profit-sharing plans applicable to AREVA group companies. In 2014, a total of close to 122 million euros was distributed for the group as a whole in respect of performance for 2013. Employees chose to invest 73% of the optional profit-sharing remuneration and 76% of the mandatory profit-sharing paid in 2014 in the group's savings plan.

#### 17.1.3.3. CORPORATE SAVINGS PLANS AND INVESTMENT VEHICLES

In France, a group savings plan (AREVA GSP) common to all of the group's entities was created in 2005. The AREVA GSP consists of a complete range of funds covering all asset categories. It includes a money market fund, a bond fund, an

equity fund, a socially responsible fund and three diversified funds. A diversified pool of fund managers was sought to optimize investor returns. At December 31, 2014, the funds managed in the AREVA GSP represent more than 831 million euros.

In Germany, a retirement plan including an employer fund and an employee fund is offered to employees. In addition, the group's employees in Germany may save their variable compensation in a dedicated fund.

In the United States, a 401(K) retirement plan is offered to employees who wish to save for their retirement. AREVA's contribution to the plan comes to 3% of each employee's compensation. The company also matches 100% of the employee's contributions for the first 5 percentage points of the employee's contributions. The average amount saved by an employee is 9.9% of his/her base salary.

Close to 91% of AREVA's employees in the United States decided to contribute to the retirement plan in 2014. This percentage is higher than the national average for all employers in the United States, which is 73%.

#### 17.1.3.4. EMPLOYEE SHAREHOLDING

The group offered shares to its employees for the first time in 2013. This operation involved three countries (France, Germany and the United States). In all, 14,700 people participated in this transaction.

The employee shareholding operation was not repeated in 2014.

## **17.2. ORGANIZATION OF WORK**

Continuing the reforms initiated in 2012 and 2013, the group further simplified its legal and organizational structure in 2014.

Simplification of the group's legal structure, which began in 2010, continued with groupings of several of the group's subsidiaries in AREVA NC SA and AREVA NP SAS.

Those groupings included the mergers of CEZUS and RMC with AREVA NP SAS in 2014.

#### **17.2.1. ORGANIZATION OF WORKING HOURS**

In the countries in which the group is based, the average number of working hours per week is usually set by law.

France and Germany in particular set up initiatives for a better balance between work and personal life by offering flexible work hours at the site or work at home.

These include:

in Germany, full-time tariff employees work between 35 and 40 hours per week.
 A local company-wide agreement governs the work of tariff employees, who have flexible working hours;

Almost 240 Euriware employees involved in instrumentation and control activities and projects joined AREVA NP on an elective basis on March 1, 2014. On May 7, 2014, the Euriware group was sold to Capgemini after a continuous process of information and social dialogue initiated in June 2013.

As part of its plan to refocus on nuclear operations, AREVA sold the Aerospace Final Assembly Line activity (FAL) to a subsidiary of American Industrial Partners Aerospace on December 1, 2014.

- in France, on July 4, 2013, AREVA signed a telecommuting addendum to the group's agreement on the Quality of Working Life of May 31, 2012. This addendum frames the use of telecommuting and promotes work-life balance. It helps improve the quality of working life and keep employees on therapeutic parttime and disabled employees at work. At the end of 2014, almost 500 employees from all of the group's sites benefited from this new work organization;
- in China, the standard work day is 8 hours, and the work week is 40 hours.



#### **17.2.2. ABSENTEEISM**

For the first time in 2013, a method to collect and calculate absenteeism was deployed in the group's largest entities, representing 92% of AREVA's global workforce.

	2014	2013
France	8.7	8.4
Germany	13	12.1
United States	5.2	4.7
Rest of World	5	4.2

The calculation method used is the average number of calendar days of absence per year due to sickness (including pathological pregnancy and therapeutic part-time, but excluding maternity leave and occupational injuries or commuting accidents) or to care for a sick child, per permanent employee. The definitions reflect the variety of local practices.

## **17.3. LABOR RELATIONS**

#### 17.3.1. ORGANIZATION OF SOCIAL DIALOGUE, IN PARTICULAR PROCEDURES FOR INFORMATION, CONSULTATION AND NEGOTIATION WITH PERSONNEL

The group's labor relations are based on mutual respect and dialogue. In this spirit, management and labor partners meet regularly to discuss, negotiate and enter into agreements and to monitor their implementation.

The three countries of France, Germany and the United States represent 88.9% of the group's workforce at December 31, 2014 and form a representative sample in this respect. Social dialogue is not organized the same way in these different countries. Local requirements, and in particular national legislation, call for a customized approach. Social dialogue may take place at the national, regional company level, whether for information, consultation or negotiation purposes.

#### SOCIAL DIALOGUE

#### Europe

AREVA's European Works Council (EWC) is comprised of 22 members and 1 observer from Kazakhstan. The EWC represents active employees in the seven European Union countries in which the AREVA group is based: Belgium, England, France, Germany, Slovakia, Spain and Sweden.

In 2014, the EWC in March, June and December. The meetings concerned the group's strategic directions, financial results and development outlook for the different businesses. Topics discussed in 2014 include the consultation on strategic directions for the Renewable Business Group and on the plan to create a joint venture between AREVA and Gamesa in offshore wind, the Professions Observatory campaign, and the consultation on the proposed change of organization in the Front End Business Group.

In addition, the EWC receives regular and emerging information on the group's news during interim meetings with the EWC board, three of which were held in 2014.

Also, when the EWC was consulted on the Strategic Action Plan, committees were established to monitor the plan's implementation (seven meetings in 2014).

#### Germany

In Germany, management and labor organizations meet regularly to talk about the group's operations and outlook. AREVA negotiated and signed 30 collective bargaining agreements in 2014.

#### France

The French Works Council (FWC), set up in 2011 when the group's new organization was put in place, is a body for information, exchange and dialogue that has a comprehensive, crosscutting view of all of the group's activities and strategy as concerns employment.

After the Strategic Action Plan and the group's reorganization projects were launched, the FWC monitored these issues with the support of its experts. It is, therefore, a favorite forum for dialogue with employee representatives on the deployment of these projects.

The FWC is comprised of 30 permanent members, 5 members from representative labor organizations at the group level, and the group's 5 labor organization coordinators. In 2014, the FWC met in March, June, September and December, and its Orientation and Coordination College met in January, September and November.

In 2014, AREVA confirmed the social dialogue development approach deployed since the group was established.

The commitment to social cooperation between the group and its labor organizations led to the negotiation and signature of several fundamental agreements:

- the agreement on labor rights and the development of social dialogue in the AREVA group in France, signed on September 26, 2014;
- the agreement on procedures for consultation on strategic directions and for the creation of an economic and social database in the AREVA group in France, signed on October 31, 2014.

Lastly, development continued of the group's new independent health department, which was approved by the French Ministry of Labor and Employment in September 2013 and established in the October 18, 2012 agreement. The group's health department now monitors 63% of the group's employees.

#### China

In China, AREVA signs collective agreement with the Trade Union, and in which, the commitment is given to respect the labor contract law, working hour, equal compensation, working environment, health and safety at work.

#### **17.3.2. STATUS OF COLLECTIVE BARGAINING AGREEMENTS**

Please refer to Section 17.3.1.

## **17.4. HEALTH AND SAFETY**

#### **17.4.1. HEALTH AND OCCUPATIONAL SAFETY CONDITIONS**

Please refer to Appendix 3.

#### **HISTORICAL HEALTH DATA**

Please refer to Appendix 3.

#### **17.4.2. STATUS OF AGREEMENTS ON HEALTH AND OCCUPATIONAL SAFETY SIGNED** WITH LABOR ORGANIZATIONS OR EMPLOYEE REPRESENTATIVES

In France, AREVA signed an agreement on the development of the Quality of Working Life on May 31, 2012. This agreement is monitored jointly by the Safety, Health, Security and Sustainable Development Department and the Human Resources Department through quarterly Steering Committee meetings on occupational risk prevention and the Quality of Working Life. For the past two years, during the Committee's confidential meetings with coordinating physicians for the group's four regions in France, occupational risk prevention and measures taken by the sites in France are discussed in qualitative terms, and the strength and relevance of the group's Quality of Working Life initiatives are reviewed in order to support and assess the occupational risk prevention policy.

As part of its occupational risk prevention policy, the group set up 31 programs to listen to and counsel 90% of its employees in France and performed 23 surveys in France covering almost 80% of the workforce enabling it to identify risk factors and propose occupational risk prevention actions.

The first meeting of the Quality of Working Life Observatory was held on June 20, 2014. It conducted a preliminary assessment of activities undertaken since 2012.

In addition, the group trained 130 managers in the Management Committees and 500 line managers in occupational risk prevention.

Lastly, as part of the deployment of the Quality of Working Life agreement, a chart of the "human impacts of change and reorganizations" was established. The chart was used more than seventy times since September 2012 in connection with various projects, both at the group level and at the sites (Convergence, Phileas, Tricastin Platform, Shared Service Centers).

In Germany different offers related to work-life balance were promoted during special events and on the intranet. Most measures are focused on health management, part time work, compatibility of family and work as well as conflict management.

In the United States, several programs were set up to ensure that the work environment is respectful of employees' personal and family commitments. This is the case, for example, for different forms of part time work (alternative classifications), telecommuting, flex schedules, and vacation arrangements (compensated time off and unpaid leave).

The Employee Assistance Program (EAP) provides support to employees in all matters related to work-life balance. In the same spirit, an Employee Concerns Program (ECP) dedicated to the quality of working life was deployed to prevent and fight discrimination.

Employees were invited to answer questionnaires about their overall health and well-being and to identify their problems. Support programs designed to improve their situation are set up as appropriate and are monitored.



#### 17.4.3. FREQUENCY AND SEVERITY RATES OF OCCUPATIONAL INJURIES AND ACCOUNTING OF OCCUPATIONAL DISEASES

Please refer to Appendix 3.

## **17.5.** TRAINING

#### **17.5.1. TRAINING POLICIES**

The Training Department is now organized into four Shared Services Training Centers (Cotentin, Paris area, Lyon-Alps, Burgundy and Southeast). All of them share the same system of management and operation. The Training Department is strengthening its priority lines of action with the development of employee certification programs and widespread deployment of digital training for the most recurrent entity training plans.

In Germany, a training program for experts was established this year. This 18-months program consists of 4 modules. It offers a variety of contents which support the improvement of social skills to manage expert-career-related tasks. Additionally, a mentoring program has been implemented successfully that helps key talents to gain knowledge and relationship cross business and sites as well as to become more visible.

The US Region has developed a Training Governance Infrastructure which provides a structured process for a partnership between North America Training and the Business groups across NA. Membership of the Training Governance Committees includes managers and individual contributors from each of the Business Groups. This ensures decisions regarding training and development are made collectively by the managers and individual contributors who understand the skills and knowledge needed to successfully achieve business goals. One of the most significant improvements resulting from the NA training transformation is the implementation of the 70:20:10 Experiential Learning Model which embeds collaboration and workplace learning into training. Key aspects of the Experiential Learning model are the use of actual work as the context for learning and the development of autonomous learners; workers who are proactive in exploiting learning opportunities to help them address daily job challenges and opportunities for advancement. The autonomous learner mind-set results in our workforce being able to respond to challenges and opportunities faster, and in a more resilient way, which helps to secure AREVA's future in a rapidly changing industry. The average number of training hours per employee is approximately 40 per year and differs per business group.

In China, a yearly training plan is established according to employee development expectation. AREVA University programs such as Sales Academy and Management trainings are also deployed in China.

#### **17.5.2. TOTAL HOURS OF TRAINING**

In France, more than 996,196 hours of training were dispensed in 2013, for an average of 35 hours of training per employee (to be compared with the objective of 30 hours in the group-wide agreement for France), an increase of 6.7% compared with 2012.

Number of hours of training per permanent employee per year	2014	2013
France	NA	35 hrs.
Germany	25 hrs.	23 hrs.

The 2014 data for France will be available in April 2015.

## **17.6. EQUAL TREATMENT**

In France, an audit was carried out in the first quarter of 2014 for the renewal of AREVA's Diversity label. The certification was renewed for a four-year period on July 6, 2014. In particular, the auditors confirmed the sustainability and maturity of AREVA's approach to diversity and appreciated its evolutionary nature and its alignment with changes in the group.

In Germany, to foster diversity within technical occupations, AREVA took part on actions to awake technical interest among young girls. The Girls Day in Erlangen and the STEM (science, technology, engineering and mathematics) Day in Lingen allowed interested girls to visit different labs and manufacturing processes. The "Girls research Camp", a one-week event, where girls work together with a company to do research on scientific topics, took place in Erlangen. AREVA challenged the girls with a science assignment within the technical field of I&C.

In the United States, AREVA is recognized as an Equal Opportunity Employer (EOE). It expresses its commitment to minorities, women, seniors, veterans and people with disabilities through various measures, such as partnerships with subcontractors committed to diversity, membership in Direct Employers (an employment agency dedicated to helping recruit minorities, women, veterans and persons with disabilities), and participation in training and employment initiatives.

In France, the equal opportunity policy implemented since AREVA's creation in 2001 is founded on the European Agreement on Equal Opportunities signed in November 2006 with the European Metalworkers' Federation and its 2010 amendment. This agreement is embodied in days organized each year at all of the group's sites in Europe, whether on gender equality or on the integration of persons with disabilities. For its sixth edition, the days merged to make room for a European Day of Employment and Knowledge during the National Week for the Employment of Persons with Disabilities in France, dedicated to the wealth and diversity of internal profiles and their career development. This day was held on November 20, 2014 in all European countries.

In France, this policy translated into the signature in 2010 and 2012 of group agreements on the development of the Quality of Working Life, gender equality, the integration of persons with disabilities and "generation" contracts.

#### **17.6.1. MEASURES IN FAVOR OF GENDER EQUALITY**

In France, AREVA signed its first group agreement on gender equality on December 12, 2012. This three-year agreement addresses all of the themes covered by the French law of November 9, 2010: promoting gender equality in hiring and employment, guaranteeing equivalent career paths to men and women, guaranteeing equivalent compensation and promotions, ensuring equal access to training, improving work-life balance, increasing employee awareness, and communication with employees.

The agreement provides for an equal opportunity budget used to offset unjustified compensation gaps at equal levels of responsibility. The agreement allows employees on parental leave to contribute to their retirement. It also allows for deployment of an annualized part-time work program.

AREVA sets a particularly high value on women's career development. The percentage of women in the group's Management Committees (22.2% in 2013) is comparable to the percentage of women in the groups workforce (19.8% in 2013-data for 2014 will be available in April). In recognition of the group's proactive policy, the French Ministry of Women's Rights ranked AREVA 12<sup>th</sup> for the participation of women in the governance bodies of SBF 120 companies (120 largest publicly-traded companies in France) for the second time, and 2<sup>nd</sup> for industrial companies. On April 9, 2013, the group and 16 other major employers signed an agreement on gender equality with the Minister of Women's Rights.

#### **17.6.2. MEASURES IN FAVOR OF EMPLOYMENT AND INTEGRATION OF PERSONS WITH DISABILITIES**

Since 2006, AREVA has led a group policy for the development of all talent and for openness to difference in the workplace.

In France, this proactive policy permits to achieve a rate of employment of persons with disabilities from 2.93% in 2007 to 4.56% in 2013.

A third group agreement for France on the employment of persons with disabilities was signed on July 4, 2013 for the 2013-2016 period. It addresses the topics of recruitment, integration and training of persons with disabilities, support to

companies in the protected and adapted sector, awareness activities, and job retention.

Several commitments were made for the duration of the agreement: an objective 3.3% of all hires should involve disabled workers, with a minimum of 120 disabled persons employed, 120 work-study positions for the disabled, and 180 internship positions. The agreement also provides that 20 million euros should be dedicated to purchases from companies in the protected sector.

	2014	2013
Disabled workers in France	NA	4.56%
Disabled workers in Germany	3.44%	3.19%

The 2014 data for France will be available in April 2015.

#### **17.6.3. THE FIGHT AGAINST DISCRIMINATION**

Employees have multiple paths of options in connection with the group's antidiscrimination measures. They may contact their local HR manager, their manager, the business ethics advisor or the labor partners. In France, an additional recourse was established: the Alert and Claim System. In France, for all systems combined, management was alerted to 23 instances of discrimination or alleged discriminatory behaviors. Eight cases proved justified upon examination. Corrective measures have been taken.

In general, HR processes concern the entire diversity policy and particularly verification that managerial decisions affecting employees are taken according to the principle of equal opportunity.

## **17.7. PROMOTION AND COMPLIANCE WITH THE STIPULATIONS OF FUNDAMENTAL AGREEMENTS OF THE INTERNATIONAL LABOR ORGANIZATION**

Together with its Values Charter, AREVA has and implements a process for business ethics and respect for human rights and the fundamental conventions of the ILO. The Values Charter is updated regularly to include best practices in light of changes in the group's national and international environment. Individual behaviors and management activities may be audited for compliance with the Charter, which serves as a set of standards and a code of conduct in this regard. The introduction to the AREVA Values Charter notes that the group is a signatory to the UN Global Compact. It also adheres to the OECD Guidelines for Multinational Enterprises, the Extractive Industries Transparency Initiative (EITI) and the Nuclear Power Plant Exporters' Principles of Conduct published by the Carnegie Endowment.

#### 17.7.1. RESPECT FOR THE FREEDOM OF ASSOCIATION AND THE RIGHT TO COLLECTIVE BARGAINING

In its reference to the ten principles of the UN Global Compact, AREVA states that its commitment includes compliance with the International Labor Organization Declaration on fundamental Principles and Rights at Work. The third principle is explicitly quoted: "Businesses are asked to uphold the freedom of association and the effective recognition of the right to collective bargaining".

#### **17.7.2. ELIMINATION OF DISCRIMINATION RELATED TO EMPLOYMENT AND OCCUPATION**

AREVA' action principles for stakeholder relations state, in regards to employees, that "AREVA's workforce is constituted without discrimination". To facilitate the reporting of any discrimination and to comply with the obligations linked to the Diversity Label, AREVA's HR Department deployed a system to deal with complaints and notices in France. This system supplements other internal, centralized systems to actual or alleged discrimination in the group. Its rules and processes were developed in cooperation with the group's business ethics advisor.

#### **17.7.3. ELIMINATION OF FORCED OR COMPULSORY LABOR**

In accordance with the principles of the UN Global Compact, AREVA works for "the elimination of all forms of forced or compulsory labor."

#### **17.7.4. EFFECTIVE ABOLITION OF CHILD LABOR**

In accordance with the principles of the UN Global Compact, AREVA works for "the effective abolition of child labor."

By explicitly reiterating these codes of belief, AREVA underscores its commitment to these international values and principles, which every employee is expected to uphold. AREVA's rules of conduct state that each employee must alert the group in full confidentiality and may refrain from executing any instruction in deliberate conflict with the Charter, without any risk of retaliation when acting in good faith. By itself, this commitment is a major guarantee of compliance with the values, principles and rules of AREVA's Values Charter.

## PRINCIPAL SHAREHOLDERS

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#### 18.4. AGREEMENTS KNOWN TO THE ISSUER THAT COULD, IF IMPLEMENTED, RESULT IN A CHANGE IN CONTROL OF THE ISSUER

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## **18.1. DISTRIBUTION OF CAPITAL AND VOTING RIGHTS**

As of the filing of this annual report, the share capital of AREVA is as follows:

• 383,204,852 ordinary shares with a single voting right each.

To AREVA's knowledge, no person that is not a member of an administrative, executive or supervisory body of the issuer holds, directly or indirectly, a percentage of AREVA's share capital or voting rights that would be subject to disclosure in accordance with the national law applicable to AREVA.

AREVA's shareholders for the last three years were as follows:

	December 31, 2014	December 31, 2013	December 31, 2012
	Theoretical% of voting rights <sup>(1)</sup> & number of shares	Theoretical % of voting rights <sup>(1)</sup>	Theoretical % of voting rights <sup>(1)</sup>
CEA	54.37% representing 208,349,283 shares <sup>(2)</sup>	61.52% <sup>(3)</sup>	68.88%
French State	28.83% representing 110,487,336 shares <sup>(2)</sup>	21.68% <sup>(3)</sup>	14.33%
Kuwait Investment Authority (KIA)	4.82% representing 18,461,538 shares	4.82%	4.82%
Bpifrance Participations SA (4)	3.32% representing 12,712,910 shares	3.32%	3.32%
EDF	2.24% representing 8,571,120 shares	2.24%	2.24%
Total group	0.95% representing 3,640,200 shares	0.95%	0.95%
FCPE AREVA France actions salaries, FCPE AREVA International actions salaries & US-Employee Stock Purchase Plan	1% representing 3,857,498 shares <sup>(5)</sup>	0.937% (5)	-
Framépargne (employees)	0.22% representing 835,000 shares	0.226%	0.23%
Public	4.02% representing 15,409,884 shares	4.11%	4.04%
Members of the Supervisory Board <sup>(6)</sup>	ns	ns	ns
Treasury shares <sup>(7)</sup>	0.19% representing 740,490 shares	0.19%	1.20%
Liquidity contract <sup>(7)</sup>	0.04% representing 139,493 shares	0.04%	0%

(1) Theoretical voting rights are calculated based on the total number of shares to which a voting right is attached, including shares without voting rights (treasury shares and shares under the company's control).

(2) On December 11, 2014, the CEA sold 27,412,875 shares representing 7.15% of AREVA's share capital to the French State for the amount of 334,300,010.63 euros.

(3) On September 19, 2013, the CEA sold 28, 179, 453 shares representing 7.35% of AREVA's share capital to the French State for the amount of 357, 400, 002.40 euros.

(4) On July 12, 2013, the CDC transferred its entire interest in AREVA's share capital to Bpifrance Participations SA.

(5) AREVA's offer of shares to the group's employees in May 2013 was implemented through a disposal of existing treasury shares bought previously by AREVA for a share purchase program authorized by the Shareholders on May 10, 2012 in application of article L. 225-209 of the French Commercial Code.

(6) The members of the Supervisory Board appointed by the Shareholders (other than the CEA) each held 10 shares until January 8, 2015, the date of the change of governance.

(7) As provided in article L. 225-210 of the French Commercial Code, shares held directly by the company or through a person acting in his or her own name do not carry voting rights.

## **18.2.** ABSENCE OF DIFFERENT VOTING RIGHTS

As of the date of this Reference Document, AREVA's share capital consists exclusively of common shares, each with one voting right. Consequently, the shareholders do not have different voting rights.

## **18.3.** CONTROL OF THE ISSUER

AREVA is subject to French decree no. 53-707 of August 9, 1953, amended, related to State control of national government-owned companies. This decree stipulates that disposals, acquisitions or extensions of financial shareholdings are approved by a joint order of the Minister of Economy and the Minister of the Budget, as well as by the Minister(s) concerned by them.

Decree no. 83-1116 of December 21, 1983, as amended, provides that the CEA shall hold more than half of AREVA's share capital.

This decree also stipulates that the Director General of Energy and Climate performs the duties of Government Commissioner and that the Head of the Control Mission to the Commissariat à l'énergie atomique et aux énergies alternatives performs those of a member of the General Economic and Financial Control body of the company.

The Government Commissioner and the Head of the Control Mission attend meetings of the Board of Directors or Supervisory Board of AREVA and of their committees.

The Government Commissioner may attend meetings of the Boards of Directors of first tier subsidiaries of the company.

The deliberations of the Board of Directors or Supervisory Board become ipso facto enforceable if the Government Commissioner or the member of the general economic and financial control mission does not oppose them in the five days that follow the Supervisory Board meeting, if he or she attended it, or the receipt of the minutes of the meeting.

As stipulated in the Board of Directors' rules of procedure, the head of the control mission and the Government Commissioner may designate one of their employees to represent them at meetings of the committees.

## **18.4.** AGREEMENTS KNOWN TO THE ISSUER THAT COULD, IF IMPLEMENTED, RESULT IN A CHANGE IN CONTROL OF THE ISSUER

On October 19, 2010, the French State and the CEA signed a master netting agreement aimed at defining the State's financial contribution to the fund earmarked for the dismantling of the CEA's nuclear facilities through a budget allocation and/or by purchasing AREVA shares from the CEA. The latter mode of financing through reclassification of AREVA shares is implemented based on financial conditions established within the framework of triennial agreements.

In application of this agreement, the CEA sold 28,179,453 shares representing 7.35% of AREVA's share capital to the French State for the amount of 357,400,002.40 euros on September 19, 2013. At the conclusion of this transaction reclassifying them in the public sector, the CEA holds 61.52% and the French State holds 21.68% of AREVA's capital.

Autorité des marchés financiers (the financial regulator) was informed that a threeyear agreement (2014-2016) was signed between the CEA and the French State on August 13, 2014 for long-term financing of the CEA's nuclear expenses.

Under the three-year agreement for the 2014-2016 period signed on August 13, 2014, the price per AREVA share acquired by the French State will be the highest of (a) the average closing price per share, weighted for trading volumes, for the 90 trading days preceding the date of calculation, or (b) the net equity per share, as per AREVA's financial statements at December 31 of the year preceding the transaction.

On December 11, 2014, the CEA sold 27,412,875 AREVA shares representing 7.15% of AREVA's share capital to the French State for the amount of 334,300,010.63 euros.

## TRANSACTIONS WITH RELATED PARTIES

**19.1.** RELATIONS WITH THE FRENCH STATE

19.3. RELATIONS WITH GOVERNMENT-OWNED COMPANIES

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19.2. RELATIONS WITH THE CEA

In this section, significant transactions with related parties are described. This information is also the subject of Note 29. Related party transactions, in Section 20.

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## **19.1.** RELATIONS WITH THE FRENCH STATE

At December 31, 2014, the French State and the CEA jointly held 83.21% of AREVA's share capital and voting rights.

As majority shareholders, they have the power to control corporate decisions requiring the approval of the shareholders. In application of the decree no. 2004-963 of September 9, 2004, as amended, the Agence des participations de l'État (APE, the state shareholding agency) exercises the responsibilities of the State as shareholder under the leadership of the Commissioner for State shareholdings. Reporting to the Minister Delegate of the Economy, the latter leads the State's shareholding policy from an economic, industrial and social perspective. The APE makes proposals to the Minister Delegate of the Economy on to the State's position, as shareholder, on the company's strategy, and examines in particular the company's main financing and capital expenditures programs as well as proposed acquisitions or disposals, commercial or cooperative agreements, and research and development.

For example, at December 31, 2014, 4 of the Supervisory Board's 15 members represented the French State and were appointed by ministerial order in application of the French decree no. 96-1054 of December 5, 1996, as amended. Since the change of governance and in accordance with the order no. 2014-948 of

August 20, 2014 pertaining to the governance and capital transactions of publicly owned companies, among the Board of Directors' 12 members are a single representative of the French State and 2 directors proposed by the State and appointed by the Shareholders.

In accordance with decree no. 55-733 of May 26, 1955 pertaining to economic and financial control by the State, control by the French State was ensured by the presence on the Supervisory Board of an economic and financial general comptroller of the AREVA group and a government commissioner consisting of the Director General of Energy and Climate and the Ministry of Energy, both of whom were designated by ministerial order. This is the same case for the Board of Directors since the change of governance (for more information, please refer to Section 4. *Risk factors*, Section 5. *Information about the issuer*, and Section 14. *Management and supervisory bodies*).

AREVA is also subject to the control of the French Cour des Comptes (government accounting office), which examines the quality and consistency of its financial statements and of its management practices, as provided in articles L. 133-1 and L. 133-2 of the French Code of the Financial Courts.

## **19.2. RELATIONS WITH THE CEA**

At December 31, 2014, the CEA, a public scientific, technical and industrial organization, held a 54.37% interest in AREVA's share capital and voting rights. In application of decree no. 83-1116 of December 21, 1983, as amended, the CEA is obliged to keep more than half of AREVA's share capital. Three members of the AREVA Supervisory Board were from the CEA, including the Chairman of the CEA and the CEA itself as a body corporate. Since the change of governance, the Chairman of the CEA sits on the Board of Directors of the company, and the CEA has designated him as censor.

The transactions between AREVA and the CEA are described in Section 20.2. Notes to the consolidated financial statements for the year ended December 31, 2014, Note 29. Related party transactions (including the compensation of executive officers). The CEA and AREVA also have a partnership relationship concerning research and development for the nuclear operations. For more information, please refer to Section 11. Research and Development programs, patents and licenses and to Section 18. Principal shareholders.

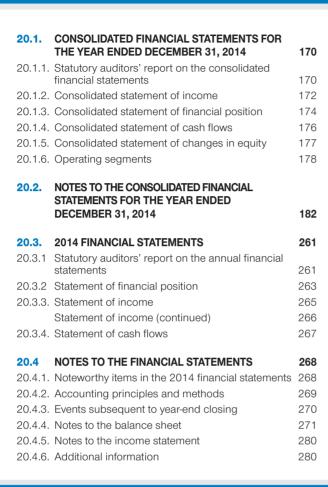
## **19.3. RELATIONS WITH GOVERNMENT-OWNED COMPANIES**

The group has business relationships with government-owned companies, in particular EDF.

The nature of the relations with the EDF group and the transactions concluded between the two groups are explained in Section 4.4. *Operational risk* of Section 4, in

the Notes to the consolidated financial statements for the year ended December 31, 2014, in Note 29. Related party transactions of Section 20, in Section 6. Business overview, and in Section 22. Major contracts. Those concerning BpiFrance Participations appear in Note 29. Transactions with related parties of Section 20.

## FINANCIAL INFORMATION CONCERNING ASSETS, FINANCIAL POSITIONS AND FINANCIAL PERFORMANCE



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# **20.1.** CONSOLIDATED FINANCIAL STATEMENTS FOR THE YEAR ENDED DECEMBER 31, 2014

#### **20.1.1. STATUTORY AUDITORS' REPORT ON THE CONSOLIDATED FINANCIAL STATEMENTS**

This is a free translation into English of the statutory auditors' report on the consolidated financial statements issued in the French language and is provided solely for the convenience of English speaking users.

The statutory auditors' report includes information specifically required by French law in such reports, whether modified or not. This information is presented below the opinion on the consolidated financial statements and includes explanatory paragraphs discussing the auditors' assessments of certain significant accounting and auditing matters. These assessments were made for the purpose of issuing an audit opinion on the consolidated financial statements taken as a whole and not to provide separate assurance on individual account captions or on information taken outside of the consolidated financial statements.

This report also includes information relating to the specific verification of information given in the management report.

This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

#### To the Shareholders,

In compliance with the assignment entrusted to us by your annual General Meeting, we hereby report to you, for the year ended December 31st, 2014 on:

- the audit of the accompanying consolidated financial statements of AREVA;
- the justification of our assessments;
- the specific verification required by law.

These consolidated financial statements have been approved by the Board of directors. Our role is to express an opinion on these consolidated financial statements based on our audit.

#### I. OPINION ON THE CONSOLIDATED FINANCIAL STATEMENTS

We conducted our audit in accordance with professional standards applicable in France; those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. An audit involves performing procedures, using sampling techniques or other methods of selection, to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made, as well as the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

In our opinion, the consolidated financial statements give a true and fair view of the assets and liabilities and of the financial position of the Group as at December 31st, 2014 and of the results of its operations for the year then ended in accordance with International Financial Reporting Standards as adopted by the European Union.

Without qualifying our opinion, we draw your attention to the following matters set out in the notes to the consolidated financial statements:

- Note 1.1.1 describes the circumstances that led the Group to revise its strategic outlook, and therefore to review the recoverable value of some current and non-current assets impaired for a total of € 2.6 billion and to record affectional charges and provisions on some contracts;
- Note 24 describes the reasons that led AREVA to apply paragraph 32 of IAS 11 as from the second half of 2013 and the methods of recognition applicable to the OL3 contract. In addition, this note specifies the conditions of completion of this contract and the sensitivity of the income at completion to legal risks, as well as to the operational conditions for the end of construction and testing until the reactor is put into service;
- Notes 1.2.5 and 9 describe the treatment and impact on the consolidated financial statements of the discontinued operations (wind power, solar energy and energy storage activities);
- Notes 1.18 and 13 describe the procedures for measuring the provisions for end-of-lifecycle operations, and their sensitivity to the assumptions used in terms of technical processes, costs, disbursement schedules and inflation and discount rates.
- Note 1 relates to the new standards and particularly to the IFRS 11 standard regarding the "Joint Arrangements" whose impact on the 2013's consolidated financial statements is described in the note 37 to the consolidated financial statements.

#### II. JUSTIFICATION OF OUR ASSESSMENTS

In accordance with the requirements of article L. 823-9 of the French Commercial Code (Code de commerce) relating to the justification of our assessments, we bring to your attention the following matters:

As indicated in the note 1.1.2, AREVA's Executive Management has been led to make estimates and assumptions that impact some figures in the consolidated financial statements and the related notes. Due to the fact that these assumptions are uncertain by nature, notably in the context described in the Note 1.1.1, the achievement could differ from the current estimates.

We deemed that among the accounts subject to significant accounting estimations and likely to need a justification of our assessment, include the following items:

- Goodwill, intangible assets, and property, plant and equipment have been tested for impairment according to the principles and assumptions described in Notes 1.10, 10, 11 and 12 to the consolidated financial statements. We examined the methods used to perform these tests, and assessed the consistency of the assumptions adopted with the Group forecast data, and the approach used to estimate the fair value of some mining assets. We also verified the appropriateness of the disclosures provided in the notes to the consolidated financial statements;
- The deferred tax assets have been analyzed according to the principles described in Notes 1.23 and 8 to the consolidated financial statements. We examined the modalities of this analysis, and assessed the consistency of the assumptions used for the valuation of these deferred tax assets with the Group forecast. We also verified the appropriateness of the disclosures provided in the notes to the consolidated financial statements.
- AREVA recognizes the profit or loss on long-term contracts according to the methods described in Notes 1.8 and 24 to the consolidated financial statements. We
  assessed the data and assumptions on which the estimated income at completion and changes therein are based. We examined the procedures for management's
  approval of these estimates and reviewed the calculations made;
- Provisions for end-of-lifecycle operations have been measured according to the methods described in Note 1.18 to the consolidated financial statements. We reviewed the implementation of these methods, the assumptions used and the cost estimates obtained. Off-setting these provisions, AREVA recognizes financial assets to cover the end-of-lifecycle operations, which include a dedicated portfolio composed of directly held shares and units of equity and bond mutual funds. The portfolio management objectives and measurement principles are described in Notes 13, 1.13.1 and 1.13.3 to the consolidated financial statements. We assessed the appropriateness of the methods used and the measurement of the provisions for impairment of the financial assets;
- The accounting principles relating to employee benefits are described in Notes 1.16 and 23 to the consolidated financial statements. We assessed the appropriateness of the methods used and reviewed the measurement of the hedging assets at market value;
- We examined the existing procedures for the identification, evaluation and presentation in the accounts of AREVA's risks, litigation and contingent liabilities. We also verified that the main disputes identified during the implementation of these procedures are described appropriately in the financial statements and particularly in the Notes 24 and 34 to the consolidated financial statements;
- In the frame of our assessment of the going concern assumption, we examined the Group liquidity detailed in Note 31 to the consolidated financial statements. We have been informed of the cash flow forecasts, the debt schedules, the current credit lines and the related covenants.

These assessments were made as part of our audit of the consolidated financial statements taken as a whole, and therefore contributed to the opinion we formed which is expressed in the first part of this report.

#### **III. SPECIFIC VERIFICATION**

As required by law we have also verified in accordance with professional standards applicable in France the information presented in the Group's management report.

With the exception of the matters described in the first part of this report, we have no matters to report as to its fair presentation and its consistency with the consolidated financial statements.

Courbevoie - Paris-La Défense, March 4th, 2015

The Statutory auditors

MAZARS

ERNST & YOUNG Audit

FINANCIAL INFORMATION CONCERNING ASSETS, FINANCIAL POSITIONS AND FINANCIAL PERFORMANCE

20.1 Consolidated financial statements for the year ended December 31, 2014

Cédric Haaser

Jean-Louis Simon

Aymeric de La Morandière

Jean Bouquot



#### **20.1.2. CONSOLIDATED STATEMENT OF INCOME**

(in millions of euros)	Note	2014	2013*
REVENUE	3	8,336	9,062
Other income from operations		18	26
Cost of sales		(8,744)	(7,861)
Gross margin		(390)	1,227
Research and development expenses		(231)	(273)
Marketing and sales expenses		(188)	(212)
General and administrative expenses		(316)	(388)
Other operating expenses	6	(1,584)	(418)
Other operating income	6	64	98
OPERATING INCOME		(2,645)	34
Share in net income of joint ventures and associates	14	(154)	(13)
Operating income after share in net income of joint ventures and associates		(2,799)	22
Income from cash and cash equivalents		32	44
Gross borrowing costs		(275)	(257)
Net borrowing costs		(243)	(213)
Other financial expenses		(505)	(457)
Other financial income		350	423
Other financial income and expenses		(155)	(35)
NET FINANCIAL INCOME	7	(397)	(248)
Income tax	8	(1,000)	59
NET INCOME FROM CONTINUING OPERATIONS		(4,197)	(167)
Net income from discontinued operations	9	(648)	(256)
NET INCOME FOR THE PERIOD		(4,845)	(423)
Including:			
Group:			
Net income from continuing operations		(4,198)	(247)
Net income from discontinued operations		(635)	(246)
CONSOLIDATED NET INCOME		(4,834)	(494)
Minority interests:			
Net income from continuing operations		1	80
Net income from discontinued operations		(12)	(9)
NET INCOME ATTRIBUTABLE TO MINORITY INTERESTS		(11)	71
Number of shares outstanding		383,204,852	383,204,852
Average number of shares outstanding		383,204,852	383,204,852
Average number of treasury shares		857,551	2,614,543
Average number of shares outstanding, excluding treasury shares		382,347,301	380,590,309
Earnings per share from continuing operations		-10.98	-0.65
Basic earnings per share		-12.64	-1.30
Consolidated net income per diluted share <sup>(1)</sup>		-12.64	-1.30

(1) AREVA has not issued any instruments with a dilutive impact on share capital.

\* : In application of IFRS 5 and IFRS 11, the 2013 financial statements were restated in relation to the data published for the previous year. The impacts of these restatements are detailed in Note 37.



#### CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

(in millions of euros)	2014	2013*
Net income	(4,845)	(423)
Items not recyclable to the income statement	(261)	71
Actuarial gains and losses on the employee benefits of consolidated companies	(305)	93
Income tax related to non-recyclable items	61	(18)
Share in non-recyclable items from joint ventures and associates, net of tax	(16)	(4)
Non-recyclable items related to discontinued operations, net of tax	-	-
Items recyclable to the income statement	(85)	(152)
Currency translation adjustments on consolidated companies and other	118	(180)
Change in value of available-for-sale financial assets	(84)	108
Change in value of cash flow hedges	(124)	(15)
Income tax related to recyclable items	50	(56)
Share in recyclable items from joint ventures and associates, net of tax	6	(30)
Recyclable items related to discontinued operations, net of tax	(51)	21
Total other items of comprehensive income (net of income tax)	(346)	(81)
COMPREHENSIVE INCOME	(5,190)	(504)
Attributable to equity owners of the parent	(5,155)	(562)
Minority interests	(36)	58

\* : In application of IFRS 5 and IFRS 11, the 2013 financial statements were restated in relation to the data published for the previous year. The impacts of these restatements are detailed in Note 37.



#### **20.1.3. CONSOLIDATED STATEMENT OF FINANCIAL POSITION**

ASSETS

(in millions of euros)	Note	December 31, 2014	December 31, 2013*
NON-CURRENT ASSETS		21,709	22,906
Goodwill on consolidated companies	10	3,667	3,764
Intangible assets	11	2,267	2,533
Property, plant and equipment	12	8,719	8,708
End-of-lifecycle assets (third party share)	13	188	199
Assets earmarked for end-of-lifecycle operations	13	6,015	6,057
Investments in joint ventures and associates	14	143	254
Other non-current assets	15	273	261
Deferred tax assets	8	437	1,129
CURRENT ASSETS		8,211	8,895
Inventories and work-in-process	16	2,020	2,224
Trade accounts receivable and related accounts	17	2,079	2,060
Other operating receivables	18	1,786	1,984
Current tax assets	8	85	78
Other non-operating receivables		104	105
Cash and cash equivalents	19	1,686	1,692
Other current financial assets	20	76	110
Assets of discontinued operations	9	375	643
TOTAL ASSETS		29,920	31,801

\* : In application of IFRS 11, the 2013 financial statements were restated in relation to the data published for the previous year. The impacts of these restatements are detailed in Note 37.

#### LIABILITIES AND EQUITY

(in millions of euros)	Note	December 31, 2014	December 31, 2013*
EQUITY AND MINORITY INTERESTS		(244)	4,982
Share capital	21	1,456	1,456
Consolidated premiums and reserves		(1,738)	3,198
Actuarial gains and losses on employee benefits		(583)	(317)
Deferred unrealized gains and losses on financial instruments		204	330
Currency translation reserves		(12)	(94)
Equity attributable to owners of the parent		(673)	4,574
Minority interests	22	428	408
NON-CURRENT LIABILITIES		16,527	14,279
Employee benefits	23	2,235	1,928
Provisions for end-of-lifecycle operations	13	6,985	6,437
Other non-current provisions	24	267	192
Share in net negative equity of joint ventures and associates	14	103	44
Long-term borrowings	25	6,870	5,648
Deferred tax liabilities	8	66	30
CURRENT LIABILITIES		13,638	12,541
Current provisions	24	3,473	2,659
Short-term borrowings	25	624	512
Advances and prepayments received	26	4,444	4,513
Trade accounts payable and related accounts		1,824	1,762
Other operating liabilities	27	2,750	2,566
Current tax liabilities	8	58	70
Other non-operating liabilities	27	73	70
Liabilities of activities held for sale	9	392	389
TOTAL LIABILITIES AND EQUITY		29,920	31,801

\* : In application of IFRS 11, the 2013 financial statements were restated in relation to the data published for the previous year. The impacts of these restatements are detailed in Note 37.



#### **20.1.4. CONSOLIDATED STATEMENT OF CASH FLOWS**

Net income for the period         Less: income from discontinuing operations         Net income from continuing operations         (Profit) / loss of joint ventures and associates         Net amortization, depreciation and impairment of PP&E and intangible assets and marketable securities maturing in more than 3 months         Goodwill impairment losses         Net increase in (reversal of) provisions         Net effect of reverse discounting of assets and provisions         Income tax expense (current and deferred)         Net interest included in borrowing costs         Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value         Other non-cash items         Dividends from joint ventures and associates         Cash flow from operations before interest and taxes         Net interest received (paid)         Income tax paid         Cash flow from operations after interest and tax         Change in working capital requirement       28         NET CASH FLOW FROM OPERATING ACTIVITIES         Investment in PP&E and intangible assets         Loans granted and acquisitions of non-current financial assets         Acquisitions of shares of consolidated companies, net of acquired cash         Disposals of PP&E and intangible assets         Loans granted and disposals of non-current financial assets         <	(4,845) 648 (4,197) 154 1,828 214 900 372 1,000 223 (151) (10) 15 348 (218) (140) (10) 15	(423) 256 (167) 13 722 27 338 (59 215 (226 (54 12 823 (200 (135
Net income from continuing operations         (Profit) / loss of joint ventures and associates         Net amortization, depreciation and impairment of PP&E and intangible assets and marketable securities maturing in more than 3 months         Goodwill impairment losses         Net increase in (reversal of) provisions         Net effect of reverse discounting of assets and provisions         Income tax expense (current and deferred)         Net interest included in borrowing costs         Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value         Other non-cash items         Dividends from joint ventures and associates         Cash flow from operations before interest and taxes         Net interest received (paid)         Income tax paid         Cash flow from operations after interest and tax         Change in working capital requirement       28         NET CASH FLOW FROM OPERATING ACTIVITIES         Investment in PP&E and intangible assets         Loans granted and acquisitions of non-current financial assets         Acquisitions of shares of consolidated companies, net of acquired cash         Disposals of PP&E and intangible assets         Loan repayments and disposals of non-current financial assets	(4,197) 154 1,828 214 900 372 1,000 223 (151) (10) 15 348 (218) (140) (140) 199	(167) 13 722 27 338 (59 215 (226 (54 12 <b>823</b> (200 (135)
(Profit) / loss of joint ventures and associates         Net amortization, depreciation and impairment of PP&E and intangible assets and         marketable securities maturing in more than 3 months         Goodwill impairment losses         Net increase in (reversal of) provisions         Net effect of reverse discounting of assets and provisions         Income tax expense (current and deferred)         Net interest included in borrowing costs         Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value         Other non-cash items         Dividends from joint ventures and associates         Cash flow from operations before interest and taxes         Net interest received (paid)         Income tax paid         Cash flow from operations after interest and tax         Change in working capital requirement       28         NET CASH FLOW FROM OPERATING ACTIVITIES         Investment in PP&E and intangible assets         Loans granted and acquisitions of non-current financial assets         Acquisitions of shares of consolidated companies, net of acquired cash         Disposals of PP&E and intangible assets         Loan repayments and disposals of non-current financial assets	154 1,828 214 900 372 1,000 223 (151) (10) 15 <b>348</b> (218) (140) <b>(10)</b> <b>(10)</b> 199	13 722 27 338 (59 215 (226 (54 12 <b>823</b> (200 (135
Net anortization, depreciation and impairment of PP&E and intangible assets and marketable securities maturing in more than 3 months Goodwill impairment losses Net increase in (reversal of) provisions Net effect of reverse discounting of assets and provisions Income tax expense (current and deferred) Net interest included in borrowing costs Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value Other non-cash items Dividends from joint ventures and associates <b>Cash flow from operations before interest and taxes</b> Net interest received (paid) Income tax paid <b>Cash flow from operations after interest and tax</b> Change in working capital requirement <b>28</b> NET CASH FLOW FROM OPERATING ACTIVITIES Investment in PP&E and intangible assets Loans granted and acquisitions of non-current financial assets Acquisitions of shares of consolidated companies, net of acquired cash Disposals of PP&E and intangible assets Loan repayments and disposals of non-current financial assets	1,828 214 900 372 1,000 223 (151) (10) 15 <b>348</b> (218) (140) (140) <b>(10)</b>	722 27 338 (59 215 (226 (54 12 <b>823</b> (200 (135
marketable securities maturing in more than 3 months Goodwill impairment losses Net increase in (reversal of) provisions Net effect of reverse discounting of assets and provisions Income tax expense (current and deferred) Net interest included in borrowing costs Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value Other non-cash items Dividends from joint ventures and associates <b>Cash flow from operations before interest and taxes</b> Net interest received (paid) Income tax paid <b>Cash flow from operations after interest and tax</b> Change in working capital requirement <b>28</b> <b>NET CASH FLOW FROM OPERATING ACTIVITIES</b> Investment in PP&E and intangible assets Loans granted and acquisitions of non-current financial assets Acquisitions of shares of consolidated companies, net of acquired cash Disposals of PP&E and intangible assets Loan repayments and disposals of non-current financial assets	214 900 372 1,000 223 (151) (10) 15 <b>348</b> (218) (140) (140) <b>(10)</b>	2 27 338 (59 215 (226 (54 12 <b>823</b> (200 (135
Goodwill impairment losses         Net increase in (reversal of) provisions         Net effect of reverse discounting of assets and provisions         Income tax expense (current and deferred)         Net interest included in borrowing costs         Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value         Other non-cash items         Dividends from joint ventures and associates         Cash flow from operations before interest and taxes         Net interest received (paid)         Income tax paid         Cash flow from operations after interest and tax         Change in working capital requirement         28         NET CASH FLOW FROM OPERATING ACTIVITIES         Investment in PP&E and intangible assets         Loans granted and acquisitions of non-current financial assets         Acquisitions of shares of consolidated companies, net of acquired cash         Disposals of PP&E and intangible assets         Loan repayments and disposals of non-current financial assets	214 900 372 1,000 223 (151) (10) 15 <b>348</b> (218) (140) (140) <b>(10)</b>	27 338 (59 215 (226 (54 12 <b>823</b> (200 (135
Net effect of reverse discounting of assets and provisions         Income tax expense (current and deferred)         Net interest included in borrowing costs         Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value         Other non-cash items         Dividends from joint ventures and associates         Cash flow from operations before interest and taxes         Net interest received (paid)         Income tax paid         Cash flow from operations after interest and tax         Change in working capital requirement         28         NET CASH FLOW FROM OPERATING ACTIVITIES         Investment in PP&E and intangible assets         Loans granted and acquisitions of non-current financial assets         Acquisitions of shares of consolidated companies, net of acquired cash         Disposals of PP&E and intangible assets         Loan repayments and disposals of non-current financial assets	372 1,000 223 (151) (10) 15 <b>348</b> (218) (140) (140) (10)	338 (59 215 (226 (54 12 <b>823</b> (200 (135
Net effect of reverse discounting of assets and provisions         Income tax expense (current and deferred)         Net interest included in borrowing costs         Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value         Other non-cash items         Dividends from joint ventures and associates         Cash flow from operations before interest and taxes         Net interest received (paid)         Income tax paid         Cash flow from operations after interest and tax         Change in working capital requirement         28         NET CASH FLOW FROM OPERATING ACTIVITIES         Investment in PP&E and intangible assets         Loans granted and acquisitions of non-current financial assets         Acquisitions of shares of consolidated companies, net of acquired cash         Disposals of PP&E and intangible assets         Loan repayments and disposals of non-current financial assets	1,000 223 (151) (10) 15 <b>348</b> (218) (140) (140) (10)	(59 218 (226 (54 12 <b>823</b> (200 (135
Income tax expense (current and deferred) Net interest included in borrowing costs Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value Other non-cash items Dividends from joint ventures and associates <b>Cash flow from operations before interest and taxes</b> Net interest received (paid) Income tax paid <b>Cash flow from operations after interest and tax</b> Change in working capital requirement 28 <u>NET CASH FLOW FROM OPERATING ACTIVITIES</u> Investment in PP&E and intangible assets Loans granted and acquisitions of non-current financial assets Acquisitions of shares of consolidated companies, net of acquired cash Disposals of PP&E and intangible assets Loan repayments and disposals of non-current financial assets	223 (151) (10) 15 <b>348</b> (218) (140) (140) (10) 199	215 (226 (54 12 <b>823</b> (200 (135
Net interest included in borrowing costs Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value Other non-cash items Dividends from joint ventures and associates <b>Cash flow from operations before interest and taxes</b> Net interest received (paid) Income tax paid <b>Cash flow from operations after interest and tax</b> Change in working capital requirement <b>NET CASH FLOW FROM OPERATING ACTIVITIES</b> Investment in PP&E and intangible assets Loans granted and acquisitions of non-current financial assets Acquisitions of shares of consolidated companies, net of acquired cash Disposals of PP&E and intangible assets Loan repayments and disposals of non-current financial assets	223 (151) (10) 15 <b>348</b> (218) (140) (140) (10) 199	215 (226 (54 12 <b>823</b> (200 (135
Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value Other non-cash items Dividends from joint ventures and associates <b>Cash flow from operations before interest and taxes</b> Net interest received (paid) Income tax paid <b>Cash flow from operations after interest and tax</b> Change in working capital requirement <b>Cash flow FROM OPERATING ACTIVITIES</b> Investment in PP&E and intangible assets Loans granted and acquisitions of non-current financial assets Acquisitions of shares of consolidated companies, net of acquired cash Disposals of PP&E and intangible assets Loan repayments and disposals of non-current financial assets	(151) (10) 15 <b>348</b> (218) (140) (140) (10)	(54 12 823 (200 (135
Other non-cash items         Dividends from joint ventures and associates         Cash flow from operations before interest and taxes         Net interest received (paid)         Income tax paid         Cash flow from operations after interest and tax         Change in working capital requirement         28         NET CASH FLOW FROM OPERATING ACTIVITIES         Investment in PP&E and intangible assets         Loans granted and acquisitions of non-current financial assets         Acquisitions of shares of consolidated companies, net of acquired cash         Disposals of PP&E and intangible assets         Loan repayments and disposals of non-current financial assets	(10) 15 <b>348</b> (218) (140) <b>(10)</b> 199	(54 12 823 (200 (135
Dividends from joint ventures and associates Cash flow from operations before interest and taxes Net interest received (paid) Income tax paid Cash flow from operations after interest and tax Change in working capital requirement 28 NET CASH FLOW FROM OPERATING ACTIVITIES Investment in PP&E and intangible assets Loans granted and acquisitions of non-current financial assets Acquisitions of shares of consolidated companies, net of acquired cash Disposals of PP&E and intangible assets Loan repayments and disposals of non-current financial assets	15 <b>348</b> (218) (140) <b>(10)</b> 199	12 823 (200 (135
Cash flow from operations before interest and taxes         Net interest received (paid)         Income tax paid         Cash flow from operations after interest and tax         Change in working capital requirement       28         NET CASH FLOW FROM OPERATING ACTIVITIES         Investment in PP&E and intangible assets         Loans granted and acquisitions of non-current financial assets         Acquisitions of shares of consolidated companies, net of acquired cash         Disposals of PP&E and intangible assets         Loan repayments and disposals of non-current financial assets	<b>348</b> (218) (140) <b>(10)</b> 199	<b>823</b> (200 (135
Net interest received (paid)         Income tax paid         Cash flow from operations after interest and tax         Change in working capital requirement       28         NET CASH FLOW FROM OPERATING ACTIVITIES         Investment in PP&E and intangible assets         Loans granted and acquisitions of non-current financial assets         Acquisitions of shares of consolidated companies, net of acquired cash         Disposals of PP&E and intangible assets         Loan repayments and disposals of non-current financial assets	(218) (140) <b>(10)</b> 199	(200 (135
Income tax paid Cash flow from operations after interest and tax Change in working capital requirement 28 NET CASH FLOW FROM OPERATING ACTIVITIES Investment in PP&E and intangible assets Loans granted and acquisitions of non-current financial assets Acquisitions of shares of consolidated companies, net of acquired cash Disposals of PP&E and intangible assets Loan repayments and disposals of non-current financial assets	(140) (10) 199	(135
Cash flow from operations after interest and tax         Change in working capital requirement       28         NET CASH FLOW FROM OPERATING ACTIVITIES         Investment in PP&E and intangible assets         Loans granted and acquisitions of non-current financial assets         Acquisitions of shares of consolidated companies, net of acquired cash         Disposals of PP&E and intangible assets         Loan repayments and disposals of non-current financial assets	(10) 199	
Change in working capital requirement       28         NET CASH FLOW FROM OPERATING ACTIVITIES         Investment in PP&E and intangible assets         Loans granted and acquisitions of non-current financial assets         Acquisitions of shares of consolidated companies, net of acquired cash         Disposals of PP&E and intangible assets         Loan repayments and disposals of non-current financial assets	199	
NET CASH FLOW FROM OPERATING ACTIVITIES Investment in PP&E and intangible assets Loans granted and acquisitions of non-current financial assets Acquisitions of shares of consolidated companies, net of acquired cash Disposals of PP&E and intangible assets Loan repayments and disposals of non-current financial assets		488
Investment in PP&E and intangible assets Loans granted and acquisitions of non-current financial assets Acquisitions of shares of consolidated companies, net of acquired cash Disposals of PP&E and intangible assets Loan repayments and disposals of non-current financial assets		541
Loans granted and acquisitions of non-current financial assets Acquisitions of shares of consolidated companies, net of acquired cash Disposals of PP&E and intangible assets Loan repayments and disposals of non-current financial assets	(1,151)	1,030
Acquisitions of shares of consolidated companies, net of acquired cash Disposals of PP&E and intangible assets Loan repayments and disposals of non-current financial assets	(1,151) (1,234)	(1,416
Disposals of PP&E and intangible assets Loan repayments and disposals of non-current financial assets	(1,234)	(1,943
Loan repayments and disposals of non-current financial assets	10	6
	1,311	1,976
		1,970
	(11)	
NET CASH FLOW FROM INVESTING ACTIVITIES	(1,076)	(1,371)
Share issues in the parent company and share issues subscribed by minority shareholders in consolidated subsidiaries	-	
Treasury shares sold/(acquired)	(2)	44
Transactions with minority interests	(8)	37
Dividends paid to shareholders of the parent company		
Dividends paid to minority shareholders of consolidated companies	(31)	(33
Increase in borrowings	979	202
NET CASH FLOW FROM FINANCING ACTIVITIES	939	250
(Increase) decrease in securities recognized at fair value through profit and loss	(2)	211
Impact of foreign exchange movements	19	(16
NET CASH FROM DISCONTINUED OPERATIONS 9	(97)	26
INCREASE (DECREASE) IN NET CASH	(26)	130
NET CASH AT THE BEGINNING OF THE YEAR	1,582	1,451
Cash at the end of the year 19	1,686	1,692
Less: short-term bank facilities and non-trade current accounts (credit balances)    25	(122)	(106
Net cash from discontinued operations	(9)	(4

\* : In application of IFRS 5 and IFRS 11, the 2013 financial statements were restated in relation to the data published for the previous year. The impacts of these restatements are detailed in Note 37.

"Net Cash" taken into account in establishing the Statement of Cash Flows • after deduction of short-term bank facilities and non-trade current accounts included in short-term borrowings (see Note 25);

net cash from discontinued operations (see Note 9).

- "cash and cash equivalents" (see Note 19), which includes:
  - o cash balances and non-trade current accounts, and

consists of:

o risk-free investments initially maturing in less than three months, and money market funds;

#### **20.1.5. CONSOLIDATED STATEMENT OF CHANGES IN EQUITY**

(in millions of euros)	Number of shares and investment certificates	Share capital	Consolidated premiums and reserves	Actuarial gains and losses on employee benefits	Deferred unrealized gains and losses on financial instruments	Currency translation reserves	Equity attributable to equity holders of the parent		Total equity
JANUARY 1, 2013*	378,601,362	1,456	3,659	(385)	286	57	5,074	382	5,456
Net income for 2013			(494)				(494)	71	(423)
Other items of comprehensive income				69	44	(181)	(68)	(13)	(81)
Comprehensive income			(494)	69	44	(181)	(562)	58	(504)
Dividends paid * *								(33)	(33)
Treasury shares sold/ (acquired)	3,831,165		44				44		44
Other transactions with shareholders			(12)			29	17	1	18
DECEMBER 31, 2013*	382,432,527	1,456	3,198	(317)	330	(94)	4,574	408	4,982
Net income for 2014			(4,834)				(4,834)	(11)	(4,845)
Other items of comprehensive income (see Note 21)				(243)	(158)	79	(321)	(24)	(346)
Comprehensive income			(4,834)	(243)	(158)	79	(5,155)	(36)	(5,190)
Dividends paid * *								(31)	(31)
Treasury shares sold/ (acquired)	(107,658)		(2)				(2)		(2)
Other transactions with shareholders			(101)	(23)	32	3	(90)	87	(3)
DECEMBER 31, 2014	382,324,869	1,456	(1,738)	(583)	204	(12)	(673)	428	(244)
<ul> <li>In application of IFRS 11, the Note 37.</li> <li>Dividend paid per share (in et in 2013 from 2012 net inc.</li> </ul>	ıros):	ments we	re restated in relatic - -	on to the data pub	ished for the previo	ous year. The im	pacts of these r	estatements ar	e detailed in

• in 2014 from 2013 net income



#### **20.1.6. OPERATING SEGMENTS**

For all reporting periods, income items from discontinued operations are presented in the statement of income on a separate line, "net income from discontinued operations". Accordingly, data from discontinued operations do not appear in the business segment information below.

#### Definition of EBITDA

EBITDA is equal to operating income plus net amortization, depreciation and operating provisions (including provisions for impairment of working capital

#### **BY BUSINESS SEGMENT**

#### 2014

#### Income

items), net of reversals. EBITDA excludes the cost of end-of-lifecycle operations performed in nuclear facilities during the year (facility dismantling, waste retrieval and packaging).

For purposes of greater consistency, AREVA modified its definition of EBITDA in fiscal year 2014 to exclude all non-cash items of operating income.

(in millions of euros)	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services, Engineering and Eliminations	Group total
Gross revenue	1,304	2,328	3,164	1,838	52	(351)	8,336
Inter-segment sales	(7)	(94)	(45)	(307)	-	453	-
Contribution to consolidated revenue	1,297	2,235	3,119	1,531	52	103	8,336
EBITDA*	451	421	(227)	232	(24)	(142)	711
% of gross revenue	34.6%	18.1%	(7.2%)	12.6%	(46.6%)	n.a.	8.5%

\* see Note 5.

#### **Balance sheet**

(in millions of euros)	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services, Engineering and Eliminations	Group total
PP&E and intangible assets (including goodwill)	4,244	5,730	2,299	2,246	48	85	14,653
Assets earmarked for end-of-lifecycle operations	2	1,195	51	4,955	-	-	6,204
Other non-current assets						852	852
Subtotal: Non-current assets	4,246	6,925	2,351	7,202	48	937	21,709
Inventories and receivables (excluding tax receivables)	669	1,598	1,882	1,046	54	740	5,989
Other current assets						1,847	1,847
Subtotal: Current assets	669	1,598	1,882	1,046	54	2,587	7,836
Assets of discontinued operations					375		375
TOTAL ASSETS	4,915	8,523	4,232	8,247	478	3,524	29,920

About 35% of the group's consolidated revenue is with EDF.

## 2013\*

\* In application of IFRS 5 and IFRS 11, the segment information for 2013 was restated in relation to the data published for the previous year.

## Income

(in millions of euros)	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services, Engineering and Eliminations	Group total
Gross revenue	1,800	2,229	3,361	2,163	69	(559)	9,062
Inter-segment sales	(83)	(155)	(67)	(422)	(0)	727	-
Contribution to consolidated revenue	1,717	2,074	3,293	1,742	68	168	9,062
EBITDA**	647	296	(283)	532	(26)	(175)	991
% of gross revenue	36.0%	13.3%	(8.4%)	24.6%	(37.3%)	n.a.	10.9%

\*\* cf. Note 5.

## Balance sheet

(in millions of euros) (except workforce data)	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services, Engineering and Eliminations	Group total
PP&E and intangible assets (including goodwill)	3,996	6,034	2,630	2,204	63	78	15,006
Assets earmarked for end-of-lifecycle operations	-	1,503	61	4,693	-	-	6,257
Other non-current assets						1,644	1,644
Subtotal: Non-current assets	3,996	7,537	2,691	6,897	63	1,722	22,906
Inventories and receivables (excluding tax receivables)	621	2,120	1,873	1,560	87	111	6,373
Other current assets						1,879	1,879
Assets of discontinued operations					576	68	643
Subtotal: Current assets	621	2,120	1,873	1,560	663	2,058	8,895
TOTAL ASSETS	4,618	9,657	4,564	8,457	725	3,781	31,801

Nearly 30% of the group's consolidated revenue is with EDF.

## **BY GEOGRAPHICAL AREA**

## 2014

Contribution to consolidated revenue by business segment and customer location

(in millions of euros)	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services and Engineering	Group total
France	220	782	1,528	957	21	79	3,587
Europe (excluding France)	188	635	494	283	1	18	1,618
North & South America	260	524	670	205	20	0	1,680
Asia-Pacific	598	270	396	81	10	5	1,360
Africa and Middle East	30	24	32	5	0	0	92
TOTAL	1,297	2,235	3,119	1,531	52	103	8,336



# Closing balances of net property, plant and equipment and intangible assets (excluding goodwill) at December 31, 2014 by geographical area and by business segment

(in millions of euros)	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services and Engineering	Group total
France	150	4,375	720	1,952	9	163	7,369
Europe (excluding France)	296	49	49	2	6	18	420
North & South America	1,680	66	77	30	2	17	1,872
Asia-Pacific	5	-	1	-	1	1	8
Africa and Middle East	1,316	-	-	-	-	-	1,316
TOTAL	3,447	4,490	847	1,984	18	198	10,986

Acquisitions of property, plant and equipment and intangible assets (excluding goodwill) in 2014 by business segment and by the geographical area of the units

(in millions of euros)	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services and Engineering	Group total
France	106	420	96	140	4	28	794
Europe (excluding France)	64	420	4	-	1	3	77
North & South America	161	11	24	5	-	-	203
Asia-Pacific	-	-	-	-	-	-	1
Africa and Middle East	170	-	-	-	-	-	170
TOTAL	500	437	125	146	5	31	1,244

## Additional information on Germany and Japan at December 31, 2014

(in millions of euros)	Revenue by customer location	Closing balance of net property, plant and equipment and intangible assets (excluding goodwill)
Germany	484	115
Japan	473	-

2013\*

\* In application of IFRS 5 and IFRS 11, the segment information for 2013 was restated in relation to the data published for the previous year.

## Contribution to consolidated revenue by business segment and customer location

(in millions of euros)	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services and Engineering	Group total
France	383	784	1,521	932	7	135	3,760
Europe (excluding France)	119	571	645	514	28	26	1,903
North & South America	311	356	581	213	25		1,486
Asia-Pacific	850	349	520	78	9	7	1,813
Africa and Middle East	54	14	27	4	-	1	100
TOTAL	1,717	2,074	3,293	1,742	68	168	9,062

# Closing balances of net property, plant and equipment and intangible assets (excluding goodwill) at December 31, 2013 by geographical area and by business segment

(in millions of euros)	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services and Engineering	Group total
France	50	4,668	793	1,905	9	177	7,601
Europe (excluding France)	322	49	94	2	6	23	496
North & South America	1,459	60	308	26	4	18	1,874
Asia-Pacific	5	0	0	0	1	1	8
Africa and Middle East	1,263		0	0	0	0	1,263
TOTAL	3,100	4,777	1,195	1,933	20	218	11,242

Acquisitions of property, plant and equipment and intangible assets (excluding goodwill) in 2013 by business segment and by the geographical area of the units

(in millions of euros)	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services and Engineering	Group total
France	15	699	101	131	3	45	994
Europe (excluding France)	93	9	9	1	8	5	122
North & South America	221	24	42	5	1	5	298
Asia-Pacific	1	0	0	0	0	0	2
Africa and Middle East	237	0	0	0	0	0	237
TOTAL	567	729	152	138	12	55	1,653

Additional information on Germany and Japan at December 31, 2013

(in millions of euros)	Revenue by customer location	Closing balance of net property, plant and equipment and intangible assets (excluding goodwill)
Germany Japan	670 322	163



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ALL AMOUNTS ARE PRESENTED IN MILLIONS OF EUROS UNLESS OTHERWISE INDICATED. CERTAIN TOTALS MAY INCLUDE ROUNDING DIFFERENCES.

## **INTRODUCTION**

AREVA's consolidated financial statements for the period January 1 through December 31, 2014 were approved by the Board of Directors on March 3, 2015. The financial statements will be presented to the Annual General Meeting of Shareholders for approval on May 21, 2015. The AREVA group is fully consolidated by the Commissariat à l'énergie atomique et aux énergies alternatives (see Note 21).

Information for 2012 reported in the 2013 Reference Document filed with the Autorité des marchés financiers (AMF) on March 31, 2014, is incorporated by reference.

## NOTE 1. ACCOUNTING PRINCIPLES, HIGHLIGHTS OF THE YEAR, ESTIMATES AND JUDGMENTS

Pursuant to European Regulation 1606/2002 of July 19, 2002, AREVA's consolidated financial statements were prepared in accordance with International Financial Reporting Standards (IFRS), as adopted by the European Union as from December 31, 2014. They reflect International Accounting Standards (IAS) and IFRS standards and interpretations issued by the IFRS Interpretations Committee (IFRIC) and the former Standing Interpretation Committee (SIC). These financial statements are also consistent with IFRS standards established by the International Accounting Standards Board (IASB) to the extent that the mandatory date of adoption of the standards and amendments published by the IASB and not yet adopted by the European Union as of December 31, 2014 is later than the latter date, except for IFRIC interpretation 21 "Levies", for which the European Union postponed the mandatory adoption date to January 1, 2015. AREVA did not elect early adoption of IFRIC interpretation 21.

# IFRS 10, 11 and 12 and amended IAS 28, effective January 1, 2014

IFRS 10 - Consolidated Financial Statements, IFRS 11 - Joint Arrangements, IFRS 12 - Disclosure of Interests in Other Entities, and amended IAS 28 - Investments in Associates and Joint Ventures entered into force on January 1, 2014 and were retroactive to January 1, 2013.

- IFRS 10, which replaced IAS 27, stipulates that exercise of control constitutes the sole criterion for consolidation of an entity, gives the definition of control and determines its constituent criteria. In particular, it determines that an investor controls an entity when the following three criteria have been met:
  - the investor has power over the entity, *i.e.* the investor has existing rights that give it the ability to direct the relevant activities (the activities that significantly affect the investee's returns),
  - the investor has exposure, or rights, to variable returns from its involvement with the entity,
  - the investor has the ability to use its power over the entity to affect the amount of the investor's returns.
- IFRS 11, which replaces IAS 31, defines the concept of joint control and distinguishes between two categories of partnership agreements with joint control:
  - joint activities in which each partner holds direct rights in the assets and incurs direct obligations on the liabilities related to the business, and each partner recognizes the assets, liabilities, income and expenses relating to its interests in the joint activity,

- joint ventures in which the parties exercise joint control of the operation and have rights in the net assets thereof, and each joint venture partner recognizes its interests in the joint venture according to the equity method.
   IFRS 11 therefore eliminates the option authorized by IAS 31 to consolidate joint ventures according to the proportionate consolidation method.
- IFRS 12 combines all information to be provided by an entity concerning the equity interests it holds in other entities;
- Amended IAS 28 defines the equity method applicable to recognition of equity interests in associates and joint venture.

Application of IFRS 10 did not result in a change in the scope of companies that are fully consolidated by AREVA. In particular, the group still does not consolidate dedicated mutual funds in it holds practically all of the shares, because it considers that the criteria for control defined in IFRS 10 have not been met. Consequently, the dedicated mutual funds are recognized as financial assets in the balance sheet under a single heading corresponding to AREVA's share of their net asset value as of the end of the year (see Note 1.13.1).

Application of IFRS 11 led to the use of the equity method for consolidation of joint ventures that were previously consolidated proportionately. This concerned in particular the joint ventures of Cominak (Mining Business Group), ETC (Front End Business Group), ATMEA and AREVA Dongfang (Reactors & Services Business Group).

In accordance with the preliminary provisions of this standard, when a joint venture consolidated proportionately was part of a cash generating unit (CGU) to which goodwill was attached, a share of the amount of the goodwill was allocated retroactively to that joint venture at January 1, 2013, *i.e.* its date of recognition under the equity method, based on its relative net carrying amount. As a result, goodwill in the amount of 100 million euros attached to the Reactors & Services CGU was allocated to the Atmea joint venture. However, because the recoverable value of Atmea was insufficient to bear this goodwill, it was fully depreciated on the restated balance sheet at January 1, 2013 as an offset to equity.

The ETC joint venture had negative equity at January 1, 2013 and negative net income at December 31, 2013 and December 31, 2014. AREVA considers that it has an implicit obligation to ensure the continuity of ETC operations; consequently, and in accordance with the provisions of IAS 28, AREVA recognizes its share of negative ETC equity under liabilities on its consolidated balance sheet and its share of negative net income on its statement of income and statement of consolidated comprehensive income (see Note 14).



The impacts of the retroactive first-time adoption of this standard on equity at January 1, 2013 and on the statement of income and the statement of comprehensive income for the first half of 2013 and for fiscal year 2013 are described in Note 37.

Information required under IFRS 12 on joint ventures and associates is provided in Note 14; information required on consolidated companies in which significant minority interests exist is provided in Note 22.

AREVA presents the share in net income of joint ventures and associates whose operations are an extension of the group's operations under a statement of income heading immediately below operating income; it presents a new sub-total entitled "Operating income after share in net income of joint ventures and associates", in accordance with recommendation no. 2013-03 of the French Accounting Standards Authority (Autorité des normes comptables, ANC).

## Amendments to existing standards, effective January 1, 2014

- An amendment to IAS 39 Financial Instruments relaxes the rules for hedge accounting in the event of novation of a derivative pursuant to a change in regulation. In particular, this amendment eliminates the requirement to derecognize the hedge relationship pursuant to adoption of the EMIR regulation in the European Union.
- An amendment to IAS 36 Impairment of Assets requires disclosure in the notes to the financial statements of the recoverable value of assets and cash-generating units (CGU) that were subject to impairment or to reversal of impairment during the year. When that recoverable value is based on fair value net of disposal costs, the amendment requires disclosure of the level of valuation of the asset or the CGU in the fair value hierarchy, in accordance with IFRS 13, as well as a description of valuation methods and key assumptions used for level 2 and level 3 valuations.

## IFRIC interpretation 21, effective January 1, 2015

On June 13, 2014, the European Union published IFRIC 21 – Levies Charged by Public Authorities, for which it set the mandatory adoption date at the first fiscal year after its publication. AREVA did not elect early adoption of this interpretation, and will thus apply it as from January 1, 2015. The interpretation concerns the taxes due by an entity to a public authority in application of the regulation, other than those entering into the scope of IAS 12 – Income Taxes. IFRIC 21 specifies that the obligating event for a tax consists of the last activity rendering it payable. Adoption of this interpretation will have the consequence of modifying the recognition method for certain taxes. In particular, taxes that become payable on a given date when certain conditions are met will be recognized in their full amount at that date and may not be spread out over time. However, AREVA believes that the adoption of IFRIC 21 will have a negligible impact on its annual financial statements and a relatively insignificant one of its half-year financial statements.

# IFRS standards published in 2014 and not yet approved by the European Union

- IFRS 15 Revenue Recognition was published on May 28, 2014. It will enter into force January 1, 2017, subject to its adoption by the European Union. This standard will replace IAS 11 – Construction Contracts and IAS 18 – Revenue, and their interpretations.
- IFRS 9 Financial Instruments was published on July 24, 2014. It will enter into force January 1, 2018, subject to its adoption by the European Union. This standard will replace IAS 39.

AREVA has begun to analyze IFRS 15 and IFRS 9 to assess the impacts on its financial statements and information systems. This analysis will continue in 2015.

## 1.1. HIGHLIGHTS OF THE PERIOD, ESTIMATES AND JUDGMENTS

## 1.1.1. Highlights of the year

## 1.1.1.1. Highlights of the period

The strategic partnership agreement signed between the State of Niger and AREVA on May 26, 2014 calls for work to be scheduled to open the Imouraren deposit no later than January 1, 2017 in order to launch production by March 31, 2020, subject to natural uranium market conditions, and for the establishment of a joint strategic committee in which the State of Niger and AREVA are equally represented, which is in charge of analyzing market conditions. In consideration for the new schedule for opening Imouraren, AREVA agreed to invest 100 million euros in the country's infrastructure. This amount was recognized as an intangible asset in the financial statements for the period ended December 31, 2014. In addition, a provision for expenses in the amount of 26 million euros was constituted at December 31, 2014 based on an estimate of costs associated with the deferral of work to open the deposit; these costs are not eligible for capitalization.

AREVA and EDF reached an agreement in June 2014 on the main financial terms of the treatment and recycling contract for the 2013-2020 period. The terms of this agreement apply retroactively to January 1, 2013 and are reflected in the financial statements for the period ended December 31, 2014. Detailed contractual terms with EDF for the 2013-2020 period should be finalized in the first half of 2015.

## 1.1.1.2. Context of the 2014 financial statements

On November 18, 2014, in the framework of planning and forecasting activities performed regularly by the Executive Board, AREVA suspended its financial outlook for the years 2015 and 2016, pending the conclusion of these activities. This suspension was motivated by the following items:

- the consequences in terms of free operating cash flow in 2015 and beyond of the new schedule for completion of the Olkiluoto 3 project and the current impossibility of adjusting the payment schedule with the customer;
- delays in the restart of Japanese reactors, in spite of some progress achieved recently concerning the restart of the first two units;
- changes of assumptions in the schedule relating to the launch of new reactor construction projects (Reactors & Services Business Group) and for export contracts in the recycling activity and international projects (Back End Business Group), based on existing visibility in the market;
- persistent weakness in the installed base services market, including France.

As part of the 2015 budget process, AREVA worked to strengthen its performance plan in order to adapt to current market conditions, which remain unfavorable. It began revising its medium-term strategic outlook and financial plan, which will be examined in the framework of its governance. The performance plan was designed to preserve continuity of operations and is organized around three key elements:

- Strategic repositioning
- Financial plan
- Competitiveness plan

# 1.1.1.3. Notable items in the financial statements for the year ended December 31, 2014

In connection with the review undertaken in late 2014-early 2015 of the business outlook for the different Business Groups, and considering (i) the current market environment, (ii) changes in the application of regulations related to end-of-lifecycle operations, and (iii) difficulties experienced on certain construction or modernization contracts in progress:

- the recoverable value of certain current assets (inventories) and non-current assets (goodwill, property, plant and equipment and intangible assets, deferred tax assets, joint ventures and associates) was revised significantly downwards, leading to recognition of impairment in the total amount of 2.6 billion euros, without impact on cash (see Notes 8, 10, 11, 12 and 16);
- an additional provision was made for end-of-lifecycle operations in the amount of 289 million euros (see Note 13);
- provisions for losses at completion related to certain construction contracts (Olkiluoto 3 EPR project, test reactor) or modernization contracts (nuclear power plant in Northern Europe) of the Reactors & Services Business Group, and for turbine supply contracts in the Wind Energy business (classified under discontinued operations) were revised significantly upwards (see Note 24).

At December 31, 2014, the net loss attributable to owners of the parent was 4.834 billion euros. The AREVA group's consolidated equity became negative as of that same date. Nevertheless, AREVA SA's equity in the corporate financial statements remains positive at December 31, 2014, in view of future prospects in some of the group's subsidiaries taken into consideration to estimate the recoverable value of equity associates and loans to affiliates held by AREVA SA.

## 1.1.2. Estimates and judgments

To prepare its financial statements, AREVA must make estimates, assumptions and judgments impacting the net carrying amount of certain assets and liabilities, income and expense items, or information provided in some notes to the financial statements. AREVA updates its estimates and judgments on a regular basis to take into account past experience and other factors deemed relevant, based on business circumstances. Depending on changes in these assumptions or in circumstances, the group's future financial statements may or may not be consistent with current estimates, particularly in the following areas:

- operating margins on contracts recognized according to the percentage of completion method (see Notes 1.8 and 24), which are estimated by the project teams in accordance with the group's procedures;
- anticipated cash flows, discount rates and growth assumptions used in impairment tests for goodwill and other plant, property and equipment and intangible assets (see Notes 1.10, 10 and 11);
- all assumptions used to assess the value of pension commitments and other employee benefits, including future payroll escalation and discount rates, retirement age and employee turnover (see Notes 1.16 and 23);
- all assumptions used to calculate provisions for end-of-lifecycle operations and the assets corresponding to the third party share, including:
  - o the estimated costs of these operations,
  - o inflation and discount rates,
  - o the schedule of future disbursements,
  - o the operating life of the facilities (see Notes 1.18 and 13),
  - o the procedures for final shut-down of the facilities;

- estimates and judgments regarding the outcome of ongoing litigation and, more generally, estimates regarding all provisions and contingent liabilities of the AREVA group (see Notes 1.17, 24 and 34);
- estimates and judgments regarding the recoverable amount of trade accounts receivable and other accounts receivable (see Notes 1.12 and 1.13.3);
- estimates and judgments regarding the material or durable nature of the impairment of available-for-sale financial assets (see Notes 1.13, 13 and 15);
- estimates of future taxable income used to calculate deferred tax assets (see Notes 1.23 and 8);
- the share in equity and net income of equity associates that had not yet published their year-end financial statements as of the date of year-end closing of AREVA's financial statements;
- the highly probability of loss of control of assets and operations classified as discontinued operations no later than 12 months from the date of closing, in accordance with IFRS 5 (see Notes 1.2.5 and 9).

## **1.2. PRESENTATION OF THE FINANCIAL STATEMENTS**

AREVA's financial statements are presented in accordance with IAS 1.

## 1.2.1. Presentation of the statement of financial position

The statement of financial position makes a distinction between current and noncurrent assets, and current and non-current liabilities, in accordance with IAS 1.

Current assets and liabilities include assets held for sale or for use in connection with the operating cycle, or that are expected to be sold or settled within 12 months of the statement of financial position date.

Financial liabilities are reported as current or non-current liabilities based on their residual maturity at year-end.

To simplify the presentation of the statement of financial position, AREVA presents all headings relating to end-of-lifecycle operations, as defined in Note 13, on separate lines under non-current assets or liabilities, for their full amount. Thus, provisions for end-of-lifecycle operations are presented as non-current liabilities; the end-of-lifecycle asset corresponding to the share of third parties in the financing of these operations is presented under non-current assets. Financial assets earmarked to cover these operations are presented in a separate heading under non-current assets, including all equities and shares of equity funds and bond funds held in the portfolio, together with cash held on a short-term basis.

Similarly, provisions for employee benefits are presented under non-current liabilities in their full amount.

Deferred tax assets and liabilities are reported as non-current.

## 1.2.2. Presentation of the statement of income

In the absence of detailed guidance in IAS 1, the statement of income is presented in accordance with recommendation 2013-03 of the Autorité des Normes Comptables (French national accounting board).

- Operating expenses are presented by function, split among the following categories:
  - o the cost of sales,
  - o research and development expenses,
  - o marketing and sales expenses,
  - o general and administrative expenses,
  - o the costs of restructuring and early employee retirement plans,

20.2 Notes to the consolidated financial statements for the year ended December 31, 2014

- o other operating income, mainly comprising:
  - gains/losses on disposals of property, plant and equipment and intangible assets,
  - income from the deconsolidation of subsidiaries (except when qualified as discontinued operations in accordance with IFRS 5, in which case they are presented on a separate line in the statement of income),
  - reversals of impairment of property, plant and equipment and intangible assets;
- o other operating expenses, mainly comprising the following items:
  - goodwill impairment,
  - impairment of and losses on disposals of property, plant and equipment and intangible assets,
  - losses from the deconsolidation of subsidiaries (except when they are qualified as discontinued operations in accordance with IFRS 5).

AREVA presents the income from the Research Tax Credit program in France as a reduction in research and development expenses and presents the income from the Competitiveness and Employment Tax Credit as a reduction in payroll expenses in each expense category by function.

- As indicated in Note 1.1, AREVA presents the share in net income of joint ventures and associates whose operations are an extension of the group's operations under a statement of income heading immediately below operating income, and presents a new sub-total entitled "Operating income after share in net income of joint ventures and associates".
- Net financial income comprises:
  - o gross borrowing costs,
  - o income from cash and cash equivalents,
  - o other financial expenses, most notably:
    - lasting impairment and gains or losses on sales of available-for-sale securities,
    - negative changes in value of securities held for trading,
    - reverse discounting of provisions for end-of-lifecycle operations and employee benefits;
  - o other financial income, most notably:
    - dividends received and other income from financial assets other than cash and cash equivalents,
    - gains on disposals of available-for-sale securities,
    - positive changes in value of securities held for trading,
    - reverse discounting of end-of-lifecycle assets (third party share),
    - returns on retirement plan assets and other employee benefits.

# 1.2.3. Presentation of the statement of comprehensive income

The statement of comprehensive income explains the transition from net income to comprehensive income on a statement separate from the statement of income, in accordance with the election made by AREVA to apply amended IAS 1.

It presents "other items of comprehensive income" as either recyclable or not recyclable to the income statement.

- Items recyclable to the income statement include:
  - o currency translation adjustments on consolidated entities,
  - o changes in the value of available-for-sale financial assets, and
  - o changes in the value of cash flow hedging instruments.
- Items not recyclable to the income statement include actuarial gains and losses arising subsequent to January 1, 2011, the date of retroactive application of amended IAS 19 (see Note 1.16).

These items are presented before tax. The total tax impact of these items is presented on a separate line under "recyclable items" and "non-recyclable items".

The share of other items of comprehensive income relating to discontinued operations is presented on separate lines of that statement in their total amount after tax, separating items that are recyclable through profit and loss from items that are not recyclable.

The share of other items from comprehensive income relating to associates is presented on a separate line in the total amount after tax. However, items that are recyclable are not separated from items that are not recyclable, as the amounts are immaterial.

## 1.2.4. Presentation of the statement of cash flows

The statement of cash flows is presented in accordance with IAS 7. AREVA has adopted the indirect method of presentation, which starts with consolidated net income for the period.

Cash flows from operating activities include income taxes paid, interest paid or received, and dividends received, except for dividends received from equity associates, which are reported in cash flows from investing activities.

Cash flow from operations is presented before income tax, dividends and interest.

# 1.2.5. Non-current assets held for sale, discontinued operations

Non-current assets held for sale and discontinued operations are presented in the financial statements in accordance with IFRS 5:

- Non-current assets or groups of assets are considered held for sale if they are available for immediate sale in their current condition and their sale is highly probable during the 12-month period following the end of the accounting year. They are presented in their total amount under a specific heading of the balance sheet.
- Discontinued operations correspond to separate, leading business segments within the group for which management has initiated a plan to sell and an active search for buyers, and whose sale is probable within 12 months from the end of the accounting year. Discontinued operations are presented as follows in the financial statements:
  - the assets and liabilities of discontinued operations are presented in their full amount under specific headings of the balance sheet,
  - net income from discontinued operations, *i.e.* net income after tax from these operations until the date of their disposal and the net gain after tax on the disposal itself, is reported under a specific heading of the statement of income; the statement of income for the previous year is presented for purposes of comparison and restated in identical fashion,
  - net cash flows from discontinued operations, which include cash flows generated by these operations until the date of their disposal and the net cash flow after tax generated on the disposal itself, are also reported on a separate line in the statement of cash flows. The statement of cash flows for the previous year presented for comparison is restated in identical manner.

## 1.3. CONSOLIDATION AND EQUITY METHODS

The consolidated financial statements combine the financial statements for the year ended December 31, 2014 of AREVA and the subsidiaries which it controls, in accordance with the criteria defined in IFRS 10, which are fully consolidated.

Joint ventures (companies in which AREVA exercises joint control with one or more investors and which do not meet the definition of a joint activity) and associates



(companies in which AREVA exercises a significant influence on financial policy and management) are consolidated using the equity method. Under the equity method:

- the share of the equity of these companies, corresponding to the percentage of interest held by AREVA plus any goodwill generated during the acquisition of the interest, is recognized as an asset in the consolidated balance sheet;
- the share of the net income of these companies, corresponding to the percentage of interest held by AREVA less any impairment of goodwill, is recognized in the consolidated statement of income.

In accordance with IAS 28, AREVA ceases to recognize its share of equity and income in joint ventures and associates when their equity is negative, unless AREVA is explicitly or implicitly obliged to ensure the continuity of their operations.

Accounting for an associate or joint venture under the equity method is discontinued when they are classified under "non-current assets held for sale" (see section 1.2.5 above). They are then valued at the lowest of their carrying value or their fair value, less disposal costs, corresponding to their probable net realizable value.

Intercompany transactions are eliminated.

# 1.4. TRANSLATION OF FINANCIAL STATEMENTS OF FOREIGN COMPANIES

The AREVA group's financial statements are presented in euros.

The functional currency of an entity is the currency of the economic environment in which that entity primarily operates. The functional currency of foreign subsidiaries and associates is generally the local currency. However, another currency may be designated for this purpose when most of a company's transactions are in another currency.

The financial statements of foreign companies belonging to the AREVA group are prepared in the local functional currency and translated into euros for consolidation purposes in accordance with the following principles:

- balance sheet items (including goodwill) are translated at the rates applicable at the end of the period, with the exception of equity components, which are kept at their historic rates;
- income statement transactions and cash flow statements are translated at average annual rates;
- currency translation differences in respect of the net income and equity of these companies are recognized in "other items of comprehensive income" and presented on the balance sheet under the equity heading "currency translation reserves". When a foreign company is sold, currency translation differences in respect of the company recorded after January 1, 2004 (date of first-time adoption of IFRS) are recognized in income.

## 1.5. OPERATING SEGMENTS

AREVA presents its business segment information by operating Business Group, which corresponds to the level at which performance is examined by the group's steering bodies, in accordance with the requirements of IFRS 8. The five operating segments presented are: Mining, Front End, Reactors & Services, Back End and Renewable Energies.

Information by business segment relates only to operating data included in the statement of income and the statement of financial position (revenue, EBITDA, goodwill, non-current property, plant and equipment and intangible assets, and other operating assets). Financial assets and liabilities and the group's tax position are managed at the corporate level; the corresponding items in the statement of income and statement of financial position are not allocated to the operating segments.

In addition, AREVA reports data by geographical area: AREVA's consolidated revenue is allocated among five geographical areas based on the destination of goods and services, as follows: France, Europe excluding France, North and South America, Asia-Pacific, Africa and the Middle East.

## 1.6. BUSINESS COMBINATIONS - GOODWILL

Acquisitions of companies and operations are recognized at cost based on the "acquisition cost" method, as provided in IFRS 3 for business combinations subsequent to January 1, 2004 and prior to December 31, 2009, and in IFRS 3 revised for operations subsequent to January 1, 2010. In accordance with the option provided under IFRS 1 for the first-time adoption of IFRS, business combinations prior to December 31, 2003 were not restated.

Under the method required by this standard, the acquired company's assets, liabilities and contingent liabilities meeting the definition of identifiable assets and liabilities are recognized at fair value on the date of acquisition, except for discontinued business segments of the acquired entity, as provided in IFRS 5, which are recognized at the lower of fair value less costs to sell and the net carrying amount of the corresponding assets. For consolidation purposes, the date of consolidation of the acquired company is the date at which AREVA acquires effective control.

Restructuring and other costs incurred by the acquired company as a result of the business combination are included in the liabilities acquired, as long as IAS 37 criteria for provisions are met at the date of acquisition. Costs incurred after the date of acquisition are recognized in operating income during the year in which such costs are incurred or when meeting IAS 37 criteria.

The acquired company's contingent liabilities resulting from a current obligation on the date of acquisition are recognized as identifiable liabilities and recorded at fair value on that date.

AREVA did not apply the "total goodwill" method authorized by amended IFRS 3 for acquisitions subsequent to January 1, 2010, and continues to apply the "partial goodwill" method. In accordance with that method:

- the goodwill reported in assets corresponds to the difference between the acquisition price of the operations or shares of the company acquires and the fair value share of the corresponding assets, liabilities and contingent liabilities on the date of the acquisition;
- minority interests are recognized initially based on the fair value of assets, liabilities and contingent liabilities on the date of acquisition, prorated for the percentage interest held by minority shareholders.

The valuation of the acquired company's assets, liabilities and contingent liabilities on the acquisition date may be adjusted within twelve months of that date; this also applies to the valuation of the acquisition price if the contract contains conditional price adjustment clauses. The amount of goodwill may not be adjusted after the expiration of that period. Goodwill is not amortized. It is subject to impairment tests that are systematically performed at least once a year or more often if there are signs of impairment. Impairment is recognized if the outcome of these tests indicates that it is necessary. Significant loss of market share, loss of administrative permits or licenses required to operate a business, or significant financial losses are examples of signs of impairment.

To perform impairment tests, all goodwill is allocated to cash-generating units (CGUs) reflecting the group's structure (the definition of a CGU and the methodology used for impairment tests are described in Note 1.10).

When the recoverable value of the cash-generating unit is less than the net carrying amount of its assets, the impairment is allocated first to goodwill and then to other non-current assets of the CGU (property, plant and equipment and intangible assets), prorated based on their net carrying amount. The recoverable value of a CGU is the higher of (1) its value in use, measured in accordance with the discounted cash flow method, or (2) its fair value less disposal costs.

Impairment allocated to goodwill cannot be reversed.

Upon the sale of a business, the amount of goodwill allocated to it is included in its net carrying amount of the business and taken into consideration to determine the gain or loss on disposal.

If an asset or group of assets is sold that constitutes part of a CGU to which goodwill is allocated, a share of this goodwill is assigned based on objective criteria to the asset or group of assets sold; the corresponding amount is used to determine the income from the sale.

## 1.7. RECOGNITION OF REVENUE

Revenue is recognized at the fair value of the consideration received or to be received, net of rebates and sales taxes.

Revenue includes:

- revenue from construction contracts and certain services recognized according to the percentage of completion method in accordance with IAS 11 (see Note 1.8 hereunder); and
- revenue from other sales of goods and services recognized when most of the risk and rewards are transferred to the customer in accordance with IAS 18.

Revenue in respect of transactions where the unit only acts as broker, without bearing the risks and rewards attached to the goods, consists of the margin obtained by the unit. The same is true for commodity trading activities, which primarily concern uranium trading.

No revenue is recognized when materials or products are exchanged for materials or products of a similar nature and value.

## 1.8. REVENUE RECOGNIZED ACCORDING TO THE PERCENTAGE OF COMPLETION METHOD

Revenue and margins on construction contracts and certain services are recognized according to the percentage of completion method (PCM), as provided in IAS 11 for construction contracts and in IAS 18 for services.

In application of this method, revenue and income from contracts are recognized over the period of performance of the contract. Depending on the type and complexity of the contracts, the group applies the percentage of completion method based on costs incurred or on the percentage of physical completion.

- Under the cost-based PCM formula, the percentage of completion is equal to the ratio of costs incurred (the costs of work or services performed and confirmed at the end of the accounting period) to the total anticipated cost of the contract. This ratio may not exceed the percentage of physical or technical completion at the end of the accounting period.
- Under the physical PCM formula, a predetermined percentage of completion is assigned to each stage of completion of the contract. The revenue and costs recognized at the end of the accounting period are equal to the percentage of anticipated revenue and anticipated costs for the stage of completion achieved at that date.

When contract terms generate significant cash surpluses during all or part of the contract's performance, the resulting financial income is included in contract revenue and recognized in revenue based on the percentage of completion.

AREVA had elected not to include financial expenses in the cost of contracts generating a cash loss, as previously allowed under IAS 11. This option is no longer applicable to contracts for which costs were incurred for the first time after January 1, 2009: the financial expenses generated by these contracts are included in the determination of the estimated income on completion of the project.

When a contract is expected to generate losses at completion, the total projected loss is recorded immediately, after deduction of any already recognized partial loss, and a provision is set up accordingly.

When the gain or loss at completion cannot be estimated reliably, the costs are recorded as expenses for the period in which they are incurred and the revenue recognized may not exceed the costs incurred and recoverable. In cases of losses at completion, this approach does not exclude the recognition of all expected losses in expenses. At December 31, 2013 and December 31, 2014, this provision applied in particular to the EPR reactor construction project in Finland (see Note 24).

# 1.9. VALUATION OF PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS

## 1.9.1. Initial recognition

Property, plant and equipment and intangible assets are recognized at amortized cost.

AREVA did not elect to recognize certain property, plant and equipment and intangible assets at fair value, as allowed under IFRS 1 for the first-time adoption of IFRS on January 1, 2004.

## 1.9.2. Inclusion of borrowing costs

Borrowing costs are not included in the valuation of property, plant and equipment and intangible assets:

- placed in service before January 1, 2009; or
- placed in service after that date but for which expenses had been incurred and recognized as assets in progress at December 31, 2008.

In accordance with the amended IAS 23 accounting standard, effective as from January 1, 2009, the borrowing costs related to investments in property, plant and equipment and intangible assets for projects initiated after that date and for which the period of construction or development is more than one year are included in the costs of these assets.



## 1.9.3. Intangible assets

## Research and development expenses

Research and development expenses incurred by AREVA for its own account are expensed as they are incurred.

Research and development expenses funded by customers under contracts are included in the production cost of these contracts and recorded under cost of sales when the corresponding revenue is recognized in income.

As provided in IAS 38, expenses relating to development projects are recorded as intangible assets if the project meets the following six criteria:

- technical feasibility;
- intention of completing, using or selling the asset;
- ability to use or sell the asset;
- generation of future economic benefits (existence of a market or internal use);
- availability of adequate financial resources for completion; and
- reliability of measurement of costs attributable to the asset.

Capitalized development costs are then amortized over the expected life of the intangible asset, from the commissioning date. They are depreciated on a straight-line basis over a minimum period of time.

Costs expensed in a year prior to the decision to capitalize may not be capitalized subsequently.

#### Mineral exploration and mining pre-development

Exploration and geological work are assessed in accordance with the following rules:

- Exploration expenses incurred to identify new mineral resources and expenses related to studies and pre-development work to evaluate a deposit before project profitability is confirmed are recognized as research and development expenses through profit and loss for the period.
- Mining pre-development expenses relating to reserves presenting technical and economic characteristics that indicate a strong probability of profitable mining development may be capitalized at year-end. Indirect costs, excluding overhead expenses, are included in the valuation of these costs. Capitalized pre-mining expenses are amortized in proportion to the number of tons mined from the reserves they helped identify.

## Greenhouse gas emission allowances

Following the withdrawal by the IASB of IFRIC 3, and pending a decision by regulators on accounting for greenhouse gas emission allowances, AREVA does not record an asset or provision as long as the group's emissions are lower than the allowances it has received.

AREVA does not trade speculatively on emission allowance markets. The group's only transactions were sales of rights corresponding to allowances allocated to it in excess of its actual carbon dioxide emissions. Proceeds from these sales are recognized in profit or loss under other operating income.

## Other intangible assets

An intangible asset is recorded when it is likely that future economic benefits therefrom will accrue to the company and if the cost of this asset can be estimated reliably, based on reasonable and documented assumptions.

Intangible assets are recorded at acquisition or production cost.

Goodwill and trademarks produced internally are not capitalized.

Depreciation of intangible assets is calculated using the most appropriate method for the asset category (straight-line depreciation or as a function of the production units), starting on the date they were placed in service and over the shorter of their probable period of use or, when applicable, the length of their legal protection.

An intangible asset whose useful life is not defined, such as a brand, is not amortized, but is subject to impairment tests (see Note 1.10).

## 1.9.4. Property, plant and equipment

Property, plant and equipment are recognized at acquisition or production cost, including startup expenses, less cumulative depreciation and impairment.

The cost of nuclear facilities includes the AREVA group's share of provisions for end-of-lifecycle operations, estimated at the date they are placed in service, termed "end-of-lifecycle assets – group share" (see Note 1.18). In accordance with IFRIC 1, changes in provisions for end-of-lifecycle operations coming from changes in estimates or calculation assumptions and relating to nuclear facilities in operation are offset by a change in the same amount of the assets to which these provisions relate.

Property, plant and equipment are depreciated based on the approach deemed most representative of the economic depreciation of the assets (straight line depreciation or as a function of the production units); each component is depreciated based on its own useful life.

Mining land is depreciated over the operating period of the deposit; site layout and preparation expenses are depreciated over 10 years; buildings over 10 to 45 years; production facilities, equipment and tooling other than nuclear facilities over 5 to 10 years; general facilities and miscellaneous fixtures over 10 to 20 years; and transportation equipment, office equipment, computer equipment and furniture over 3 to 10 years.

Nuclear facilities are depreciated on a straight line over their useful life, measured by taking into account the durations of the portfolio of existing or reasonably foreseeable contracts performed in these facilities.

Depreciation periods are revised if the group's backlog changes significantly.

Changes in the asset value of these facilities, recognized to offset changes in the value of provisions for the corresponding end-of-lifecycle operations, as explained above, are depreciated prospectively over their remaining useful life.

Assets financed under leasing arrangements, which transfer, in substance, nearly all the risks and rewards inherent in ownership of the asset to AREVA, are recognized in the statement of financial position as property, plant and equipment assets and depreciated as indicated above. Assets financed by customers are depreciated over the term of the corresponding contracts.

## 1.10. IMPAIRMENT OF PROPERTY, PLANT AND EQUIPMENT, INTANGIBLE ASSETS AND GOODWILL

## Goodwill and intangible assets with an indefinite useful life

Impairment tests are performed systematically at least once a year for goodwill and intangible assets with indefinite useful lives. These tests are performed at the level of the cash-generating units (CGU) to which such goodwill and intangible assets belong.



A CGU is the smallest identifiable group of assets generating cash inflows which are largely independent of the cash inflows from the group's other assets or groups of assets.

Impairment is recognized when the recoverable amount of a CGU is less than the net carrying amount of all assets belonging to it. The recoverable amount of a CGU is the higher of:

- its fair value less disposal costs, corresponding to the net realizable value based on observable data when available (recent transactions, offers received from potential acquirers, published ratios for comparable publicly traded companies) or on analyses conducted by internal or external experts of the AREVA group;
- its value in use, which is equal to the present value of the estimated future cash flows it generates, plus its "residual value", corresponding to the present value of cash flows for the "base" year, discounted to infinity, estimated at the end of the future cash flow period. However, some CGU have a defined lifecycle (by ore resources in Mining or by the duration of operating permits in the nuclear businesses); the cash flows taken into account to assess their value in use are not discounted to infinity but within the limit of their expected operating life. To determine an asset's useful value, cash flows are discounted based on a discount rate consistent with a current assessment of the time value of money and the specific risk of the asset or the CGU.

## Other property, plant and equipment and intangible assets

Impairment tests are performed when there is an indication of impairment of property, plant and equipment or intangible assets with finite useful lives.

When no estimate of an individual asset's recoverable amount may be established, the group determines the recoverable amount of the cash-generating unit (CGU) to which the asset belongs.

## 1.11. INVENTORIES AND WORK-IN-PROCESS

Inventories and work-in-process are valued at production cost in the case of goods produced by the group and at acquisition cost in the case of goods acquired for consideration. Items are valued according to the first-in first-out method (FIFO) or at weighted average cost, depending on the type of inventory.

Impairment is recognized when the likely recoverable amount of inventory or workin-process is less than its net carrying amount.

Financial expenses and research and development costs funded by AREVA are not taken into account in the valuation of inventories and work-in-process. However, the cost of research and development programs funded by customers is recognized in inventories and work-in-process, as is amortization of capitalized development expenditures.

The costs incurred to get a contract from a customer ("proposal costs") are recognized in work-in-process when there is a high probability on the date of yearend closing that the contract will be signed; in the opposite case, the proposal costs are recognized in profit and loss under "marketing and sales expenses".

## **1.12. ACCOUNTS RECEIVABLE**

Trade accounts receivable, generally due in less than one year, are recognized at book value at amortized cost.

An impairment charge is recognized to reflect the likely recovery value when collection is not assured.

## 1.13. FINANCIAL ASSETS

Financial assets consist of:

- assets earmarked for end-of-lifecycle operations;
- other available-for-sale securities;
- loans, advances and deposits;
- securities held for trading;
- put and call options on securities;
- derivatives used for hedging (see Note 1.22);
- cash and cash equivalents.

They are valued in accordance with IAS 39.

Regular purchases and sales of financial assets are recognized at the date of transaction.

## 1.13.1. Assets earmarked for end-of-lifecycle operations

This heading includes all investments dedicated by AREVA to the funding of its operations for future end-of-lifecycle operations in the nuclear business, including facility dismantling and waste retrieval and packaging. The portfolio includes directly-held publicly traded shares and bonds, dedicated equity mutual funds, dedicated bond and money market funds, and cash. It also includes receivables resulting from agreements with third parties liable for a share of the financing of end-of-lifecycle operations. These receivables are recognized at amortized cost.

- Publicly traded shares are classified as "available-for-sale securities", as defined in IAS 39. They are recognized at fair value, corresponding to the last traded price of the year. Changes in value are under "other items of comprehensive income" and are presented on the balance sheet under "deferred unrealized gains and losses on financial instruments" on an after-tax basis, except for lasting impairment, which is recognized in financial expenses for the year.
- AREVA does not consolidate its dedicated mutual fund assets on an individual basis, insofar as the company does not have control over them according to IFRS 10 criteria:
  - AREVA is not involved in the management of the dedicated mutual funds, which are managed by independent and reputable asset management firms. These mutual funds are benchmarked to the MSCI index of large European capitalizations, with strict limits on risk. The funds are regulated by the French stock market authority and therefore subject to regulations governing investment and concentration of risk.
  - o AREVA does not control the mutual fund management firms.
  - o AREVA does not hold voting rights in the mutual funds.
  - The funds do not trade directly or indirectly in financial instruments issued by AREVA.
  - o None of the financial investments made by the funds are strategic to AREVA.
  - AREVA receives no benefit and bears no risk other than that normally associated with investments in mutual funds and in proportion to its holding.
  - AREVA may terminate the management agreements only in specific cases (gross negligence, fraud, etc.). Consequently, AREVA cannot replace a fund management company at will.



Accordingly, the dedicated mutual funds are recognized in the balance sheet under a single heading corresponding to AREVA's share of their net asset value as of the end of the year.

Considering their long-term investment objective, the funds dedicated to financing end-of-lifecycle operations are classified as "available-for-sale securities". Accordingly, the accounting treatment of changes in fair value and the impairment measurement and recognition methods are identical to those applicable to traded shares held directly.

 As an exception to the rules described above, bonds held directly as well as certain dedicated mutual funds consisting exclusively of bonds held to maturity are recognized under "securities held to maturity" and valued at amortized cost.

## 1.13.2. Other available-for-sale securities

This heading includes all shares held by AREVA in publicly traded companies, except for shares in joint ventures and associates consolidated under the equity method, and shares held for trading.

These shares are valued in the same manner as shares held in the dedicated portfolio:

- fair value equal to the last traded price of the year;
- changes in fair value recognized under "other items of comprehensive income", except for lasting impairment, which is recognized in net financial income.

This heading also includes the group's investments in the share capital of unconsolidated companies, either because AREVA does not have control and has no significant influence over them or because of immateriality. These securities are valued at their acquisition cost when the fair value cannot be estimated reliably. This is particularly the case for privately held companies.

## 1.13.3. Lasting impairment of assets earmarked for end-of-lifecycle operations and other available-for-sale securities

Lasting impairment is recognized in the event of a significant or lasting drop in the price or liquidation value of a line of securities below their initial value. The impairment is calculated as the difference between the prices traded on the stock market or the liquidation value of the securities on the last day of the period and the initial value of the securities, corresponding to their acquisition cost at inception.

AREVA determines the significant or lasting nature of a drop in the price or liquidation value of a line of securities using several criteria, depending on:

- the type of investments used, where the level of volatility and risk may vary substantially: money market funds, bond or equity funds; bonds or equities held directly;
- whether the assets are earmarked or not to finance end-of-lifecycle operations: assets earmarked for end-of-lifecycle operations must be held for very long periods of time, with expenses covered occurring after 2050.

AREVA has therefore established thresholds beyond which it considers that a drop in the price or liquidation value of a line of securities is significant or lasting and requires the recognition of a provision for lasting impairment. The impairment is measured for significance by comparing the drop in the price or liquidation value of the line of securities with the historical acquisition cost. The lasting nature of impairment is measured by observing the length of time during which the price or liquidation value of the line of securities remained consistently lower than the acquisition cost at inception. The drop in value is always considered significant or lasting if it exceeds the following thresholds, which are objective indicators of impairment:

	Significant	Lasting
Assets earmarked for end-of-lifecycle operations		
Money market funds	5%	1 year
Bond funds and bonds held directly	25%	2 years
Equity funds	50%	3 years
Directly held shares	50%	3 years
Other available-for-sale securities		
D'a all habitations	50%	0

Directly held shares
 50%
 2 years

Securities that have dropped below these thresholds are not subject to lasting impairment unless other information on the issuer indicates that the drop is probably irreversible. In that case, AREVA uses its own judgment to determine whether lasting impairment should be recognized.

These thresholds are likely to be re-estimated over time as a function of changes in the economic and financial environment.

Impairment of available-for-sale securities is irreversible and may only be released to the income statement on sale of the securities. An increase in market prices or liquidation value subsequent to recognition of impairment is recorded as a change of fair value under "other items of comprehensive income". Any additional loss of value affecting a line of previously impaired securities is recognized as additional impairment in net financial income for the year.

## 1.13.4. Loans, advances and deposits

This heading mainly includes loans related to unconsolidated equity interests, advances for acquisitions of equity interests, and security deposits.

These assets are valued at amortized cost. Impairment is recognized when the recoverable amount is less than the net carrying amount.

## 1.13.5. Securities held for trading

This heading includes investments in equities, bonds and shares of funds held to generate a profit based on market opportunities.

These assets are recognized at fair value based on their stock market price or their net asset value at the end of the period. Changes in fair value are recognized under financial income for the period.

## 1.13.6. Put/call options on securities

Put and call options on traded securities are recognized at fair value on the date of closing using the Black-Scholes pricing model; changes in value are recorded under net financial income for the year.

The price of an option consists of intrinsic value and time value. Intrinsic value is the difference between the strike price of an option and the market price of the underlying security. Time value is based on the security's volatility and the date on which the option may be exercised.

#### 1.13.7. Cash and cash equivalents

Cash includes bank balances and non-trade current accounts with unconsolidated entities.

Cash and cash equivalents include risk-free marketable securities with an initial maturity of three months or less, or which may be converted into cash almost immediately. In particular, these assets include marketable debt instruments and shares of money market funds in euros, valued at amortized cost.

## 1.14. TREASURY SHARES

Treasury shares are not recognized in the balance sheet but deducted from equity, at their acquisition cost.

#### 1.15. NON-CURRENT ASSETS HELD FOR SALE AND ASSETS RELATED TO DISCONTINUED OPERATIONS

Non-current assets held for sale and assets related to discontinued operations (see Note 1.2.5) are recognized at the lower of their net carrying amount before reclassification and their fair value, minus costs to sell. They are presented under a specific heading of the balance sheet; depreciation is discontinued upon transfer to this category.

## 1.16. EMPLOYEE BENEFITS

The group recognizes of its pension, early retirement, severance pay, medical insurance, long-service medals, accident and disability insurance, and other related commitments, whether for active personnel and for retired personnel, in application of the provisions of amended IAS 19.

For defined contribution plans, the group's payments are recognized as expenses for the period to which they relate.

In the case of defined benefit plans, benefit costs are estimated using the projected unit credit method. Under this method, accrued pension benefits are allocated to service periods based on the plan vesting formula. If services in subsequent years result in accrued benefit levels that are substantially higher than those of previous years, the company must allocate the accrued benefits on a straight-line basis.

The amount of future benefit payments to employees is determined based on salary trend assumptions, retirement age and probability of payment. The net present value of these future payments is calculated using a discount rate specific to each geographic and currency area, determined as a function of the interest rate of government bonds issued by prime companies for the same duration as AREVA's benefit liabilities.

Actuarial gains and losses relating to post-employment benefits (change in the valuation of the commitment and financial assets due to changes in assumptions and experience differences) are recognized under "other items of comprehensive income" and are presented on the balance sheet in their after-tax amount under the equity account "consolidated premiums and reserves"; they are not recyclable to the income statement.

On the other hand, actuarial gains and losses relating to benefits for currently employed employees (*e.g.* long-service medals) are recognized in the income statement.

The effects of plan changes (gains and losses) are recognized in the income statement under the heading "other operating income and expenses".

The costs relating to employee benefits (pensions and other similar benefits) are split into two categories:

FINANCIAL INFORMATION CONCERNING ASSETS,

- the discounting reversal expense for the provision, net of the expected yield on assets earmarked for retirement plans, are charged to net financial income; the expected yield of the assets is calculated using the same interest rate used to discount the provision;
- the current service cost is split between the different operating expense items by destination: cost of sales, research and development expenses, marketing and sales expenses, and general and administrative expenses.

## 1.17. PROVISIONS

As provided in IAS 37, a provision is recognized when the group has an obligation towards a third party at the end of the period, whether legally, contractually or implicitly, and it is probable that a net outflow of resources will be required after the end of the period to settle this obligation, without receiving consideration at least equal to the outflow. A reasonably reliable estimate of net outflow must be determined in order to recognize a provision.

Provisions for restructuring are recognized when the restructuring has been announced and a detailed plan has been presented or the restructuring has begun.

When the outflow of resources is expected to occur in more than two years, provisions are discounted to net present value if the impact of discounting is material.

### 1.18. PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS

Provisions for end-of-lifecycle operations are discounted by applying an inflation rate and a discount rate, determined based on the economic situation of the country in which the particular facility is located, to estimated future cash flows by maturity.

The share of provisions for end-of-lifecycle operations corresponding to funding expected from third parties is recognized in a non-current asset account, "end-of-lifecycle asset – third party share", which is discounted in exactly the same way as the related provisions.

The AREVA NP group's share of provisions for end-of-lifecycle operations, estimated at the date the corresponding nuclear facilities are placed in service, is an integral part of the cost of those facilities, which are recognized in property, plant and equipment (see Note 1.9.4) as "end-of-lifecycle assets – group share".

The provisions for the retrieval and packaging of waste are recognized as operating expenses through profit and loss.

#### Treatment of income and expenses from discounting reversals

The discounting of the provision is partially reversed at the end of each period. the discounting reversal corresponds to the increase in the provision due to the passage of time. This increase is recorded as a financial expense.

Similarly, the discounting of the provision corresponding to the third party share is partially reversed rather than amortized.

The resulting increase in the third party share is recognized as financial income.

The share financed by third parties is reduced for the value of work done on their behalf, with recognition of a receivable from these third parties in the same amount.

#### Treatment of amortization

The group's share of end-of-lifecycle assets is amortized over the same period as the facilities concerned.



The corresponding amortization expense is not considered as part of the cost of inventories or the cost of contracts, and is not taken into account in the calculation of their percentage of completion. However, it is included in the income statement under cost of sales and thus deducted from gross margin.

# Inflation and discount rates used to discount end-of-lifecycle operations

Inflation and discount rates used to discount end-of-lifecycle operations are determined as follows.

The inflation rate is set in accordance with the long-term inflation projections for the Eurozone and taking into account the European Central Bank's target rate.

The discount rate is determined based on long series of bonds with maturities comparable to those of the liabilities, to take into account long-term interest trends consistent with the long-term schedule of actual disbursements. The selected discount rate is also capped as provided in the decree of February 23, 2007 and the administrative order of March 21, 2007.

It is based on the moving average yield of 30-year French OATs over a 4-year period, plus the spread applicable to prime corporate borrowers.

Thus, the discount rate is revised based on changes in national economic conditions with a durable medium and long term impact, in addition to the potential effects of regulatory caps.

For facilities in France, AREVA adopted an inflation rate of 1.75% and a discount rate of 4.50% at December 31, 2014 (versus 1.90% and 4.75% respectively at December 31, 2013).

In November 2014, informed by the administrative authority of a project to revise the regulations pertaining to the rate cap, AREVA asked the Ministers of the Economy and of Energy to once again waive the application of the regulatory rate cap as regards the financial statements for the year ended December 31, 2014. This request was accepted. Consequently, the selected discount rate at December 31, 2014 is the rate resulting from the company's usual method, *i.e.* 4.50%. The cap resulting from application of the system would be 4.31% at December 31, 2014, versus 4.80% from application of the system contemplated.

## Treatment of changes in assumptions

Changes in assumptions relate to changes in cost estimates, discount rates and disbursement schedules.

As provided in IFRS, the group uses the prospective method:

- if the facility is in operation, the shares of end-of-lifecycle assets of the group and third parties are corrected in the same amount as the provision; the group's share of end-of-lifecycle assets is amortized over the remaining life of the facilities;
- if the facility is no longer in operation, the impact is recognized during the year of the change. The impact of changes in cost estimates is recognized under operating income, while the impact of changes in discount rates and disbursement schedules is recognized under net financial income.

Provisions for waste retrieval and packaging funded by the group have no corresponding end-of-lifecycle asset. Consequently, changes in assumptions concerning the group's share of these provisions are recognized immediately in the income statement. Impacts from changes in cost estimates are recognized under operating income. Impacts from changes in discount rates and disbursement schedules are recognized under financial income.

## 1.19. BORROWINGS

Borrowings include:

- put options held by minority shareholders of AREVA group subsidiaries;
- obligations under finance leases; and
- other interest-bearing debt.

## 1.19.1. Obligations under finance leases

As provided in IAS 17, leasing arrangements are considered finance leases when all of the risks and rewards inherent in ownership are, in substance, transferred to the lessee. At inception, finance leases are recognized as a debt offsetting an asset in the identical amount, corresponding to the lower of the fair value of the property and the discounted net present value (NPV) of future minimum payments due under the contract.

Lease payments made subsequently are treated as debt service and allocated to repayment of the principal and interest, based on the rate stipulated in the contract or the discount rate used to value the debt.

## 1.19.2. Other interest-bearing debt

This heading includes:

- interest-bearing advances from customers: interest-bearing advances from customers are accounted for as borrowings, while non-interest-bearing advances are considered operating liabilities (see Note 1.20);
- loans from financial institutions;
- bonds issued by AREVA;
- short-term bank facilities.

Interest-bearing debt is recognized at amortized cost based on the effective interest rate method.

Bond issues hedged with a rate swap (fixed rate / variable rate swap) qualified as fair value hedges are revalued in the same amount as the hedging derivative.

## 1.20. ADVANCES AND PREPAYMENTS RECEIVED

There are three types of advances and prepayments from customers:

- interest-bearing advances, which are presented as borrowings (see Note 1.19.3);
- customer advances and prepayments invested in non-current assets: this heading records the amounts received from customers and used to finance capital expenditures for the performance of long-term contracts to which they have subscribed;
- advances and prepayments on orders: this heading records advances and prepayments from customers that do not fall under the preceding two categories; they are reimbursed by charges to revenue earned from the contracts in question.

Only advances and prepayments effectively collected are recognized.

## 1.21. TRANSLATION OF FOREIGN CURRENCY DENOMINATED TRANSACTIONS

Foreign currency-denominated transactions are translated by group companies into their functional currency at the exchange rate prevailing at the transaction date.

Monetary assets and liabilities denominated in foreign currencies are revalued at the exchange rate prevailing on the last day of the period. Foreign exchange gains and losses are then recognized:

- in operating income when related to operating activities: trade accounts receivable, trade accounts payable, etc.;
- in financial income when related to loans or borrowings.

#### **1.22. DERIVATIVES AND HEDGE ACCOUNTING**

#### 1.22.1. Risks hedged and financial instruments

The AREVA group uses derivative instruments to hedge foreign exchange risks, interest rate risks and the price of commodities. The derivatives used are mainly forward exchange contracts, currency and interest rate swaps, inflation swaps, currency options and commodity options.

The risks hedged relate to receivables, borrowings and firm commitments in foreign currencies, planned transactions in foreign currencies, and planned sales and purchases of commodities.

#### 1.22.2. Recognition of derivatives

As provided in IAS 39, derivatives are initially recognized at fair value and subsequently revalued at the end of each accounting period until settled.

Accounting methods for derivatives vary, depending on whether the derivatives are designated as fair value hedging items, cash flow hedging items, hedges of net investments in foreign operations, or do not qualify as hedging items.

#### Fair value hedges

This designation concerns hedges of firm commitments in foreign currencies: purchases, sales, receivables and debt. The hedged item and the derivative are revalued simultaneously and any changes in value are recorded in the income statement.

#### Cash flow hedges

This designation covers hedges of probable future cash flows: planned purchases and sales in foreign currencies, planned purchases of commodities, etc.

The highly probable hedged items are not valued in the balance sheet. Only the derivative hedges are revalued at the end of each accounting period. The portion of the gain or loss that is considered effective is recognized under "other items of comprehensive income" and presented directly in equity under the balance sheet heading "deferred unrealized gains and losses on financial instruments", on an after-tax basis. Only the ineffective portion of the hedge impacts income for the period.

The amounts recognized under "deferred unrealized gains and losses on financial instruments" are released to income when the hedged item impacts the income statement, *i.e.* when the hedged transaction is recognized in the financial statements.

#### Hedges of net investments in foreign operations

This heading relates to borrowings in a foreign currency and to borrowings in euros when the euro has been swapped into a foreign currency to finance the acquisition of a subsidiary using the same functional currency. Currency translation adjustments on these borrowings are recognized under "other items of comprehensive income" and presented on the balance sheet under "currency translation reserves" in their net amount after tax; only the ineffective portion is recognized through profit and loss.

The amount accumulated in currency translation reserves is released to profit and loss when the subsidiary in question is sold.

#### Derivatives not qualifying as hedges

When derivatives do not qualify as hedging instruments, fair value gains and losses are recognized immediately in the income statement.

## 1.22.3. Presentation of derivatives in the statement of financial position and statement of income

#### Presentation in the statement of financial position

Derivatives used to hedge risks related to market transactions are reported under operating receivables and liabilities in the statement of financial position. Derivatives used to hedge risks related to loans, borrowings and current accounts are reported under financial assets or borrowings.

#### Presentation in the statement of income

The revaluation of derivatives and hedged items relating to market transactions affecting the statement of income is recognized under "other operating income and expenses", except for the component corresponding to the discount/premium, which is recognized in financial income.

For loans and borrowings denominated in foreign currencies, fair value gains and losses on financial instruments and hedged items are recognized in financial income.

## 1.23. INCOME TAX

As provided in IAS 12, deferred taxes are determined according for all temporary differences between net carrying amounts and the tax basis of assets and liabilities, to which is applied the anticipated tax rate at the time of reversal of these temporary differences. They are not discounted.

Temporary taxable differences generate a deferred tax liability.

Temporary deductible differences, tax loss carry-forwards, and unused tax credits generate a deferred tax asset equal to the probable amounts recoverable in the future. Deferred tax assets are analyzed case by case for recoverability, taking into account the income projections of the group's strategic action plan.

Deferred tax assets and liabilities are netted for each taxable entity if the entity is allowed to offset its current tax receivables against its current tax liabilities.

Deferred tax liabilities are recorded for all taxable temporary differences of subsidiaries, associates and partnerships, unless AREVA is in a position to control the timing of reversal of the temporary differences and it is probable that such reversal will not take place in the foreseeable future. Tax accounts are reviewed at the end of each accounting year, in particular to take into account changes in tax laws and the likelihood that amounts recognized will be recovered.

Deferred taxes are recognized through profit and loss, unless they concern "other items of comprehensive income", *i.e.* changes in the value of available-for-sale securities and derivatives considered as cash flow hedges, currency translation adjustments on borrowings considered as hedges of net investments in foreign operations, or actuarial gains and losses resulting from changes in assumptions used to calculate post-employment employee benefits. Deferred taxes related to these items are also recognized under "other items of comprehensive income".



AREVA elected to recognize the value added business tax (*contribution sur la valeur ajoutée des entreprises*, CVAE); as of 2010, all of its French subsidiaries are subject to this tax on net income (including the tax for Chamber of Commerce and Industry expenses) at the rate of 1.6%. AREVA considers that the base for calculation of the CVAE is a net amount rather than a gross amount, since the value added of its largest French subsidiaries represents a relatively small percentage of their revenue, bringing the value added business tax into the scope of accounting standard IAS 12, Income Taxes.

As provided in IAS 12, this election requires recognition of deferred taxes at the rate of 1.6% on temporary differences for:

- assets that produce economic benefits subject to the CVAE tax that cannot be deducted from the value added. At January 1, 2010, the basis selected for temporary differences consisted of the net carrying amount of property, plant and equipment and intangible assets eligible for depreciation. Beginning in 2010, no deferred tax liability is recognized on asset acquisitions other than business combinations, in application of the exemption provided by IAS 12 for initial recognition of an asset or a liability;
- asset impairments and provisions that may not be deducted from the CVAE but that relate to expenses that will be deducted from the value added at a later date.

## NOTE 2. SCOPE

Since the CVAE tax is deductible for income tax purposes, deferred taxes are recognized at the standard rate on deferred tax assets and liabilities recognized for the CVAE, as described in the previous paragraph.

## **Deferred tax assets**

The recoverable share of the AREVA group's deferred tax assets is that for which the probability of recovery is higher than 50%. To determine that probability, the group performs a three-stage analysis: (a) demonstration of the non-recurrent nature of the losses; (b) analysis of the outlook for future income; and (c) analysis of tax management opportunities.

Regarding the outlook for future income, the probability of future taxable profits to offset losses carried forward is assessed based on forecasts generated as part of the budget process validated by management. The income outlook is determined for a 10-year period for each entity and/or consolidated area, based on the initial budget and income forecasts for the first 3 years; beyond that time, a standard year derived from third-year data is used. The 10-year forecasting horizon selected is consistent with the volume in group's backlog, the operating period of the assets, and the existence of certain framework agreements.

## 2.1. CONSOLIDATED COMPANIES AND ASSOCIATES (FRENCH / FOREIGN)

(number of companies)	20	14	201	3
Consolidation method	Foreign	French	Foreign	French
Full consolidation	90	44	92	51
Equity method	16	8	13	7
Sub-total	106	52	105	58
TOTAL		158		163

Note 36 provides a list of the main consolidated companies and associates.

## 2.2. 2014 TRANSACTIONS

## Sale of Euriware SA and Euriware Group

On May 7, 2014, AREVA and Capgemini signed agreements involving a commercial partnership in the form of an IS outsourcing and systems integration contract, and the acquisition of Euriware and its subsidiaries by the Capgemini group.

## Creation of AREVA H2Gen

On May 23, 2014, AREVA, Smart Energies (via its subsidiary  $Ceth_2$ ) and Ademe announced the creation of the AREVA H2Gen joint venture, which will manufacture proton exchange membrane electrolyzers.

## Creation of Anadec

On July 1, 2014, AREVA and Atox announced the creation of the Anadec joint venture, which will provide dismantling solutions and services to Japanese nuclear power plants.

## Creation of AREVA Mace Atkins

On September 18, 2014, AREVA and Atkins announced the creation of the AREVA Mace Atkins joint venture, to strengthen their competitive position in the nuclear fuel management and dismantling markets in the United Kingdom.

Transactions that were ongoing at year-end 2014 and are expected to be finalized in 2015 are described in Note 9.

## 2.3. 2013 TRANSACTIONS

#### **AREVA Mines LLC**

AREVA signed an agreement to develop uranium mines in Mongolia and to create AREVA Mines LLC as a subsidiary of AREVA (66%) and Mon-Atom (34%). Mon-Atom is a government-owned Mongolian nuclear company.

## **NOTE 3. SALES REVENUE BY REGION**

(in millions of euros)	2014	2013
Contracts accounted for according to the percentage of completion method	3,897	4,130
Other sales of products and services		
Sales of goods	3,060	3,017
Sales of services	1,380	1,915
TOTAL	8,336	9,062

Revenue for 2014 includes 36 million euros for sales of enrichment services exchanged for natural uranium in the form of  ${\sf UF}_6.$ 

Revenue for 2013 does not include any significant revenue from exchanges of goods or services for current or future consideration other than cash.

The table below presents data on contracts that were in progress at December 31, 2014 and December 31, 2013 and were recognized according to the percentage of completion method:

(in millions of euros)	2014	2013
Customer advances	7,614	6,595
Amounts withheld by customers	5	10

The group elected to present its statement of income based on the destination of income and expense items. Additional information is provided in Notes 4 and 5 below.

# **NOTE 4. ADDITIONAL INFORMATION BY TYPE OF EXPENSE**

(in millions of euros, except workforce)	2014	2013
Payroll expenses	(3,306)	(3,496)
Employees at the end of the year	41,847	44,743
Operating leases	(173)	(187)
In application of IERS 5 and IERS 11, the 2013 data were restated in relation to the data published for the previous year		

In application of IFRS 5 and IFRS 11, the 2013 data were restated in relation to the data published for the previous year

Payroll expenses include salaries and related social security contributions, excluding retirement benefits.

## NOTE 5. RECONCILIATION BETWEEN OPERATING INCOME AND EBITDA

(in millions of euros)	2014	2013
Operating income	(2,645)	34
Impairment of goodwill	214	4
Net increase in depreciation and impairment of intangible assets, net of reversals	563	263
Net increase in depreciation and impairment of property, plant and equipment, net of reversals	1,250	440
Impairment of current assets, net of reversals	177	13
Provisions, net of reversals (*)	902	26
Investment subsidies recognized through profit and loss	(1)	(2)
Costs of end-of-lifecycle operations performed	251	213
EBITDA	711	991

(\*) Including increases and reversals of provisions for employee benefits.



## **NOTE 6. OTHER OPERATING INCOME AND EXPENSES**

## **OTHER OPERATING EXPENSES**

(in millions of euros)	2014	2013
Restructuring and early retirement costs	(31)	-
Goodwill impairment losses	(214)	(4)
Impairment of property, plant and equipment and intangible assets, net of reversals	(1,025)	(160)
Income on disposals of assets other than financial assets	(21)	(6)
Other operating expenses	(294)	(248)
TOTAL OTHER OPERATING EXPENSES	(1,584)	(418)

Impairment of goodwill, intangible assets and property, plant and equipment in 2013 and 2014 are described in Notes 10, 11 and 12 respectively.

In 2014, other operating expenses included:

- costs associated with the deferral of work to open the Imouraren mining site in the amount of 48 million euros;
- provisions and expenses associated with the streamlining of the group's office sites, mainly in France, in the amount of 41 million euros.

In 2013, other operating expenses included:

- provisions for penalties or expenses associated with the early termination of long-term supply contracts, in the amount of 53 million euros; and
- provisions and expenses associated with the streamlining of the group's office sites, mainly in France, in the amount of 35 million euros.

## **OTHER OPERATING INCOME**

(in millions of euros)	2014	2013
Income on disposals of assets other than financial assets	7	-
Other operating income	57	98
TOTAL OTHER OPERATING INCOME	64	98

In 2013, "other operating income" mainly reflects the impact of changes in options used to hedge contracts associated with operations.

## NOTE 7. NET FINANCIAL INCOME

(in millions of euros)	2014	2013
Net borrowing costs	(243)	(213)
Income from cash and cash equivalents	32	44
Gross borrowing costs	(275)	(257)
Other financial income and expenses	(155)	(35)
of which share related to end-of-lifecycle operations	31	165
Income from disposal of securities earmarked for end-of-lifecycle operations	140	231
Dividends received	141	138
Income from receivables related to dismantling and from discount reversal on earmarked assets	27	33
Impairment of available-for-sale securities	-	-
Impact of changes in discount rate and amended schedules	(40)	4
Discounting reversal expenses on end-of-lifecycle operations	(237)	(241)
of which share not related to end-of-lifecycle operations	(186)	(200)
Foreign exchange gain (loss)	7	-
Income from disposals of securities and change in value of securities held for trading	5	3
Income from disposals of investments in joint ventures and associates	-	-
Dividends received	-	2
Impairment of financial assets	(13)	(21)
Interest on contract prepayments	(73)	(63)
Financial income from pensions and other employee benefits	(64)	(65)
Other financial expenses	(77)	(67)
Other financial income	29	12
NET FINANCIAL INCOME	(397)	(248)

At December 31, 2014, the net gain on sales of securities included in the share related to end-of-lifecycle operations did not include the recapture of lasting impairment of securities sold, compared with 12 million euros at December 31, 2013.

## NOTE 8. INCOME TAX

## ANALYSIS OF INCOME TAX EXPENSE

(in millions of euros)	2014	2013
Current taxes (France)	(86)	(78)
Current taxes (other countries)	(36)	(35)
Total current taxes	(122)	(112)
Deferred taxes	(878)	171
TOTAL TAX INCOME	(1,000)	59



## **RECONCILIATION OF INCOME TAX EXPENSE AND INCOME BEFORE TAXES**

(in millions of euros)	2014	2013
Net income attributable to equity owners of the parent	(4,834)	(494)
Less income from discontinued operations	648	256
Minority interests	(11)	71
Share in net income of joint ventures and associates	154	12
Tax expense (income)	1,000	(59)
Income before tax	(3,042)	(214)
Theoretical tax income (expense)	1,047	74
Reconciliation		
Operations taxed at a rate other than the full statutory rate	(35)	14
Unrecognized deferred taxes	(962)	(29)
Impairment of deferred tax assets recognized in previous years*	(938)	
Other permanent differences	(112)	
EFFECTIVE TAX INCOME (EXPENSE)	(1,000)	59

\* In the tax consolidation area including AREVA SA (France) and AREVA GmbH (Germany).

In view of the revision in the group's business and profitability outlook, and consistent with the assumptions selected for impairment tests, the group did not recognize deferred tax assets for the current year and wrote down certain deferred tax assets recognized in previous years in the two regions consolidated for tax purposes, consisting of France and Germany.

## TAX RATES USED IN FRANCE

(percentage)	2014	2013
Tax rate	34.43	34.43

The tax rate used for presentation of the tax reconciliation was kept at 34.43% insofar as the French tax consolidations are in a deficit position and parliamentary decisions to bring the tax rate to 38% are temporary in application.

## **OTHER PERMANENT DIFFERENCES**

(in millions of euros)	2014	2013
Parent / subsidiary tax treatment and inter-company dividends	2	(2)
Impact of permanent differences for tax purposes	37	34
Differences between the French tax rate and tax rates applicable abroad	(33)	5
CVAE business tax	(24)	(33)
Other permanent differences*	(95)	(4)
TOTAL PERMANENT DIFFERENCES	(112)	0

\* Including 75 million euros related to goodwill write-downs (see Note 10).

## **EFFECTIVE TAX RATE**

(in millions of euros)	2014	2013
Operating income	(2,645)	34
Net financial income	(397)	(248)
TOTAL INCOME SUBJECT TO TAX	(3,042)	(214)
Tax expense	(1,000)	59
Effective tax rate	NA	NA

## **DEFERRED TAX ASSETS AND LIABILITIES**

(in millions of euros)	December 31, 2014	December 31, 2013
Deferred tax assets	437	1,129
Deferred tax liabilities	66	30
NET DEFERRED TAX ASSETS AND LIABILITIES	370	1,098

## MAIN CATEGORIES OF DEFERRED TAX ASSETS AND LIABILITIES

(in millions of euros)	December 31, 2014	December 31, 2013
Tax impact of temporary differences related to:		
Property, plant and equipment, intangible assets and non-current financial assets	-	13
Working capital assets	(154)	(111)
Employee benefits	141	360
Provisions for restructuring	1	3
Tax-driven provisions	(102)	(309)
Provisions for end-of-lifecycle operations	73	86
Impact of loss carry-forwards and deferred taxes	175	862
Other temporary differences	238	195
NET DEFERRED TAX ASSETS AND LIABILITIES	370	1,098

## DEFERRED TAX ASSET AND LIABILITY REVERSAL SCHEDULE

(in millions of euros)	December 31, 2014	December 31, 2013
Reversal in more than 12 months	345	979
Reversal in 12 months or less	26	119



## CHANGE IN CONSOLIDATED DEFERRED TAX ASSETS AND LIABILITIES

(in millions of euros)	2014	2013
AT JANUARY 1	1,098	996
Tax on continuing operations, recognized in profit or loss	(878)	171
Tax recognized in discontinued operations	-	28
Tax recognized directly in "other items of comprehensive income"	111	(76)
Change in consolidated group	15	(12)
Currency translation adjustments	25	(9)
AT DECEMBER 31	370	1,098

## DEFERRED TAX INCOME AND EXPENSES BY CATEGORY OF TEMPORARY DIFFERENCE

(in millions of euros)	2014	2013
Tax impact of temporary differences related to:		
Property, plant and equipment, intangible assets and non-current financial assets	300	) 39
Working capital assets	(62	) (55)
Employee benefits	(6	) 18
Provisions for restructuring	12	2 (2)
Tax-driven provisions	164	(26)
Provisions for end-of-lifecycle operations	S	) (11)
Net loss carry-forwards and deferred taxes	273	3 228
Impairment of deferred taxes	(1,900	) (29)
Other temporary differences	332	2 8
NET DEFERRED TAX INCOME (EXPENSES)	(878	) 171

## DEFERRED TAX RECOGNIZED IN "OTHER ITEMS OF COMPREHENSIVE INCOME"

(in millions of euros)	2014	2013
IAS 32-39 impacts (change in value of available-for-sale assets, cash flow hedges and hedges of a net investment)	61	(56)
Other	50	(20)
DEFERRED TAX RECOGNIZED DIRECTLY IN "OTHER ITEMS OF COMPREHENSIVE INCOME"	111	(76)

## **UNRECOGNIZED DEFERRED TAX ASSETS**

(in millions of euros)	2014	2013
Tax credits	-	-
Tax losses	1,618	631
Other temporary differences	1,453	474
TOTAL UNRECOGNIZED DEFERRED TAX ASSETS	3,070	1,105



The following operations meet the criteria of IFRS 5 for classification as assets and liabilities of discontinued operations at December 31, 2014, and each constitutes a separate and leading branch of activity.

## Wind Energy

On January 20, 2014, AREVA and Gamesa entered exclusive negotiations to create a joint venture in the field of offshore wind. On July 7, 2014, AREVA and Gamesa signed binding agreements to create this joint venture, which will be held in equal shares by the two groups. The effective establishment of the joint venture is scheduled for March 2015. In view of governance rules agreed upon with Gamesa, this joint venture will be consolidated under the equity method.

#### Solar Energy

In the first half of 2014, AREVA initiatives launched in 2013 with potential partners to set up a strategic partnership agreement or to sell an equity interest in AREVA Solar. At the end of June 2014, AREVA noted that conditions were not conducive to the creation of a joint venture with a partner in this field with satisfactory technical development prospects and sales opportunities in the short to medium term. Consequently, in July 2014, AREVA decided to discontinue this business upon

## **NET INCOME FROM DISCONTINUED OPERATIONS**

The contribution to consolidated income of discontinued operations is as follows:

the completion of current construction projects, unless a full takeover bid is made in the short term. All property, plant and equipment and intangible assets dedicated to this business were written off, for a total amount of 53 million euros.

Having received different signs of interest in purchasing this business, AREVA entered into negotiations in the second half of 2014 with a potential partner which is currently a minority shareholder in AREVA Solar Inc. in order to determine the conditions in which the business could continue if that partner were to acquire a majority interest in the company. These discussions were ongoing on an exclusive basis as of the date of year-end closing and have a good chance of success in 2015.

Energy storage

In the second half of 2013, AREVA had begun actively seeking partners for the creation of joint ventures in the field of renewable energy storage solutions. On May 23, 2014, AREVA, Smart Energies and Ademe announced the creation of the AREVA H2Gen joint venture for the production of hydrogen using proton exchange membrane electrolyzers (PEM – see Note 2.2). In 2014, AREVA continued to look for partners for the creation of joint ventures dedicated to the development of its others activities in the field of energy storage.

(in millions of euros)	2014	2013
Revenue	66	321
Operating income	(654)	(279)
Net financial income	(10)	(13)
Income tax	16	36
Net income for the period	(648)	(256)
Minority interests	(12)	(9)
Net income attributable to owners of the parent	(635)	(246)

These amounts include the contribution of the Wind Energy, Solar Energy and Energy Storage Business Units.

Operating income from discontinued operations includes:

- impairment of assets (including goodwill) in the Wind Energy and Solar Energy businesses in the total amount of 135 million euros;
- losses on several contracts in the Wind Energy and Solar Energy businesses (including losses at completion) in the total amount of 215 million euros;

• provisions for contingencies and warranties on contracts in the Wind Energy and Solar Energy businesses in the total amount of 205 million euros.



## ASSETS AND LIABILITIES OF DISCONTINUED OPERATIONS

(in millions of euros)	2014
Non-current assets	208
Goodwill on consolidated companies	29
Property, plant and equipment and intangible assets	172
Other non-current financial assets	6
Current assets	167
Inventories and work-in-process	20
Trade receivables and other operating receivables	145
Current tax assets	
Other non-operating receivables	
Cash and cash equivalents	1
Other current financial assets	1
TOTAL ASSETS OF DISCONTINUED OPERATIONS	375

(in millions of euros)	2014
Non-current liabilities	11
Employee benefits	
Other non-current provisions	
Long-term borrowings	11
Deferred tax liabilities	
Current liabilities	381
Current provisions	281
Short-term borrowings	10
Advances and prepayments received	10
Trade payables and other operating liabilities	79
Current tax liabilities	
Other non-operating liabilities	
TOTAL LIABILITIES OF DISCONTINUED OPERATIONS	392

These amounts include the assets and liabilities of the Wind Energy, Solar Energy and Energy Storage Business Units.

## **DISCONTINUED ASSETS AND LIABILITIES AT DECEMBER 31, 2013**

(in millions of euros)	Assets held for sale	Discontinued operations	Total
Non-current assets	18	334	353
Goodwill on consolidated companies		79	79
Property, plant and equipment and intangible assets		247	247
Other non-current financial assets	5	6	11
Deferred tax assets	13	2	15
Current assets	52	239	291
Inventories and work-in-process	3	107	110
Trade receivables and other operating receivables	49	126	175
Current tax assets			-
Other non-operating receivables			-
Cash and cash equivalents		5	5
Other current financial assets			-
TOTAL ASSETS HELD FOR SALE	70	573	643

(in millions of euros)	Liabilities held for sale	Discontinued operations	Total
Non-current liabilities	14	26	40
Employee benefits	14		14
Other non-current provisions			-
Long-term borrowings		9	9
Deferred tax liabilities		17	17
Current liabilities	118	231	349
Current provisions	6	49	55
Short-term borrowings		9	9
Advances and prepayments received		13	13
Trade payables and other operating liabilities	113	160	273
Current tax liabilities			-
Other non-operating liabilities			-
TOTAL LIABILITIES HELD FOR SALE	132	258	389

These amounts include assets and liabilities of the Wind Energy and Solar Energy Business Units, and those of Euriware, which meet IFRS 5 criteria for classification as assets and liabilities of discontinued operations at December 31, 2013.

Discontinued assets include the goodwill of the Solar Energy cash-generating unit. At December 31, 2013, considering the absence of new orders and ongoing difficulties in the performance of existing contracts, the residual goodwill was written off entirely, representing impairment of 71 million US dollars (51 million euros).



## **NOTE 10. GOODWILL**

The change in goodwill from December 31, 2013 to December 31, 2014 was as follows:

(in millions of euros)	December 31, 2013	Increase	Disposals	Impairment	Discontinued operations	Currency translation adjustments and other	December 31, 2014
Mining	897			(200)		100	797
Front End	1,163					(1)	1,162
Reactors & Services	1,436					15	1,451
Back End	225					1	227
Renewable Energies	43			(14)		1	30
TOTAL	3,764			(214)		117	3,667

## **GOODWILL IMPAIRMENT TESTS**

The group conducted impairment tests on all cash-generating units to which goodwill is allocated.

As indicated in Note 1.10, these tests consist of comparing the net carrying amount of assets of cash-generating units (CGU) (net of PPE and intangible asset impairments explained in Notes 11 and 12) with their recoverable amount, with the latter generally determined using the discounted cash flow method (value in use).

The discount rates used for these tests are based on the calculation of the average cost of capital for each business segment. They are calculated using observed market data and evaluations prepared by specialized firms (10- 20- and 30-year risk-free rates, risk premiums on equity markets, volatility indices, credit spreads and debt ratios of comparable businesses in each segment).

The following assumptions were used to determine the net present value of the cash flows to be generated by the CGUs:

At December 31, 2014	After tax discount rate	Growth rate of pro forma year	Final year
Mining	10.00%	Not applicable	2069
Front End:			
Chemistry, Enrichment	7.00%	1.75%	2024
Fuel	7.00%	1.75%	2024
Reactors & Services	7.50%	1.75%	2019 to 2024*
Back End	5.00%	1.75%	2023
Renewable Energies	9.50%	2%	2019

\* Depending on the CGU.

At December 31, 2013	After tax discount rate	Growth rate of pro forma year	Final year
Mining	10.00%	Not applicable	2065
Front End:			
Chemistry, Enrichment	7.00%	2%	2023
Fuel	7.00%	2%	2023
Reactors & Services	8.00%	2%	2018 to 2023*
Back End	5.50%	2%	2023
Renewable Energies	9.00%	2%	2018

\* Depending on the CGU.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2014

These impairment tests were calculated using exchange rates in effect on the balance sheet date.

On 31 December 2014, impairment tests in the Uranium Mining and Bioenergy CGUs showed impairment with an impact on the statement of income of 200 million euros and 14 million euros respectively; no impairment of goodwill had been recognized at December 31, 2013.

In the Mining segment, concerning the natural uranium market, spot prices and long-term price forecasts for natural uranium deteriorated significantly in 2014.

The total net carrying amount of goodwill, intangible assets and property, plant and equipment in the Uranium Mining CGU was 4.2 billion euros at December 31, 2014, including 797 million euros for goodwill, after write-downs of Somair assets in the amount of 25 million euros, of Trekkopje assets in the amount of 100 million US dollars (75 million euros) (see Note 11) and of goodwill in the amount of 200 million euros.

The recoverable value of the Mining CGU is determined based on the value in use. The value in use of mining operations is calculated based on forecast data for the entire period, from mining at existing mines to marketing of the corresponding products (*i.e.* until 2069), rather than on a base year. The value in use is determined by discounting future cash flows at the rate of 10% (the same rate as for December 31, 2013) and using an exchange rate of 1.2141 US dollars per euro.

For sales not covered by an existing contract, future cash flows were determined using AREVA price forecasts to 2030. Since June 30, 2014, AREVA has used its own price forecasts rather than those published by UxC because the former's anticipation of future uranium prices between 2020 and 2030 diverges from that of UxC. The price forecast is based among other things on AREVA's vision of changes in uranium supply (uranium mines and secondary resources) and demand (linked to the quantity of material used by world nuclear power plants over the period and the utilities'' procurement strategies).

To do this, the group developed a model to forecast the balance between supply and demand in the uranium market and to predict the behavior of market participants in order to forecast future uranium prices.

In the second half of 2014, the price forecast was updated based on the most recent assumptions available concerning supply and demand (taking into account in particular the latest known schedule for restart of the Japanese reactors).

The result of this test is less than the net carrying value, leading to goodwill impairment in the amount of 200 million euros.

The calculated value in use until 2025 based on UxC price forecasts would be 833 million euros less than the net carrying value.

The value in use of the assets of the Uranium Mining CGU would fall by the amounts below if any of the following assumptions were used:

- a discount rate of 10.5% rather than 10%: 225 million euros;
- a euro/US dollar exchange rate of 5 eurocents higher (*i.e.* 1.2641 rather than 1.2141): 341 million euros;
- or a uranium sales price assumption of 5 dollars less per pound than the price forecast drawn up by AREVA for the entire 2015-2030 period: 571 million euros.

In this respect, the sensitivity analysis was carried out without taking into account a revision of economically mineable uranium quantities or production schedules resulting from this price change.

The total net carrying amount of the Bioenergy CGU's goodwill, property, plant and equipment, and intangible assets was 48 million euros at December 31, 2014, including 30 million euros of goodwill. The Bioenergy CGU impairment test was prepared based on a business plan that had been revised downwards compared with the previous year. Given the delays experienced in the materialization of commercial prospects, impairment of 14 million euros was observed. The use of a discount rate of 10.5% instead of 9.5%, or of a growth rate of 1% ad infinitum instead of 2%, would not have a significant impact of the outcome of the impairment test.

The impairment tests conducted at December 31, 2014 on the Enrichment, Reactors & Services and Back End CGUs did not lead to recognition of impairment of goodwill. Sensitivity analyses showed that a discount rate of 1% higher or a growth rate for the base year of 1% lower than the above-mentioned rates would not have led to the recognition of impairment for the goodwill allocated to these cash-generating units, since their recoverable value is greater than the net carrying amount of their assets. On the other hand, the goodwill allocated to the Fuel CGU would be written down by 68 million euros if a discount rate of 8% were used instead of the 7% used for the impairment test.

In the Front End segment, an assumption of a 5% decrease in future sales prices in relation to the selected scenario, which is based on long-term sales price forecasts for of separative work units (SWU) developed by UxC for the share of future sales not under contract, would not generate goodwill impairment for the Enrichment CGU.



## **NOTE 11. INTANGIBLE ASSETS**

		December 31, 2014				
(in millions of euros)	Gross	Amortization and impairment	Net	Net		
Pre-mining expenses	1,894	(816)	1,079	1,053		
Research and development expenses	1,086	(716)	370	709		
Mineral rights	1,180	(1,180)	-	-		
Concessions and patents (excluding mines)	460	(89)	371	371		
Software	617	(508)	109	128		
Intangible assets in progress	374	(224)	150	157		
Other	379	(190)	189	115		
TOTAL	5,991	(3,723)	2,267	2,533		

## 2014

(in millions of euros)	Pre-mining expenses	R&D expenses	Mineral rights	Concessions and patents (excluding mines)	Software	Intangible assets in progress	Other	Total
Gross amount at December 31, 2013	1,751	974	1,048	446	605	353	295	5,472
Internally generated assets	31	25				11	7	75
Acquired assets	106	40		1	1	54	102	303
Disposals	(1)	-	-	(3)	(6)	(7)	(3)	(20)
Discontinued assets and operations		(2)			(1)			(2)
Currency translation adjustments	65	50	133	2	3	24	12	289
Change in consolidated group								
Other changes	(57)			14	12	(62)	(34)	(126)
Gross amount at December 31, 2014	1,894	1,086	1,180	460	617	374	379	5,991
Depreciation and provisions at December 31, 2013	(698)	(265)	(1,047)	(75)	(477)	(196)	(180)	(2,939)
Net increase in depreciation / impairment <sup>(1)</sup>	(79)	(416)	-	(14)	(34)	(3)	(18)	(565)
Disposals	1			2	4	1	2	9
Discontinued assets and operations		2						2
Currency translation adjustments	(36)	(37)	(133)	(2)	(2)	(27)	(3)	(239)
Change in consolidated group					2			2
Other changes	(4)				(1)		9	5
Depreciation and provisions at December 31, 2014	(816)	(716)	(1,180)	(89)	(508)	(224)	(190)	(3,723)
NCA as of December 31, 2013	1,053	709	0	371	128	157	115	2,533
NET CARRYING AMOUNT AT DECEMBER 31, 2014	1,079	370	0	371	109	150	189	2,267

(1) Impairment of intangible assets in the amount of 331 million euros was recognized at December 31, 2014.

Investments in intangible assets in 2014 primarily concern mining exploration expenses in Canada, Niger and Kazakhstan, and research and development expenses related to the EPR reactors, especially the "EPR NM" program conducted in cooperation with EDF.

In addition to amounts capitalized under "Pre-mining expenses", exploration expenses in the amount of 38 million euros were recognized through profit and loss under "Research and Development expenses" at December 31, 2014 (vs. 51 million euros at December 31, 2013).

As indicated in Notes 1.1, "Estimates and assumptions" and 1.10, "Impairment of property, plant and equipment, intangible assets and goodwill", the group performs asset impairment tests based on its best estimate of their recoverable value, which corresponds to the higher of their estimated fair value, net of disposal expenses, based on projected cash flows resulting from the budget, the strategic action plan and the assumptions they contain.



## **CAPITALIZED DEVELOPMENT EXPENSES**

The net value of intangible assets corresponding to capitalized development expenses for the entire range of generation III nuclear reactors (generic EPR reactor, EPR reactor for the US market, specific EPR reactor developments for the Finnish market) was 238 million euros at December 31, 2014 (604 million euros at December 31, 2013).

Impairment tests of these intangible assets are highly dependent on commercial calendar assumptions, volume and sales price forecasts, and the profitability expected from future sales of these reactors.

It should be noted that in 2013 EDF signed a series of agreements with the British government, CGNPC, CNNC and AREVA for the construction of two EPR reactors at the Hinkley Point site in the United Kingdom. These agreements continued in effect at December 31, 2014.

AREVA did impairment tests on capitalized development expenses for the EPR reactor at December 31, 2014 using the same discount rate as for impairment tests on the Reactors & Services Business Group's goodwill (see Note 10).

These tests led to the recognition of impairment:

- in the amount of 323 million US dollars (244 million euros) concerning capitalized development expenses to obtain the ERP license in the United States, for which the total amount capitalized comes to 330 million US dollars, reflecting a reduction in the number of prospective clients likely to choose the EPR design licensed in the United States, in addition to schedule postponements. However, it should be noted that nuclear power's share of the energy mix in the United States is highly sensitive to US energy policy and to its regulatory requirements;
- in the amount of 55 million euros concerning specific development expenses capitalized for the Finnish EPR reactor, considering that a second order is unlikely in the foreseeable future following the Olkiluoto 3 project. AREVA, after having responded to two calls for tender issued by Fennovoima and TVO for the construction of new nuclear reactors in Finland, continued its discussions with TVO on the Olkiluoto 4 project. On May 20, 2014, TVO asked the Finnish government for an additional 5-year extension of the deadline to submit the construction license application for the Olkiluoto 4 reactor, compared with the initial deadline of June 2015. The Finnish government denied the request on September 25, 2014.

As regards capitalized development expenses for the generic EPR reactor (147 million euros at December 31, 2014):

- in connection with the review of the strategic outlook for the new builds business, impairment in the amount of 63 million euros was recognized at December 31, 2014 following the downward revision of volume and schedule assumptions used in market forecasts for new EPR reactors;
- sensitivity analyses show that no additional impairment would have to be recognized as a result of adding 1% to the discount rate or a 2-year delay in the provisional marketing schedule for EPR reactors compared with the assumptions used at December 31, 2014, or as a result of a 15% deterioration in absolute value of margins per reactor compared with the assumptions used in the impairment test.

## **MINING ASSETS IN NIGER**

## Imouraren

At December 31, 2014, the net carrying amount of the Imouraren project's property, plant and equipment and intangible assets was 865 million euros. This value is justified by the potential resale value of the deposit's reserves and resources, which is estimated at 1.6 billion euros based on a valuation per pound of uranium in the ground.

#### Somaïr

At December 31, 2014, the net carrying amount of Somaïr's property, plant and equipment and intangible assets was 167 million euros.

The strategic partnership agreement signed between the State of Niger and AREVA on May 26, 2014 provides for the Somaïr mining convention to be renewed in accordance with mining law no. 2006-26 of August 9, 2006.

To ensure the economic and financial viability of this company:

- a cost and CAPEX reduction plan was decided;
- the payment of certain rights and payables due by the mining company to the parties to the agreement has been deferred;
- the State of Niger established a mechanism neutralizing the value added tax.

In addition, a complete revision of Somaïr's business plan was finalized in the second half of the year. It includes the new tax and market parameters and the expected impact of cost reduction plans. This review will give rise to a revised mining asset development plan balancing profitability with the service life of these assets.

To prepare the financial statements for the year ended December 31, 2014, Somair's value in use was updated based on the revised business plan, with future cash flows discounted using a 12% discount rate (the same as that used at the end of 2013). The estimated value in use was 25 million euros lower than the value to be tested. Accordingly, partial impairment in the amount of 25 million euros was recognized for this asset at December 31, 2014.

#### **MINING ASSETS IN NAMIBIA**

#### Trekkopje

At December 31, 2014, the net carrying amount of Trekkopje's property, plant and equipment and intangible assets was 426 million US dollars. This amount takes into account development costs for mining infrastructure of 248 million US dollars and for the desalination plant of 178 million US dollars.

Insofar as AREVA, on its own initiative, has begun discussions with NamWater for the sale of the desalination plant, the value in use was tested separately from that concerning the mining infrastructure. The desalination plant's value in use was confirmed based on an updated business plan using a discount rate of 8% (unchanged from the end of 2013).

At December 31, 2014, the net carrying value of the mine's property, plant and equipment and intangible assets is not justified by the potential resale value of the deposit's reserves and resources of 100 million US dollars, based on a valuation per pound of uranium in the ground. Accordingly, partial impairment in the amount of 100 million US dollars was recognized for this asset at December 31, 2014 (*i.e.* 82 million euros based on the year-end exchange rate and 75 million euros based on the average exchange rate for the year).

## CAPITALIZED EXPENSES ASSOCIATED WITH STUDIES TO PREPARE FOR THE CONSTRUCTION OF A URANIUM ENRICHMENT PLANT IN THE UNITED STATES

The net carrying amount of intangible assets corresponding to studies to prepare for the construction of the EREF uranium enrichment plant in the United States was 88 million euros at December 31, 2012 after recognition of impairment of 100 million euros in 2012.

With no partner to carry out the EREF project, the estimated date for the start of plant construction was postponed in 2012 to the end of the ACTION 2016 Plan. In addition, long-term SWU price forecasts were lowered by 4% in 2012.



The impairment test conducted based on these assumptions thus led AREVA to recognize impairment of 100 million euros.

The outcome of the impairment test performed at December 31, 2013 had led AREVA to a full write-off of the residual value of fixed assets in the amount of 144 million US dollars (108 million euros).

The results of the impairment test on these assets remains highly dependent on assumptions for the plant construction schedule, the price forecast for the separative

work units (SWU), the discount rate used and the euro / US dollar exchange rate used, insofar as ETC's purchase price from the centrifuges is expressed in euros.

At the end of 2013, lacking a partner for the EREF project and in view of current macroeconomic conditions and the outlook for the enrichment market, AREVA suspended engineering work on this project.

However, AREVA reserves possibility of resuming the project if macroeconomic conditions and the enrichment market outlook were to improve significantly.

## **NOTE 12. PROPERTY, PLANT AND EQUIPMENT**

			Plant, equipment	End-of-lifecycle assets – AREVA			
(in millions of euros)	Land	Buildings	and tooling	share	Other	In process	Total
Gross amount at December 31, 2013	187	2,338	19,054	1,235	1,610	2,658	27,083
Investments		19	55		10	812	897
Disposals	(7)	(33)	(124)		(38)	(4)	(206)
Discontinued assets and operations		(1)	(1)			(1)	(3)
Currency translation adjustments	3	19	66	2	80	7	177
Change in consolidated group							
Other changes	14	205	866	145	132	(1,026)	336
Gross amount at December 31, 2014	197	2,547	19,916	1,383	1,795	2,446	28,283
Depreciation and provisions at December 31,							
2013	(85)	(1,211)	(14,712)	(1,002)	(1,134)	(230)	(18,375)
Net increase in depreciation / impairment (1)	(7)	(152)	(526)	(34)	(152)	(378)	(1,249)
Disposals	1	30	107		34		172
Discontinued assets and operations		1	1			1	3
Currency translation adjustments		(11)	(25)	(1)	(64)		(102)
Change in consolidated group							
Other changes	1	(2)	3		(14)	(2)	(14)
Depreciation and provisions at December 31,							
2014	(90)	(1,345)	(15,152)	(1,038)	(1,329)	(610)	(19,565)
Net carrying amount at December 31, 2013	102	1,127	4,342	233	477	2,428	8,708
NET CARRYING AMOUNT FOR THE YEAR ENDED DECEMBER 31, 2014	107	1,202	4,764	345	466	1,836	8,719

(1) Impairment of Property, Plant and Equipment in the amount of 696 million euros was recognized at December 31, 2014.

At December 31, 2014, the net carrying amount of capitalized finance lease contracts was 10 million euros (19 million euros at December 31, 2013).

Interest expenses capitalized in the cost of property, plant and equipment were not significant at December 31, 2014 and December 31, 2013.

## **COMURHEX II PLANT**

The cost of construction for the first phase of the Comurhex II uranium conversion plant was raised by 95 million euros during the first half of 2014.

The value in use of property, plant and equipment in progress, calculated at June 30, 2014 using a discount rate of 7.25% (compared with 7.00% at December 31, 2013),

and conversion unit sales price assumptions resulting from AREVA's mediumand long-term forecasts for supply and demand, totaled 458 million euros, *i.e.* 96 million euros less than their carrying amount. The analysis used to determine sales price assumptions was the same as that used at December 31, 2013. Consequently, this asset was written down by 96 million euros at June 30, 2014.

The forecast data used for this project at December 31, 2013 and June 30, 2014 were based on the assumption of a ramp-up of production capacity at the Comurhex II plant from 15,000 metric tons to 21,000 metric tons per year beyond the time-frame of the ACTION 2016 Plan.

A study on optimization of the schedule for completing the first phase of the Comurhex II plant and on the assumption of the production capacity ramp-up to 21,000 metric tons per year was conducted in the second half of 2014, as announced upon publication of the financial statements for the period ended June 30, 2014. Based in particular on changes in market conditions and on an analysis of supply and demand in future years, and taking into account future investment capabilities, this study led to the decision to postpone expansion of the Comurhex II plant's production capacity from 15,000 metric tons to 21,000 metric tons per year until beyond 2030. Future sales price forecasts for conversion units were also revised at December 31, 2014.

As a result, impairment in the amount of 599 million euros was recognized and the value of property, plant and equipment in progress associated with Comurhex II was written down in its totality at December 31, 2014.

The outcome of the impairment test at December 31, 2014 remains sensitive to different parameters:

- using a discount rate of 6.50% instead of 7.00% would lead to a write-back of impairment of property, plant and equipment in progress in the amount of 57 million euros;
- using a future sales price for conversion units that is 5% higher than assumptions used in performing the impairment test would lead to a write-back of impairment in the amount of 97 million euros.

## **NOTE 13. END-OF-LIFECYCLE OPERATIONS**

The table below summarizes the AREVA group accounts affected by the treatment of end-of-lifecycle operations and their financing.

Assets (in millions of euros)	December 31, 2014	December 31, 2013	Shareholders' equity and liabilities (in millions of euros)	December 31, 2014	December 31, 2013
End-of-lifecycle assets – AREVA share (1)	345	233			
Assets earmarked for end-of-lifecycle operations	6,203	6,256	Provisions for end-of-lifecycle operations	6,985	6,437
<ul> <li>End-of-life-cycle assets – third party share <sup>(2)</sup></li> </ul>	188	199	<ul> <li>funded by third parties <sup>(2)</sup></li> </ul>	188	199
<ul> <li>Assets earmarked for end-of-life cycle operations <sup>(3)</sup></li> </ul>	6,015	6,057	funded by AREVA	6,797	6,238

(1) Amount of total provision to be funded by AREVA still subject to amortization.

(2) Amount of the provision to be funded by third parties.

(3) Portfolio of financial assets and receivables earmarked to fund AREVA's share of the total provision.

## **END-OF-LIFECYCLE ASSETS**

In addition to the value of its property, plant and equipment, the group recognizes the deferred portion of the group's share of end-of-lifecycle operations, such as nuclear facility dismantling, decontamination, etc. The group's share of this adjustment account asset is amortized according to the same schedule as the underlying property, plant and equipment. It also recognizes a third party asset for the share of dismantling and waste retrieval and packaging operations to be funded by certain customers. Conversely, a provision is recorded to cover its total estimated end-of-lifecycle costs as soon as a facility starts up, including any share funded by third parties.

		AREVA share		Third party	December 31,	December 31,
(in millions of euros)	Gross	Amortization	Net	share	2014	2013
Dismantling	1,383	-1,038	345	188	533	432
Waste retrieval and packaging						-
TOTAL	1,383	-1,038	345	188	533	432

(in millions of euros)	NCA as of December 31, 2013	Increase	Decrease	Increases in reversals of amortization and provisions	Discounting reversals	Other changes	Net carrying amount at December 31, 2014
AREVA share	233	150	-5	-34		1	345
Third party share	199	4	-22		7		188
TOTAL	432	154	-27	-34	7	1	533



The third party share remaining in the end-of-lifecycle assets mainly corresponds to the funding expected from CEA for its share of funding for the Pierrelatte site. This heading increases by the amount of discounting reversals and decreases as work is performed.

The increase in the group's share of these assets is mainly attributable to changes in discount and inflation rates, the gradual spin-up of the Georges Besse II plant and the triennial update of cost estimates, in particular for the Melox plant.

## **PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS**

(in millions of euros)	Net carrying amount at December 31, 2013	•	Discounting reversals	Change in assumptions, revised budgets, etc.	Net carrying amount at December 31, 2014
Provision for nuclear facility dismantling	4,685	-168	177	518	5,212
Provision for waste retrieval and packaging	1,752	-76	60	37	1,773
PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS	6,437	-244	237	555	6,985

Of the 555 million euros for changes in assumptions, revised estimates, etc.:

- 112 million euros are due to the change in discount and inflation rates (see Note 1.18);
- 289 million euros were recognized after "follow-up letters" were received from the regulator in the first and second halves of 2014, to increase the provisions for uncertainties (as defined in paragraph 3, section II, article 2 of decree no. 2007-243 of February 23, 2007 on the securement of funding for nuclear expenses) relating to dismantling and waste retrieval and repackaging operations in the Back End Business Group.

The balance, *i.e.* 154 million euros, results mostly from:

- in the Back End Business Group: additional provisions relating to dismantling operations and waste retrieval and packaging at the UP2-400 plant at La Hague (to strengthen the project teams and reflect technical changes in waste retrieval and packaging projects); additions for dismantling operations at the Cadarache site due to a schedule shift and a revision in cost estimates; and the triennial revision of future dismantling cost estimates at the Melox plant (including changes in the treatment process for alpha waste produced by that plant);
- in the Front End Business Group: gradual spin-up of the Georges Besse II plant.

## Provisions for end-of-lifecycle operations of facilities covered by the French law of June 28, 2006

Provisions for end-of-lifecycle operations of facilities covered by the Law of June 28, 2006 pertaining to the sustainable management of nuclear materials and nuclear waste were broken down as follows at December 31, 2013 and December 31, 2014:

(in millions of euros)	December 31, 2014	December 31, 2013
Dismantling of regulated nuclear facilities, excluding long-term radioactive waste management	4,359	3,847
Dismantling of used fuel, excluding long-term radioactive waste management	-	-
Retrieval and packaging of legacy waste, excluding long-term radioactive waste management	1,221	1,230
Long-term radioactive waste management	870	841
Post-closure disposal center monitoring costs	40	39
Total provisions for end-of-lifecycle operations of facilities covered by the French law of June 28,		
2006	6,490	5,957
Provisions for end-of-lifecycle operations of facilities not covered by the French law of June 28, 2006	495	480
TOTAL PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS	6,985	6,437

## Nature of the commitments

As a nuclear facility operator, the group has a legal obligation to secure and dismantle its production facilities when they are shut down permanently in whole or in part. The group must also retrieve and package, in accordance with prevailing standards, the various waste types generated by operating activities which could not be processed during treatment. Group facilities subject to these obligations include facilities in the front end of the fuel cycle, in particular the Pierrelatte plants and the fuel fabrication facilities, but they are predominantly facilities in the back

end of the fuel cycle, including the treatment plants at La Hague and the MELOX and Cadarache MOX fuel fabrication plants.

In December 2004, the CEA, EDF and AREVA NC signed an agreement concerning the Marcoule plant that transfers the responsibilities of site owner-operator to the CEA, which will be responsible for funding the site cleanup effort. This agreement does not cover final disposal costs for long-lived high- and medium-level waste. Accordingly, provisions for the Marcoule site include only AREVA's share of waste shipping and final waste disposal costs. 20.2 Notes to the consolidated financial statements for the year ended December 31, 2014

Determination of provisions for end-of-lifecycle operations

The methods used by the group to determine the cost of end-of-lifecycle operations are presented in detail in the triennial report required by the law of 2006 and sent to the regulator.

#### Dismantling and waste retrieval and packaging

The valuation of facility dismantling costs is based on methods that provide at all times the best estimate of costs and schedules for these operations:

- for facilities in operation, a technical and economic model produced mainly with the ETE EVAL application is used for the different types of facilities to be dismantled. It is based on an equipment inventory, their estimated radiological condition and models using cost element scenarios and ratios;
- when dismantling operations have begun, a series of studies are carried out to assess cleanup and dismantling expenses with an increasingly narrow margin of uncertainty.

For the operating facilities, the cost estimates will be updated at least once every three years and when there is a change in applicable regulations or substantial technological developments may be anticipated. In 2014, for example, as part of the triennial revision, cost estimates were revised for the Romans (INB 98), Melox (INB 151) and Jarrie (ICPE) facilities. For facilities undergoing dismantling, the estimates will be updated yearly. In accordance with the French program law no. 2006-739 of June 28, 2006 on the sustainable management of radioactive materials and waste, the group will submit a report to the administrative authority every three years on cost estimates and calculation methods for provisions, in addition to an annual update of this report.

The provisions related to nuclear facility dismantling and waste retrieval and packaging rely on the following assumptions:

- some waste from fuel treatment operations performed under older contracts could not be processed on site, as packaging facilities were not yet in service at that time. This waste will be retrieved and packaged following a scenario and using technical methods approved by the regulatory authority;
- an inventory of costs to bring the site to the target decommissioning level will be established, with buildings generally decontaminated where they stand except for special circumstances, and with all nuclear waste areas decommissioned to conventional waste status. The final condition (buildings and soils) of the facilities to be dismantled serves as a base assumption for the dismantling scenario and cost estimates. For each facility, a dismantling plan is systematically prepared, either during the initial license application or during the safety review. Soil cleanup expenses, if applicable, are determined with the objective of returning the facility to a final state of decontamination consistent with current regulations. Naturally, this assumption reflects the future use intended by AREVA for the industrial site in question, beyond the timeframe planned for dismantling operations;
- operations would start without any waiting period for radioactive decay after final shutdown of production;
- expenses are valued based on anticipated costs, including subcontracting, manpower, radiation protection, consumables, equipment, treatment of the resulting waste, and shipment to and disposal by Andra (see "Final waste removal and disposal", below). The valuation also includes a share of technical support costs of the entities in charge of the dismantling operations.

 nuclear operations would continue at the La Hague and Pierrelatte sites after the facilities currently in operation have been shut down.

In addition, it reflects the contingencies and financial impacts of risk analyses performed for each project.

For projects already in progress, the analysis is based on an inventory of risks and an estimate of their financial and schedule consequences, weighted by their probability of occurrence.

The valuations selected for end-of-lifecycle provisions are, at the date of closing, the best estimate of the resources needed to meet current facility cleanup and dismantling obligations.

The valuations drawn up by AREVA factor in uncertainties, unforeseen events and contingencies, determined as follows:

- a conservative approach for the valuation in general, with the use of worst-case scenarios;
- a risk and opportunity analysis based on the group's applicable standards is included in the operating cost estimates.

These allowances for uncertainties and contingencies include risks that are inherent to the projects and exclude risks over which the projects have no control (such as a change in the regulations). In general, the valuation of end-of-lifecycle costs carries uncertainties inherent in the long operating period and, for example, the following items:

- nuclear safety, occupational and environmental protection regulations set by public and nuclear safety authorities are likely to change over time, impacting project schedules;
- detailed knowledge of the physical condition of some older facilities must sometimes be bolstered by inventories and radiological characterization which will only be feasible during subsequent dismantling phases. Dismantling scenarios will have to be adjusted to reflect improved knowledge of the facilities;
- schedules for the different projects are often closely linked, such that any delay in a project may result in delays and cost overruns for other end-of-lifecycle operations.

In addition, items related to the definition and valuation of waste disposal systems and facilities that are unknown at present, for instance:

- estimates of future expenses for deep disposal of medium- and high-level waste;
- the scope and terms for Andra's future acceptance of waste at its long-lived low-level disposal site and deep geological repository (CIGEO).

The estimates are revised annually to take inflation into account. These expenses are then allocated by year, adjusted for inflation and discounted to present value, as explained in Note 1.18. A provision is then recognized based on the present value. The discounting reversal is recognized in "Net financial expense".

The discount rate is determined based on long series of bonds with maturities comparable to those of the liabilities, to take into account long-term interest trends consistent with the long-term schedule of actual disbursements. The selected discount rate is also capped as provided in the decree of February 23, 2007 and the administrative order of March 21, 2007.



It is based on the rolling average yield of 30-year French OATs over a 4-year period, plus the spread applicable to prime corporate borrowers.

Thus, the discount rate is revised based on changes in national economic conditions with a durable medium and long term impact, in addition to the potential effects of regulatory caps.

Since the regulatory system is currently under revision, the regulator allowed AREVA to postpone implementation of a rate that is consistent with current regulations. Consequently, the selected discount rate at December 31, 2014 is the rate resulting from the company's usual method, *i.e.* 4.50%.

The cap resulting from application of the current system would be 4.31% at December 31, 2014, versus 4.80% from application of the system contemplated.

A 20 basis-point decrease in the discount rate to 4.30% would require an additional provision in the amount of 325 million euros, including (105) million through profit and loss.

## Final waste removal and disposal

AREVA recognizes a provision for radioactive waste expenses for which the group is responsible.

These expenses include:

- its share of the cost of monitoring disposal facilities in the Manche and Aube regions, which received or will receive low-level, short-lived waste;
- the removal and underground disposal of low-level, long-lived waste (graphite) owned by the company;
- the removal and disposal of medium- and high-level waste covered by the French law of December 30, 1991 (now codified in articles L. 542-1 et seq. of the French Environmental Code). The provision is based on the assumption that a deep geological repository will be deployed.

Concerning this last heading, a working group established in 2004 at the request of the Ministry of Industry's Department of Energy and the Climate issued its report during the second half of 2005. Extrapolating items from the report of the working group, AREVA adopted a reasonable total cost estimate of 14.1 billion euros (based on 2003 economic conditions) for the deep geologic repository (the "CIGEO" project), including both the cost of retrievability and allowances for contingencies. This cost estimate is used to calculate the provision for deep disposal recognized by AREVA, which came to 440 million euros at December 31, 2014 (422 million euros at December 31, 2013).

In accordance with the French law of June 28, 2006, the French department of energy and climate DGEC (Direction générale de l'énergie et du climat) designated a working group to perform a new cost assessment for deep geologic disposal. The DGEC-led working group brings together representatives from Andra and, in an advisory capacity, from AREVA, the CEA, EDF and French nuclear safety authority ASN. In this regard, Andra has carried out conceptual studies since 2012 and analyzed the technical optimizations proposed by the producers. The cooperation between Andra and the producers allows for constructive technical discussions aimed at optimizing the repository design and its operation.

On this basis, the Minister of Ecology, Sustainable Development and Energy formally forwarded a cost estimate to AREVA, EDF, CEA and ASN on December 18, 2014 for comment. After a discussion phase during which the waste producers had two months to submit their comments on new avenues for optimization, the Minister will finalize a cost estimate that will also take into account recommendations from ASN and the National Evaluation Commission. The discussion phase regarding the CIGEO cost estimate had not ended as of the closing date of the financial statements for the year ended December 31, 2014. In view of the significant remaining divergences between AREVA and the producers and the uncertainties as to the costs that will result from the consultation process, AREVA will wait for the regulatory authorities to release a final estimate before revising its provision.

For purposes of sensitivity analysis, any increase of one billion euros (at 2012 economic conditions) in the amount of the cost estimate for the CIGEO project compared to that used in 2005 would lead to an additional provision estimated at between 20 and 25 million euros by AREVA, based on the method used to determine the existing provision.

## **TENTATIVE SCHEDULE OF PROVISION DISBURSEMENTS**

The table below presents the tentative schedule for disbursement of provisions required by the law of 2006 (excluding contingencies):

(in millions of euros)	December 31, 2014
2015	334
2016 - 2019	1,398
2020 – 2024	1,311
2025 – 2034	1,870
2035 and beyond	6,951
TOTAL PROVISIONS BEFORE DISCOUNTING	11,864

#### ASSETS EARMARKED FOR END-OF-LIFECYCLE OPERATIONS

This heading consists of the following:

(in millions of euros)	December 31, 2014	December 31, 2013
Receivables related to end-of-lifecycle operations	725	705
Earmarked assets	5,290	5,352
TOTAL	6,015	6,057

Receivables related to end-of-lifecycle operations correspond principally to receivables resulting from the signature of a contract in December 2004 under which the CEA agreed to fund a share of facility dismantling costs at the La Hague and Cadarache plants and a share of waste retrieval and packaging costs at the UP2-400 plant.

#### Purpose of earmarked portfolio

To meet its end-of-lifecycle obligations, the group voluntarily built up a special portfolio earmarked for the payment of its future facility dismantling and waste management expenses. This obligation has applied to all nuclear operators in France since the Law no. 2006-739 of June 28, 2006 and the implementing decree no. 2007-243 of February 23, 2007 came into force. This portfolio was composed based on a schedule of disbursements over more than a century and is therefore managed with long-term objectives. The portfolio is comprised of financial assets covering all of the group's commitments, whether related to obligations imposed by the Law of June 28, 2006 for regulated nuclear facilities located in France, or related to other end-of-life-cycle commitments for facilities located in France or abroad.

The group relies on independent consultants to study strategic target asset allocations to optimize the risk/return of the portfolio over the long term and to advise AREVA on the choice of asset classes and portfolio managers. These recommendations are submitted to the Cleanup and Dismantling Fund Monitoring Committee. Long-term asset allocations indicate the target percentage of assets to cover liabilities (bonds and money market assets, including receivables from third parties) and the diversification of assets (shares of stock, etc.), subject to limitations imposed by the French decree no. 2007-243 of February 23, 2007 and its amendment by the decree no. 2013-678 of July 24, 2013, both in terms of the control and spread of risks and in terms of type of investments.

AREVA ensured that all AREVA NC and AREVA NP funds are held, registered and valued by a single custodian capable of performing the necessary control and valuation procedures independently, as required by the implementing decree.

The Equity segment is primarily managed by external service providers via:

- an equity management agreement; and
- earmarked investment funds.

The Rate segment (bonds and money market) is invested via:

- open-ended mutual funds;
- earmarked investment funds; and
- directly held bonds.

The portfolio of assets earmarked to fund end-of-lifecycle expenses includes the following:

(in millions of euros)	December 31, 2014	December 31, 2013
In market value or liquidation value		
Publicly traded shares	1,222	1,441
Equity funds	1,157	991
Bond and money market mutual funds	2,119	2,172
Unlisted mutual funds	76	68
At amortized cost		
Bonds and bond mutual funds held to maturity	716	680
Portfolio of securities earmarked for end-of-lifecycle operations	5,290	5,352
Receivables related to end-of-lifecycle operations	725	705
TOTAL FINANCIAL ASSETS EARMARKED FOR END-OF-LIFECYCLE OPERATIONS	6,015	6,057

(in millions of euros)	December 31, 2014	December 31, 2013
By region		
Eurozone	5,409	5,354
Non-euro Europe	549	663
Other	57	40
TOTAL	6,015	6,057

Financial assets held as securities or mutual funds represent 88% of all earmarked assets at December 31, 2014. Earmarked assets were allocated as follows: 41% equities, 47% bonds, 12% receivables.

An amendment to the contractual framework for the main receivable related to endof-lifecycle operations (receivable from the CEA in the amount of 663 million euros at December 31, 2014 vs. 642 million euros at December 31, 2013) is expected in the first half of 2015 in order to define a payment schedule by the CEA for the principal and interest, with the last payment scheduled for 2024.

The receivables from the CEA and EDF on account of overfunding by AREVA in connection with tax payments related to financing provided to Andra between 1983 and 1999 were discussed with these two operators in 2014. The CEA confirmed to AREVA that a debt in an amount equal to AREVA's receivable, *i.e.* 16 million euros, was recognized in the CEA's accounts for the year ended December 31, 2014.



#### Performance of financial assets earmarked for end-of-lifecycle operations by asset class(#)

Asset class	2014	2013
Shares	+3.7%	+21.9%
Interest rate products	+6.4%	+1.4%
Subtotal - Portfolio of earmarked securities	+5.2%	+10.4%
Receivables related to end-of-lifecycle operations	+2.9%	+3.7%
TOTAL FINANCIAL ASSETS EARMARKED FOR END-OF-LIFECYCLE OPERATIONS	+4.8%	+9.7%

(#) Performance reported for these asset classes includes that of mutual funds earmarked for end-of-life-cycle operations of regulated French and foreign nuclear facilities not subject to the French law of June 28, 2006.

If interest on receivables is used to determine the performance of rate instruments, the overall performance of earmarked assets would be +4.81% for the 2014 calendar year.

#### **Risk description and assessment**

Equity investments in the portfolio of earmarked securities include mainly:

- a mandate of publicly-traded shares, which includes about thirty companies based in the European Union. The securities are held in order to generate gains over the long term. Although it is not a management guideline, the mandate will be assessed over the long term by reference to the MSCI EMU index, net dividends reinvested. The nature of the long-term mandate is not compatible with an evaluation against a benchmark;
- dedicated equity funds with diversified management strategies centered on European securities. The managers must follow strict rules of exposure, depending on the objectives of the fund involved: including limits on the amounts invested per issuer or in percentage of the net value of the portfolio, limits on exposures in currencies other than the euro, tracking error (relative risk compared with the benchmark), and limits on exposures to certain types of instruments. Together, these limits are designed to comply with investment rules established in the implementing decree of the Law of June 28, 2006.

As regards securities held by AREVA NC and AREVA NP, interest rate products in the portfolio of earmarked securities mainly include:

 directly held securities consisting of government bonds from the Eurozone, which will be held to maturity. They are recognized at amortized cost under "securities held to maturity"; dedicated bond funds and open-ended money market funds. The sensitivity to
interest rates of bond funds is limited in both directions, including the portfolio's
overall consistency with preset long-term sensitivity objectives and the sensitivity
of the liabilities to the discount rate used. The issuers' ratings (Moody's or
Standard & Poor's) are used to manage the credit risk exposure of money market
and bond funds.

For Eurodif, mandates and bond funds were established specifically to match disbursement flows.

#### Valuation

The mutual funds' net asset value is determined by valuing the securities held by each fund at market value on the last day of the period.

#### Derivatives

Derivatives may be used for hedging or to acquire a limited exposure. They are subject to specific investment guidelines prohibiting leverage. Total nominal commitments may not exceed the fund's net assets. Sales of puts and calls must be fully covered by underlying assets (and are prohibited on assets not included in the portfolio).

#### Risk assessment and management of the earmarked portfolio

The risks underlying the portfolios and funds holding assets under the management mandate for end-of-lifecycle operations are assessed every month. For each fund or earmarked asset, this assessment allows the maximum total loss to be estimated with a 95% level of confidence for different portfolio maturities using the VaR (Value at Risk) method and volatility estimates. A second estimate is done using deterministic scenarios: impact of rates and/or declining equity markets.

The impacts of changes in equity markets and interest rates on the valuation of earmarked assets are summarized in the following table:

Base case (December 31, 2014)	
(in millions of euros)	
Assumption: declining equity markets and rising interest rates	
-10% on equities	-245
+100 basis points on rates	-45
TOTAL	-290
Assumption: rising equity markets and declining interest rates	
+10% on equities	+245
-100 basis points on rates	+45
TOTAL	+290



# **NOTE 14. INFORMATION ON JOINT VENTURES AND ASSOCIATES**

A joint venture is considered to be significant if its revenue or balance sheet total is more than 200 million euros. An associate is considered to be significant when its balance sheet total is more than 200 million euros.

# INVESTMENTS IN JOINT VENTURES AND ASSOCIATES

(in millions of euros)	December 31, 2014	December 31, 2013
ATMEA		54
Other joint ventures	64	55
Total joint ventures	64	109
MNF	30	94
Other equity associates	49	50
Total associates	79	145
TOTAL	143	254

## SHARE IN NEGATIVE NET EQUITY OF JOINT VENTURES AND ASSOCIATES

(in millions of euros)	December 31, 2014	December 31, 2013
ETC	75	44
ATMEA	28	-
TOTAL JOINT VENTURES	103	44

Enrichment Technology Company (ETC) is a joint venture held in equal shares by AREVA and Urenco. Its main activity is to build, assemble and install centrifuges and associated piping systems enabling its customers to enrich uranium. ETC is also involved in the design of ultracentrifugation enrichment plants to meet its customers' needs and in project management for the construction of these facilities.

ATMEA is a joint venture held in equal shares by AREVA and Mitsubishi Heavy Industries (MHI). Its mission is to design, license, build, commission, promote and sell the generation III medium-capacity pressurized water reactor known as ATMEA1.

AREVA considers that it has an implicit obligation to ensure the continuity of ETC and ATMEA operations; consequently, and in accordance with the provisions of IAS 28, AREVA recognizes its share of negative equity under liabilities on its consolidated balance sheet and its share of negative net income on its statement of income and statement of consolidated comprehensive income.

MNF is a company involved in the design, fabrication and sale of nuclear fuel and related engineering services for the Japanese pressurized water reactors. To this end, MNF has engineering capabilities and industrial resources for component manufacturing and nuclear fuel de-conversion and assembly, mainly at the Tokai site in Japan AREVA holds 30% of the share capital of MNF, whose main shareholder is MHI.

Off-balance sheet agreements between AREVA and the joint ventures and associates are as follows:

- AREVA NP guarantees 50% of a loan to CAST (China) by a Chinese bank in the amount of 20 million euros;
- AREVA SA guarantees 30% of a loan to MNF by a Japanese bank in the amount of 28 million euros.



# SHARE IN NET INCOME OF JOINT VENTURES AND ASSOCIATES

(in millions of euros)	December 31, 2014	December 31, 2013
ETC	(17)	(30)
ATMEA	(82)	(22)
Other joint ventures	9	21
Total joint ventures	(89)	(11)
MNF	(64)	(4)
Other equity associates	(1)	3
Total associates	(65)	(1)
TOTAL	(154)	(13)

Financial information required under IFRS 12 is presented before elimination of intercompany transactions and restatements, and is based on 100% ownership.

#### **SIGNIFICANT JOINT VENTURES**

	December 31,	2014	December 31,	2013
	ETC	ATMEA	ETC	ATMEA
(in millions of euros)	Front End	R&S	Front End	R&S
Country	UK	France	UK	France
% held	50%	50%	50%	50%
Revenue	271		699	-
EBITDA	48	(4)	130	(4)
Net income	8	(4)	15	(4)
Including increases to amortization and depreciation	8	-	(16)	-
Including interest income / expense		-	-	-
Including income tax income / expense	11	-	(3)	-
Other items of comprehensive income	(29)		(7)	-
Comprehensive income	(22)	(4)	7	(4)
Current assets	280	22	339	9
Including cash and cash equivalents	7	13	88	1
Non-current assets	42	257	58	194
Current liabilities	(321)	(175)	(384)	(99)
Including current financial liabilities	10	(155)	-	(88)
Non-current liabilities	(54)		(45)	4
Including non-current financial liabilities	-	-	-	-
Net assets	(53)	104	(31)	108
Share of equity at the beginning of the year	(16)	54	(19)	56
Share of comprehensive income	(11)	(2)	4	(2)
Share of dividend distributions		-	-	-
Other changes		-	-	-
Share of equity at year-end closing	(27)	52	(16)	54
Goodwill and consolidation entries	(49)	(80)	(28)	-
Investment in joint ventures				54
Share of negative net equity	(75)	(28)	(44)	

Impairment in the amount of 80 million euros was recognized for capitalized development costs concerning the ATMEA1 reactor following the downward revision in the number and schedule of potential sales of this reactor outside Turkey, in the absence of tangible progress in the selection processes of the countries

 a two-year shift in the sales forecast for ATMEA1 reactors compared with assumptions used at December 31, 2014 would lead to the recognition of additional impairment in the amount of 10 million euros;

 a 30% deterioration in real terms of the margin per reactor compared with assumptions used in the impairment tests would lead to full impairment of capitalized development expenses.

 increasing the discount rate by 1% would lead to the recognition of additional impairment in the amount of 9 million euros; It should be noted that Turkey selected the ATMEA1 technology in 2013 for the construction of four reactors at the Sinop site.

# SIGNIFICANT ASSOCIATES

involved at the end of 2014.

Sensitivity studies show that:

	December 31, 2014	December 31, 2013
	MNF	MNF
(in millions of euros)	Front End	Front End
Country	Japan	Japan
Revenue	13	
EBITDA	(24)	n.d.
Net income	(48)	(15)
Other items of comprehensive income	1	(34)
Comprehensive income	(47)	(49)
Current assets	224	261
Non-current assets	28	15
Current liabilities	(168)	(144)
Non-current liabilities	(13)	(14)
Net assets	71	118
Share of equity at the beginning of the year	35	50
Share of comprehensive income	(14)	(15)
Share of dividend distributions	-	-
Other changes	-	-
Share of equity at year-end closing	21	35
Goodwill and consolidation restatements	9	59
Equity associates	30	94

The impairment test on MNF goodwill led to the recognition of impairment in the amount of 50 million euros due to changes in assumptions related to the restart of nuclear reactors in Japan, which is delayed, compared with assumptions used at December 31, 2013.

## **NON-SIGNIFICANT JOINT VENTURES**

(in millions of euros)	December 31, 2014	December 31, 2013
Investments in joint ventures at year-end closing	64	55
Share of net income	8	20
Share of other items of comprehensive income	3	(2)
Share of comprehensive income	10	18



# FINANCIAL INFORMATION CONCERNING ASSETS, FINANCIAL POSITIONS AND FINANCIAL PERFORMANCE 20.2 Notes to the consolidated financial statements for the year ended December 31, 2014

Non-significant joint ventures are as follows:

- TSU Projects
- TSU Niger
- CAST JV
- Ifastar
- United States Nuclear Fuel, LLC
- Lesedi

#### **NON-SIGNIFICANT ASSOCIATES**

- Cominak
- AREVA Dongfang
- AREVA H2Gen
- AREVA NP Inc. DZ LLC
- Anadec
- AREVA Mace Atkins

(in millions of euros)	December 31, 2014	December 31, 2013
Investments in associates at year-end closing	49	50
Share of net income	1	3
Share of other items of comprehensive income	1	(2)
Share of comprehensive income	3	1

Non-significant associates are as follows:

- Timet Savoie
- Zirco Products

- Sofinel NE-F Engineering
- WECAN Co. Ltd (Worldwide Engineering CGNPC AREVA Nuclear)
- Cilas

# **NOTE 15. OTHER NON-CURRENT ASSETS**

(in millions of euros)	December 31, 2014	December 31, 2013
Available-for-sale securities	86	105
Loans to affiliates	82	1
Derivatives on financing activities	21	86
Other non-current financial assets	74	69
Other non-current financial assets	8	-
TOTAL	273	261

At December 31, 2014, loans to associates primarily concern the ATMEA joint venture.

## **AVAILABLE-FOR-SALE SECURITIES**

Changes during the year were as follows:

# (in millions of euros)

December 31, 2013	105
Increase	6
Disposals	(8)
Lasting impairment	(19)
Changes in fair value recorded in "other items of comprehensive income"	5
Change in consolidation scope, currency translation, reclassifications and miscellaneous	(3)
DECEMBER 31, 2014	86

Available-for-sale securities are as follows:

presented in Note 32.

(in millions of euros)	Number of shares at December 31, 2014	December 31, 2014	December 31, 2013
Publicly traded shares (at market value)			
Alcatel		-	8
Japan Steel	4,830,000	14	20
Other publicly traded shares		4	13
Investment in privately held companies		68	64
TOTAL		86	105

At December 31, 2014, "investments in privately held companies" consisted in particular of interests in companies with shares in mineral deposits, including a 13% interest in Euronimba, for which a sales agreement was signed with ArcelorMittal in the first half of 2014. The closing remains subject to approval by the Guinean authorities.

The impact on the valuation of shares classified as "available-for-sale securities" is

#### **OTHER NON-CURRENT NON-FINANCIAL ASSETS**

At December 31, 2014, uranium inventories representing 8 million euros were capitalized to fund future mine reclamation expenses outside France.

# **NOTE 16. INVENTORIES AND WORK-IN-PROCESS**

	De	cember 31, 2014		December 31, 2013			
(in millions of euros)	Gross	Impairment	Net	Gross	Impairment	Net	
Raw materials and other supplies	613	(127)	486	643	(126)	516	
Goods in process	482	(111)	371	553	(73)	480	
Services in process	634	(131)	503	544	(13)	531	
Intermediate and finished products	719	(59)	660	727	(31)	696	
TOTAL	2,448	(428)	2,020	2,467	(243)	2,224	
Inventories and work-in-process							
• at cost			1,303			1,958	
• at fair value net of disposal expenses			717			266	

## CHANGE IN WRITE-DOWNS OF INVENTORIES AND WORK-IN-PROCESS

JANUARY 1, 2014	(243)
Change in consolidated group	
Operations held for sale and discontinued operations	
Charges	(238)
Reversal (when risk has materialized)	52
Reversal (when risk has not materialized)	9
Other (currency translation adjustments)	(8)
DECEMBER 31, 2014	(428)



In 2014, inventories and work-in-process in particular were written down as follows:

- 52 million euros for separative work units (SWU) in the Enrichment activity in view of the unfavorable trend in SWU market price indicators during the year.
- 94 million euros for proposal expenses in the Back End Business Group's International Operations with an uncertain recovery schedule; and

# **NOTE 17. TRADE ACCOUNTS RECEIVABLE AND RELATED ACCOUNTS**

(in millions of euros)	December 31, 2014	December 31, 2013
Gross amount	2,099	2,079
Impairment	(20)	(19)
NET CARRYING AMOUNT	2,079	2,060

The gross value of trade accounts receivable and related accounts includes 219 million euros in receivables maturing in more than one year.

At December 31, 2014, trade accounts receivable and related accounts include receivables in the amount of 742 million euros on contracts recognized according to the percentage of completion method (versus 697 million euros at December 31, 2013).

In 2013, AREVA sold a trade receivable maturing over the 2014-2020 period to a financial institution for 115 million euros, without right of recourse. AREVA does not have a significant continuing involvement in respect of this receivable.

In 2014, AREVA did not sell trade receivables maturing after year-end closing.

# TRADE ACCOUNTS RECEIVABLE AND RELATED ACCOUNTS (GROSS) \*

(in millions of euros)			Including not impaired and past due							
Trade accounts receivable and related accounts			in the	in the	and past					6 months to 1 year
At December 31, 2014	1,357	1,084	16	117	20	5	8	78	30	
At December 31, 2013	1,382	1,180	16	108	19	10	26	11	12	

\* : Excluding accounts receivable recognized according to the percentage of completion method.

# **NOTE 18. OTHER OPERATING RECEIVABLES**

(in millions of euros)	December 31, 2014	December 31, 2013
French State	525	657
Advances and down payments to suppliers	648	669
Miscellaneous accounts receivable	555	502
Financial instruments	46	144
Other	11	12
TOTAL	1,786	1,984

"Miscellaneous accounts receivable" includes prepaid expenses, receivables from suppliers and receivables from employees and benefit management bodies.

At December 31, 2014, other operating receivables include 234 million euros in receivables maturing in more than one year.

"Financial instruments" include the fair value of derivatives hedging market transactions and the fair value of the firm commitments hedged.

# **NOTE 19. CASH AND CASH EQUIVALENTS**

(in millions of euros)	December 31, 2014	December 31, 2013
Cash and current accounts	193	205
Cash equivalents	1,493	1,487
TOTAL	1,686	1,692

Cash equivalents consist chiefly of short-term marketable securities and mutual funds.

# **NOTE 20. OTHER CURRENT FINANCIAL ASSETS**

(in millions of euros)	December 31, 2014	December 31, 2013
Securities held for trading	35	33
Other current financial assets and derivatives on financing activities	41	77
TOTAL	76	110

"Securities held for trading" include top-rated bonds and balanced equity/bond funds.

# **NOTE 21. EQUITY**

The AREVA share is traded on compartment A of the NYSE Euronext stock exchange in Paris under ISIN code FR0011027143. At December 31, 2014, AREVA's share capital was held as follows:

## **SHARE CAPITAL**

At December 31	2014	2013
CEA	54.4%	61.5%
French State	28.8%	21.7%
Kuwait Investment Authority	4.8%	4.8%
CDC/BPI France Participations	3.3%	3.3%
Total	0.9%	1.0%
Employees	1.2%	1.2%
EDF	2.2%	2.2%
Treasury shares	0.2%	0.2%
Public	4.0%	4.1%
TOTAL	100.0%	100.0%

The par value of the AREVA SA share is 3.80 euros.

## **CURRENCY TRANSLATION RESERVES**

The group's currency translation reserves were a negative 12 million euros in 2014, compared with a negative 94 million euros in 2013.

## **DILUTIVE INSTRUMENTS**

The group does not have a stock option plan and has not issued any instrument convertible into equity.

#### **EARNINGS PER SHARE**

An average of 382,347,301 shares was used to calculate earnings per share for 2014.



# **OTHER ITEMS OF COMPREHENSIVE INCOME**

(in millions of euros)	2014	2013
Items not recyclable to the income statement	(261)	71
Actuarial gains and losses on the employee benefits of consolidated companies	(305)	93
Income tax on non-recyclable items	61	(18)
Share in non-recyclable items from joint ventures and associates, net of tax	(16)	(4)
Non-recyclable items related to discontinued operations, net of tax	-	
Items recyclable to the income statement	(85)	(152)
Currency translation adjustments on consolidated companies and other		
Unrealized gains (losses) for the period	118	(175)
Less gains (losses) recognized in profit and loss		(5)
Change in value of available-for-sale financial assets		
Unrealized gains (losses) for the period	61	264
Less gains (losses) recognized in profit and loss	(145)	(156)
Change in value of cash flow hedges		
Unrealized gains (losses) for the period	(117)	(11)
Less gains (losses) recognized in profit and loss	(7)	(4)
Income tax related to recyclable items	50	(56)
Share in recyclable items from joint ventures and associates, net of tax	6	(30)
Recyclable items related to discontinued operations, net of tax	(51)	21
TOTAL OTHER ITEMS OF COMPREHENSIVE INCOME (NET OF INCOME TAX)	(346)	(81)

## TAX IMPACT OF OTHER ITEMS OF COMPREHENSIVE INCOME

		2014 2013			2013		
(in millions of euros)	Before tax	Income tax	After tax	Before tax	Income tax	After tax	
Actuarial gains and losses on employee benefits	(305)	61	(244)	93	(18)	75	
Currency translation adjustments on consolidated companies and other	118		118	(180)	(1)	(181)	
Change in value of available-for-sale financial assets	(84)	34	(50)	108	(60)	48	
Change in value of cash flow hedges	(124)	16	(107)	(15)	5	(10)	
Share in comprehensive income of joint ventures, net of tax	(11)		(11)	(34)		(34)	
Items of comprehensive income related to discontinued operations, net of tax	(51)		(51)	21		21	
TOTAL OTHER ITEMS OF COMPREHENSIVE INCOME (NET OF INCOME TAX)	(457)	111	(346)	(7)	(74)	(81)	

# **NOTE 22. MINORITY INTERESTS**

The largest minority interests were as follows:

(in millions of euros)	December 31, 2014	December 31, 2013
Katco	200	197
SET and SET Holding	171	162
Somaïr	62	72
Imouraren	15	51
AREVA TA	14	-
Eurodif / Sofidif and subsidiaries	-	(73)
Minority interests related to discontinued operations	(28)	(13)
Other	(7)	12
TOTAL	428	408

Financial information on significant subsidiaries, required under IFRS 12, is presented before elimination of intercompany transactions.

A subsidiary is considered to be significant if the percentage held by minority shareholders is greater than 20%, or if its revenue or total balance sheet is more than 200 million euros.

#### 2014

	Imouraren	Somaïr	Katco	Eurodif	SET	AREVA TA
(in millions of euros)	Mining	Mining	Mining	Front End	Front End	R&S
Country	Niger	Niger	Kazakhstan	France	France	France
Minority interests	42.34%	36.60%	49.00%	40.35%	12.00%	16.42%
Revenue	-	201	260	288	596	345
EBITDA	(22)	40	179	(106)	390	22
Net income	(76)	(29)	65	(49)	(5)	23
Share attributable to minority interests	(35)	(11)	32	-	(1)	4
Current assets	38	139	226	606	271	426
Non-current assets	1,793	176	303	906	5,445	85
Current liabilities	(95)	(90)	(81)	(441)	(445)	(362)
Non-current liabilities	(1,414)	(59)	(37)	(1,344)	(3,600)	(93)
Net assets	323	166	410	(273)	1,671	55
Share attributable to minority interests	22	61	201	-	201	9
Cash flow from operating activities	(56)	63	110	(34)	234	55
Cash flow from investing activities	(159)	(30)	(71)	(97)	(273)	13
Cash flow from financing activities	217	(31)	(59)	120	90	8
Increase (decrease) in net cash	3	2	(13)	(11)	51	76
Dividends paid to minority interests	-	-	(29)	-	-	-

AREVA believes it has an implicit obligation to ensure continuity of operation of Eurodif and its subsidiaries; consequently, AREVA recognizes all of these

companies' losses and negative net equity in "net income attributable to owners of the part" and in "equity attributable to owners of the parent".



#### 2013

	Imouraren	Somaïr	Katco	Eurodif	SET	AREVA TA
(in millions of euros)	Mining	Mining	Mining	Front End	Front End	R&S
Country	Niger	Niger	Kazakhstan	France	France	France
Minority interests	42.34%	36.60%	49.00%	40.35%	12.00%	16.42%
Revenue	-	280	346	280	399	332
EBITDA	(2)	105	203	(117)	247	20
Net income	(17)	37	101	(32)	(26)	26
Share attributable to minority interests	(10)	14	50	(13)	(3)	4
Current assets	16	191	190	708	192	379
Non-current assets	1,449	201	327	789	5,230	68
Current liabilities	(77)	(141)	(64)	(517)	(401)	(332)
Non-current liabilities	(990)	(67)	(41)	(1,164)	(3,339)	(82)
Net assets	398	184	411	(185)	1,682	33
Share attributable to minority interests	58	67	202	(74)	202	5
Cash flow from operating activities	(26)	49	195	(11)	261	38
Cash flow from investing activities	(287)	(30)	(91)	(11)	(532)	29
Cash flow from financing activities	333	(11)	(95)	-	355	(14)
Increase (decrease) in net cash	21	8	12	(22)	84	54
Dividends paid to minority interests	-	-	(32)	-	-	-

# **NOTE 23. EMPLOYEE BENEFITS**

Depending on the prevailing laws and practices of each country, the group's companies may pay retirement bonuses to their retiring employees based on their compensation and seniority. Long-service jubilee payments and early retirement pensions are sometimes due in France and in Germany, while supplemental pensions may contractually guarantee a given level of income to certain employees. Some of the group's companies also grant other post-retirement benefits, such as the reimbursement of medical expenses.

These defined benefit plans are recognized in accordance with the accounting method defined in Note 1.16.

The group calls on independent actuaries for a valuation of its commitments each year.

In some companies, these obligations are covered in whole or in part by contracts with insurance companies or pension funds. In such cases, the obligations and the covering assets are valued independently. The difference between the obligation and the fair value of the assets is either a funding surplus or a deficit. A provision is recognized in the event of a deficit and an asset is recognized in the event of a surplus, subject to specific conditions.

#### Change in the discount rate at December 31, 2014

The discount rates used by the group are down compared with last year, with a substantial decrease in the Eurozone (1.85% vs. 3.25% at year-end closing 2013) and in the United States (3.75% vs. 4.5% at year-end closing 2013). The long-term inflation assumption for the Eurozone was also adjusted downwards, to 1.6%

(versus 1.8% at year-end 2013). The overall impact of these two effects generates an increase in liabilities of approximately 358 million euros. The provision for employee benefits was adjusted accordingly by offset against "Other items of comprehensive", in accordance with the provisions of revised IAS 19.

#### The group's key benefits

The "CAFC plan" set up in 2012 is an early retirement plan consisting of a working time account with matching contributions from the employer for personnel who work at night or in certain jobs identified in the agreement. The system is partially covered by an insurance policy. The population of eligible beneficiaries is open.

The group's second most material early retirement system (called "TB6") is also located in France. The beneficiaries are employees who work at night or in certain types of jobs identified in the agreement.

Medical coverage partially funded by the employer during the retirement period is currently in effect in some companies in France and the United States. The population of eligible beneficiaries is open.

An employee retirement plan is in effect in the United States and is funded by a retirement fund. Benefits were frozen in 2005. Because it is a "qualified" plan, the funded ratios are regulated by law and additional contributions may be necessary.

In Germany, a "cash balance" pension plan exists and is partially covered by a pension fund. The law does not define rules for minimum funding levels.

# **PROVISIONS RECOGNIZED ON THE BALANCE SHEET**

(in millions of euros)	December 31, 2014	December 31, 2013
TOTAL PROVISIONS FOR PENSION OBLIGATIONS AND OTHER EMPLOYEE BENEFITS	2,234	1,928
Less pension plan assets	-	-
Less local pension plan assets	0	-
TOTAL PLANS REVIEWED BY THE GROUP'S ACTUARIES	2,234	1,928
Medical expenses and accident/disability insurance	356	n.d.
Retirement benefits	583	n.d.
Job-related awards	27	n.d.
Early retirement benefits	947	n.d.
Supplemental retirement benefits	321	n.d.

#### By geographical area

	Eurozone	United States	Other*	Total
Medical expenses and accident/disability insurance	346	10	-	356
Retirement benefits	582	-	1	583
Job-related awards	27	-	-	27
Early retirement benefits	935	-	13	947
Supplemental retirement benefits	218	103	-	321
TOTAL	2,109	112	13	2,234

\* Niger and Japan.

The information below concerns plans reviewed by the group's actuaries.

The main actuarial assumptions used in determining the group's obligations are as follows:

	2014	2013
Long-term inflation		
• Eurozone	1.6%	1.8%
Discount rate		
• Eurozone	1.85%	3.25%
Dollar zone	3.75%	4.5%
Pension benefit increases		
• Eurozone	1.6%	1.5%-1.9%
Dollar zone	0%	0%
Social security ceiling increase (net of inflation)	+0.5%	+0.5%

Mortality tables

	2014	2013
France		
Annuity	Mortality tables	Mortality tables
Lump sum payment	INSEE 2000-2002 Men/Women	INSEE 2000-2002 Men/Women
Germany	Heubeck 2005	Heubeck 2005
United States	RP2014	RP2000



Retirement age in France

	2014	2013
Management personnel	65	64
Non-management personnel	62	62

• Average attrition is assumed to occur among employees in each company at a declining rate reflecting age brackets. The rates between brackets indicate [average turnover at career start - average turnover at career end].

	Managemen	t personnel	Non-managem	ent personnel
	2014	2013	2014	2013
France	[1.6% - 0%]	[1.6% - 0%]	[0.7% - 0%]	[0.7% - 0%]
Germany	[7% - 0%]	[7% - 0%]	[7% - 0%]	[7% - 0%]
United States	6%	6%	6%	6%

Assumed rates of average salary increases, including inflation. The rates between brackets indicate [average increases at career start - average increases at career end].

	Management personnel		Non-management personnel	
	2014	2013	2014	2013
France	[3.8% - 2.6%]	[4.0% - 2.8%]	[3.3% - 2.7%]	[3.5% - 2.9%]
Germany	3.2%	3.4%	3.2%	3.4%
United States	3.75%	3.75%	3.75%	3.75%

Assumed rate of increase in medical expenses in the United States

Year	
2015	7.1%
2016	6.8%
2017	6.6%
2018	6.4%
2019	6.2%
2020+	6.0%

- Contributions / benefits anticipated for defined benefit plans in 2014:
  - The costs to be borne by the company for baseline contributions/benefits are estimated at 101 million euros.
  - Estimated contributions to qualified US retirement plans will be 14 million euros. These contributions were reduced due to the MAP 21 law (July 2012), which relaxes funding requirements in the United States.

## **FINANCIAL ASSETS**

#### Europe

Type of asset	2014	2013
Cash	5%	0%
Bonds	82%	83%
Shares	12%	16%
Real estate	1%	1%

#### **United States**

Type of asset	2014	2013
Cash	4%	4%
Bonds	36%	35%
Shares	60%	61%
Real estate	0%	0%

Effective return on plan assets	2014	2013
Europe	8.54%	2.17%
United States	4.79%	15.92%

The group's pension assets do not include financial instruments of the AREVA group. The pension plans' real estate assets do not include real property owned by AREVA.

## NET CARRYING AMOUNT OF DEFINED BENEFIT OBLIGATIONS

At December 31, 2014	Medical benefits	Retirement benefits	Job-related awards	Early retirement benefits	Supplemental retirement benefits	Total
Defined benefit obligation	356	606	27	1,087	968	3,044
Fair value of plan assets	-	(23)	-	(140)	(649)	(810)
TOTAL DEFINED BENEFIT OBLIGATION	356	583	27	947	321	2,234

# Sensitivity of the actuarial value of the obligation to changes in discount rates

An across-the-board decrease in the discount rate of 0.25% would increase the defined benefit obligation by 2.2%.

# Sensitivity of the actuarial value of the obligation to changes in medical inflation rates in the United States

In the United States, the sensitivity of the actuarial value of the obligation to changes in medical inflation rates is as follows: a 1% change (up or down) in the medical inflation rate causes a change in the obligation of approximately 13% in the same direction.



## TOTAL EXPENSE FOR THE YEAR

<b>2014</b> (in millions of euros)	Medical benefits	Retirement benefits	Job-related awards	Early retirement benefits	Supplemental retirement benefits	Total
Current service cost	7	26	1	18	20	72
Interest cost	11	18	1	32	30	92
Past service costs (including plan changes and reductions)	(37)	(1)	-	(3)	-	(40)
Interest income on assets	-	(1)	-	(6)	(23)	(29)
Recognition of actuarial gains and losses generated during the year on other long-term plans (long service medals, CATS, etc.) Liquidation	-	-	3	3	-	6
TOTAL EXPENSE WITH INCOME STATEMENT IMPACT	(19)	42	5	46	27	101
Recognition of actuarial gains and losses generated during the year on post-employment plans						
Actuarial gains and losses on earmarked assets	-	(1)	-	6	(10)	(6)
Experience differences	(13)	(10)	(3)	(1)	(3)	(29)
Demographic assumption differences	(7)	(22)	-	3	13	(13)
Financial assumption differences (adjustment of discount rate)	76	70	-	106	103	355
TOTAL EXPENSE WITH IMPACT ON OTHER ITEMS						
OF COMPREHENSIVE INCOME	57	38	(3)	115	103	308
TOTAL EXPENSE FOR THE YEAR	37	79	3	160	130	409

## **CHANGE IN THE DEFINED BENEFIT OBLIGATION**

At December 31, 2014 (in millions of euros)	Medical benefits	Retirement benefits	Job-related awards	Early retirement benefits	Supplemental retirement benefits	Total
Defined benefit obligation at December 31, 2013	289	560	26	1,029	851	2,755
Current service cost	7	26	1	18	20	72
Cost escalation	11	18	1	32	30	92
Employee contributions	-	-	-	-	2	2
Past service costs (including plan changes and reductions)	(37)	(1)	-	(3)		(40)
Mergers, acquisitions, transfers	-	-	-	-	(5)	(5)
Change in consolidation scope						-
Plan transfer	-	-	-	-	-	
Disposals / Liquidation / Plan reductions						
Defined benefit obligation of operations held for sale						
Benefits paid during the year	(8)	(34)	(2)	(102)	(38)	(184)
Risk premiums						
Actuarial gains and losses	57	38	-	112	112	319
Currency translation adjustments	6	-	-	-	28	34
DEFINED BENEFIT OBLIGATION						
AT DECEMBER 31, 2014	356	606	27	1,087	968	3,044

#### **CHANGES IN PLAN ASSETS**

(in millions of euros)	2014
Opening balance	828
Interest income on assets	29
Actuarial differences	6
Contributions / Benefits paid by the employer	114
Employee contributions	2
Benefits paid and not reimbursed	(101)
Benefits paid by earmarked assets	(83)
Administrative expenses funded by assets	(1)
Effect of mergers / acquisitions / transfers between entities	(5)
Effect of mergers / acquisitions / transfers between entities	-
Assets of discontinued operations	
Change in consolidation scope	
Currency translation adjustments	22
NET CARRYING VALUE AT DECEMBER 31	810

# **CHANGE IN PROVISION ESTIMATED BY THE GROUP'S ACTUARIES**

(in millions of euros)	2014
Restated opening balance	1,928
Currency translation adjustment	13
Change in consolidated group	
Discontinued operations	-
Reclassification of provisions/assets	-
Total expense	409
Contributions collected/benefits paid	(116)
BENEFIT OBLIGATION AT DECEMBER 31	2,234



# **NOTE 24. OTHER PROVISIONS**

(in millions of euros)	January 1, 2014	Charge	Reversal (when risk has materialized)	Reversal (when risk has not materialized)	Changes in consolidation scope, foreign exchange and other	December 31, 2014
Restoration of mining sites and mill decommissioning	191	33	(11)		52	265
Provision for site clean-up and reclamation of other industrial sites	1				1	2
Other non-current provisions	192	33	(11)		52	267
Restructuring and layoff plans	34	33	(19)			48
Provisions for ongoing cleanup	220	14	(55)		(28)	152
Provisions for customer warranties	79	31	(25)	(10)	2	78
Provisions for losses at completion	1,050	839	(356)	(38)	4	1,499
Accrued costs	872	186	(77)	(7)		974
Other	404	422	(64)	(32)	(9)	722
Current provisions	2,659	1,527	(594)	(87)	(31)	3,473
TOTAL PROVISIONS	2,851	1,560	(605)	(87)	21	3,740

At December 31, 2014, provisions for cleanup include 69 million euros for "PRISME" operations preparatory to the final shutdown of Eurodif's Georges Besse I plant (versus 140 million euros at December 31, 2013).

At December 31, 2013 and December 31, 2014, other provisions include in particular:

- provisions for contract risks, including 187 million euros set up for the experimental reactor construction project and 15 million euros for a nuclear power plant modernization contract, which were recognized in the second half of 2014;
- provisions for disputes;
- provisions for tax risks;
- provisions for fines and penalties; and
- provisions for expenses related to work preparatory to the shutdown of certain nuclear facilities.

## **PROVISIONS FOR LOSSES AT COMPLETION**

In 2013, the Reactors & Services Business Group recognized provisions for a total of close to 655 million euros for several reactor construction or modernization projects, including:

- 425 million euros for the Olkiluoto 3 EPR reactor in Finland,
- 141 million euros in respect of a reactor upgrade project in Europe.

In 2014, the Reactors & Services Business Group recognized provisions for a total of 839 million euros, including 782 million euros for several reactor construction or modernization projects, including:

- 576 million euros for the Olkiluoto 3 EPR reactor in Finland, all in the second half;
- 155 million euros for a reactor modernization contract in Europe, including 90 million euros in the first half and 65 million euros in the second half.

#### Contract to build the Olkiluoto 3 EPR reactor

For several years, the construction of the Olkiluoto 3 EPR reactor (the "Project") has given rise to constant and significant disagreements with TVO (the "Customer"), mostly because of the manner in which the latter applies the contract and does

not comply with its obligations. Since the beginning of the Project, this situation has been a very important disruptive factor, in particular as the Project reaches the final stages of reactor construction and pre-commissioning testing, which require close cooperation with the Customer and the latter's gradual takeover of the plant.

On a legal level, the AREVA-Siemens consortium (the "Consortium") continues to exercise its rights in the framework of arbitration proceedings initiated in 2008.

For example, the consortium's claim for compensation for damages concerns a total amount of 3.5 billion euros. No income has been recognized in respect of this claim. TVO's claim against the Consortium amounts to approximately 2.3 billion euros. No provision has been constituted in respect of this claim. In fact, the Consortium and its counsel still believe that the allegations of intentional gross negligence set out by TVO against the Consortium in this claim remain unfounded. Following a series of hearings of witnesses and experts, the arbitration court is expected to render a decision at the end of 2015 or early 2016 on certain specific issues, without legally qualifying the facts presented or deciding the amounts to be awarded at the parties' requests. The arbitration court's final verdict is not expected until the end of 2017-early 2018.

On the operating level, in the first half of 2014, the Consortium has focused on the project's critical path in the following fields:

- finalization of detailed studies enabling the start of platform testing of the instrumentation and control system, an activity that currently constitutes the project's critical path;
- platform testing of instrumentation and control systems at Erlangen, Germany, on April 1, 2014, as planned, before shipment in 2015 to the Olkiluoto 3 site for the start of the operational testing phases;
- finalization of detailed documentation on the instrumentation and control architecture, which at the same time served to secure STUK's approval, also in April; this approval is a crucial milestone in the overall process of architecture validation, with the following milestone corresponding to the completion of platform testing of the instrumentation and control system and formalized by STUK's consent to ship I&C PLC cabinets to the site.

In the second half of 2014, the Consortium focused on:

- officially adopting a revised project schedule by the end of August that calls for completion of the reactor's construction by mid-2016 and commissioning of the power plant before the end of 2018, after a period of testing, on the condition that TVO and STUK meet their own obligations and the corresponding deadlines;
- platform testing of instrumentation and control systems at Erlangen, Germany, which began on April 1, 2014, before shipment in 2015 to the Olkiluoto 3 site for the start of the operational testing phases.

These tests constitute the project's critical path and were in line with expectations at the end of December 2014. In addition, the Finnish safety authority STUK is satisfied with the overall progress on the instrumentation and control system application and the license application for commissioning.

In parallel, noticeable progress was made on the following activities in the second half of the year:

- configuration management activities related to the handling of modifications to finalize a reference technical configuration of the facilities in order to successfully complete consistent testing activities;
- ongoing resolution of technical issues identified during previous phases;
- electromechanical installation activities, particularly in the backup generator buildings and for the low-voltage electrical installation;
- testing activities (unrelated to the instrumentation and control system), which are 25% complete, with continuation of electrical testing and preparation of tests to be performed starting in the second half of 2015.

Since the end of 2013, the project has entered a phase requiring close cooperation between TVO in its capacity as operator and the Consortium, as called for in the contract, to prepare and execute testing and commissioning activities in a concerted manner. AREVA continues to deplore TVO's insufficient will to cooperate and its lack of commitment to tackling these final phases of the project.

Following AREVA's efforts, discussions began between the parties in order to mutually agree on the necessary conditions for completion of the project according to the schedule set in August and confirmed in December, with a moderate level of risk. This was the subject of an action plan between AREVA and TVO, which clearly states the latter's operational and contractual responsibilities. The plan will remain in effect at least until May 2015.

On an accounting level, since the second half of 2013, AREVA considers that it no longer has the ability to value with sufficient reliability the costs at completion of certain cost categories until completion of the project, as the valuation remains highly dependent on the degree of the customer's cooperation and the latter's compliance with its contractual obligations, as well as on the validation of the detailed instrumentation and control architecture by the Finnish safety authority, STUK. These so-called "insufficiently reliable" cost categories relate to following activities:

- the testing and operational readiness phases of the reactor (all work required for handover of the reactor), which are dependent on STUK's validation of the detailed instrumentation and control system architecture;
- the engineering work needed to secure this validation.

Except for costs identified above, AREVA is still able to assess the amount of the costs to be incurred to complete the reactor's construction. These types of costs are called "reliable".

With this background, and in accordance with the provisions of paragraph 32 of IAS 11, AREVA stopped recognizing contract revenue and costs based on percentage of completion and now uses the following recognition methods:

- Revenue recognized for the contract is stabilized at the level reached at June 30, 2013. Additional revenue will be recognized only when a contract billing threshold not contested by the Customer is reached.
- Contract costs are expensed as incurred; only costs in the "reliable" categories that effectively contribute to the reactor's physical completion are charged against the provision for losses at completion for the contract. In this respect, 144 million euros were expensed directly in 2014 as costs that had not contributed to the project's completion. These costs mainly concern a part of the costs related to the instrumentation and control system and to testing as well as the costs for site preservation, procurement of replacement parts, and engineering hours to revise the documentation pursuant to requests for changes from STUK and TVO.
- Costs at completion are updated for the half-year and year-end closings. In this regard, an increase to the provision for losses at completion was recognized at December 31, 2014, in the amount of 576 million euros, of which 120 million euros were recognized to strengthen the coverage of risk related to completion of the reactor's physical construction and for future testing phases.

In all, the contract margin forecast decreased by 720 million euros compared with 2013; the loss at completion recognized at December 31, 2014 is now 4.5 billion euros.

AREVA will revert to the percentage of completion method for the OL3 contract (paragraph 22 of IAS 11) when the group is again able to assess contract costs at completion with sufficient reliability. This will require a clear commitment from TVO during the power plant's testing and commissioning phases as the future operator of the reactor.

#### Contract to modernize a nuclear power plant

AREVA is encountering difficulties in the performance of a contract to extend the operating period of a nuclear power plant and upgrade its capacity.

A provision in the total amount of 283 million euros had already been recognized for losses at completion for this project at the end of 2009, 2011 and 2012, in view of technical issues, the contract's schedule and changes in project scope requested by the customer.

An additional provision of 141 million euros for losses at completion had been recognized at December 31, 2013 in view of the changes in technical requirements and contract scope.

An amendment to the contract was signed in the second half of 2013 which clarifies the technical scope with the customer and defines a new schedule for project completion, with the objective of completing activities to extend the operating period in the first half of 2014.

At December 31, 2014, an additional provision in the amount of 155 million euros for loss at completion was recognized to reflect the deferral of the project's completion date due to the complex work environment, software configuration change orders requested by the customer, and the deferral of the operators' training program at the request of the customer. The amount of the additional provision does not reflect the value of AREVA's claims submitted to the customer for these items.



# Contracts for the design and construction of an experimental reactor

AREVA is encountering difficulties in the performance of contracts for the design and construction of components of an experimental reactor. These difficulties result from changes requested by the customer, from certain technical specifications, and from the default of certain suppliers. A provision had already been recognized for losses at completion for these contracts in 2011 and 2012.

In the first half of 2014, discussions initiated by AREVA with the customer in 2013 led to consensus on a new schedule and on an estimate of foreseeable excess costs at completion for AREVA's scope of the contracts in the amount of approximately 200 million euros; this estimate includes the assumption that certain risks would materialize. The cost for an additional 12 months at the current level of engineering and project teams deployed to execute these contracts may be estimated at about 50 million euros.

In the second quarter of 2014, the discussions between AREVA and its customer were put on hold while the State performed an audit of the status of the project.

The auditors submitted their report at the end of June. Discussions resumed in the second half of 2014. During these discussions, AREVA indicated a preference for capping the financial risk associated with its design contracts in exchange for agreeing to bear the majority of the actual and probable costs identified at that time. The cap does not concern the testing phase, during which AREVA is still exposed to potential cost overruns for which it would bear responsibility. To this end, on February 27, 2015, the executive managements of AREVA and the CEA signed an agreement in the form of a directive for the negotiation by their respective teams of the terms of an overall settlement of the project situation. In this context, an additional provision of 207 million euros was set up in the second half to take these costs and the terms of the above-mentioned agreement into account.

## **PROVISIONS FOR CONTRACT COMPLETION**

Provisions for contract completion totaled 974 million euros at December 31, 2014. These expenses represent ancillary tasks yet to be performed, in particular waste treatment and storage.

# **NOTE 25. BORROWINGS**

(in millions of euros)	Long-term borrowings	Current debts	December 31, 2014	December 31, 2013
Interest-bearing advances from customers	93	-	93	91
Borrowings from lending institutions and commercial paper	823	436	1,259	734
Bond issues	5,941	53	5,994	5,174
Short-term bank facilities and non-trade current accounts (credit balances)	-	122	122	106
Financial derivatives	-	5	5	33
Miscellaneous debt*	13	9	22	21
TOTAL BORROWINGS	6,870	624	7,494	6,160
* Including finance lease obligations	4	6	10	18

Borrowings from lending institutions and commercial paper at December 31, 2014 include:

- commercial paper outstanding in the amount of 172 million euros;
- borrowings from the European Investment Bank in the total amount of 400 million euros, half contracted in 2008 and half in 2009, maturing in December 2015 and December 2016 respectively;
- a syndicated loan from 10 banks in the amount 650 million euros contracted in 2014, with the last payment due in 2024.

Borrowings by maturity, currency and type of interest rate:

(in millions of euros)	December 31, 2014
Maturing in one year or less	624
Maturity of 1-2 years	1,247
Maturity of 2-3 years	873
Maturity of 3-4 years	116
Maturity of 4-5 years	823
Maturing of more than 5 years	3,811
TOTAL	7,494

# FINANCIAL INFORMATION CONCERNING ASSETS, FINANCIAL POSITIONS AND FINANCIAL PERFORMANCE

20.2 Notes to the consolidated financial statements for the year ended December 31, 2014

(in millions of euros)	December 31, 2014
Fuer-	7047
Euro	7,347
US dollar	30
Yen	55
Other	62
TOTAL	7,494

(in millions of euros)	December 31, 2014
Fixed rate borrowings	6,445
Floating rate borrowings	981
TOTAL	7,426
Other non-interest-bearing debt	63
Financial derivatives	5
TOTAL	7,494

The maturities of the group's financial assets and borrowings at December 31, 2014 are presented in Note 31.

# PAYMENT SCHEDULE AS OF DECEMBER 31, 2014

(in millions of euros)	Balance sheet value	Total payment flows	Less than one year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	More than 5 years
Interest-bearing advances from customers	93	93						93
Borrowings from lending institutions and commercial paper	1,259	1,259	436	247	78	61	45	392
Bond issues	5,994	5,994	53	991	794	55	778	3,324
Short-term bank facilities and non-trade current accounts (credit balances)	122	122	122					
Miscellaneous debt	20	20	6	12	1			1
Future interest on financial liabilities		1,551	326	256	211	154	149	456
Total borrowings (excluding derivatives)	7,489	9,038	941	1,506	1,083	270	971	4,266
Derivatives – assets	(41)							
Derivatives – liabilities	5							
Total net derivatives	(36)	(36)	(15)	(22)	(1)	6	(21)	16
TOTAL	7,453	9,002	927	1,484	1,083	276	950	4,282

# **PAYMENT SCHEDULE AS OF DECEMBER 31, 2013**

(in millions of euros)	Balance sheet value	Total payment flows	Less than one year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	More than 5 years
Interest-bearing advances	91	91						91
Borrowings from lending institutions and								
commercial paper	734	734	300	212	213	7		
Bond issues	5,174	5,174	63		1,009	792	55	3,256
Short-term bank facilities and non-trade current accounts (credit balances)	106	106	106					
Miscellaneous debt	21	21	9	4	3	1		3
Future interest on financial liabilities		1,512	289	213	210	172	135	492
Total borrowings (excluding derivatives)	6,126	7,638	768	430	1,436	972	190	3,842
Derivatives – assets	(87)	(87)						
Derivatives – liabilities	33	33						
Total net derivatives	(54)	(54)	(12)	(41)	(7)	1	6	
TOTAL	6,073	7,585	756	389	1,429	973	196	3,842



#### **BOND ISSUES AFTER HEDGING**

Issue date	Net carrying amount (in millions of euros)	I Currency	Nominal amount (in millions of currency units)	Nominal rate	Maturity
		ounciloy	ourronoy unito)	Nominariate	matanty
September 23, 2009	991	EUR	971	3.875%	2016
September 23, 2009	1,038	EUR	1,000	4.875%	2024
November 06, 2009	778	EUR	750	4.375%	2019
September 22, 2010	768	EUR	750	3.5%	2021
October 05, 2011	395	EUR	398	4.625%	2017
March 14, 2012	398	EUR	400	4.625%	2017
April 04, 2012	198	EUR	200	TEC10 + 2.125%	2022
September 04, 2013	535	EUR	500	3.25%	2020
September 20, 2013	55	JPY	8,000	1.156%	2018
March 2014	786	EUR	750	3.125%	2023
TOTAL	5,941				

The group raised 750 million euros with a bond issue in 2014, adding to the bond issues completed in 2009 to 2013. The carrying value of bond issues was 5.941 billion euros at December 31, 2014.

Of this amount, 1.800 billion euros were hedged for a variable rate in euros with rate swaps.

In 2014, the group bought back some of the bonds it had issued, maturing in 2016, in the amount of 7 million euros.

#### **GUARANTEES AND COVENANTS**

With the exception of the loan to Somaïr in the amount of 13 billion CFA (20 million euros), for which assets have been pledged, no assets have been pledged to secure borrowings or debt (except for assets financed under leasing arrangements).

#### **BANKING COVENANTS**

The 650-million-euro syndicated loan maturing in June 2024 is backed by certain future revenue from the Georges Besse II enrichment plant. It includes security interests in future receivables and bank accounts, and includes a covenant allocating cash flows to debt service which subordinates payments to AREVA SA (dividends and loan repayments) from Société d'enrichissement du Tricastin.

The bonds issued by AREVA and unused bilateral or syndicated lines of credit do not include any covenants regarding AREVA's financial situation, financial ratios, or AREVA credit ratings by third parties.

# **NOTE 26. ADVANCES AND PREPAYMENTS RECEIVED**

(in millions of euros)	December 31, 2014	December 31, 2013
Advances and prepayments on orders	3,355	3,422
Customer advances and prepayments invested in non-current assets	1,090	1,091
TOTAL	4,444	4,513

This account comprises non-interest-bearing operating and Capex advances and prepayments received from customers pursuant to contractual commitments. The advances are reimbursed by deduction from sales invoiced under these contracts, which primarily concern sales of fuel and uranium, used fuel treatment and recycling services, and reactors. Interest-bearing advances are recognized in borrowings.

Only advances and prepayments effectively collected are recognized as a liability.

Trade advances and prepayments on orders correspond to amounts received from customers under contracts that do not finance significant non-current assets. In the case of long-term contracts, the amount recognized in the balance sheet represents the net balance of advances and prepayments received and sales invoiced or recognized on a percentage of completion basis; it also includes interest income calculated on cash surpluses generated by these advances and prepayments, the amount of which is determined on an individual contract basis.

Customer advances and prepayments invested in non-current assets comprise amounts received from customers and used to finance capital expenditures for the performance of long-term contracts to which they have subscribed.



At December 31, 2014, advances and prepayments by maturity were as follows:

- less than 1 year: 1,088 million euros
- 1-5 years: 1,801 million euros
- more than 5 years: 1,555 million euros

# **NOTE 27. OTHER LIABILITIES**

## **OPERATING LIABILITIES**

(in millions of euros)	December 31, 2014	December 31, 2013
Tax and social security liabilities, excluding corporate income tax	1,387	1,345
Financial instruments	202	94
Other operating liabilities	1,160	1,126
TOTAL	2,750	2,566

Financial instruments include the fair value of derivatives hedging market transactions and the fair value of the firm commitments hedged.

At December 31, 2014, operating liabilities by maturity were as follows:

- less than 1 year: 2,251 million euros
- 1-5 years: 425 million euros
- more than 5 years: 74 million euros

## **NON-OPERATING LIABILITIES**

(in millions of euros)	December 31, 2014	December 31, 2013
TOTAL	73	70

Other non-operating liabilities include mainly dividends payable to minority shareholders of certain subsidiaries.

# **NOTE 28. CASH FROM OPERATING ACTIVITIES**

#### **CHANGE IN WORKING CAPITAL REQUIREMENT**

(in millions of euros)	2014	2013
Change in inventories and work-in-process	195	39
Change in accounts receivable and other receivables	109	(64)
Change in accounts payable and other liabilities	2	169
Change in trade advances and prepayments received	(177)	391
Change in advances and prepayments made	21	21
Change in Forex hedge of WCR	58	(15)
Change in other non-current non-financial assets	(8)	-
TOTAL	199	541



# **NOTE 29. RELATED PARTY TRANSACTIONS**

Transactions between the parent company and its subsidiaries, which are related parties, were eliminated on consolidation and are not presented in this note. Transactions between AREVA and its joint ventures and associates, which are also related parties, are described in Note 14.

Transactions between the group and its principal shareholder, the CEA, are as follows:

	CEA		
(in millions of euros)	December 31, 2014	December 31, 2013	
Sales	574	580	
Purchases	99	101	
Loans to/receivables from related parties	949	901	
Borrowings from related parties	183	174	

#### **RELATIONS WITH GOVERNMENT-OWNED COMPANIES**

The group has business relationships with government-owned companies, in particular EDF and the CEA (Commissariat à l'énergie atomique et aux énergies alternatives).

Transactions with EDF concern the front end of the nuclear fuel cycle (uranium sales and conversion, enrichment and fuel fabrication services), the back end of the cycle (used fuel transportation, storage, treatment and recycling services), and power plant maintenance and equipment sales.

Transactions with the CEA concern dismantling work on the CEA's nuclear facilities, engineering services for the design, construction and operating support of the CEA's research reactors, and the sale of studies and research work. In addition, AREVA pays fees to the CEA for the use of its used nuclear fuel reprocessing processes.

The group also provides services to the CEA concerning engineering services and research, cleanup and dismantling services, and has two contracts for the design and construction of certain components of an experimental reactor. Execution of these two contracts has met with difficulties and given rise to the recognition of provisions (see Note 24).

#### **COMPENSATION PAID TO KEY EXECUTIVES**

(in thousands of euros)	2014	2013
Short-term benefits	2,925	3,762
Termination benefits	-	-
Post-employment benefits	-	-
Other long-term benefits	-	-
TOTAL	2,924	3,762

Key executives include members of the Executive Board and the Supervisory Board. Short-term benefits and termination benefits include compensation paid during the year by the group and by the CEA (562 thousand euros in 2014, compared with 565 thousand euros in 2013).

# **NOTE 30. GREENHOUSE GAS EMISSION ALLOWANCES**

(in thousands of metric tons of CO2)	2014	2013
Allowances received by AREVA	77	92
Actual emissions	70	56
Excess of allowances over emissions	7	36
Allowances sold on the Powernext market	-	-



# **NOTE 31. MANAGEMENT OF MARKET RISKS**

#### **GENERAL OBJECTIVES**

The group has an organization dedicated to implementing market risk management policies approved by the Executive Committee for centralized management of exposure to foreign exchange, commodity, rate and liquidity risks.

In the Finance Department, the Financial Operations and Treasury Management Department (DOFT) makes transactions on financial markets and acts as a central desk that provides services and manages the group's financial exposure. The organization of this department ensures the separation of functions and the necessary human, technical, and information system resources. Transactions handled by DOFT cover foreign exchange and commodities trading, interest rates, centralized cash management, internal and external financing, borrowings and investments, and asset management.

To report on financial risk and exposure limits, DOFT prepares a monthly report presenting the group's positions and the performance of its financial transactions. The report is sent to the senior management and to the Finance, Legal and Strategy departments. The reporting system also includes weekly reports submitted to the group's CFO, including a valuation of all positions and their market value. Together, these reports and reviews are used to monitor the group's counterparty risk.

#### FOREIGN EXCHANGE RISK MANAGEMENT

The change in the exchange rate of the US dollar against the euro may affect the group's income in the medium term.

In view of the geographic diversity of its locations and operations, the group is exposed to fluctuations in exchange rates, particularly the dollar-euro exchange rate. The volatility of exchange rates may impact the group's currency translation adjustments, equity and income.

**Currency translation risk:** The group is exposed to the risk of translation into euros of financial statements of subsidiaries using a local currency. Only dividends expected from subsidiaries for the following year are hedged as soon as the amount is known.

Balance sheet risk: The group finances its subsidiaries in their functional currencies to minimize the balance sheet foreign exchange risk from financial assets and liabilities. Loans and advances granted to subsidiaries by the department of Treasury Management, which centralizes financing, are then systematically converted into euros through foreign exchange swaps or cross currency swaps.

To limit the currency risk for long-term investments generating future cash flows in foreign currencies, the group uses a liability in the same currency to offset the asset.

**Trade exposure:** The principal foreign exchange exposure concerns fluctuations in the euro/US dollar exchange rate. As a uranium producer in Canada and Kazakhstan, the group is also exposed to fluctuations in the Canadian dollar and the Kazakh tenge against the US dollar, in which uranium prices are denominated.

The group's policy, which was approved by the Executive Committee, is thus to systematically hedge foreign exchange risk generated by sales transactions; it recommends hedging potential risks during the proposal phase, to the extent possible, to minimize the impact of exchange rate fluctuations on consolidated net income.

The AREVA group acquires derivatives (principally currency futures) or special insurance contracts issued by Coface to hedge its foreign exchange exposure from trade, including accounts receivable and payable, confirmed off-balance sheet commitments (orders received from customers or placed with suppliers), highly probable future cash flows (budgeted sales or purchases, anticipated margins on contracts) and proposals made in foreign currencies. These hedges are backed by underlying transactions for identical amounts and maturities and, generally, are documented and eligible for hedge accounting (except for hedges of proposals submitted in foreign currencies).

As provided by group policies, each operating entity responsible for identifying foreign exchange risk must hedge exposure to currencies other than its own accounting currency by initiating a transaction exclusively with the group's trading desk, except as otherwise required by specific circumstances or regulations. The Financial Operations and Treasury Management Department centralizes the exposure of all entities and hedges the net position directly with banking counterparties. A system of strict limits, particularly concerning results, marked to market, and foreign exchange positions that may be taken by the trading desk, is monitored by specialized teams that are also charged with valuation of the transactions. In addition, analyses of sensitivity to changes in exchange rates are periodically performed.

At December 31, 2014, derivatives used by the group to manage foreign exchange risk were as follows:

(Notional amounts by maturity date at December 31, 2014)	2015	2016	2017	2018	2019	> 5 years	Total	Market value
Forward exchange contracts	560	188	150	11	0	0	909	(51)
Foreign exchange swaps	1,448	533	244	51	9	0	2,286	(70)
Currency options	49	56	25	0	0	0	130	(2)
Cross-currency swaps	384	148	64	61	318	787	1,761	(68)
TOTAL	2,441	925	483	123	327	787	5,086	(191)



Derivative financial instruments used to hedge foreign currency exposure were as follows at December 31, 2014 and December 31, 2013:

	2014	1	2013		
(in millions of euros)	Nominal amounts in absolute value	Market value	Nominal amounts in absolute value	Market value	
Derivatives related to fair value hedging strategies (FVH)	965	(20)	1,819	42	
Forward exchange contracts	169	(9)	1,167	4	
Foreign exchange swaps	795	(12)	653	38	
Cross-currency swaps					
Derivatives related to net investment hedges (NIH) in foreign currency	0	0	0	0	
Derivatives related to cash flow hedges (CFH)	1,926	(95)	1,550	24	
Forward exchange contracts	654	(38)	767	12	
Foreign exchange swaps	1,223	(57)	626	10	
Currency options	49	(1)	158	2	
Derivatives not eligible for hedge accounting	2,195	(75)	1,192	62	
Forward exchange contracts	85	(5)	59	1	
Foreign exchange swaps	267	(2)	317	1	
Currency options	81	(1)	42	(0)	
Cross-currency swaps	1,761	(68)	774	61	
TOTAL	5,086	(191)	4,562	128	

A significant share of undocumented financial instruments in 2014 and 2013 relates to derivatives used to hedge foreign exchange risk on short-term financial assets and liabilities, which constitutes a natural hedge. Financial instruments reported as "Not formally documented" in accordance with IAS 39 also include derivative transactions to hedge requests for proposals in foreign currencies.

Based on market data at the date of closing, the impact on the group's consolidated equity at year-end 2014 of currency derivative instruments qualified as cash flow hedges would be +56 million euros in the case of a 5% instantaneous increase in exchange rates against the euro, or -62 million euros in the case of a 5% decrease in exchange rates. Using these same assumptions, the impacts were +32 million euros and -35 million euros at year-end 2013.

In view of the group's policy, which is to hedge all currency exposures:

- undocumented derivatives are used to hedge assets and liabilities in currencies for identical amounts;
- unhedged assets and liabilities are immaterial.

The impact on the group's financial statements of an instant variation of +5% or -5% of exchange rates versus the euro is relatively neutral.

#### **COMMODITY RISK**

The group has little exposure to commodities. In 2014, the nominal value of the group's commodity hedges (fuel forwards contracts) was less than 1 million euros.

#### **INTEREST RATE RISK MANAGEMENT**

Rate risk management is entirely centralized in the department of Financial Operations and Treasury Management, which consolidates the subsidiaries' current or stable cash surpluses or requirements and arranges external financing as appropriate, except as otherwise required by regulations or specific circumstances.

The group uses several types of derivative instruments, as required by market conditions, to allocate its borrowings between fixed rates and floating rates and to manage its investment portfolio, with the goal being mainly to reduce its borrowing costs while optimizing the management of its cash surpluses.

At December 31, 2014, interest rate swaps were the main financial instruments used in the management of external debt.

The amount of the commitments and the sensitivity of the positions taken by the trading desk in the framework of AREVA's rate management policy are subject to limits based on the type of transaction involved.

Inflation rate swaps in US dollars were set up to cover a specific and isolated commercial risk on behalf of the Mining Business Group.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2014

At December 31, 2014, the following financial instruments were used to hedge interest rate exposure:

	Notional amounts by maturity date at December 31, 2014							Market
(in millions of euros)	Total	2015	2016	2017	2018	2019	> 5 years	value
Interest rate swaps – variable lender – EUR								
Fixed borrower – EUR	500	200	200				100	(7)
Interest rate swaps – variable lender – EUR								
EUR variable borrower	100						100	(3)
USD variable borrower	787						787	(17)
CAD variable borrower	914	384	148	64		318		(1)
Interest rate swaps – fixed lender – EUR								
EUR variable borrower	2,071	171	350			150	1,400	143
Interest rate swaps – JPY fixed lender								
EUR variable borrower	61				61			(1)
Inflation rate swaps – variable lender – USD								
USD fixed lender	144						144	(47)
GRAND TOTAL	4,577	755	698	64	61	468	2,531	67

At December 31, 2014, the group used the following derivatives to hedge interest rate exposure:

Rate instruments (in millions of euros)	Market value of contracts (1)							
	Nominal amount of contract	Cash flow hedges (CFH)	Fair value hedges (FVH)	Not formally documented (Trading)	Total			
Interest rate swaps – variable lender – EUR								
Fixed borrower – EUR	500	(4)		(3)	(7)			
Interest rate swaps – variable lender – EUR								
EUR variable borrower	100			(3)	(3)			
USD variable borrower	787			(17)	(17)			
CAD variable borrower	914			(1)	(1)			
Interest rate swaps – fixed lender – EUR								
EUR variable borrower	2,071		144	(1)	143			
Interest rate swaps – JPY fixed lender								
EUR variable borrower	61			(0)	(0)			
Inflation rate swaps – variable lender – USD								
USD fixed lender	144			(47)	(47)			
TOTAL	4,577	(4)	144	(73)	67			
(1) Gain / (loss).								



The following tables summarize the group's net rate risk exposure, before and after rate management transactions, at the end of 2014 and 2013.

# Maturities of the group's financial assets and borrowings at December 31, 2014

(in millions of euros)	Less than one year	1 year to 2 years	2 years to 3 years	3 years to 4 years	4 years to 5 years	More than 5 years	Total
		-	_	-			
Financial assets	1,762	0	0	0	0	0	1,762
including fixed rate assets	(0)	0	0	0	0	0	(0)
including floating rate assets	1,742	0	0	0	0	0	1,742
including non-interest-bearing assets	20	0	0	0	0	0	20
Borrowings	(597)	(1,286)	(876)	(119)	(825)	(3,788)	(7,491)
including fixed rate borrowings	(162)	(1,085)	(876)	(64)	(825)	(3,580)	(6,593)
including floating rate borrowings	(367)	(201)	0	(55)	0	(207)	(830)
including non-interest-bearing							
borrowings	(68)	0	0	0	0	0	(68)
Net exposure before hedging	1,164	(1,286)	(876)	(119)	(825)	(3,788)	(5,729)
share exposed to fixed rates	(162)	(1,085)	(876)	(64)	(825)	(3,580)	(6,593)
share exposed to floating rates	1,375	(201)	0	(55)	0	(207)	912
non-interest-bearing share	(48)	0	0	0	0	0	(48)
Off-balance sheet hedging							
on borrowings: fixed rate swaps	(28)	156	0	0	156	1,366	1,649
on borrowings: floating rate swaps	28	(156)	0	0	(156)	(1,366)	(1,649)
Net exposure after hedging	1,164	(1,286)	(876)	(119)	(825)	(3,788)	(5,729)
share exposed to fixed rates	(190)	(929)	(876)	(64)	(670)	(2,214)	(4,944)
share exposed to floating rates	1,403	(357)	0	(55)	(156)	(1,573)	(738)
non-interest-bearing share	(48)	0	0	0	0	0	(48)

# Maturities of the group's financial assets and borrowings at December 31, 2013

(in millions of euros)	Less than one year	1 year to 2 years	2 years to 3 years	3 years to 4 years	4 years to 5 years	More than 5 years	Total
	one year	to 2 years	to 5 years	to 4 years	to 5 years	Jyears	Total
Financial assets	1,849						1,849
including fixed rate assets							0
including floating rate assets	1,827						1,827
including non-interest-bearing assets	23						23
Borrowings	(517)	(217)	(1,225)	(800)	(55)	(3,361)	(6,176)
including fixed rate borrowings	(318)	(17)	(1,025)	(800)		(3,150)	(5,311)
including floating rate borrowings	(114)	(200)	(200)		(55)	(211)	(779)
including non-interest-bearing	(05)						(05)
borrowings	(85)						(85)
Net exposure before hedging	1,332	(217)	(1,225)	(800)	(55)	(3,361)	(4,326)
share exposed to fixed rates	(318)	(17)	(1,025)	(800)		(3,150)	(5,311)
share exposed to floating rates	1,713	(200)	(200)		(55)	(211)	1,047
non-interest-bearing share	(63)						(63)
Off-balance sheet hedging							
on borrowings: fixed rate swaps	206	(200)	162			952	1,120
on borrowings: floating rate swaps	(206)	200	(162)			(952)	(1,120)
Net exposure after hedging	1,332	(217)	(1,225)	(800)	(55)	(3,361)	(4,326)
share exposed to fixed rates	(112)	(217)	(863)	(800)		(2,198)	(4,191)
share exposed to floating rates	1,507		(362)		(55)	(1,162)	(73)
non-interest-bearing share	(63)						(63)

Based on the group's exposure at December 31, 2014, a 1% increase in interest rates would have an impact on borrowing costs on a full-year basis estimated at +1 million euros and, therefore, on the group's consolidated income before tax. The impact of a similar increase was +15 million euros at year-end 2013.

#### **RISK FROM EQUITY INVESTMENTS**

The group holds publicly traded shares in a significant amount and is exposed to changes in the financial markets.

Publicly traded shares held by the AREVA group are exposed to the volatility inherent in equity markets.

These holdings are of two types:

 equities held in the portfolio of financial assets earmarked for end-of-lifecycle operations (see Note 13. End-of-lifecycle operations); and  other long-term investments: these are interests in publicly traded companies, such as Alcatel and Japan Steel Works (see Note 15. Other non-current assets).

The risk of a decrease in the price of shares in other non-current financial assets is not specifically hedged.

The risk on shares held in the portfolio of assets earmarked to fund end-of-lifecycle operations is an integral component of AREVA's asset management program, which includes equities to increase long-term returns as part of a program to allocate assets between bonds and equities (see Note 13. *End-of-lifecycle operations*). Exposure to European equities is managed by various management companies, either through a mandate given to an investment firm or through several dedicated mutual funds, with management guidelines limiting the tracking error.

The sensitivity of the value of equity investments to variations in the equity markets is as follows:

## Upper scenario (10% increase in the value of equity investments)

December 31, 2014 (in millions of euros)	Available-for-sale securities	Securities recognized at fair value through profit or loss
Balance sheet position	2,472	-
Income statement impact	-	-
Impact on shareholders' equity	247	-

#### Lower scenario (10% decrease in the value of equity investments)

December 31, 2014 (in millions of euros)	Available-for-sale securities	Securities recognized at fair value through profit or loss
Balance sheet position	2,472	-
Income statement impact	(2)	-
Impact on shareholders' equity	(245)	

#### Upper scenario (10% increase in the value of equity investments)

December 31, 2013 (in millions of euros)	Available-for-sale securities	Securities recognized at fair value through profit or loss
Balance sheet position	2,541	-
Income statement impact	-	-
Impact on shareholders' equity	254	-

#### Lower scenario (10% decrease in the value of equity investments)

December 31, 2013 (in millions of euros)	Available-for-sale securities	Securities recognized at fair value through profit or loss
Balance sheet position	2,541	-
Income statement impact	(3)	-
Impact on shareholders' equity	(251)	



#### **COUNTERPARTY RISK**

The group is exposed to the credit risk of counterparties linked to its use of financial derivatives to cover its risks

The group uses different types of financial instruments to manage its exposure to foreign exchange and interest rate risks, and its exposure to risks on commodities. The group primarily uses forward buy/sell currency and commodity contracts and rate derivative products such as swaps, futures or options to cover these types of risk. These transactions involve exposure to counterparty risk when the contracts are concluded over the counter.

To minimize this risk, the group's cash management department deals only with diversified, top quality counterparties based on their ratings in the Standard & Poor's and Moody's rating systems, with a minimum rating of investment grade. A legal framework agreement is always signed with the counterparties.

The limits allowed for each counterparty are determined based on its rating and the type and maturity of the instruments traded. Assuming the rating of the counterparty is not downgraded earlier, the limits are reviewed at least once a year and approved by the group's Chief Financial Officer. The limits are verified in a specific report produced by the internal control team of the Treasury Management Department. During periods of significant financial instability that may involve an increased risk of bank default, which may be underestimated by ratings agencies, the group monitors advanced indicators as necessary, such as the value of the credit default swaps (CDS) of the eligible counterparties, to determine if limits should be adjusted.

When conditions warrant (rising counterparty risk, longer term transactions, etc.), market transactions are managed by margin calls that reduce the group's counterparty risk to a predetermined threshold: the Credit Support Annex for trades documented under an ISDA master agreement, or the Collateral Annex for trades documented under a French Banking Federation (FBF) master agreement.

## **BALANCE SHEET NETTING OF THE FAIR VALUE OF DERIVATIVES**

At December 31, 2014	Effect of clearing agreements					
(in millions of euros)	Gross carrying amount	Financial instruments	Fair value of financial collateral	Net exposure		
Assets	221	(194)	(13)	14		
Shareholders' equity and liabilities	(323)	194		(129)		
TOTAL	(102)	0	(13)	(115)		

#### **LIQUIDITY RISK**

The group's department of Financial Operations is in charge of liquidity risk management and provides the subsidiaries with appropriate long term and short term financing resources.

Cash management optimization is based on a centralized system to provide liquidity and manage the cash surpluses of the subsidiaries, regardless of AREVA's equity stake. Management is provided by the group's department of Financial Operations, chiefly through cash pooling agreements and inter-company loans, subject to local regulations. The group's consolidated cash surpluses are managed to optimize financial returns while ensuring that the financial instruments used are liquid. Borrowings are centralized by the department of Treasury Management to optimize borrowing costs and facilitate access to the banking system.

In 2014, the group:

- raised 750 million euros in March through a 9-year bond issue maturing on March 20, 2023, at a rate of 3.125%,
- negotiated with a pool of 10 banking partners for a structured finance arrangement in the amount of 650 million euros, maturing in 2024, for the Georges Besse II enrichment plant, with limited recourse to its shareholders, which was implemented in June 2014.

The group also has a 1.250-billion-euro syndicated line of credit and bilateral lines of credit totaling 845 million euros, all of which were confirmed and unused at December 31, 2014.

At December 31, 2014		Unused Maturity				
(in millions of euros)	Gross	amount	2015	2016	2017	2018
Syndicated line of credit	1,250	1,250				1,250
Confirmed bilateral lines of credit	845	845	0	50	795	
TOTAL	2,095	2,095	0	50	795	1,250

External financing arrangements are not subject to specific covenants. However, certain loan agreements include change of control clauses stipulating that the group should maintain control over the AREVA subsidiary that concluded the agreement, or that the French State should maintain control over AREVA. The concept of control is understood either under the meaning of article L. 233-3 of the French Commercial Code or in relation to the percentage of share capital ownership, which should remain higher than 50.1%. Under certain circumstances, the debt may become due immediately if AREVA ceases to control the subsidiary, or if the French State ceases to control AREVA.

AREVA will present a financing plan for the 2015-2017 period before publication of the half-year financial report, which will incorporate the effects of the competitiveness plan and include the following measures:

- strong selectivity in capital expenditure, which will be brought back to a total of less than 3 billion euros over the period (versus 4.6 billion euros from 2012 to 2014), with priority given to investments in the nuclear and occupational safety of our facilities, their maintenance, and the completion of current Capex programs in the group's strategic projects;
- the raising of bank financing backed by industrial assets, as in 2014 with project financing for the Georges Besse II plant and the use of operational financing instruments;
- a program of asset disposals in a higher amount than that announced on October 7, 2014;

• partnerships with a financial component.

In addition, AREVA is studying means for strengthening its equity which will supplement the financing described above as needed. These means will be clarified at the same time as the remainder of the plan.

AREVA has confirmed, undrawn lines of credit in the total amount of 2.1 billion euros (syndicated credit of 1.25 billion euros maturing in 2018 and bilateral lines of credit of 845 million euros maturing in 2016 and 2017), on which AREVA could be led to draw (as it already had the occasion to do from 2007 to 2010 on its syndicated line of credit), depending on needs for liquidity necessary to its activities.

In addition, the system for monthly updates of cash forecasts (with a monthly view of the first four months, then quarterly thereafter) was recently bolstered with an additional system for updates of the first four months on a weekly basis, based on (i) a weekly update of positions to month end and (ii) a system of alerts initiated by the Business Groups and operating entities for cash flows (excluding internal cash flows) that are unexpected, unreported, unplanned or cancelled in any amount greater than 5 million euros. If the short-term position of 500 million euros is exceeded, the Cash Management and Financing Department (DOFT) will send out a special communication to the Business Groups and the group's executive management (including the group's Chief Financial Officer) to decide on protective measure to be taken.

#### **CREDIT RISK**

AREVA's only exposure to credit risk relates to investments of cash surpluses in marketable securities and mutual funds or money market funds. Investment in these marketable securities is subject to limits of exposure based on the issuer's rating (short-term rating of Investment Grade). The group's management approves these limits. As regards money market funds and monetary SICAV (open-ended mutual funds), the group invests its cash surpluses only subject to limits of exposure based on the issuer's rating (under criteria as described above) and in investment vehicles with an average duration of less than three months.

#### **MARKET VALUE OF FINANCIAL INSTRUMENTS**

The market value of financial instruments pertaining to currency, rate and commodity transactions are calculated based on market data as of the closing date, on discounted future cash flows, or on prices provided by financial institutions. The use of different market assumptions could have a significant impact on estimated market values.



# **NOTE 32. ADDITIONAL INFORMATION ON FINANCIAL INSTRUMENTS**

# FINANCIAL ASSETS AND LIABILITIES BY CATEGORY

2014

**Assets** 

				Including				
(in millions of euros)	Balance sheet value	Non-financial assets and liabilities	Loans and receivables	Fair value recognized in profit or loss	Assets available for sale	Assets held to maturity	Derivatives	Fair value of financial assets
Non-current assets	21,709	15,431	881		4,659	716	21	6,426
Goodwill on consolidated companies	3,667	3,667						
Intangible assets	2,267	2,267						
Property, plant and equipment	8,719	8,719						
End-of-lifecycle assets (third party share)	188	188						
Assets earmarked for end-of-lifecycle operations	6,015		725		4,573	716		6,163
Investments in joint ventures and associates	143	143						
Other non-current assets	273	10	155		86		21	263
Deferred tax assets	437	437						
Current assets	8,211	4,635	2,052	1,478			45	3,576
Inventories and work-in-process	2,020	2,020						
Trade accounts receivable and related accounts	2,079	739	1,340					1,340
Other operating receivables	1,786	1,335	426				25	452
Current tax assets	85	85						
Other non-operating receivables	104	80	24					24
Cash and cash equivalents	1,686	1	241	1,443				1,685
Other current financial assets	76		21	35			20	76
Assets of discontinued operations	375	375						
TOTAL ASSETS	29,920	20,067	2,933	1,478	4,659	716	66	10,001

20.2 Notes to the consolidated financial statements for the year ended December 31, 2014

Financial instruments at fair value recognized in profit or loss and in "other items of comprehensive income" according to:

- Level 2: if a market for a financial instrument is not active, valuation based on readily observed market inputs
- Level 1: valuation based on quoted market prices in an active market
- Level 3: valuation based on criteria that cannot be readily observed.

(in millions of euros)	Level 1	Level 2	Level 3	Total
Non-current assets	5,359	165	21	5,545
Assets earmarked for end-of-lifecycle operations	5,340	97		5,437
Other non-current assets	19	68	21	107
Current assets	1,478	45		1,523
Other operating receivables		25		25
Cash and cash equivalents	1,443			1,443
Other current financial assets	35	20		55
TOTAL ASSETS	6,837	210	21	7,068

#### Analysis of assets in the level 3 category

(in millions of euros)	Amount at December 31, 2013	Increase	Disposals	Other Decem	Amount at ber 31, 2014
Other non-current assets	64	3	-	(46)	21

AREVA's interest in Euronimba was at the level 3 category at December 31, 2013, considering the lack of short-term disposal opportunities, and is valued at historical cost. It was reclassified from level 3 to level 2 based on an estimated sales price connected with negotiations with potential buyers of that company.



#### Liabilities and equity

Including							
(in millions of euros)	Balance sheet value	Non-financial assets and liabilities	Liabilities at amortized cost	in profit	Assets available for sale	Derivatives	Fair value of financial liabilities
Equity and minority interests	(244)	(244)					
Share capital	1,456	1,456					
Consolidated premiums and reserves	(1,738)	(1,738)					
Actuarial gains and losses on employee benefits	(583)	(583)					
Deferred unrealized gains and losses on financial instruments	204	204					
Currency translation reserves	(12)	(12)					
Minority interests	428	428					
Non-current liabilities	16,527	9,656	6,870				7,071
Employee benefits	2,235	2,235					
Provisions for end-of-lifecycle operations	6,985	6,985					
Other non-current provisions	267	267					
Share in net negative equity of joint ventures and associates	103	103					
Long-term borrowings	6,870		6,870				7,071
Deferred tax liabilities	66	66					
Current liabilities	13,638	9,703	3,792			143	3,935
Current provisions	3,473	3,473					
Short-term borrowings	624		619			5	624
Advances and prepayments received	4,444	4,444					
Trade accounts payable and related accounts	1,824	14	1,810				1,810
Other operating liabilities	2,750	1,320	1,292			138	1,430
Current tax liabilities	58	58					
Other non-operating liabilities	73	1	71				71
Liabilities of activities held for sale	392	392					
TOTAL LIABILITIES AND EQUITY	29,920	19,115	10,663			143	11,006

(in millions of euros)	Level 1 Level 2	2 Level 3 Total
Current liabilities	143	3 143
Short-term borrowings	Ę	5 5
Other operating liabilities	138	3 138
TOTAL LIABILITIES	- 143	3 - 143

#### 2013

# Assets

	Including					_		
(in millions of euros)	Balance sheet value	Non-financial assets and liabilities	Loans and receivables		Assets available for sale	Assets held to maturity	Derivatives	Fair value of financial assets
Non-current assets	22,906	16,589	773		4,778	680	86	6,383
Goodwill on consolidated companies	3,764	3,764						
Intangible assets	2,533	2,533						
Property, plant and equipment	8,708	8,708						
End-of-lifecycle assets (third party share)	199	199						
Assets earmarked for end-of-lifecycle operations	6,057		705		4,673	680		6,123
Investments in joint ventures and associates	254	254						
Other non-current assets	261	2	68		105		86	260
Deferred tax assets	1,129	1,129						
Current assets	8,895	5,177	2,355	1,207			157	3,719
Inventories and work-in-process	2,224	2,224						
Trade accounts receivable and related accounts	2,060	694	1,366					1,366
Other operating receivables	1,984	1,451	397				135	532
Current tax assets	78	78						
Other non-operating receivables	105	86	19					19
Cash and cash equivalents	1,692		518	1,173				1,692
Other current financial assets	110		55	33			21	110
Assets of discontinued operations	643	643						
TOTAL ASSETS	31,801	21,766	3,129	1,207	4,778	680	243	10,102

Financial instruments at fair value recognized in profit or loss and in "other items of comprehensive income" according to:

• Level 1: valuation based on quoted market prices in an active market

 Level 2: if a market for a financial instrument is not active, valuation based on readily observed market inputs

Level 3: valuation based on criteria that cannot be readily observed.

(in millions of euros)	Level 1	Level 2	Level 3	Total
Non-current assets	4,714	86	64	4,864
Assets earmarked for end-of-lifecycle operations	4,673			4,673
Other non-current assets	42	86	64	191
Current assets	1,207	157		1,363
Other operating receivables		135		135
Cash and cash equivalents	1,173			1,173
Other current financial assets	33	21		55
TOTAL ASSETS	5,921	243	64	6,227



#### Liabilities and equity

	Including						
(in millions of euros)	Balance sheet value	Non-financial assets and liabilities	Liabilities at amortized cost	recognized in profit	Assets available for sale	Derivatives	Fair value of financial liabilities
Equity and minority interests	4,982	4,982					
Share capital	1,456	1,456					
Consolidated premiums and reserves	3,198	3,198					
Actuarial gains and losses on employee benefits	(317)	(317)					
Deferred unrealized gains and losses on financial instruments	330	330					
Currency translation reserves	(94)	(94)					
Minority interests	408	408					
Non-current liabilities	14,279	8,631	5,648				5,990
Employee benefits	1,928	1,928					
Provisions for end-of-lifecycle operations	6,437	6,437					
Other non-current provisions	192	192					
Share in net negative equity of joint ventures and associates	44	44					
Long-term borrowings	5,648		5,648				5,990
Deferred tax liabilities	30	30					
Current liabilities	12,541	8,887	3,552			102	3,654
Current provisions	2,659	2,659					
Short-term borrowings	512		479			33	512
Advances and prepayments received	4,513	4,513					
Trade accounts payable and related accounts	1,762	9	1,753				1,753
Other operating liabilities	2,566	1,240	1,257			69	1,325
Current tax liabilities	70	70					
Other non-operating liabilities	70	7	63				63
Liabilities of activities held for sale	389	389					
TOTAL LIABILITIES AND EQUITY	31,801	22,500	9,199			102	9,644

(in millions of euros)	Level 1 Level 2	2 Level 3 Total
Current liabilities	102	. 102
Short-term borrowings	33	3 33
Other operating liabilities	69	69
TOTAL LIABILITIES	102	. 102



#### **NET GAINS AND LOSSES ON FINANCIAL INSTRUMENTS**

#### Available-for-sale securities

#### 2014

			Subsequent			
(in millions of euros)	Interest income and dividends	Other income and expenses	Changes in fair value and foreign exchange impact	Impairment	Gain (loss) from disposal	
Other items of comprehensive income*			61		(145)	
Statement of Income	142			(19)	144	
TOTAL	142	-	61	(19)	(1)	

\* Excluding tax impact.

At December 31, 2014, the net change in the fair value of available-for-sale securities recognized in "other items of comprehensive income" represented a total unrealized gain of 411 million euros.

#### 2013

		_	Subse			
(in millions of euros)	Interest income and dividends	Other income and expenses	Changes in fair value and foreign exchange impact	Impairment	Gain (loss) from disposal	
Other items of comprehensive income*			263		(156)	
Statement of Income	141	-		(20)	235	
TOTAL	141	-	263	(20)	79	

\* : Excluding tax impact.

At December 31, 2013, the net change in the fair value of available-for-sale securities recognized in "other items of comprehensive income" represented a total unrealized gain of 495 million euros.

#### Loans and receivables

#### <u>2014</u>

(in millions of euros)	Interest	Impairment	Debt forgiveness
Net income	49	1	
2013			
(in millions of euros)	Interest	Impairment	Debt forgiveness
Net income	69	-	(1)

#### Financial assets and liabilities at fair value recognized through profit or loss

The income from financial assets and liabilities recognized at fair value through profit and loss was 5 million euros at December 31, 2014. It was not significant at December 31, 2013.



#### Financial liabilities at amortized cost

#### 2014

(in millions of euros)	Interest expense and commissions	Other income and expenses
Net income	(258)	
<u>2013</u>		
(in millions of euros)	Interest expense and commissions	Other income and expenses

Net income (261) -

#### Derivatives used for hedging

At December 31, 2014, the ineffective share of derivatives used for hedging recognized in profit or loss is as follows:

• Cash flow hedges: (6) million euros

• Fair value hedges: 4 million euros

Total
 (2) million euros

#### **CASH FLOW HEDGES**

(in millions of euros)	Value before tax at December 31, 2013	New transactions	Change in value	Recognition through profit and loss	Value before tax at December 31, 2014
Cash flow hedging instruments	15	(40)	(78)	(7)	(110)

#### LASTING IMPAIRMENT OF AVAILABLE-FOR-SALE SECURITIES

(in millions of euros)	Amount at December 31, 2013	Charges	Reversal of depreciation on disposals	Currency translation adjustments	Value before tax at December 31, 2014
Earmarked funds	(15)	-	-	-	(15)
Other available-for-sale securities	(135)	(19)	24	(3)	(133)
TOTAL	(151)	(19)	24	(3)	(148)

#### UNREALIZED CAPITAL LOSSES ON AVAILABLE-FOR-SALE SECURITIES NOT RECOGNIZED THROUGH PROFIT AND LOSS

(in millions of euros)	Unrealized capital losses at December 31, 2014	• •	Including maturity in 1-2 years
Mandate	(45)	(31)	(14)
Bond funds	(16)	(2)	(14)
TOTAL	(61)	(32)	(29)



#### **NOTE 33. COMMITMENTS GIVEN AND RECEIVED**

(in millions of euros)	December 31, 2014	Less than one year	1 to 5 years	> 5 years	December 31, 2013
Commitments given	2,526	1,100	975	451	2,076
Operating commitments given	2,277	1,036	814	427	1,967
Contract guarantees given	2,161	956	781	424	1,848
Other operating guarantees	116	80	33	3	119
Commitments given on financing	152	30	119	3	61
Other commitments given	97	34	42	21	48
Commitments received	1,355	702	318	335	1,268
Operating commitments received	1,303	688	283	332	1,192
Commitments received on collateral	1	-	1	-	1
Other commitments received	51	14	34	3	75
Reciprocal commitments	3,171	383	2,596	192	3,892

The group's off-balance sheet commitments are presented by economic purpose: operating commitments, commitments related to financing, and other types of commitments. Reciprocal commitments correspond to commitments given by the group in consideration for a warranty from a third party in the same amount.

The amounts above only include commitments that the group considers valid as of the date of closing. Accordingly, these commitments do not include construction contracts currently under negotiation.

group received a counter guarantee from Siemens in the amount of its share in the contract with TVO. The net commitment given by the group corresponds to the amount of the contract, unless TVO succeeds in demonstrating the existence of a serious and intentional offence by the supplier. TVO called on this commitment several times, and the group rejected these calls. This amount is not included in the summary table.

#### **RECIPROCAL COMMITMENTS**

#### COMMITMENTS GIVEN

Operating commitments represent the majority of commitments given. Most of these commitments consist of performance bonds.

The group gave a parent company commitment to its customer TVO for the execution of contractual obligations for the construction of an EPR in Finland. The

In January 2013, the group established a 1.25-billion-euro syndicated line of credit available in euros over a 5-year period. The group also has bilateral lines of credit available to it in the amount of 50 million euros maturing in 2016 and 795 million euros maturing in 2017. As of the end of December 2014, none of these lines had been used.

Reciprocal commitments at December 31, 2014 include the future minimum payments to be made on operating leases, as follows:

(in	millions	of euros)

December 31, 2014	Less than one year	1 to 5 years	> 5 years	December 31, 2013
594	64	366	164	726



#### **NOTE 34. DISPUTES AND POTENTIAL LIABILITIES**

#### **ONGOING DISPUTES INVESTIGATIONS**

#### **European Commission: GIS**

On January 24, 2007, the European Commission fined 11 companies, including AREVA SA, for anti-competitive practices in the gas insulated switchgear market (GIS):

- On April 10, 2014, the Court of Justice of the European Union ruled in favor of AREVA in some of the counts submitted on appeal by AREVA. This resulted in a change in the allocation of fines, but did not reduce their total amount. The total amount of the penalty, including interest, is 79 million euros, including 28 million euros for Alstom and AREVA severally. Once all appeals have been exhausted, and after Alstom's guarantee has come into play, AREVA owes the amount of 2.7 million euros (principal and interest combined), for which a provision has been constituted. This amount is contested by Alstom, which demands payment of 7.9 million euros (corresponding to 10% of the total amount of the fine, including the share that is exclusively Alstom's). The parties are attempting to resolve this difference in interpretation amicably.
- Concerning the new claim for damages filed by EBS Networks in Ireland on April 19, 2013, naming jointly AREVA SA and all the defendant companies subject to

the above-mentioned finding by the European Commission. Before any defense on the merits, AREVA asked initially for dismissal of this action on procedural grounds (strike out) after the plaintiff had served its statement of claim. Following discussions with ESB initiated by AREVA, an amicable settlement was signed on October 17, 2014, putting an end to all claims filed against the latter. This case is now closed.

#### Financial prosecutor's office: UraMin case

Since March 2014, and after a search of AREVA's offices on June 3, 2014, the company has been under investigation by the Financial Prosecutor's Office following a notification from the French Cour des Comptes under article 40 of the French Code of Criminal Procedure.

In addition to this investigation, a request for arbitration was submitted to the International Chamber of Commerce on July 28, 2014 by a partner, Mr. Georges Arthur Forrest, against the CFMM company in which the petitioner challenges the decision by the General Meeting of Shareholders on June 24, 2013 to liquidate ArevExplo RCA. CFMM submitted counterclaims in response to this petition. An arbitration court was being constituted at December 31, 2014 and the proceedings, which should take place in 2015, are expected to result in a decision in 2016.

#### **NOTE 35. EVENTS SUBSEQUENT TO YEAR-END**

On January 8, 2015, AREVA SA's Extraordinary General Meeting of Shareholders decided to transform the company's governance from that of a corporation with a Supervisory Board and an Executive Board into a corporation with a Board of Directors. On that same day, the newly appointed Board of Directors decided to split the positions of Chairman of the Board and Chief Executive Officer. Mr. Philippe

Varin was appointed Chairman of the Board of Directors and Mr. Philippe Knoche was appointed CEO of AREVA.

On February 18, 2015, AREVA announced the suspension of the design certification process for the US EPR.



#### **NOTE 36. MAIN CONSOLIDATED COMPANIES AND ASSOCIATES**

	E	Business reg. no.	December 3	1, 2014	December 31, 2013		
Name of unit or controlling entity: Company name, legal form	Country	(Siren no.)	Method	Percentage of interest	Method	Percentage of interest	
Nuclear							
AREVA NC SA	France	305 207 169	FC	100	FC	100	
AREVA NP SAS	France	428 764 500	FC	100	FC	100	
AREVA GmbH	Germany		FC	100	FC	100	
AREVA Inc.	United States		FC	100	FC	100	
AREVA TA SA	France	772 045 879	FC	83.58	FC	83.58	
Cezus SA (*)	France	71 500 763			FC	100	
Euriware SA	France	320 585 110	Deconsolidated		FC	100	
Eurodif SA	France	723 001 889	FC	59.65	FC	59.65	
FBFC SNC (*)	France	300 521 754			FC	100	
AREVA Resources Southern Africa	Great Britain		FC	100	FC	100	
AREVA Resources Canada	Canada		FC	100	FC	100	
Katco	Kazakhstan		FC	51	FC	51	
SET	France	440 252 666	FC	88	FC	88	
ETC	Great Britain		EM	50	EM	50	
AREVA Mines	France	501 493 605	FC	100	FC	100	
Somaïr	Niger		FC	63.40	FC	63.40	
TN International	France	602 039 299	FC	100	FC	100	
Renewable Energies							
AREVA Solar Inc.	United States		FC	93.20	FC	93.20	
AREVA Wind GmbH	Germany		FC	100	FC	100	
Holding company and other operation – Investments	S						
AREVA SA	France	712 054 923	FC	100	FC	100	
AREVA BS	France	421 356 593	FC	100	FC	100	

FC: full consolidation

EM: equity method

(\*) Companies merged in 2014.

#### **NOTE 37. TRANSITION OF 2013 FINANCIAL STATEMENTS AS REPORTED TO RESTATED 2013 FINANCIAL STATEMENTS**

This note recapitulates the main impacts of first adoption of IFRS 11 and of IFRS 5 on the financial statements for 2013.

#### **RESTATEMENT OF SHAREHOLDERS' EQUITY AT JANUARY 1, 2013**

(in millions of euros)	Share capital	Premiums and consolidated reserves	Actuarial gains and losses on employee benefits	Deferred unrealized gains and losses on financial instruments	Currency translation reserves	Equity attributable to equity holders of the parent	Minority interests	Total equity
December 31, 2012 reported	1,456	3,759	(385)	286	57	5,174	382	5,556
Goodwill impairment*		(100)				(100)		(100)
January 1, 2013 restated	1,456	3,659	(385)	286	57	5,074	382	5,456

\* See Note 1.



#### RECONCILIATION OF STATEMENT OF INCOME AS REPORTED TO RESTATED STATEMENT OF INCOME

(in millions of euros)	2013 reported	IFRS 11 adjustments	adjustments IFRS 5	2013 restated
REVENUE	9,240	(178)		9,062
Other income from operations	49	(23)		26
Cost of sales	(7,990)	127	1	(7,861)
Gross margin	1,299	(73)	1	1,227
Research and development expenses	(293)	16	4	(273)
Marketing and sales expenses	(215)	2	1	(212)
General and administrative expenses	(390)	1	1	(388)
Other operating expenses	(481)	64		(417)
Other operating income	92	6		98
OPERATING INCOME	11	16	8	34
Share in net income of joint ventures and associates	-	(12)		(13)
OPERATING INCOME AFTER SHARE IN NET INCOME OF JOINT VENTURES AND ASSOCIATES	11	3	8	22
Income from cash and cash equivalents	44	Ŭ		44
Gross borrowing costs	(258)	1		(257)
Net borrowing costs	(214)	1		(213)
Other financial expenses	(459)	1		(457)
Other financial income	424	(2)		423
Other financial income and expenses	(34)	(2)		(35)
	(248)			(248)
Income tax	62	(4)		59
NET INCOME FROM CONTINUING OPERATIONS	(175)	( -7	8	(167)
Net income from discontinued operations	(248)		(8)	(256)
NET INCOME FOR THE PERIOD	(423)		-	(423)
Including:				
Group:				
Net income from continuing operations	(255)		8	(247)
Net income from discontinued operations	(238)		(8)	(246)
CONSOLIDATED NET INCOME	(494)		-	(494)
Minority interests:				
Net income from continuing operations	80			80
Net income from discontinued operations	(9)			(9)
NET INCOME ATTRIBUTABLE TO MINORITY INTERESTS	71			71
Number of shares outstanding	383,204,852			383,204,852
Average number of shares outstanding	383,204,852			383,204,852
Average number of treasury shares	2,614,543			2,614,543
Average number of shares outstanding, excluding treasury shares	380,590,309			380,590,309
Earnings per share from continuing operations	-0.67			-0.67
Basic earnings per share	-1.30			-1.30
Consolidated net income per diluted share (1)	-1.30			-1.30

(1) AREVA has not issued any instruments with a dilutive impact on share capital.

#### RECONCILIATION FROM STATEMENT OF COMPREHENSIVE INCOME AS REPORTED TO RESTATED STATEMENT OF COMPREHENSIVE INCOME

(in millions of euros)	2013 reported	IFRS 11 adjustments	adjustments IFRS 5	2013 restated
Net income	(423)			(423)
Items not recyclable to the income statement	71	-	-	71
Actuarial gains and losses on the employee benefits of consolidated companies	91	2		93
Income tax related to non-recyclable items	(20)	2		(18)
Share in non-recyclable items from joint ventures and associates, net of tax		(4)		(4)
Non-recyclable items related to discontinued operations, net of tax				
Items recyclable to the income statement	(152)	-	-	(152)
Currency translation adjustments on consolidated companies and other	(181)	1		(180)
Change in value of available-for-sale financial assets	108			108
Change in value of cash flow hedges	(15)			(15)
Income tax related to recyclable items	(56)			(56)
Share in recyclable items from joint ventures and associates, net of tax	(29)	(1)		(30)
Recyclable items related to discontinued operations, net of tax	21			21
Total other items of comprehensive income (net of income tax)	(81)	-	-	(81)
COMPREHENSIVE INCOME	(504)	-	-	(504)
Attributable to equity owners of the parent	(562)			(562)
Minority interests	58			58



#### RECONCILIATION OF CONSOLIDATED BALANCE SHEET AS REPORTED TO RESTATED CONSOLIDATED BALANCE SHEET

#### Assets

(in millions of euros)	2013 reported	Adjustments IFRS 11	2013 restated
Non-current assets	23,052	(146)	22,906
Goodwill on consolidated companies	3,864	(100)	3,764
Intangible assets	2,641	(108)	2,533
Property, plant and equipment	8,731	(22)	8,708
End-of-lifecycle assets (third party share)	199		199
Assets earmarked for end-of-lifecycle operations	6,057		6,057
Investments in joint ventures and associates	145	109	254
Other non-current assets	262		261
Deferred tax assets	1,153	(25)	1,129
Current assets	9,038	(142)	8,895
Inventories and work-in-process	2,331	(107)	2,224
Trade accounts receivable and related accounts	2,067	(7)	2,060
Other operating receivables	1,962	22	1,984
Current tax assets	80	(2)	78
Other non-operating receivables	106	(1)	105
Cash and cash equivalents	1,761	(70)	1,692
Other current financial assets	88	22	110
Assets of discontinued operations	643		643
TOTAL ASSETS	32,090	(289)	31,801

#### FINANCIAL INFORMATION CONCERNING ASSETS, FINANCIAL POSITIONS AND FINANCIAL PERFORMANCE 20.2 Notes to the consolidated financial statements for the year ended December 31, 2014

#### Liabilities and equity

(in millions of euros)	2013 reported	Adjustments IFRS 11	2013 restated
Equity and minority interests	5,082	(100)	4,982
Share capital	1,456		1,456
Consolidated premiums and reserves	3,298	(100)	3,198
Actuarial gains and losses on employee benefits	(317)		(317)
Deferred unrealized gains and losses on financial instruments	330		330
Currency translation reserves	(94)		(94)
Minority interests	408		408
Non-current liabilities	14,284	(5)	14,279
Employee benefits	1,958	(30)	1,928
Provisions for end-of-lifecycle operations	6,437		6,437
Other non-current provisions	199	(7)	192
Share in net negative equity of joint ventures and associates		44	44
Long-term borrowings	5,659	(11)	5,648
Deferred tax liabilities	31	(0)	30
Current liabilities	12,725	(184)	12,541
Current provisions	2,724	(65)	2,659
Short-term borrowings	517	(5)	512
Advances and prepayments received	4,545	(32)	4,513
Trade accounts payable and related accounts	1,817	(55)	1,762
Other operating liabilities	2,582	(16)	2,566
Current tax liabilities	80	(10)	70
Other non-operating liabilities	70		70
Liabilities of activities held for sale	389		389
TOTAL LIABILITIES AND EQUITY	32,090	(289)	31,801



#### RECONCILIATION OF STATEMENT OF CASH FLOWS AS REPORTED TO RESTATED STATEMENT OF CASH FLOWS

(in millions of euros)	2013 reported	IFRS 11 adjustments	IFRS 5 adjustments	2013 restated
Net income for the period	(423)			(423)
Less: income from discontinued operations	248		8	256
Net income from continuing operations	(175)	-	8	(167)
(Profit) / loss of joint ventures and associates	0	12		13
Net amortization, depreciation and impairment of PP&E and intangible assets				
and marketable securities maturing in more than 3 months	756	(34)	(1)	722
Goodwill impairment losses	4			4
Net increase in (reversal of) provisions	81	(54)		27
Net effect of reverse discounting of assets and provisions	339	(1)		338
Income tax expense (current and deferred)	(62)	4		(59)
Net interest included in borrowing costs	216	(1)		215
Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value	(227)	1		(226)
Other non-cash items	(54)			(54)
Dividends from joint ventures and associates		12		12
Cash flow from operations before interest and taxes	877	(62)	7	823
Net interest received (paid)	(201)	1		(200)
Income tax paid	(143)	8		(135)
Cash flow from operations after interest and tax	534	(53)	7	488
Change in working capital requirement	518	24		541
NET CASH FLOW FROM OPERATING ACTIVITIES	1,052	(29)	7	1,030
Investment in PP&E and intangible assets	(1,422)	5		(1,416)
Loans granted and acquisitions of non-current financial assets	(1,934)	(9)		(1,943)
Acquisitions of shares of consolidated companies, net of acquired cash	4	(1)		2
Disposals of PP&E and intangible assets	7	(1)		6
Loan repayments and disposals of non-current financial assets	1,976			1,976
Disposals of shares of consolidated companies, net of disposed cash	5			5
Dividends from equity associates	1	(1)		-
NET CASH FLOW FROM INVESTING ACTIVITIES	(1,364)	(7)		(1,371)
Share issues in the parent company and share issues subscribed by minority shareholders in consolidated subsidiaries				
Treasury shares sold/(acquired)	44			44
Transactions with minority interests	37			37
Dividends paid to minority shareholders of consolidated companies	(33)			(33)
Increase in borrowings	224	(15)	(6)	202
NET CASH FLOW FROM FINANCING ACTIVITIES	272	(15)	(6)	250
Increase (decrease) in securities recognized at fair value through profit and loss	211			211
Impact of foreign exchange movements	(17)	1		(16)
NET CASH FROM DISCONTINUED OPERATIONS	28		(2)	26
INCREASE (DECREASE) IN NET CASH	181	(50)		130
NET CASH AT THE BEGINNING OF THE YEAR	1,489	(38)		1,451
NET CASH AT THE END OF THE YEAR	1,670	(88)		1,582



# **20.3.** 2014 FINANCIAL STATEMENTS

NB : All amounts are presented in millions of euros unless otherwise indicated. Certain totals may include rounding differences.

### 20.3.1 STATUTORY AUDITORS' REPORT ON THE ANNUAL FINANCIAL STATEMENTS

This is a free translation into English of the statutory auditors' report on the consolidated financial statements issued in the French language and is provided solely for the convenience of English speaking users.

The statutory auditors' report includes information specifically required by French law in such reports, whether modified or not. This information is presented below the opinion on the consolidated financial statements and includes explanatory paragraphs discussing the auditors' assessments of certain significant accounting and auditing matters. These assessments were made for the purpose of issuing an audit opinion on the consolidated financial statements taken as a whole and not to provide separate assurance on individual account captions or on information taken outside of the consolidated financial statements.

This report also includes information relating to the specific verification of information given in the management report.

This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

To the Shareholders,

In compliance with the assignment entrusted to us by your Annual General Meeting, we hereby report to you, for the year ended December 31, 2014, on:

- The audit of the accompanying financial statements of AREVA;
- The justification of our assessments;
- The specific verifications and information required by law.

These financial statements have been approved by the Board of directors. Our role is to express an opinion on these financial statements based on our audit.

#### I. OPINION ON THE FINANCIAL STATEMENTS

We conducted our audit in accordance with professional standards applicable in France; those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit involves performing procedures, using sampling techniques or other methods of selection, to obtain audit evidence about the amounts and disclosures in the financial statements. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made, as well as the overall presentation of the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

In our opinion, the financial statements give a true and fair view of the assets and liabilities and of the financial position of the Company as of December 31, 2014 and of the results of its operations for the year then ended in accordance with French accounting principles.

Without qualifying our opinion, we draw your attention to the matter set out in Note 1.1 to the financial statements, regarding the circumstances in which the company was led to review some of its equity associates' and loans to equity associates' recoverable values.

#### **II. JUSTIFICATION OF OUR ASSESSMENTS**

Accounting estimates contributing to the production of the financial statements have been made under the terms described in Note 1.1 to the financial statements. Within this framework, and in accordance with the requirements of article L. 823-9 of the French Commercial Code (Code de commerce) relating to the justification of our assessments, we bring to your attention the following matters:

- Participating interests were valued in accordance with the accounting methods described in Note 2.2 to the financial statements entitled "Accounting policies, rules and methods Long-term investments". As part of our audit, we reviewed the procedures for executing the valuation of those long-term investments and assessed the consistency of the underlying assumptions with the forecasted data of these entities concerned. We also verified the appropriateness of the abovementioned information provided in the notes of the financial statements.
- With respect to risks, litigations and contingent liabilities, we examined the existing procedures in your Company to identify, assess and record such risks, litigations
  and contingent liabilities in the accounts. We also ascertained that the main litigations identified through the procedures implemented by your Company are described
  appropriately in the financial statements and specifically in Note 6.8.



In the frame of our assessment on the going concern assumption, we examined the Group liquidity detailed in Note 6.4 to the financial statements. We have been informed of the cash flow forecasts, the debt schedules, the current credit lines as well as the related covenants.

These assessments were made as part of our audit of the financial statements taken as a whole, and therefore contributed to the opinion we formed which is expressed in the first part of this report.

#### **III. SPECIFIC VERIFICATIONS AND INFORMATION REQUIRED BY LAW**

We have also performed, in accordance with professional standards applicable in France, the specific verifications required by French law.

We have no matters to report as to the fair presentation and the consistency with the financial statements of the information given in the management report of the Board of directors and in the documents addressed to shareholders with respect to the financial position and the financial statements.

Concerning the information given in accordance with the requirements of article L. 225-102-1 of the French Commercial Code (Code de commerce) relating to remunerations and benefits received by the directors and any other commitments made in their favour, we have verified its consistency with the financial statements, or with the underlying information used to prepare these financial statements and, where applicable, with the information obtained by your company from companies controlling your company or controlled by it. Based on this work, we attest the accuracy and fair presentation of this information.

In accordance with French law, we have verified that the required information concerning the purchase of investments and controlling interests and the identity of the shareholders and holders of the voting rights has been properly disclosed in the management report.

Courbevoie - Paris La Défense, March 4, 2015

The statutory auditors French original signed by

MAZARS

ERNST & YOUNG Audit

Cédric Haaser

Jean-Louis Simon

Aymeric de La Morandière

Jean Bouquot



#### **20.3.2 STATEMENT OF FINANCIAL POSITION**

			2014		2013	
Assets			Amortization &			
(in thousands of euros)	Note	Gross	Depreciation	Net	Net	
Subscribed capital not issued						
Non-current assets						
Research and Development expenses						
Concessions, patents, licenses, software and similar rights		128,957	77,861	51,096	55,386	
Leasehold						
Other intangible assets						
Intangible assets in progress		12,752		12,752	9,395	
Advances and prepayments						
Total intangible assets	20.4.4.1	141,709	77,861	63,849	64,781	
Land		204		204	204	
Buildings		114	114			
Plant, equipment and tooling		64	64	1	5	
Other property, plant and equipment		81,787	61,184	20,604	24,154	
Plant, property and equipment in progress		10,166		10,166	10,840	
Advances and prepayments on PPE						
Total property, plant and equipment	20.4.4.1	92,335	61,362	30,974	35,202	
Associates		6,419,276	4,106,231	2,313,045	6,447,666	
Loans to affiliates		6,423,123	1,125,442	5,297,680	7,346,700	
Portfolio of investments						
Other long-term securities		43,488	29,130	14,359	19,749	
Loans						
Other long-term investments		24,781	3,188	21,593	25,545	
Total long-term investments	20.4.4.3	12,910,668	5,263,991	7,646,677	13,839,659	
Total non-current assets		13,144,712	5,403,213	7,741,499	13,939,642	
Current assets						
Raw materials and supplies						
Goods in process						
Intermediate and finished products						
Goods						
Total inventories and work-in-process						
Advances and prepayments on orders		23,647		23,647	1,692	
Accounts receivable and related accounts		113,492		113,492	97,888	
Other accounts receivable		377,882	749	377,132	470,443	
Subscribed capital – issued and not paid						
Total receivables	20.4.4.5	491,374	749	490,625	568,331	
Marketable securities		1,481,032		1,481,032	1,438,822	
Cash instruments		12,600		12,600	60,692	
Cash and cash equivalents		1,778,096	1,268	1,776,828	1,405,701	
Total cash and marketable securities	20.4.4.7	3,271,728	1,268	3,270,460	2,905,215	
Prepaid expenses		2,672		2,672	2,435	
Total current assets		3,789,422	2,018	3,787,404	3,477,674	
Deferred charges		16,480		16,480	16,928	
Bond redemption premiums		20,690		20,690	20,376	
Unrealized foreign exchange gains					170	
GRAND TOTAL		16,971,304	5,405,231	11,566,074	17,454,789	



#### FINANCIAL INFORMATION CONCERNING ASSETS, FINANCIAL POSITIONS AND FINANCIAL PERFORMANCE 20.3 2014 financial statements

#### Shareholders' equity and liabilities

Shareholders' equity and liabilities	Nete	0014	0040
(in thousands of euros)	Note	2014	2013
Capital social	20.4.4.8	1,456,178	1,456,178
Additional paid-in capital, merger premiums, share premiums		1,148,130	1,148,130
Legal reserve		145,618	145,618
Reserves provided in the by-laws or by contract			
Other reserves		9,707	9,707
Retained earnings		3,896,177	4,076,332
Net income for the year		-5,309,351	-180,155
Investment subsidies		986	1,412
Tax-driven provisions		6,230	4,587
Total shareholders' equity	20.4.4.9	1,353,674	6,661,808
Other shareholders' equity			
Proceeds from issues of equity securities			
Advances subject to covenants		73	73
Total other shareholders' equity		73	73
Provisions for contingencies and losses			
Provisions for contingencies		200,656	7,807
Provisions for losses		48,127	272,481
Total provisions for contingencies and losses	20.4.4.10	248,783	280,288
Liabilities			
Convertible bond issues			
Other bond issues		5,861,685	5,093,569
Bank borrowings		459,495	430,763
Miscellaneous loans and borrowings		2,979,907	4,406,942
Advances and prepayments on orders			
Trade accounts payable and related accounts		127,771	122,909
Taxes and employee-related liabilities		22,167	23,123
Accounts payable on non-current assets and related accounts		147	163
Other liabilities		377,356	321,954
Financial instruments		70,293	36,424
Unearned income		64,722	76,704
Total liabilities	20.4.4.11	9,963,543	10,512,549
Unrealized foreign exchange losses			71
TOTAL SHAREHOLDERS' EQUITY AND LIABILITIES		11,566,074	17,454,789



#### **20.3.3. STATEMENT OF INCOME**

(in thousands of euros) Note	2014	2013
Operating income		
Sales of goods		
Sales of products		
Services performed	487,137	490,444
Revenue (1)	487,137	490,444
Production in inventory		
Self-constructed assets	15,549	13,095
Operating subsidies		10
Reversals of provisions, amortization and depreciation	4,035	9,664
Transferred expenses	3,188	8,998
Other income	440	185
Total operating income	510,349	522,396
Operating expenses		
Sales of goods		
Change in inventory (goods)		
Purchases of raw materials and other supplies	-154	-105
Change in inventory (raw materials and supplies)		
Other purchases and expenses	610,740	652,091
Taxes and related expenses	4,189	1,701
Salaries and other compensation	8,991	11,500
Social security taxes	7,140	3,478
Amortization, depreciation and provisions	37,093	30,449
Other expenses	5,442	6,409
Total operating expenses	673,442	705,522
Current operating income 20.4.5.1	-163,093	-183,126
Share of net income from joint operations		
Profit allocated or loss transferred		
Loss allocated or profit transferred		
Financial income		
From equity interests	209,553	183,352
From other marketable securities and capitalized receivables	152	277
Other interest and related income	113,399	83,933
Reversals of provisions, amortization and depreciation	1,238	209,666
Transferred expenses		
Foreign exchange gains	438,962	495,957
Net income from disposals of marketable securities	4,327	2,563
Total financial income	767,631	975,748
Financial expenses		
Amortization, depreciation and provisions	5,162,720	90,794
nterest and related expenses	322,936	268,627
Foreign exchange losses	441,457	481,212
Net loss on disposals of marketable securities	1,117	55,062
Fotal financial expenses	5,928,229	895,695
Net financial income20.4.5.2	-5,160,598	80,054
Income before tax and exceptional items	-5,323,691	-103,072
1) Including direct exports.	54,052	61,233



#### **STATEMENT OF INCOME (CONTINUED)**

(in thousands of euros)	Note	2014	2013
	Note	2014	2013
Exceptional items			
On financial management transactions		298	501
On capital or non-current asset transactions		26,439	2,997
Reversals of provisions, amortization and depreciation		240,665	2,876
Transferred expenses			
Total exceptional income		267,402	6,374
Exceptional expenses			
On financial management transactions		26,419	4,347
On capital or non-current asset transactions		101,870	92,168
Amortization, depreciation and provisions		197,270	87,789
Total exceptional expenses		325,559	184,304
Exceptional items	20.4.5.3	-58,157	-177,930
Employee profit-sharing			
Income tax	20.4.5.4	-72,496	-100,847
NET INCOME		-5,309,351	-180,155



#### **20.3.4. STATEMENT OF CASH FLOWS**

(in thousands of euros)	Note	2014	2013
	noto		
Net cash from operating activities			
Net income for the year		-5,309,351	-180,155
Net depreciation and amortization		30,275	38,652
Net provisions		5,120,869	-51,827
Net income on disposals of assets		73,721	58,669
Other calculated items		-426	-366
Cash flow from operations		-84,912	-135,027
(Increase) / decrease in inventory			
(Increase) / decrease in trade advances and prepayments paid		-21,956	2,999
Increase / (decrease) in trade advances and prepayments received			
(Increase) / decrease in trade accounts receivable and related accounts		77,470	-26,876
Increase / (decrease) in trade accounts payable and related accounts		47,410	-61,095
Net cash from operating activities (i)		18,013	-219,999
Cash flow from investing activities			
Investment in PPE and intangible assets		-18,784	-21,726
Investment in long-term notes and investments		-2,470,949	-2,607,554
Repayments of loans to equity associates		3,324,152	3,046,408
Disposals of PPE and intangible assets			
Disposals and reductions of long-term investments		116,292	2,631
Other cash flows related to investments			
Net cash used in investing activities (ii)		950,712	419,759
Net cash from financing activities			
Increase / (decrease) in capital and additional paid-in capital			
Dividends paid			
Increase / (decrease) in borrowings		713,761	322,706
Net cash used in financing activities (iii)		713,761	322,706
Change in net cash for the period (I + ii + iii)		1,682,486	522,467
Net cash at the beginning of the period		-1,340,043	-1,862,510
CASH AT THE END OF THE PERIOD		342,442	-1,340,043



# **20.4 NOTES TO THE FINANCIAL STATEMENTS**

The notes hereunder supplement the statement of financial position for the period ended December 31, 2014 showing total assets of 11,566,074 thousand euros, and the statement of income, showing a net loss of 5,309,351 thousand euros. These statements are for the 12-month period beginning January 1 and ending December 31, 2014.

- Notes to the statement of financial position
  Notes to the statement of income
- Additional information

These notes and tables are an integral part of the financial statements approved by Board of Directors on March 3, 2015. The financial statements will be presented to the Annual General Meeting of Shareholders for approval on May 21, 2015.

Highlights of the year

The notes include:

Accounting principles and methods

#### **20.4.1. NOTEWORTHY ITEMS IN THE 2014 FINANCIAL STATEMENTS**

#### 20.4.1.1. CONTEXT OF THE 2014 FINANCIAL STATEMENTS

On November 18, 2014, in the framework of planning and forecasting activities performed regularly by the Executive Board, AREVA suspended its financial outlook for the years 2015 and 2016, pending the conclusion of these activities. This suspension was motivated by the following items:

- the consequences in terms of free operating cash flow in 2015 and beyond of the new schedule for completion of the Olkiluoto 3 project and the current impossibility of adjusting the payment schedule with the customer;
- delays in the restart of Japanese reactors, in spite of some progress achieved recently concerning the restart of the first two units;
- changes of assumptions in the schedule relating to the launch of new reactor construction projects (Reactors & Services Business Group) and for export contracts in the recycling activity and international projects (Back End Business Group), based on existing visibility in the market;
- persistent weakness in the installed base services market, including France.

As part of the 2015 budget process, AREVA worked to strengthen its performance plan in order to adapt to current market conditions, which remain unfavorable. It began revising its medium-term strategic outlook and financial plan, which will be examined in the framework of its governance. The performance plan was designed to preserve continuity of operations and is organized around three key elements:

- strategic repositioning;
- financial plan;
- competitiveness plan.

#### 20.4.1.2. WRITE-DOWN OF EQUITY SECURITIES AND LOANS TO ASSOCIATES

In connection with the review undertaken in late 2014-early 2015 of the business outlook for the different Business Groups, and considering the current market environment, changes in the application of regulations related to provisions for end-of-lifecycle operations, and difficulties experienced on certain construction or modernization contracts in progress, the profitability outlook for first-tier subsidiaries was revised significantly downwards.

The recoverable amounts resulting therefrom translate into the write-down of certain equity securities and loans to associates held by AREVA SA (see Note 20.4.4.1):

- AREVA NP;
- AREVA Mines;

AREVA Energies Renouvelables;

At December 31, 2014, AREVA SA's loss totaled 5,309,351 thousand euros. AREVA SA equity remained positive on that same date.

#### 20.4.1.3. BOND ISSUES

AREVA launched a 9-year, 750-million-euro bond issue maturing on March 20, 2023 with an annual coupon of 3.125%.

A total of 5.780 billion euros was outstanding at December 31, 2014 in equivalent euros.

#### 20.4.1.4. DISPOSAL OF AREVA RENEWABLES

On January 20, 2014, AREVA and Gamesa entered exclusive negotiations to create a joint venture in the field of offshore wind. On July 7, 2014, AREVA and Gamesa signed binding agreements to create this joint venture, which will be held in equal shares by the two groups. In this regard, subsidiaries that will be contributed to the joint venture were combined in AREVA Energies Renouvelables, which is wholly owned by AREVA.

AREVA disposed of its interest in AREVA Renouvelables in 2014, with the value of its shares totaling 188,234 thousand euros at December 31, 2013, and whose share capital had previously been amortized in 2014 by 90,279 thousand euros.

#### 20.4.1.5. CONTRACTS FOR THE DESIGN AND CONSTRUCTION OF AN EXPERIMENTAL REACTOR

AREVA is encountering difficulties in the performance of contracts for the design and construction of components of an experimental reactor. These difficulties result from changes requested by the customer, from certain technical specifications, and from the default of certain suppliers.

In the first half of 2014, discussions initiated by AREVA with the customer in 2013 led to consensus on a new schedule and on an estimate of foreseeable excess costs at completion for AREVA's scope of the contracts; this estimate includes the assumption that certain risks would materialize.

In the second quarter of 2014, the discussions between AREVA and its customer were put on hold while the State performed an audit of the status of the project. The auditors submitted their report at the end of June. Discussions resumed in the second half of 2014. During these discussions, AREVA indicated a preference for capping the financial risk associated with its design contracts in exchange for

agreeing to bear the majority of the actual and probable costs identified at that time. The cap does not concern the testing phase, during which AREVA is still exposed to potential cost overruns for which it would bear responsibility. To this end, on February 27, 2015, the executive managements of AREVA and the CEA signed an agreement in the form of a directive for the negotiation by their respective teams of the terms of an overall settlement of the project situation. In this context, an additional provision of 187 million euros was set up in the second half to take these costs and the terms of the above-mentioned agreement into account (see Note 20.4.4.10.1).

#### 20.4.2. ACCOUNTING PRINCIPLES AND METHODS

The financial statements of AREVA SA for the year ended December 31, 2014 were prepared in accordance with French accounting standards as defined in articles 121-1 and 121-2 *et seq.* of the *plan comptable général 2014*. The accounting policies were applied in compliance with the provisions of the French Commercial Code, the Accounting decree of November 29, 1983 and the ANC 2014-03 regulations of the French Accounting Board related to the redrafting of the *plan comptable général* applicable to year-end closing.

## 20.4.2.1. VALUATION OF PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS

Property, plant and equipment (PPE) and intangible assets are recognized at acquisition or production cost, including startup expenses.

They are depreciated based on the approach most representative of the loss of economic value of each component, with each component depreciated based on its own useful life. Depreciation is calculated using the straight line method and rates normally applicable to these categories of assets.

The maximum depreciation periods are as follows:

- 3 years for off-the-shelf software;
- 8 years for integrated management software packages;
- 25 years for buildings;
- 10 years for building improvements and office furniture; and
- 5 years for office equipment, computers and transportation equipment.

A depreciation may be recorded when a specific asset's book value exceeds its net carrying amount. The resulting net carrying amount may be considered to be economically justified.

#### 20.4.2.2. LONG-TERM INVESTMENTS

Long-term investments are recognized on the balance sheet at cost on the day of contribution or acquisition. The acquisition cost includes the purchase price plus costs directly related to the purchase, such as commissions paid to acquire securities.

A provision for impairment of investments in associates is recorded when their original cost exceeds their value in use, determined security by security.

Impairment is computed based on interest in each associate's equity at year end. This assessment also takes into account the subsidiaries' estimated profitability or market value, as well as events or developments subsequent to year-end.

Loans to equity associates are recorded at face value. A provision for impairment is recognized if necessary to reflect the actual value at year end.

#### 20.4.2.3. RECEIVABLES AND BORROWINGS

Receivables and debt are recorded at nominal value. Receivables may be written down to reflect potential collection difficulties based on information available at closing.

Receivables and borrowings in foreign currencies are translated and recorded in euros based on exchange rates in effect at year end. Unrealized gains and losses are recorded on the balance sheet as currency translation differences. Receivables and liabilities in foreign currencies whose exchange rates have been hedged are recorded in euros based on the hedged rate. Unrealized foreign exchange losses are recognized through a contingency provision.

#### 20.4.2.4. FINANCIAL INSTRUMENTS

AREVA SA uses derivative instruments to hedge foreign exchange risks, interest rate risks and the price of commodities, both for its own account and for transactions carried out by its subsidiaries. The derivatives used are mainly forward exchange contracts, currency and interest rate swaps, inflation swaps, currency options and commodity options.

The risks hedged relate to receivables, borrowings and firm commitments in foreign currencies, planned transactions in foreign currencies, and planned sales and purchases of commodities. Derivative instruments traded to hedge subsidiaries' exposure are issued by banking counterparties. Thus, AREVA SA's exposure to its subsidiaries is strictly offset by AREVA SA's positions with the banks.

Accounting principles:

- gains and losses on derivatives traded to hedge the subsidiaries' exposure are recognized through profit and loss at maturity, thus matching the gains and losses recognized on the symmetrical derivative transactions between AREVA SA and the banks;
- interest rate derivatives traded by AREVA SA are qualified as hedging instruments. Interest is recognized as accrued.

#### 20.4.2.5. MARKETABLE SECURITIES

Marketable securities are valued at the lower of their acquisition cost or period-end value. A provision for impairment is recorded when the valuation at the end of the period shows an overall loss by class of securities. The current value is equal to the average closing market price of the securities for the last month of the period.

A provision for impairment of other cash investments, such as debt instruments that are not publicly traded, is recorded separately when warranted.

#### 20.4.2.6. NON-TRADE CURRENT ACCOUNTS

Non-trade current accounts are reported under "cash and cash equivalents" on the assets side of the balance sheet; otherwise, they appear in borrowings on the liabilities side.

#### 20.4.2.7. BOND ISSUES

Bond debt is recognized as borrowings, as provided in generally accepted accounting principles in France (*plan comptable général*).

Redemption premiums and deferred charges related to bond issues are amortized in a straight line over the term of the issue.





#### 20.4.2.8. PROVISIONS FOR CONTINGENCIES AND LOSSES

AREVA's provisions for contingencies and losses are consistent with French accounting board rules on liabilities dated December 7, 2000 (CRC 2000-06).

AREVA SA records provisions for contingencies and losses, for instance to cover restructuring or litigation expenses.

Contingent liabilities represent obligations that are neither probable nor certain at the date of closing, or obligations that are probable but where no resource is likely to be expended. Contingent liabilities are not recognized in provisions, but rather disclosed in the notes (see section 20.4.4.10).

#### 20.4.2.9. EMPLOYEE BENEFITS

In the case of defined contribution plans, the group's payments are recognized as expenses for the period to which they relate.

The financial statements also reflect all of AREVA's pension, retirement and related benefit commitments, both for active personnel and for retirees, net of any plan assets and unrecognized gains covering the liabilities.

For defined benefit plans, benefit costs are estimated using the projected credit unit method. Under this method, accrued pension benefits are allocated among service periods based on the plan vesting formula. If services in subsequent years result in accrued benefit levels that are substantially higher than those of previous years, the Company must allocate the accrued benefits on a straight-line basis. The amount of future benefit payments to employees is determined based on salary trend assumptions, retirement age and mortality, discounted to present value based on interest rates for long-term bonds from AAA issuers.

Actuarial gains and losses are spread out over the average expected remaining working life of personnel taking part in these plans for the portion exceeding the largest of the following values by more than 10%:

- the present value of the defined benefit obligation at the balance sheet opening date;
- the fair value of plan assets at the balance sheet opening date.

The costs of plan changes are allocated over the vesting period.

#### 20.4.2.10. EXCEPTIONAL ITEMS

Items related to the company's ordinary operations are recognized in income before tax and extraordinary items, even if they are exceptional in terms of frequency or amount. Only items that are not related to the company's ordinary operations are recognized as exceptional items in the income statement, in addition to transactions specifically qualified as exceptional items under French GAAP (regulated provisions, reversals of investment subsidies, gains on disposals of certain assets, etc.).

#### 20.4.2.11. CASH FLOW STATEMENT

The company uses the "indirect method" to present cash flows. Cash consists of the following items: cash and cash equivalents, bank balances, short-term investments with initial maturities of less than three months, and current financial accounts.

Acquisitions or disposals of marketable securities maturing in more than three months correspond more to cash management decisions than to an investment strategy for the company. They are therefore reflected as an increase or decrease in cash and cash equivalents, which determines the net change in cash position, rather than being included in cash flow from investing activities.

#### 20.4.2.12. TAX DATA

As provided in article 223A of the French Tax Code, AREVA SA opted to be solely responsible for income tax due on the combined income of the group consisting of AREVA SA and the subsidiaries in which it holds at least 95% of the share capital. This regime remains in effect for the year ended December 31, 2014.

The relations between AREVA SA and its integrated subsidiaries are governed by a tax integration agreement based on the principle of tax neutrality. This agreement defines in particular the conditions for distributing tax liabilities among integrated companies and the rules applicable upon termination of the integration.

As provided in article 39-1-2 of the French Tax Code, depreciation is deductible for tax purposes only if properly recognized in the company's accounting records. To encourage capital spending, tax law may allow companies to recognize amortization that would not otherwise be required under reporting standards. Due to discrepancies between tax and accounting rules, AREVA recognizes accelerated depreciation in a manner that is consistent with accounting rules providing for minimum cumulative straight-line amortization.

#### 20.4.3. EVENTS SUBSEQUENT TO YEAR-END CLOSING

On January 8, 2015, the Extraordinary General Meeting of AREVA SA Shareholders decided to transform the company's governance from that of a corporation with a Supervisory Board and an Executive Board into a corporation with a Board of Directors. On that same day, the newly appointed Board of Directors decided to split

the positions of Chairman of the Board and Chief Executive Officer. Mr. Philippe Varin was appointed Chairman of the Board of Directors and Mr. Philippe Knoche was appointed CEO of AREVA.



#### **20.4.4. NOTES TO THE BALANCE SHEET**

#### 20.4.4.1. GROSS VALUES OF PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS

<b>A</b>					т	ransfers from	
Gross amount (in thousands of euros)	Notes	2013	Merger spin-off	Increase	Decrease	account to account	2014
Intangible assets							
Research and development expenses							
Concessions, patents, licenses, software and similar rights		116,365		12,715	123		128,957
Leasehold							
Other intangible assets							
Intangible assets in progress		9,395		13,529	10,172		12,752
Advances and prepayments							
TOTAL INTANGIBLE ASSETS		125,760		26,244	10,295		141,709
Property, plant and equipment							
Land		204					204
Buildings:							
Buildings erected on owned land		114					114
Buildings erected on third party land							
Buildings, facilities, fixtures							
Plant, equipment and tooling:							
Plant, equipment and tooling		64					64
End-of-lifecycle assets							
Other PPE:							
• Miscellaneous facilities, fixtures and improvements		61,499		1,063			62,562
Transportation equipment							
Office equipment, computer equipment     and furniture		17,628		1,598			19,226
• Other property, plant and equipment							
Plant, property and equipment in progress		10,840		7,339	8,013		10,166
Advances and prepayments on PPE							
TOTAL PROPERTY, PLANT AND EQUIPMENT		90,349		10,000	8,013		92,335

The increase in intangible assets is mainly related to the capitalization of the following projects:

- Saphir project (3,477 thousand euros) HR area
- Effiprint project (1,598 thousand euros) ISD area
- CRM Gestion temps project (1,292 thousand euros) ICO area
- Phileas project (1,470 thousand euros) Finance area

- Pooling project (970 thousand euros) ISD area
- Core Model reliability project (696 thousand euros) Finance area
- Health and management software (329 thousand euros) Finance area (SHSSDD)
- Polyphème project (976 thousand euros) HR area

The increase in property, plant and equipment (PPE) is mainly due to the deployment of improvements and fixtures on certain floors of the AREVA Tower.



#### 20.4.4.2. AMORTIZATION AND DEPRECIATION OF PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS

Amortization and impairment (in thousands of euros)	Notes	2013	Merger Spin-off	Increase	Decrease	from account to account	2014
Intangible assets							
Research and development expenses							
Concessions, patents, licenses, software and similar rights		60,979	16,922		40		77,861
Leasehold							
Other intangible assets							
Intangible assets in progress							
TOTAL INTANGIBLE ASSETS		60,979	16,922		40		77,861
Property, plant and equipment							
Land and improvements							
Buildings:							
Buildings erected on owned land		114					114
<ul> <li>Buildings erected on third party land</li> </ul>							
Buildings, facilities, fixtures							
Plant, equipment and tooling:							
Plant, equipment and tooling		60		4			64
End-of-lifecycle assets							
Other PPE:							
<ul> <li>Miscellaneous facilities, fixtures and improvements</li> </ul>		40,788		4,780			45,568
Transportation equipment							
<ul> <li>Office equipment, computer equipment and furniture</li> </ul>		14,185		1,431			15,616
Other property, plant and equipment							
Plant, property and equipment in progress							
TOTAL PROPERTY, PLANT AND EQUIPMENT		55,147		6,215			61,362

#### 20.4.4.3. LONG-TERM INVESTMENTS

Gross amount			Merger Contribution			
(in thousands of euros)	Note	2013	Spin-off	Increase	Decrease	2014
Associates	20.4.4.3.1	6,453,458		155,024	189,206	6,419,276
Loans to equity associates	20.4.4.3.2	7,430,585		2,314,796	3,322,258	6,423,123
Investment portfolio						
Other long-term securities	20.4.4.3.3	43,488				43,488
Loans						
Other long-term investments:						
Receivables related to end-of-lifecycle operations						
End-of-lifecycle assets - Third party share						
Other long-term investments	20.4.4.3.4	25,545		1,129	1,893	24,781
TOTAL LONG-TERM INVESTMENTS		13,953,076		2,470,949	3,513,357	12,910,668

20.4 Notes to the financial statements

# 20.4.4.3.1. "Equity associates" in the amount of 6,419,276 thousand euros primarily comprises the following securities:

AREVA NP	3,042,165 thousand euros

<ul> <li>AREVA Mines</li> </ul>	2,356,194 thousand euros
<ul> <li>AREVA NC</li> </ul>	523,292 thousand euros
CEBE	251 541 thousand euros

155.003 thousand euros

AREVA Energies Renouvelables

In connection with the creation of the joint venture with Gamesa:

- AREVA disposed of its interest in AREVA Renouvelables in 2014, with the value of its shares amounting to 188,234 thousand euros at December 31, 2013, and whose share capital had previously been amortized in 2014 by 90,279 thousand euros;
- In 2014, AREVA subscribed to the capital increases of its subsidiary AREVA Energies Renouvelables in the amount of 155,000 thousand euros.

#### 20.4.4.3.2. "Loans to equity associates" in the amount of 6,423,123 thousand euros concern medium-term loans made to group companies, including accrued interest (see note 20.4.4.6). at December 31, 2014, these companies were mainly:

- Société Enrichissement Tricastin
   1,926,983 thousand euros
- AREVA NP SAS 1,817,710 thousand euros
- CRI Canada 1,032,168 thousand euros (1,451,538 thousand CAD)
- AREVA Inc. 888,342 thousand euros (1,078,537 thousand USD)

#### 20.4.4.4. IMPAIRMENT OF LONG-TERM INVESTMENTS

# AREVA Energies Renouvelables Eurodif UraMin Centrafrique ATMEA AREVA Solar Inc. AREVA Enrichment Services LLC AREVA Energies Renouvelables 180,000 thousand euros 120,148 thousand euros 98,442 thousand euros (119,519 thousand USD) ATMEA 77,500 thousand euros (80,002 thousand USD)

(71,037 thousand USD)

# 20.4.4.3.3. "Other long-term securities" chiefly include Japan steel securities in the amount of 43,305 thousand euros.

# 20.4.4.3.4. "Other long-term notes and investments" include:

- security deposits related to regular leases for the AREVA Tower in Courbevoie and the rue La Fayette offices in central Paris representing 6,841 thousand euros at December 31, 2014;
- AREVA's equity interest in European Liability Insurance for the Nuclear Industry (Elini), a mutual insurance company, representing 6,741 thousand euros at December 31, 2014, and in the mutual BlueRE in the amount of 320 thousand euros;
- treasury shares acquired from the Framépargne fund under a liquidity agreement for 9,937 thousand euros;
- the liquidity contract with Natixis in the amount of 793 thousand euros.

Write-downs						
(in thousands of euros)	Note	2013	Merger-Spin-off	Increase	Decrease	2014
		5 700			0.15	
Associates	20.4.4.1	5,792		4,101,353	915	4,106,231
Loans to equity associates	20.4.4.4.2	83,885		1,041,557		1,125,442
Investment portfolio						
Other long-term securities	20.4.4.3	23,739		5,390		29,130
Loans						
Other long-term investments:						
Receivables related to end-of-lifecycle     operations						
End-of-lifecycle assets - Third party share						
Other long-term investments	20.4.4.4.4			3,188		3,188
TOTAL LONG-TERM INVESTMENTS		113,417		5,151,488	915	5,263,991

#### 20.4.4.4.1. In consideration of the accounting rules and methods (see section 20.4.2.2.), charges to provisions for equity securities correspond to write-downs as follows:

AREVA NP	3,042,165 thousand euros
<ul> <li>AREVA Mines</li> </ul>	904,000 thousand euros
<ul> <li>AREVA Energies Renouvelables</li> </ul>	155,003 thousand euros
<ul> <li>AREVACom</li> </ul>	121 thousand euros
<ul> <li>AREVADelfi</li> </ul>	65 thousand euros

Reversals correspond to provisions on securities for

<ul> <li>Cilas securities</li> </ul>	869 thousand euros
<ul> <li>AREVA Entreprises Inc.</li> </ul>	43 thousand euros

# 20.4.4.4.2. The change in provisions for loans to associates corresponds to increases in loans to

<ul> <li>AREVA NP</li> </ul>	955,000 thousand euros
<ul> <li>AREVA Energies Renouvelables</li> </ul>	72,000 thousand euros
<ul> <li>UraMin Centrafrique</li> </ul>	14,557 thousand euros





20.4.4.4.3. The change in provisions for other long-term securities concerned the impairment of Japan Steel Works shares in the amount of 5,390 thousand euros.

20.4.4.4.4. The change in the provision for other long-term investments corresponds to the write-down of AREVA SA treasury shares in the amount of 3,188 thousand euros based on the market price of the AREVA share at December 31, 2014.

#### 20.4.4.5 STATEMENT OF RECEIVABLES

(in thousands of euros)	Note	Gross amount	Maturing in less than 1 year	Maturing in more than 1 year
Non-current assets				
Loans to affiliates		6,423,123	189,440	6,233,682
Loans				
Other long-term investments:				
Receivables related to end-of-lifecycle operations				
End-of-lifecycle assets - Third party share				
Other long-term investments		24,781	797	23,984
TOTAL CAPITALIZED RECEIVABLES		6,447,903	190,237	6,257,666
Current assets				
Suppliers: advances and prepayments made		23,647	23,647	
Working capital: receivables				
Doubtful accounts				
Other trade accounts receivable		113,492	113,492	
Accounts payable to employees and related accounts				
Social security administration and other social institutions				
French State and local governments:				
Income tax		87,593	87,593	
Value added tax		38,124	38,124	
Other taxes and related expenses		185	185	
Miscellaneous French State				
Group and associates		30,624	30,624	
Trade accounts and other receivables		221,356	221,356	
TOTAL GROSS RECEIVABLES – WORKING CAPITAL		491,374	491,374	
Prepaid expenses		2,672	2,672	
TOTAL GROSS RECEIVABLES		6,965,597	707,931	6,257,666



#### 20.4.4.6. ACCRUED INCOME

(French decree 83-1020 of November 29, 1983, article 23)

(in thousands of euros)	No	2014	2013
Long-term investments			
Loans to affiliates	20.4.4.6.	1. 38,726	155,369
Other long-term investments			
TOTAL LONG-TERM INVESTMENTS		38,726	155,369
Working capital: receivables			
Trade accounts receivable and related accounts		17,046	13,996
Accounts payable to employees and related accounts			
Social security administration and other social institutions			
French State and local governments			459
Trade accounts and other receivables		195,395	220,708
TOTAL RECEIVABLES – WORKING CAPITAL		212,440	234,646
Marketable securities		8	2
Cash and cash equivalents			
TOTAL INCOME RECEIVABLE		251,174	390,017
20.4.4.6.1. The change in accrued interest for loans to	AREVA NP		8,370 thousand euros
associates comes mainly from loans to:	<ul> <li>SET</li> </ul>	-6	9,506 thousand euros

AREVA Inc.

UraMin Holding

65,602 thousand euros

#### 20.4.4.7. **NET CASH**

(in thousands of euros) Note	2014	2013
Other marketable securities 20.4.4.7.1	1,481,032	1,438,822
Write-downs		
	1,481,032	1,438,822
Cash instruments	12,600	60,692
Non-trade current accounts	1,728,017	1,350,377
Write-downs	-1,268	-1,111
	1,726,749	1,349,266
Cash and cash equivalents	50,079	56,436
TOTAL CASH AND MARKETABLE SECURITIES	3,270,460	2,905,215

7,031 thousand euros

Other marketable securities consisted primarily of certificates of deposit in the amount of 80,000 thousand euros, 20.4.4.7.1 of money market funds and treasury bonds in the amount of 1,399,328 thousand euros, and of treasury shares acquired in connection with the liquidity contract in the amount of 1,498 thousand euros.



#### 20.4.4.8 SHARE CAPITAL

(French decree 83-1020 of November 29, 1983, article 24-12)

		Number of shares			
Category of shares	Par value	at the beginning of the year	Increase	Decrease	at year-end
Common shares	3.80 euros	383,204,852			383,204,852

Since May 30, 2011, the AREVA share is traded on compartment A of the NYSE Euronext stock exchange in Paris under ISIN code FR0011027143.

The share capital of AREVA SA at December 31, 2014 was as follows:

	2014	2013	2012
CEA	54.4%	61.5%	68.9%
French state	28.8%	21.7%	14.3%
Kuwait Investment Authority (KIA)	4.8%	4.8%	4.8%
CDC/BPI France Participations	3.3%	3.3%	3.3%
Total	1.0%	1.0%	1.0%
Employees	1.2%	1.2%	0.2%
EDF	2.2%	2.2%	2.2%
Public	4.0%	4.0%	4.0%
Treasury shares	0.2%	0.2%	1.2%
TOTAL	100.0%	100.0%	100.0%

#### 20.4.4.9. **EQUITY**

(in thousands of euros)	Note 2013	Appropriation of the result	Contribution Spin-off	Net income for the year	Increase	Decrease	2014
Subscribed capital	1,456,178						1,456,178
Additional paid-in capital, share premiums	1,148,130						1,148,130
Revaluation adjustment							
Legal reserve	145,618						145,618
Blocked reserves							
Regulated reserves	3,304						3,304
Other reserves	6,403						6,403
Retained earnings	4,076,331	-180,155					3,896,177
Net income for the year	-180,155	180,155		-5,309,351			-5,309,351
Net investment subsidies	1,412					426	986
Tax-driven provisions	4,587				1,643		6,230
TOTAL SHAREHOLDERS' EQUITY	6,661,808	-		-5,309,351	1,643	426	1,353,674



#### 20.4.4.10. PROVISIONS FOR CONTINGENCIES AND LOSSES

(in thousands of euros)	Note	2013	Merger- Spin-off	Increase	Decrease	Reclassifications	2014
			••••••				
Provisions for contingencies							
Provisions for litigation							
Provisions for customer warranties							
Provisions for taxes				856			856
Provisions for foreign exchange losses		170			170		
Other provisions for contingencies	20.4.4.10.1	7,638		196,403	4,240		199,800
TOTAL PROVISIONS FOR CONTINGENCIES		7,807		197,258	4,410		200,656
Provisions for losses							
Provisions for retirement and similar benefits		2,700		293	1,136		1,857
Provisions for taxes	20.4.4.10.2	238,765			238,765		
Provisions for work completion							
Provisions for accrued expenses							
Provisions for mining site reclamation							
End-of-lifecycle provisions							
Provisions for decontamination of tooling							
Other provisions for losses	20.4.4.10.3	31,016		15,967	713		46,270
TOTAL PROVISIONS FOR LOSSES		272,481		16,260	240,614		48,127
TOTAL PROVISIONS FOR CONTINGENCIES AND LOSSES		280,288		213,518	245,023		248,783
Including charges and reversals							
Operating				10,321	4,035		
• Financial				7,571	323		
Exceptional				195,627	240,665		

20.4.4.10.1. The change in other provisions for risks mostly concerns underlying losses on rate swaps and a provision of 187,000 thousand euros set up for the experimental reactor construction project, for which AREVA has agreed to bear a majority of the existing and probable costs identified to date under the design and construction contracts for this reactor in exchange for a cap on the related financial risks.

20.4.4.10.2. The change in provisions for charges primarily includes the reversal of provision for potential tax related to AREVA's advance use of certain of its subsidiaries' tax losses in the consolidated tax return. This provision, in the amount of 238,765 thousand euros, was reversed in its entirety at December 31, 2014.

20.4.4.10.3. The change in other provisions for losses corresponds mostly to commitments made in connection with real estate leases devoid of future economic benefit for the company following the restructuring of the company's offices in the Paris area, and to commitments for the use of licenses.



#### 20.4.4.11. STATEMENT OF LIABILITIES

(in thousands of euros)	Note	Gross amount	Maturing in less than 1 year	Maturing 1 to 5 years	Maturing in more than 5 years
Borrowings					
Convertible bond issues					
Other bond issues	20.4.4.11.1	5,861,685	81,600	2,580,085	3,200,000
Bank borrowings	20.4.4.11.2	459,495	259,495	200,000	
Miscellaneous loans and borrowings	20.4.4.11.3	2,979,907	2,979,821		86
TOTAL BORROWINGS		9,301,087	3,320,915	2,780,085	3,200,086
Advances and prepayments on orders					
Other liabilities					
Trade accounts payable and related accounts		127,771	127,711		
Taxes and employee-related liabilities:					
Accounts payable to employees and related accounts		4,088	4,088		
Social security administration and other social institutions		1,669	1,669		
French State and local governments:					
Value added tax		13,599	13,599		
Other taxes		1,495	1,495		
Income tax		1,317	1,317		
Accounts payable on non-current assets and related accounts		147	147		
Group and associates		150,950	150,950		
Other liabilities		226,407	226,407		
Cash instruments		70,293	70,293		
TOTAL OTHER LIABILITIES		597,734	597,734		
Unearned income	20.4.4.11.4	64,722	12,471	29,121	23,131
TOTAL UNEARNED INCOME		64,722	12,471	29,121	23,131
TOTAL GROSS BORROWINGS		9,963,543	3,931,120	2,809,206	3,223,217

#### 20.4.4.11.1. Bond issues

(in millions of euros)				
Issue date	Nominal	Currency	Nominal rate	Expiration
September 23, 2009	975	EUR	3.875%	2016
September 23, 2009	1,000	EUR	4.875%	2024
November 6, 2009	750	EUR	4.375%	2019
September 22, 2010	750	EUR	3.500%	2021
October 5, 2011	800	EUR	4.625%	2017
April 4, 2012	200	EUR	TEC 10 + 2.125%	2022
September 4, 2013	500	EUR	3.250%	2020
September 20, 2013	8,000	JPY	1.156%	2018
March 20, 2014	750	EUR	3.125%	2023
TOTAL	5,780 (*)			

(\*) exchange rate used: 1 EUR = 145.23 JPY

The group raised 750 million euros with a bond issue in 2014, adding to the bond issues completed in 2009 to 2013.

The total drawn on the bond issues comes to 5.780 billion euros in nominal value. Of this total, 1,800 million euros were hedged for a variable rate in euros with rate swaps.

20.4 Notes to the financial statements

#### 20.4.4.11.2. Bank borrowings

Loans and borrowings came to 459,495 thousand euros at December 31, 2014, mainly including:

- bank account credit balances of 59,329 thousand euros;
- two European Investment Bank credit facilities in the amount of 400,000 thousand euros.

#### 20.4.4.11.3. Miscellaneous loans and borrowings

Loans and borrowings came to 2,979,907 thousand euros at December 31, 2014, mainly including:

- commercial paper in the amount of 172,000 thousand euros;
- debt related to associates in the amount of 8,157 thousand euros; and
- non-trade current liabilities in the amount of 2,799,664 thousand euros. At December 31, 2014, these companies were mainly:
- AREVA NC
   1,168,107 thousand euros
   AREVA TA
   297,897 thousand euros
- o CERE 235,704 thousand euros 146,946 thousand euros o TN International o Sofidif 137,565 thousand euros o AREVA IR 98,633 thousand euros o SET 98,207 thousand euros o AREVA Inc. 83,215 thousand euros AREVA Business Support 70,672 thousand euros o FBFC International 45,054 thousand euros

#### 20.4.4.11.4. Unearned income

In 2013, the group bought back some of the bonds it had issued maturing in 2016 and 2017. At the same time, AREVA unwound rate swaps that had been set up to cover the bond issues (fixed rate receiver / variable rate payer). In line with market conditions, the swap terminations generated a gain recognized as unearned income, which will be spread out over the remaining period of the borrowings to reflect their effective interest rate over their term. These gains are in addition to unwindings carried out in 2011.

	December 31, 2014	December 31, 2013
Unearned operating income	387	
Unearned financial income	64,337	76,704
TOTAL	64,722	76,704

#### 20.4.4.12. ACCRUED EXPENSES

(in thousands of euros) Note	2014	2013
Borrowings		
Convertible bond issues		
Other bond issues	81,600	63,290
Bank borrowings	165	230
Miscellaneous loans and borrowings		3
TOTAL BORROWINGS	81,766	63,523
Other liabilities		
Trade accounts payable and related accounts	88,306	93,738
Taxes and employee-related liabilities	6,757	10,875
Accounts payable on non-current assets and related accounts		
Other liabilities	185,104	173,951
TOTAL OTHER LIABILITIES	280,167	278,565
TOTAL ACCRUED EXPENSES	361,933	342,087



#### 20.4.5. NOTES TO THE INCOME STATEMENT

#### 20.4.5.1. CURRENT OPERATING INCOME

Reported revenue includes:

 charge allocations to subsidiaries, corresponding to shared services and the right to use a trademark, for a total of 384,419 thousand euros;

The trademark license fee is charged to all customer entities of the AREVA brand and associated activities. Three types of activities are concerned:

- o marketing and sales;
- o communications;
- o public affairs.

By default, the fee is 0.9% of each relevant subsidiary's contribution to consolidated sales. Shared services are billed based on a catalogue of services;

- proceeds from real estate operations (44,440 thousand euros); and
- the charge allocation for personnel expenses (13,238 thousand euros).

Operating expenses reflect holding company activities and services provided to subsidiaries. The operating loss thus came to 163,093 thousand euros.

#### 20.4.5.2. NET FINANCIAL INCOME

Net financial income includes, in particular:

<ul> <li>dividends from other securities</li> </ul>	152 thousand euros
<ul> <li>investment income</li> </ul>	475 thousand euros
<ul> <li>net income on non-trade accounts and loans to equity associates</li> </ul>	215,663 thousand euros
<ul> <li>net income on financial instruments</li> </ul>	22,490 thousand euros
<ul> <li>interest expenses on loans</li> </ul>	-238,611 thousand euros
<ul> <li>foreign exchange gain</li> </ul>	-2,495 thousand euros
<ul> <li>net provisions</li> </ul>	-5,161,482 thousand euros $^{\scriptscriptstyle (1)}$
<ul> <li>net gain from disposals of securities</li> </ul>	3,210 thousand euros

#### 20.4.5.3. EXCEPTIONAL ITEMS

Exceptional items primarily include:

1	the loss on disposal of AREVA Renouvelables shares	71,942 thousand euros
•	income from the liquidation of AREVA Enterprises Inc.	7,611 thousand euros
•	expenses and charges to provisions related to the restructuring of the company's Paris-area real estate	23,120 thousand euros
•	a charge to provisions for contingencies related to a prototype experimental reactor	187,000 thousand euros
•	reversal of the provision for potential tax	238,765 thousand euros
	impacts of tax audits	3.122 thousand euros

#### 20.4.5.4. **INCOME TAX**

As provided in article 223A of the French Tax Code, AREVA SA opted to be solely responsible for income tax due on combined income recognized by the integrated group.

In 2014, AREVA SA and its integrated subsidiaries generated a combined tax loss of 364,526 thousand euros.

The tax income recognized for 2014 came to 308,558 thousand euros.

It is broken down as follows:

•	tax savings generated by the tax integration regime	67,287 thousand euros
	income tax on 2013 consolidated income	4,642 thousand euros

238.765 thousand euros

1,967 thousand euros

- change in provision for potential tax
- tax credits
- increase in provisions for tax audit
   -4,103 thousand euros

#### **20.4.6. ADDITIONAL INFORMATION**

#### 20.4.6.1. WORKFORCE

The company employed 29 people on December 31, 2014, as indicated in the following table:

	2014	2013	2012
Management personnel	29	34	100
Supervisors	0	3	22
Support staff	0	0	0
TOTAL	29	37	122

(1) including write-downs of equity securities in the amount of 4,101,353 thousand euros, and of loans to associates in the amount of 1,041,557 thousand euros



#### 20.4.6.2. PENSIONS AND OTHER EMPLOYEE BENEFITS

AREVA SA pays retirement bonuses to its retiring employees, based on their compensation and seniority.

This defined benefit plan is recognized in accordance with the accounting principles defined in Note 2.9. Each year, independent actuaries determine AREVA's commitments at year end.

Balance sheet reconciliation (in thousands of euros)	2014	2013	2012
TOTAL PROVISIONS FOR PENSION OBLIGATIONS AND OTHER EMPLOYEE BENEFITS	1,857	2,700	2,759

The main actuarial assumptions used in determining the group's obligations are as follows:

	2014	2013	2012
Inflation	1.60%	1.80%	1.90%
Discount rate	1.85%	3.25%	3.25%

- Mortality tables used: INSEE 2000-2002 Men/Women
- Retirement age: 64 for management personnel, 62 for non-management personnel.
- Average attrition

	Management personnel	Non-management personnel
< 30 years	1.60%	1.60%
30-39	1.60%	1.60%
40-49	1.60%	1.60%
50-54	1.60%	1.60%
55 and above	0.00%	0.00%

	Management personnel	Non-management personnel
< 30 years	1.50%	0.50%
30-39	1.50%	0.50%
40-49	1.50%	0.50%
50-54	1.50%	0.50%
55 and above	1.50%	0.50%

Assumed rate of salary increase, net of inflation.

#### Net carrying amount of defined benefit obligations

(in thousands of euros)	2014	2013	2012
Defined benefit obligation	3,772	3,660	3,510
Fair value of plan assets			
Unrecognized actuarial losses	-1,566	-903	-667
Unrecognized past service gains	-349	-57	-84
TOTAL DEFINED BENEFIT OBLIGATION	1,857	2,700	2,759

#### Change in the provision

(in thousands of euros)	2014	2013	2012
Change in the provision:			
Restated opening balance	2,700	2,759	2,619
Mergers and acquisitions / Transfers (1)	-1,134	-450	
Total expense	293	418	363
Contributions collected/benefits paid	-2	-27	-223
BENEFIT OBLIGATION AT DECEMBER 31	1,857	2,700	2,759

(1) Change in liability related to incoming transfers from AREVA NC and outgoing transfers to AREVA Business Support.



#### Total expense for the year

(in thousands of euros)	2014	2013	2012
Current service cost	172	245	214
Interest cost	108	117	144
Expected return on plan assets			
Amortization of actuarial gains or losses	4	33	5
Past service cost	9	24	
Plan creation, curtailment or liquidation			
TOTAL EXPENSE FOR THE YEAR	293	418	363

#### 20.4.6.3. INFORMATION ON LEASE ARRANGEMENTS

Finance lease contracts in Euriware's were taken over by AREVA SA on April 30, 2014.

	Fees pa	aid	Accrued fees				
Balance sheet accounts	for the year	cumulative	1 year or less	> 1 year to 5 years	> 5 years	Total due	Residual purchase price
Computer equipment	6,066	6,066	6,222	4,809	-	11,031	-
TOTAL	6,066	6,066	6,222	4,809	-	11,031	-

#### 20.4.6.4. COMPANY EXPOSURE TO MARKET RISK

#### **General objectives**

AREVA has an organization dedicated to implementing market risk management policies approved by the Executive Committee for centralized management of exposure to foreign exchange, commodity, rate and liquidity risks.

In the Finance department, the Financial Operations and Treasury Management Department (DOFT) makes transactions on financial markets and acts as a central desk that provides services and manages AREVA's financial exposure. This department is organized with a front, middle and back office and accounting, ensuring the separation of functions, and has all the human, technical, and information system resources necessary to accomplish its mission Transactions handled by DOFT cover foreign exchange and commodities trading, interest rates, centralized cash management, internal and external financing, borrowings and investments, and asset management.

To report on financial risk and exposure limits, DOFT prepares a monthly report presenting the group's positions and the performance of its financial transactions. The report is sent to the senior management of the AREVA group and to the Finance, Legal and Strategy departments. The reporting system includes weekly reports submitted to the Chief Financial Officer, including a valuation of all positions at their market value. Together, these reports and reviews are used to monitor the counterparty risk.

#### Foreign exchange risk management

The volatility of exchange rates may impact AREVA's currency translation adjustments, equity and income.

**Balance sheet risk:** Loans and borrowings granted by AREVA to its subsidiaries are systematically converted into euros through currency swaps.

To limit the currency risk for long-term investments generating future cash flows in foreign currencies, AREVA uses a liability in the same currency to offset the asset.

**Trade exposure:** AREVA's policy, which was approved by the Executive Committee, is to systematically hedge foreign exchange risk generated by its operations; it recommends hedging potential risks during the proposal phase, to the extent possible, to minimize the impact of exchange rate fluctuations on net income.

AREVA acquires derivatives (principally currency futures) or special insurance contracts issued by Coface to hedge its foreign exchange exposure from trade, including accounts receivable and payable, confirmed off-balance sheet commitments (orders received from customers or placed with suppliers), highly probable future cash flows (budgeted sales or purchases, anticipated margins on contracts) and proposals made in foreign currencies. These hedges are backed by underlying transactions for identical amounts and maturities and, generally, are documented and eligible for hedge accounting (except for hedges of proposals submitted in foreign currencies).

The Financial Operations and Treasury Management Department covers its exposures directly with its banking counterparties. A system of strict limits, particularly concerning results, marked to market, and foreign exchange positions that may be taken by the trading desk, is monitored daily by specialized teams that are also charged with valuation of the transactions. In addition, analyses of sensitivity to changes in exchange rates are periodically performed.



At December 31, 2014, derivatives used by the group to manage foreign exchange risk were as follows:

(Notional amounts by maturity date at December 31, 2014)	2015	2016	2017	2018	2019	> 5 years	Total	Market value
Forward exchange contracts	1,643	809	495	73	9		3,028	70
Foreign exchange swaps	1,505	533	244	51	9		2,342	-69
Currency options	99	112	49				260	0
Cross-currency swaps	384	148	64	61	318	787	1,761	-68
TOTAL	3,630	1,603	852	185	336	787	7,392	-68

#### Interest rate risk management

AREVA is exposed to the fluctuations of interest rates on its floating rate borrowings and on its financial investments. The Financial Operations and Treasury Management Department manages all interest rate risks.

AREVA uses several types of derivative instruments, as required by market conditions, to allocate its borrowings between fixed rates and floating rates and to manage its investment portfolio, with the goal being mainly to reduce its borrowing costs while optimizing the management of its cash surpluses.

At December 31, 2014, interest rate swaps were the main financial instruments used in the management of external debt. Receiver inflation rate swaps in USD were set up with banks to cover payer inflation rate swaps in USD set up with AREVA Mines.

The amount of the commitments and the sensitivity of the positions taken by the trading desk in the framework of AREVA's rate management policy are subject to limits based on the type of transaction involved.

At December 31, 2014, the following financial instruments were used to hedge interest rate exposure:

Interest rate instruments		Notional amounts by maturity date at December 31, 2014						Market
(in millions of euros)	Total	2015	2016	2017	2018	2019	> 5 years	value
Interest rate swaps – variable lender – EUR								
Fixed borrower – EUR	500	200	200				100	-7
Interest rate swaps – variable lender – EUR								
EUR variable borrower	100						100	-3
USD variable borrower	787						787	-17
CAD variable borrower	914	384	148	64		318		-1
Interest rate swaps – fixed lender – EUR								
EUR variable borrower	2,071	171	350			150	1,400	143
Interest rate swaps – fixed lender – JPY								
EUR variable borrower	61				61			-1
Inflation rate swaps – variable lender – USD								
USD fixed lender	288						288	0
GRAND TOTAL	4,721	755	698	64	61	468	2,675	114

#### **Commodity risk**

AREVA does not have significant exposure to commodities.

#### **Risk on equity investments**

To manage its long-term investment positions, AREVA may elect to use puts and calls backed by portfolio equities. No such transaction was pending at the end of the year.

#### **Counterparty risk**

AREVA is exposed to the credit risk of counterparties linked to its use of financial derivatives to cover its risks AREVA uses different types of financial instruments to manage its exposure to foreign exchange and interest rate risks, and its exposure to risks on commodities and publicly traded equities. AREVA primarily uses forward

buy/sell currency and commodity contracts and rate derivative products such as swaps, futures or options to cover these types of risk. These transactions involve exposure to counterparty risk when the contracts are concluded over the counter.

To minimize this risk, AREVA's trading desk deals only with diversified, top quality counterparties based on their ratings in the Standard & Poor's and Moody's rating systems, with a minimum rating of Investment Grade. A legal framework agreement is always signed with the counterparties.

The limits allowed for each counterparty are determined based on its rating and the type and maturity of the instruments traded. Assuming the rating of the counterparty is not downgraded earlier, the limits are reviewed at least once a year and approved by the Chief Financial Officer. The limits are verified in a specific report produced by the internal control team of Treasury Operations. During periods of significant financial instability that may involve an increased risk of bank default, which may be

underestimated by ratings agencies, AREVA monitors advanced indicators such as the value of the credit default swaps (CDS) of the eligible counterparties to determine if limits should be adjusted.

When conditions warrant (rising counterparty risk, longer term transactions, etc.), market transactions are managed by margin calls that reduce AREVA's counterparty risk to a predetermined threshold: the Credit Support Annex for trades documented under an ISDA master agreement, or the Collateral Annex for trades documented under a French Banking Federation (FBF) master agreement.

#### Market value of financial instruments

The market value of financial instruments pertaining to currency, rate and commodity transactions was calculated based on market data at the closing date, on discounted future cash flows, or on prices provided by financial institutions. The use of different market assumptions could have a significant impact on estimated market values.

#### Liquidity risk

The liquidity risk is the risk that the group may be unable to meet its immediate or short-term financial commitments.

Management of the liquidity risk is provided by the Financial Operations and Treasury Management Department (DOFT), which ensures that it has sufficient financial resources available at all times to fund current operations and the investments needed for its future growth, and to cope with any exceptional event. The goal of liquidity management is to seek resources at the best cost and to ensure that they may be secured at any time. These aspects are described in more detail in Section 20.4.2. Notes to the consolidated financial statements for the year ended December 31, 2014, Note 31. Market risk management.

In addition, the group's liquidity risk, including stress scenarios, is regularly monitored.

In 2014, the group continued its program of asset disposals under the Action 2014 plan with the takeover of Euriware by Capgemini and the disposal of the Duisburg fuel cladding manufacturing facility, AREVA TA's Command and Control for Transportation business and Aerospace Assembly Line business, the electrical panel business in Brazil, and the land-based wind turbine business.

Concerning long-term financing, AREVA:

- raised 750 million euros in March 2014 through a nine-year bond issue maturing on March 20, 2023, at a rate of 3.125%;
- negotiated with a pool of 10 banking partners for a structured finance arrangement in the amount of 650 million euros, maturing in 2024, for the Georges Besse II enrichment plant, with limited recourse to its shareholders, which was implemented in June 2014;
- As of the date that the 2014 Reference Document was filed, AREVA's Standard & Poor's rating was BB-for long-term borrowings and B for short-term borrowings, with a developing outlook.

For 2015, the liquidity risk is covered by:

- a cash position of 342 million euros at December 31, 2014;
- an unused balance of confirmed bilateral lines of credit maturing in 2016 et 2017 in the amounts of approximately 50 million euros and 795 million euros respectively, in addition to an unused 1.25-billion-euro syndicated line of credit maturing in 2018.

Moreover, AREVA has no significant financial debt maturing before December 2015 (repayment of the first installment of a loan granted by the European Investment Bank in the amount of 200 million euros).

AREVA will present a financing plan for the 2015-2017 period before publication of the half-year financial report. It will incorporate the effects of the competitiveness plan and include the following measures:

- strong selectivity in capital expenditure, which will be brought back to a total of less than 3 billion euros over the period (versus 4.6 billion euros from 2012 to 2014), with priority given to investments in the nuclear and occupational safety of our facilities, their maintenance, and the completion of current Capex programs in the group's strategic projects;
- the raising of bank financing backed by industrial assets as in 2014 with project financing for the Georges Besse II plant and use of operational financing instruments;
- a more extensive asset disposal program than was announced on October 7, 2014
- partnerships with an equity component;

In addition, AREVA is studying means for strengthening its equity which would supplement the financing described above as needed. These means will be clarified at the same time as the remainder of the plan.

AREVA has confirmed, undrawn lines of credit in the total amount of 2.1 billion euros (syndicated credit of 1.25 billion euros maturing in 2018 and bilateral lines of credit in the amount of 845 million euros maturing in 2016 and 2017), on which AREVA could be led to draw (as it had done from 2007 to 2010 on its syndicated line of credit), depending on needs for liquidity necessary to its activities

In addition, the system for monthly updates of cash forecasts (with a monthly view of the first four months, then quarterly thereafter) was recently bolstered with an additional system for updates of the first four months on a weekly basis, based on (i) a weekly update of positions to month end and (ii) a system of alerts initiated by the Business Groups and operating entities for cash flows (excluding internal cash flows) that are unexpected, unreported, unplanned or cancelled in any amount greater than 5 million euros. If the short-term position of 500 million euros is exceeded, the Cash Management and Financing Department (DOFT) will send out a special communication to the Business Groups and the group's executive measure to be taken.



#### 20.4.6.5. **ASSOCIATES**

	Transaction	s with
(in thousands of euros)	related parties	associates
Advances and prepayments to fund non-current assets		
Intangible assets		
Property, plant and equipment		
Long-term investments		
Associates	6,417,917	
Loans to affiliates	6,422,661	
Loans		
Other long-term securities		
Other long-term investments	9	
	12,840,587	
Accounts receivable		
Suppliers: advances and prepayments made	752	
Accounts receivable and related accounts	108,417	
Other accounts receivable	193,612	
Subscribed capital issued and not paid		
	302,781	
Cash and cash equivalents		
Non-trade current accounts	1,717,424	
	1,717,424	
Miscellaneous loans and borrowings		
Bond issues	13,809	
Miscellaneous debt	27	
Loans to equity associates	8,157	
Miscellaneous loans and borrowings		
Non-trade current accounts	2,796,932	
	2,818,925	
Liabilities		
Customers: advanced and prepayments received		
Trade accounts payable	51,394	
Accounts payable on non-current assets		
Other liabilities	96,515	
	147,909	
FINANCIAL EXPENSES	-5,378,478	
FINANCIAL INCOME	598,621	



#### 20.4.6.6. OFF-BALANCE-SHEET COMMITMENTS

(in thousands of euros)	Note	Total	< 1 year	1 to 5 years	> 5 years
Commitments given					
Bid guarantees					
Performance warranties		183,667	122,317	61,350	
Down payment guarantees					
Guarantees for waivers of warranty retentions					
After-sales warranties					
Environmental guarantees					
Total operating commitments given		183,667	122,317	61,350	
Comfort letters given					
Guarantees and surety		1,240,344	228,435	941,396	70,513
Liens given					
Mortgages given					
Other funding guarantees		2,568	2,528	40	
Total commitments and collateral given on financing		1,242,912	230,963	941,436	70,513
Guarantees of assets and liabilities					
Guarantees pertaining to rental obligations given		7,196		1,653	5,543
Other commitments given		3,750		3,750	
Total other commitments given		10,946		5,403	5,543
I. TOTAL COMMITMENTS GIVEN		1,437,525	353,280	1,008,189	76,056
Commitments received					
Contract guarantees received		3,787	3,787		
Vendor warranties received		677	677		
Other commitments received					
II. TOTAL COMMITMENTS RECEIVED		4,464	4,464		
Reciprocal commitments					
Firm multiyear purchase commitments					
Firm multiyear sales commitments					
Unused lines of credit		2,095,000		2,095,000	
Future minimum payments on operating leases		195,986	45,304	150,682	
Other reciprocal commitments		5,000	5,000		
III. TOTAL RECIPROCAL COMMITMENTS		2,295,986	50,304	2,245,682	

#### **Commitments given**

The group gave a parent company guarantee to TVO for the full value of the contract for construction of an EPR<sup>M</sup> reactor in Finland. The group received a counterguarantee from Siemens corresponding to that supplier's share of the TVO contract. The net commitment given by the group is in the range of 1.5 billion euros to 2 billion euros. This amount is not included in the summary table.

#### **Reciprocal commitments**

#### Unused lines of credit

In January 2013, the group established a 1.25-billion-euro syndicated line of credit available in euros over a 5-year period. The group also has bilateral lines of credit available to it in the amount of 50 million euros maturing in 2016 and

795 million euros maturing in 2017. As of the end of December 2014, none of these lines had been used.

Individual training entitlements (*droits à la formation*, DIF) totaled 1,767 hours. There was no request for training under this quota of hours.

#### 20.4.6.7. COMPENSATION OF DIRECTORS AND OFFICERS

Total compensation and benefits in kind paid to executive officers (members of the Executive and Supervisory Boards) during the year by the company and companies under its control (as defined under article L. 225-102-1 of the French Commercial Code, introduced by the New Economic Regulations Law of May 15, 2001 and amended by the Financial Security Act of August 1, 2003) totaled 2,924 thousand euros.



#### 20.4.6.8. DISPUTES AND POTENTIAL LIABILITIES

#### **European Commission: GIS**

On January 24, 2007, the European Commission fined 11 companies, including AREVA SA, for anti-competitive practices in the gas insulated switchgear market (GIS):

- On April 10, 2014, the Court of Justice of the European Union ruled in favor of AREVA in some of the counts submitted on appeal by AREVA. This resulted in a change in the allocation of fines, but did not reduce their total amount. The total amount of the penalty, including interest, is 79 million euros, including 28 million euros for Alstom and AREVA severally. Once all appeals have been exhausted, and after Alstom's guarantee has come into play, AREVA owes the amount of 2.7 million euros (principal and interest combined), for which a provision has been constituted. This amount is contested by Alstom, which demands payment of 7.9 million euros (corresponding to 10% of the total amount of the fine, including the share that is exclusively Alstom's). The parties are attempting to resolve this difference in interpretation amicably.
- Concerning the new claim for damages filed by EBS Networks in Ireland on April 19, 2013, naming jointly AREVA SA and all the defendant companies subject to the above-mentioned finding by the European Commission. Before any defense on the merits, AREVA asked initially for dismissal of this action on procedural grounds (strike out) after the plaintiff had served its statement of claim. Following discussions with ESB initiated by AREVA, an amicable settlement was signed on October 17, 2014, putting an end to all claims filed against the latter. This case is now closed.

### Financial prosecutor's office: UraMin

Since March 2014, and after a search of AREVA's offices on June 3, 2014, the company has been under investigation by the Financial Prosecutor's Office following a notification from the French Cour des Comptes under article 40 of the French Code of Criminal Procedure.

In addition to this investigation, a request for arbitration was submitted to the International Chamber of Commerce on July 28, 2014 by a partner, Mr. Georges Arthur Forrest, against the CFMM company in which the petitioner challenges the decision by the General Meeting of Shareholders on June 24, 2013 to liquidate ArevExplo RCA. CFMM submitted counterclaims in response to this petition. An arbitration court was being constituted at December 31, 2014 and the proceedings, which should take place in 2015, are expected to result in a decision in 2016.



#### 20.4.6.9. SUBSIDIARIES AND ASSOCIATES (ARTICLE L.233-15 OF THE FRENCH COMMERCIAL CODE)

	Interest held		Equity other than		Carrying amount of shares held		Unpaid Ioans and G advances		Revenue before tax of last fiscal year		Dividends received
	in share capital (in %)	Share capital	share capital		Net						
A - Detailed financial in	nformation on s	subsidiarie	s and assoc	iates (net ca	arrying amo	unt exceeds	1% of the c	ompany's s	hare capital	)	
1 - Subsidiaries (more	than 50% of th	e share ca	pital held)								
AREVA NP SAS											
Tour AREVA - 92084 Paris La Défense Cedex – France	100.00	400,000	-669,966	3,042,165		1,817,710		2,628,846	-1,633,924		
AREVA MINES SAS											
Tour AREVA - 92084 Paris La Défense Cedex – France	99.99	25,207	302.522	2,356,194	1.452.194			1,275,331	157,735		
AREVA NC SA		,	,	_,,	.,,			.,	,		
Tour AREVA - 92084 Paris La Défense Cedex – France	100.00	100,259	-445,366	523,292	523,292			2,321,209	-591,021		
Compagnie d'Etude et de Recherche pour l'Energie (CERE)		,	- ,	, -	, -			,- ,			
Tour AREVA - 92084 Paris La Défense Cedex – France	100.00	247,500	13,560	251.541	251,541				-1,554		
AREVA ENERGIES RENOUVELABLES SAS		,	,	,					.,		
Tour AREVA - 92084 Paris La Défense Cedex – France	100.00	155,003	-6	155,003		180,000		2,839	-226,906		
CEDEC SA											
Tour AREVA - 92084 Paris La Défense Cedex – France	90.14	36,532	4,880	33,466	33,466				3		
AREVA IR											
Tour AREVA - 92084 Paris La Défense Cedex – France	100.00	6,375	96,902	30,940	30,940				2,995		
2 - Associates (10% to				.,	.,				,		
B - Summary informatio		· · ·		tes							
1 - Subsidiaries not inc											
French subsidiaries				15,960	14,370						
Foreign subsidiaries				4,389	4,389						
2 - Associates not inclu	ided in section	A 2		+,000	r,000						
French companies				6,098	2,625						
Foreign companies				230	2,020						



# **20.5.** FIVE-YEAR FINANCIAL SUMMARY

(in thousands of euros) Type of indicator	2010	2011	2012	2013	2014
I - Share capital at year end					
a) Share capital	1,452,053	1,456,178	1,456,178	1,456,178	1,456,178
b) Number of common shares outstanding	367,828,237	383,204,852	383,204,852	383,204,852	383,204,852
c) Number of shares with preferred dividend rights	14,291,080	0	0	0	0
II - Operations and income for the year					
a) Revenue before tax	395,168	450,606	430,415	490,444	487,137
Income before tax, employee profit-sharing and b) amortization, depreciation and provisions (including					
reversals)	1,648,375	1,246,778	310,831	-294,177	-230,703
c) Income tax	39,737	34,541	63,115	100,847	72,496
d) Employee profit-sharing for the year	0	0	0	0	0
Income after tax, employee profit-sharing and amortization, e) depreciation and provisions (increases-decreases)	1,615,734	1,182,443	241,683	-180,155	-5,309,351
f) Net income distributed	0	0	0	0	0(*)
III - Earnings per share (in euros)					
Income after tax and employee profit-sharing, before a) amortization, depreciation and provisions (increases- decreases)	4.00	3.00	0.98	-0.50	-0.41
Income after tax, employee profit-sharing and amortization, b) depreciation and provisions (increases-decreases)	4.00	3.00	0.63	-0.47	-13.86
c) Dividend per share (rounded to one eurocent)	0.00	0.00	0.00	0.00	0.00
IV - Personnel					
a) Average number of salaried employees during the year	123	119	125	45	33
b) Total payroll for the year	28,496	25,243	26,994	12,724	10,925
Payroll taxes and other benefit expenses (social security, c) benefits programs, etc.)	11,119	10,431	13,543	2,762	4,606

(\*) Preliminary data pending approval by the Annual General Meeting of Shareholders.



# **20.6.** SUMMARY OF ACCOUNTS PAYABLE TO AREVA SA SUPPLIERS

Accounts payable to suppliers at year-end, in accordance with articles L. 441-6-1 (1) and D. 441-4 of the French Commercial Code, by maturity dates:

(in thousands of euros)	2014	2013
Matured	-491	-16,939
0 to 30 days	39,615	45,831
31 to 45 days	485	334
More than 45 days	3	9
TOTAL	39,612	29,234

# **20.7. DIVIDEND DISTRIBUTION POLICY**

### **20.7.1. PAYMENT OF DIVIDENDS**

According to article 47 of the AREVA articles of association in force until the change of governance, dividends were paid annually on the date and place set by the Shareholders or, in the absence of such a decision, by the Executive Board, within nine months of the fiscal year end.

According to article 45 of the new AREVA articles of association in force since the change of governance, annual dividends are paid at the dates set by the Board of Directors, within nine months of the end of the fiscal year.

Dividends properly received are not subject to recovery. Dividends that have not been collected within five years from the date set for distribution are forfeited to the French State.

### 20.7.2. DIVIDEND DATA

(euros)	Dividend	Tax credit	Gross dividend
2011	-	-	-
2012	-	-	-
2013	-	-	-
2014	-	-	-

With a consolidated loss attributable to owners of the parent of -4,834 million euros, application of the group's dividend policy led the AREVA Supervisory Board to recommend to the Shareholders that no dividend be paid for 2014.

### 20.7.3. DIVIDEND POLICY

The Board of Directors defines the dividend distribution policy based on its review of the financial results, the interim budget for 2015, taking into account the company's requirements for the recovery of its financial situation and the economic context, and debt management. Accordingly, the Board of Directors does not plan to propose a dividend distribution to the Shareholders convened to approve the financial statements for the year ending December 31, 2015.



# **20.8. LEGAL AND ARBITRATION PROCEEDINGS**

The group is involved in a number of disputes, with a potentially significant negative impact on AREVA's business, financial position or reputation.

Appropriate provisions are recorded to cover expenses that could result from these disputes, based on case-by-case analysis.

In addition, some disputes involving damages or injury are covered under the group's insurance policies or other forms of guarantee.

Except for the proceedings described in Section 4.2.3. *Significant risks and disputes involving AREVA*, and to AREVA's knowledge, there is no other administrative, legal or arbitration proceeding pending or threatened that had or could have a significant impact on the financial position, profitability or reputation of AREVA and/or of the group in the past twelve months.

By way of information, on June 21, 2013, CBC submitted a request for arbitration to the German Institute of Arbitration (Deutsche Institution fur Schiedsgerichtsbarketi, DIS) against the consortium of AREVA Renewables GmbH and AREVA Bioenergy Ltda. In July 2014, CCCM filed a second arbitration brief in which it asks, firstly, for 13,030,086.93 euros for alleged violations of the Sao Borja EPC contract (construction of a biomass power plant in the State of Rio Grande du Sul, Brazil). Secondly, CCCM asks that the AREVA Renewables / Bioenergia Consortium be held liable for all damages suffered by CCCM as a result of the termination of three other biomass construction contracts among the same parties. CCCM is asking for 45,017,503.79 euros for damages in this regard.

# 20.9. SIGNIFICANT CHANGE IN THE ISSUER'S FINANCIAL OR TRADING POSITION

Significant events between year-end closing for 2014 (December 31, 2014) and the date of this Reference Document are mentioned in Note 35 of Section 20.2. *Notes to the consolidated financial statements for the year ended December 31*,

2014, and in Section 9.3. *Events subsequent to year end closing for 2014* of this Reference Document.



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# **21.1. SHARE CAPITAL**

### 21.1.1. AMOUNT OF SUBSCRIBED CAPITAL

The share capital of the company is fully paid up at December 31, 2014 and stands at 1,456,178,437.60 euros, divided into 383,204,852 ordinary shares with a par value of 3.80 euros.

All of the shares are quoted on Compartment A of NYSE Euronext Paris under Euroclear code 062059150 and ISIN code FR 0011027143.

Custodian and transfer services are provided by: Société Générale Securities Services Issuer Service 32, rue du Champ-de-Tir BP 81236 44312 Nantes Cedex 3 France Tel.: + 33 (0)2 51 85 67 89 www.nominet.socgen.com www.sg-securities-services.com



### **21.1.2. SHARES NOT REPRESENTATIVE OF CAPITAL**

None.

### **21.1.3. TREASURY SHARES**

The Executive Board did not use the authorization of the General Meeting of Shareholders of May 20, 2014 to purchase AREVA's own shares. AREVA held 879,983 of its own shares at December 31, 2014 (740,490 shares in treasury and 139,493 shares under the liquidity contract).

### **21.1.4. LIQUIDITY CONTRACT**

On January 10, 2013, AREVA asked Natixis to manage the liquidity agreement for AREVA shares (Paris – ISIN code FR0011027143) listed for trading on the NYSE Euronext Paris regulated market, as provided in the Ethics Charter adopted by the French association of financial markets (AMAFI, Association française des marchés financiers) on March 8, 2011 and approved by the French market authority (AMF,

Autorité des marchés financiers) on March 21, 2011. This request was renewed in 2014 and 2015. Two million euros were allocated for implementation of the liquidity contract, which covers a period of 12 months, renewable by tacit agreement. In addition to the two million euros, one million euros were allocated to the liquidity contract in 2014.

### **21.1.5. CONVERTIBLE SECURITIES AND WARRANTS**

None.

# **21.1.6. INFORMATION ON THE TERMS OF ANY ACQUISITION RIGHT AND/OR ANY OBLIGATIONS ATTACHED TO CAPITAL SUBSCRIBED BUT NOT PAID, OR ANY PROJECT TO INCREASE THE SHARE CAPITAL**

None.

### 21.1.7. INFORMATION ON THE CAPITAL OF ANY MEMBER OF THE GROUP WHICH IS UNDER OPTION OR SUBJECT TO A FIRM OR CONTINGENT AGREEMENT CONTEMPLATING AN OPTION

In connection with the shareholders' agreement between the French State, the Commissariat à l'énergie atomique et aux énergies alternatives and Kuwait Investment Authority (KIA) <sup>(1)</sup> for a term of 10 years as from December 28, 2010, the French State has an option to purchase the shares in the event that KIA violates

its commitment regarding the preemptive right. The exercise price for the purchase option shall be calculated based on the average weighted closing price of AREVA shares during the 90 trading days preceding the date of exercise of the option.

<sup>(1)</sup> Kuwait Investment Authority is an autonomous government institution in charge of the management and administration of the general reserve fund and the fund's assets for future generations of Kuwaitis, and of any other funds conveyed by the Ministry of Finance of Kuwait in the name and for the account of the State of Kuwait. KIA was created in 1953. With 548 billion dollars of assets under management in 2014, it was the sixth largest fund in the world in terms of managed assets at year-end 2014 according to the Sovereign Wealth Fund Institute.

### **21.1.8. DELEGATION OF COMPETENCE AND POWERS GRANTED TO THE EXECUTIVE BOARD BY THE SHAREHOLDERS FOR CAPITAL INCREASES**

None of the delegations of competence and powers granted to the Executive Board by the Annual General Meeting of May 10, 2012 and of May 20, 2014, which were in effect in 2014, were used.

All delegations of competence and powers granted on May 20, 2014 listed below became null and void as from the General Meeting of AREVA Shareholders of January 8, 2015, which decided to transform its governance from that of a Supervisory Board and an Executive Board towards that of a sole governance body, the Board of Directors.

	Date	Period of validity of the authorization/		Amount issued at December 31,
Type of authorization	of authorization	Maturity	Maximum amount	2014
Increase of the share capital by issuing ordinary shares or securities providing access to share capital, with the preemptive subscription right maintained for the shareholders	AGM May 20, 2014 (10 <sup>th</sup> resolution)	26 months July 20, 2016	595,000,000 euros	None.
Emission of ordinary shares or securities providing access to the company's share capital, with cancellation of the preemptive subscription right, through a public offer	AGM May 20, 2014 (11 <sup>th</sup> resolution)	26 months July 20, 2016	595,000,000 euros	None.
Emission of common shares or securities providing access to the company's share capital, with cancellation of the preemptive subscription right of the shareholders, through a private placement as provided in article L. 411-2 II of the French Monetary and Financial Code	AGM May 20, 2014 (12 <sup>th</sup> resolution)	26 months July 20, 2016	595,000,000 euros	None.
Authorization for the purpose of increasing the number of shares to be issued in the event of a capital increase, with or without preemptive subscription right	AGM May 20, 2014 (13 <sup>th</sup> resolution)	26 months July 20, 2016	595,000,000 euros	None.
Determination of the issue price in accordance with the terms set by the Shareholders in the event of an issue of shares or securities of any kind giving access to the share capital immediately or eventually, with cancellation of the preemptive subscription right, for up to 10% of the share capital	AGM May 10, 2012 (17 <sup>th</sup> resolution)	26 months July 10, 2014	NA	None.
Emission of ordinary shares as compensation for contributions in kind to the company, in the form of shares of equity or securities providing access to share capital	AGM May 20, 2014 (14 <sup>th</sup> resolution)	26 months July 20, 2016	145,000,000 euros	None.
Capital increase by capitalization of reserves, retained earnings and/or premiums	AGM May 20, 2014 (15 <sup>th</sup> resolution)	26 months July 20, 2016	Total amount eligible for capitalization	None.
Total nominal cap on immediate or future increases that may be carried out by virtue of the delegations conferred on the Executive Board by the 10 <sup>th</sup> , 11 <sup>th</sup> , 12 <sup>th</sup> , 13 <sup>th</sup> , 14 <sup>th</sup> and 16 <sup>th</sup> resolutions	AGM May 20, 2014 (17 <sup>th</sup> resolution)		595,000,000 euros	None.

# **21.1.9. DELEGATIONS OF COMPETENCE AND POWERS GRANTED TO THE BOARD OF DIRECTORS BY THE SHAREHOLDERS ON JANUARY 8, 2015 AS REGARDS CAPITAL INCREASES**

Type of authorization	Date of authorization	Maturity	Maximum amount
Issue of ordinary shares and/or securities that are equity securities giving access to other equity securities or conferring a right to the allocation of debt instruments, and/or securities giving access to equity securities to be issued, with the preemptive subscription right maintained	AGM January 8, 2015 (14 <sup>th</sup> resolution)	26 months March 8, 2017	436,000,000 euros
Issue of ordinary shares and/or securities that are equity securities giving access to other equity securities or conferring a right to the allocation of debt instruments, and/or securities giving access to equity securities to be issued, with the preemptive subscription right withdrawn, by a public offer	AGM January 8, 2015 (15 <sup>th</sup> resolution)	26 months March 8, 2017	145,000,000 euros
Issue of ordinary shares and/or securities that are equity securities giving access to other equity securities or conferring a right to the allocation of debt instruments, and/or securities giving access to equity securities to be issued, with the preemptive subscription right withdrawn, by an offer pursuant to part II of article L. 411-2 of the French Monetary and Financial Code	AGM January 8, 2015 (16 <sup>th</sup> resolution)	26 months March 8, 2017	145,000,000 euros
Authorization to increase the number of shares to be issued in the event of a share issue with or without preemptive subscription right of the shareholders	AGM January 8, 2015 (17 <sup>th</sup> resolution)	26 months March 8, 2017	Within the limit of 15% of the initial share issue
Issue, without preemptive subscription right, of shares and/or securities giving access to share capital to remunerate contributions in kind granted to the Company consisting of equity securities or securities giving access to share capital	AGM January 8, 2015 (18 <sup>th</sup> resolution)	26 months March 8, 2017	145,000,000 euros
Capital increase by capitalization of reserves, retained earnings or premiums	AGM January 8, 2015 (19 <sup>th</sup> resolution)	26 months March 8, 2017	Total amount eligible for capitalization
Total nominal cap on issues of ordinary shares and/or securities giving access to the Company's share capital that may be carried out by virtue of the delegations conferred on the Board of Directors by the 14 <sup>th</sup> , 15 <sup>th</sup> , 16 <sup>th</sup> , 17 <sup>th</sup> , 18 <sup>th</sup> and 20 <sup>th</sup> resolutions	AGM January 8, 2015 (21 <sup>st</sup> resolution)	-	595,000,000 euros

### 21.1.10. LIENS

There are no liens on AREVA's share capital as of this date.

# 21.2. CERTIFICATE OF INCORPORATION AND ARTICLES OF ASSOCIATION

### **21.2.1. CORPORATE PURPOSE**

Article 3 of AREVA's articles of association, as approved by the Shareholders on January 8, 2015, defines the corporate purpose of the company as follows, in France and abroad:

- to manage any industrial or commercial operation, especially in the nuclear, renewable energies, and information technology and electronics fields, and to this end:
  - o to sign any agreement related to these activities,
  - to examine projects concerning the creation, development or reorganization of any industrial enterprise,
- to implement any such project or contribute to its implementation by any appropriate means, particularly by acquiring equity or interests in any existing or proposed business venture,
- to provide financial resources to industrial enterprises, especially by acquiring equity interests and through loan subscriptions;
- to acquire direct or indirect equity and interests, in whatever form, in any French or foreign company or enterprise involved in financial, commercial, industrial, real estate or securities operations;

- to purchase, sell, exchange, subscribe to or manage any equity shares and investment securities;
- to provide any type of service, particularly services supporting the operations of all of the group's companies; and

### **21.2.2. MEMBERS OF THE CORPORATE BODIES**

For information on the members of the administrative, executive and supervisory bodies, please refer to Sections 14 and 16 and Appendix 1 of this Reference Document.

and development.

### **21.2.3. RESTRICTIONS ON SALES OF COMPANY SHARES**

- Possession of a share automatically signifies acceptance of the company's bylaws and of the resolutions duly adopted by all General Meetings of shareholders. The CEA, as AREVA's principal shareholder, does not hold specific rights attached to the shares it holds.
- Unless otherwise provided by law, each shareholder has as many voting rights as the number of fully paid-up shares he or she holds and may cast as many votes in shareholder meetings.
- Shareholders are liable for the company's liabilities only up to the par value of their shares; additional cash calls are prohibited.
- Each share signifies ownership of the company's equity and a right to share in the profits and liquidating dividend proportionate to the share capital it represents.

• more generally, to undertake any industrial, commercial, financial, real estate or

securities operation, in France or abroad, that is directly or indirectly related to the

above in furtherance of its purpose or supporting that purpose's achievement

5. The shares are freely transferable except as provided by laws and regulations. Decree no. 83-1116 of December 21, 1983, as amended, makes provision for the joint approval of any disposal or exchange of AREVA shares held by the CEA by the Minister of Industry and the Minister Delegate of the Economy. The shares are registered in an account and transferred from account to account upon sale.

### **21.2.4. CONDITIONS FOR CONVENING GENERAL MEETINGS OF SHAREHOLDERS**

According to articles 28 and 31 of the former articles of association and articles 26 and 29 of AREVA's current articles of association, as approved by the Shareholders on January 8, 2015:

General Meetings of Shareholders comprise all shareholders.

General Meetings were convened by the Executive Board or the Supervisory Board. Since the change of governance, General Meetings are convened by the Board of Directors.

They may also be convened:

- by the statutory auditors, but only after having unsuccessfully requested it of the Executive Board or, since the change of governance, the Board of Directors by registered letter with return receipt requested; if the auditors are in disagreement on the timeliness of that notice of meeting, one of them may ask the president of the Commercial Court in an urgent ruling for authorization to proceed, the other auditors and the Chairman of the Board of Directors being duly summoned;
- by a representative designated by the president of the Commercial Court ruling in interlocutory proceedings at the request of any interested party or of the Works Committee, in urgent cases, or of one or more shareholders representing at least 5% of the share capital, or of an association of shareholders meeting the conditions laid down in article L. 225-120 of the Commercial Code;
- by the liquidators after dissolution of the company.

The Works Committee may file a legal claim to designate a representative charged with convening the General Meeting.

The shareholders may, upon a decision of the Board of Directors published in the notice of meeting and/or notification to attend, attend General Meetings by video conference or by telecommunication means enabling their identification in accordance with applicable legislation and regulations. The shareholders are in that case deemed to be present for the calculation of quorum and majority.

Any shareholder may participate in person or by proxy in General Meetings of Shareholders, as provided by law, by offering proof of his or her identity and of his or her ownership of the shares, either by registering the shares or certificates with the Company at least two days before the General Meeting of Shareholders or, in the case of bearer shares, if any, by delivering a certificate of ownership through an authorized account representative confirming the registration of the shares in the bearer share accounts.

In the event of the subdivision of share or certificate ownership, only the voting right holder may attend or be represented at the General Meeting.

Joint owners of undivided shares are represented at the General Meeting by one of the joint owners or by a single proxy who shall be designated, in the event of disagreement, by order of the President of the Commercial Court in an urgent ruling at the request of any of the joint owners.

The Company Works Council shall designate two of its members to attend General Meetings of shareholders, one from among the Company's managers, technicians and supervisors, and the other from among its administrative/clerical personnel and craft/manual workers. Alternatively, the persons mentioned in articles L. 2323-64 and L. 2323-65 of the French Labor Code may attend the General Meetings.

#### 21.2.5. PROVISION HAVING THE EFFECT OF DELAYING, DEFERRING OR PREVENTING A CHANGE OF CONTROL OF AREVA – CONDITIONS GOVERNING CHANGES IN THE SHARE CAPITAL

Decree no. 83-1116 of December 21, 1983, as amended, related to the company of CEA shareholdings (AREVA), provides that:

- the CEA shall retain the majority of the company's share capital;
- approval of any capital increase, any disposal or exchange of AREVA shares held by the CEA shall be approved by the minister(s) concerned.

### **21.2.6. BREACHING SHAREHOLDING THRESHOLDS**

Aside from the thresholds provided by law, any natural person or corporate entity, acting alone or in concert, who shall come into ownership, directly or indirectly, a fraction equal to or greater than 0.5% or any multiple thereof of the share capital and/or voting rights of the Company shall declare to the Company within five trading days of exceeding the threshold, by registered letter with return receipt requested

to the head office, the number of shares and/or voting rights held and of securities giving access to the share capital and to the voting rights potentially attached thereto.

This same requirement to provide information applies, within the same period of time, when falling below the threshold of 0.5% or a multiple thereof.

# 21.3. AGREEMENTS REFERRED TO IN ARTICLE L. 225-102-1 PARAGRAPH 13 OF THE FRENCH COMMERCIAL CODE

Article L. 225-102-1, paragraph 13, of the French Commercial Code, arising from order no. 2014-863 of July 31, 2014 on corporate law, which implements article 3 of the law no. 2014-1 of January 2, 2014 authorizing the government to simplify and secure administrative procedures for businesses, indicates that the management report must mention agreements signed, directly or through a third party, between, on the first hand and as the case may be, a member of the Executive Board or of

the Supervisory Board, the CEO, a deputy CEO or a shareholder holding more than 10% of a company's voting rights and, on the second hand, another company where the latter owns, directly or indirectly, more than half of the share capital, except when the agreement relates to a routine transaction concluded at arm's length.

No such agreement signed in 2014 has been identified in this respect.



Except for the contracts described in Chapters 6 and 9 of this Reference Document, AREVA did not enter into major contracts in 2013 and 2014 other than those entered into in the normal course of its business.

**THIRD PARTY INFORMATION,** STATEMENTS BY EXPERTS AND DECLARATIONS OF INTEREST

Not applicable.

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# **DOCUMENTS** ON DISPLAY

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# 24.1. AVAILABILITY OF DOCUMENTS

The following documents, or copies thereof, may be consulted at AREVA's head office, Tour AREVA, 1 place Jean Millier, 92400 Courbevoie, during the period of validity of this Reference Document:

- establishing decree no. 83-1116 of December 21, 1983 and its amendments, decree no. 2007-1140 of July 27, 2007 published in the *Journal officiel* on July 28, 2007, decree no. 2010-1613 of December 23, 2010, and the articles of association of AREVA;
- all reports, correspondence and other documents, historical financial data, assessments and statements given by an expert at AREVA's request, some of which are included or referred to in this document; and
- historical financial data of AREVA and its consolidated subsidiaries for each of the two fiscal years preceding the date of registration of this Reference Document.

# 24.2. PERSONS RESPONSIBLE FOR FINANCIAL INFORMATION

#### The persons responsible for financial information are:

- Stéphane Lhopiteau, Chief Financial Officer;
- Philippine du Repaire, Financial Communications and Investor Relations Director.

#### The team is also composed of:

- Sabine Kueny, Marketing, Communications and Retail Shareholding Manager;
- Sophie Richard, Financial Analysis Manager.

The Shareholders Relations service may be reached at our toll-free number (calls in France only), 0810 699 756, or by e-mail to actionnaires@areva.com. It is based at the head office of AREVA, Tour AREVA, 1 place Jean-Millier, 92400 Courbevoie, France.



# **24.3.** FINANCIAL INFORMATION PROGRAMS

Executive management's objective is to report on the group's operations to shareholders. Accordingly, AREVA has had a financial communications program in place since it was formed. The goals of this program are to build strong relations with our shareholders and to develop the group's presence on the financial markets by providing more information on our operations.

Information of a financial, commercial, organizational or strategic nature that may be of interest to the financial community is provided to the national and international media and to press agencies via press releases. All information provided to the financial markets (press releases, audio and video presentations of a financial or strategic nature) is available in the "Finance" section of the group's website at www.areva.com. Persons wishing to receive press releases by e-mail may register on the group's website, which also features a schedule of upcoming events and announcements, as well as the Letter to the Shareholders begun in January 2012

and the Shareholder's Guide that went online in February 2014. AREVA publishes half-year and annual results and makes quarterly sales announcements in accordance with French legislation. It should be noted that, in the nuclear business, comparisons of quarterly data from one year to quarterly data of the previous year may show significant variations that may not be a good indicator of the expected trend for the year as a whole.

At least twice a year, the group organizes information meetings to comment on its business and financial performance. These meetings are broadcast live on the Internet.

The group organizes tours of its sites to increase awareness of its operations and facilities. The first tour specifically for individual shareholders was given on November 15, 2013 at the la Hague site.

# 24.4. TENTATIVE FINANCIAL COMMUNICATIONS SCHEDULE

A tentative schedule of upcoming events and announcements is provided below. It is regularly updated on the AREVA website.

Date	Event
January 8, 2015	Combined Annual General Meeting of Shareholders
February 2, 2015	2014 revenue and related information (press release)
March 4, 2015	2014 results and strategic announcements (press release, conference and webcast)
April 29, 2015	First quarter 2015 revenue and related information (press release)
May 21, 2015	Combined Annual General Meeting of Shareholders
July 30, 2015	First half 2015 results (press release, telephone conference and webcast)
October 29, 2015	Third quarter 2015 revenue and related information (press release)

# 24.5. TECHNICAL INFORMATION ON THE GROUP'S BUSINESSES

The AREVA group organized a series of presentations and site tours to enhance the financial community's understanding of the group's operations from a technical as well as an economic point of view. In addition, throughout the year, analysts and investors are invited to learn about the group's operations from a technical and financial standpoint through informative tours of the plant sites.



25.1.	SIGNIFICANT EQUITY INTERESTS OF AREVA
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# **25.1. SIGNIFICANT EQUITY INTERESTS OF AREVA**

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Not applicable.

# **25.2.** SHAREHOLDERS' AGREEMENTS

### **25.2.1. SHAREHOLDERS' AGREEMENTS CONCERNING AREVA SHARES**

Except for agreements described hereunder, there is, to AREVA's knowledge, no agreement containing rights of first refusal concerning at least 0.5% of AREVA's share capital or voting rights.

# SHAREHOLDERS' AGREEMENT BETWEEN THE FRENCH STATE, THE CEA AND KIA

The French State, the CEA and KIA entered into a 10-year shareholders' agreement effective December 28, 2010, whose key provisions are as follows:

- the French State has a preemptive right in the event that KIA sells all or part of its equity interest, except for sales of shares made on the market;
- KIA has an anti-dilution right in the event of a capital increase with cancellation of the preemptive right (except for capital increases reserved for employees of AREVA);
- KIA has an absolute right to dispose of its shares in the event of a change in control of AREVA, in the meaning of article L. 233-3 of the French Commercial Code.

The French State has an option to purchase the shares in the event that KIA violates its commitment regarding the preemptive right. The exercise price for the purchase option shall be calculated based on the average weighted closing price of AREVA shares during the 90 trading days preceding the date of exercise of the option.

#### MEMORANDUM OF UNDERSTANDING BETWEEN TOTAL CHIMIE, TOTAL NUCLÉAIRE AND AREVA

Under the terms of a memorandum of agreement dated June 27, 2001, Total Chimie and Total Nucléaire agree to retain their AREVA securities until such time as AREVA shares are admitted for trading on a regulated market. Although all AREVA shares are now traded on a regulated market, neither Total Chimie nor Total Nucléaire has yet chosen to dispose of their AREVA shares.

### **25.2.2. MAIN SHAREHOLDERS' AGREEMENTS CONCERNING AREVA'S EQUITY INTERESTS**

#### EURODIF

AREVA NC presently holds, directly or indirectly through Sofidif, 60% of Eurodif's capital.

As part of a bilateral agreement between France and Iran for cooperation in the field of enrichment, a memorandum of understanding was entered into in 1974 leading to the establishment of Sofidif, 40% of whose share capital is held by the Atomic Energy Organization of Iran (AEOI), with 60% held by AREVA NC.

Sofidif's sole asset is a 25% equity interest in Eurodif. Sofidif's business is limited to taking part in meetings of Eurodif's Supervisory Board, collecting its share of Eurodif's dividends and redistributing those dividends to its own shareholders. Due to national and international sanctions, no dividend has been paid to the AEOI since 2007.

#### **AREVA TA**

AREVA holds 24.90% of AREVA TA, 65.10% is held by CEDEC (90.14% AREVA, 9.86% DCN-I), and 10% is held by EDF Développement. A memorandum of understanding concerning AREVA TA's body of shareholders was signed on

March 12, 1993 and subsequently amended. It provides in particular that the Board of Directors of AREVA TA is composed of 15 members, 5 of whom are elected by the employees, 6 of whom are appointed on the recommendation of CEDEC, 3 of whom are appointed on the recommendation of AREVA, and 1 of whom is appointed on the recommendation of the EDF group. In the event that EDF group wished to sell all or part of its interest in AREVA TA, AREVA has priority in relation to Cedec to acquire this interest. If either Cedec or AREVA contemplates the sale of all or part of its shares or rights in AREVA TA, Cedec and AREVA have a reciprocal and irrevocable agreement under which each would first offer the shares for sale to the other party (unless AREVA were to sell the shares to the CEA).

#### ETC

AREVA NC holds 50% of the shares of Enrichment Technology Company Ltd (ETC), which combines all of URENCO's operations involving the design and construction of facilities and equipment for uranium enrichment by centrifugation. A shareholders' agreement defines the relations between AREVA NC and URENCO in ETC, in particular concerning the composition of the Board of Directors, decisions requiring a unanimous vote by the directors present, and restrictions on selling ETC shares.



# **APPENDIX 1**

REPORT OF THE CHAIRMAN OF THE BOARD OF DIRECTORS ON GOVERNANCE, INTERNAL CONTROL PROCEDURES AND RISK MANAGEMENT

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BOARD OF DIRECTORS

On January 8, 2015, AREVA's General Meeting of Shareholders decided to transform the company's governance from a corporation with a Supervisory Board and an Executive Board into a corporation with a single Board of Directors. This transformation corresponds to the wish of the majority shareholders, *i.e.* the French State and the CEA. Its purpose is to align the company's governance with best practices in France and to better support the company's executive management through a clear division of roles and effective collaboration between the Board of Directors and executive management.

This report presents, for 2014, the composition of the Supervisory Board, the principle of balanced representation of men and women on the Board, and the conditions for preparing and organizing the work of the Supervisory Board (see paragraph 3).

Furthermore, in view of the change of governance, this report also presents this information as regards the Board of Directors since its establishment on January 8, 2015 (see paragraph 4).

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This report also provides information on procedures for internal control and risk management (see paragraph 5).



# **1. LEGISLATIVE AND REGULATORY FRAMEWORK**

## **1.1. LEGAL FRAMEWORK**

This report is prepared in application of article L. 225-37 of the French Commercial Code, under which "In publicly traded companies, the Chairman of the Board of Directors shall submit a report on [...] the composition of the board and on application of the principle of balanced representation of its men and women members, the preparation and organization of the activities of the board, and internal control and risk management procedures established by the company, describing in particular those procedures relating to the preparation and treatment of accounting and financial information used to prepare the corporate financial statements and, if applicable, the consolidated financial statements."

Article L. 225-37 also stipulates the following:

 "This report also indicates the possible limitations that the Board of Directors applies to the powers of the Chief Executive Officer."

The limitations on the powers of the Executive Board until January 8, 2015, appear in paragraph 3.2 below.

The limitations on the powers of the Chief Executive Officer applicable since January 8, 2015 appear in paragraph 4.4 below.

"When a company defers voluntarily to a code of corporate governance drawn up by recognized business federations, the [abovementioned] report shall also indicate which provisions were discarded and for what reason. The report shall also specify the place where the code of governance may be reviewed. When a company does not defer to such a code of corporate governance, the report shall indicate the rules adopted to supplement the legal requirements and shall explain why the company decided not to apply any of the provisions of a code of corporate governance".

AREVA defers to the Afep-Medef Code of Corporate Governance under the conditions mentioned in paragraph 1.2 below.

 "The [abovementioned] report shall also specify particular methods related to the participation of the shareholders in the Annual General Meeting or refer to the provisions of articles of association setting forth those methods."

The articles of association of AREVA do not contain any particular provision concerning shareholder rights, which are exercised according to common law at AREVA, as noted in Section 21 of the Reference Document.

• "Moreover, the report presents the principles and rules decided upon by the Board of Directors to determine compensation and benefits of any kind granted to corporate officers."

This information appears in Section 15 of the Reference Document.

• This report "mentions the publication of information stipulated in article L. 225-100-3 of the French Commercial Code".

This information, which relates to items which may have an impact in the event of a takeover bid, appears in Section 21.2.5 of the Reference Document.

 "The [abovementioned] report shall be approved by the Board of Directors and made public."

This report was submitted to the Audit and Ethics Committee for comment on February 18, 2015, and to the Nominations and Compensation Committee on February 20, 2015. The Board of Directors approved the report during its meeting of March 3, 2015.

## **1.2** THE STANDARD FOR AREVA: THE AFEP-MEDEF CODE OF CORPORATE GOVERNANCE <sup>(1)</sup>

#### **IMPLEMENTATION OF THE "APPLY OR EXPLAIN" RULE**

AREVA defers to the "Code of Corporate Governance for Publicly Traded Companies" developed jointly by the Afep and the Medef in December 2008, as amended, recently in June 2013 ("Afep-Medef Code").

In accordance with the "apply or explain" principle incorporated in articles L. 225-37 and L. 225-68 of the French Commercial Code, AREVA provides the following explanations on the reasoning that led it to depart from certain rules stated in the Afep-Medef Code. AREVA's capital structure and the specific provisions that apply to AREVA limit the full application of the governance recommendations in the Afep-Medef Code.

<sup>(1)</sup> The Code is available on the Medef website (www.medef.fr).

1. Legislative and regulatory framework

Α

Afep-Medef recommendation	Departure	Explanation or corrective action taken
The Afep-Medef Code recommends that a "relatively significant number" of shares be held by the members of the Supervisory Board or the Board of Directors – Article 20 of the Code.	The company's articles of association and the rules of procedure adopted by the Board (Supervisory Board and subsequently the Board of Directors) do not require that its members hold a relatively significant number of shares.	This recommendation is not suited to AREVA, considering its share ownership and the resulting composition of the Supervisory Board (and of the Board of Directors since January 8, 2015).
The Afep-Medef Code recommends that the term of service of members of the Supervisory Board or of the Board of Directors not exceed four years – Article 14 of the Code.	The members of the Supervisory Board served a term of five years.	AREVA's new articles of association, adopted on January 8, 2015, stipulate that members of the Board of Directors serve for a term of four years.
The Afep-Medef Code recommends that the terms of members of the Supervisory Board or of the Board of Directors be staggered to avoid massive renewals and promote the harmonious renewal of the terms of Board members – Article 14 of the Code	Supervisory Board had not been staggered. The terms of the first members of the Board	In the framework of the adoption of new governance, and in view of the composition of the Board of Directors, it was not deemed necessary to stagger the terms of the directors.
The Afep-Medef Code recommends that at least two thirds of the members of the Audit Committee be independent – Article 16.1 of the Code.	The Supervisory Board's Audit Committee was comprised of five members, three of whom were independent, i.e. 60%. Since January 8, 2015, the Board of Directors' Audit and Ethics Committee is comprised of five members, two of whom are independent, i.e. 40%.	The composition of the Audit Committee was intended to reflect the different categories of members represented in the Supervisory Board (including, in addition to the independent members, a member representing the French State, a member representing the CEA and a member representing employees). It was chaired by a member chosen based on criteria of independence and expertise. Mrs. Guylaine Saucier, who chaired the Audit Committee in 2014, is indeed recognized for her financial and accounting expertise. Moreover, the CEA representative sitting on the Committee, Mr. Christophe Gégout, is the CEA's Chief Financial Officer. Since January 8, 2015, the composition of the Audit and Ethics Committee also includes the different categories of directors. This Committee is chaired by an independent member, Mrs. Sophie Boissard, who was previously a member of the Supervisory Board's Audit Committee and who has recognized financial and accounting expertise. Mr. Denis Morin, Director of Budget at the French Ministry of Finance, is also a member of the Committee.
The Afep-Medef Code recommends that severance pay for which executives may be eligible can only be paid when the executive is asked to leave in connection with a change of control or strategy – article 23.2.5 of the Code.	On October 21, 2011, the Supervisory Board approved the commitments made by AREVA corresponding to severance pay or benefits to members of the Executive Board in connection with the termination of their duties or change of position, and clarified that severance pay would be paid only for termination, in particular in the event of a change of control or strategy, to the exclusion of termination for cause.	These commitments became void upon adoption of a corporate form with a Board of Directors as a single governance body.

# 2. REVIEWS PERFORMED TO PREPARE THIS REPORT

To prepare this report, the Chairman of the Board of Directors reviewed, in particular, the minutes of meetings of the Supervisory Board and of its Committees for the year ended and, for the section of the report concerning internal control procedures, information provided by the functional departments in connection with the annual review of internal control procedures and comments from the internal audit

department. He also reviewed the company's articles of association and its rules of procedure.

The work and reviews related to the preparation of this report were also submitted to the statutory auditors.

# 3. PREPARATION AND ORGANIZATION OF THE WORK OF THE SUPERVISORY BOARD UNTIL THE CHANGE OF GOVERNANCE

### **3.1. COMPOSITION OF THE SUPERVISORY BOARD**

#### 3.1.1. GENERAL RULES RELATING TO THE COMPOSITION OF THE SUPERVISORY BOARD

Until January 8, 2015, the general rules hereunder applied to the Supervisory Board.

The members of the Supervisory Board were appointed by the Shareholders, except for employee members, who were elected by company personnel, and representatives of the French State, who were appointed by decree.

The Supervisory Board consisted of at least 10 and no more than 18 members, including 3 members elected by company personnel, as described below, and representatives of the French State if applicable<sup>(1)</sup>. The 3 members representing company personnel were elected by an electoral college consisting of engineers and managers (1 member) and by an electoral college consisting of the other employees (2 members).

Pursuant to article 3 of decree no. 83-1116 of December 21, 1983, as amended, the following persons were invited to attend the meetings of the Supervisory Board in an advisory capacity: the Director-General for Energy and Climate at the Ministry of Energy, serving as Government Commissioner, and the representative of the Head of the Control Mission at Commissariat à l'Énergie Atomique et aux énergies alternatives, as a member of the Economic and Financial Control Board. The Government Commissioner and the representative of the Head of the control mission to the CEA could also attend meetings of Committees reporting to the Supervisory Board.

The statutory auditors were invited to attend meetings of the Supervisory Board called to examine the annual or interim financial statements, and any other meetings where their presence was deemed appropriate.

The duties of a member of the Supervisory Board not elected by company personnel were to expire at the end of the Annual General Meeting of Shareholders convened to approve the financial statements of the year ended and held during the year of expiration of said member's term. The General Meeting of Shareholders could

dismiss members of the Supervisory Board, other than members representing the French State and members elected by company personnel.

The duties of a member elected by company personnel were to expire either upon announcement of the results of elections, which AREVA was required to organize under the conditions stipulated in the articles of incorporation, or upon the end of said member's employment contract or dismissal, under the conditions stipulated by laws or regulations in effect at the time of the dismissal.

Only natural persons could be elected by company personnel to serve as members of the Supervisory Board. Members of the Supervisory Board not elected by company personnel could be natural persons or corporate entities.

The Supervisory Board elected a Chairman and a Vice Chairman from among its members who were charged with convening the Board and conducting the meetings, with the Vice Chairman fulfilling these functions in the event of the Chairman's absence or inability to do so.

All participants in the meetings of the Supervisory Board were bound to confidentiality.

The Supervisory Board was composed of 15 members at December 31, 2014. Ten shares had been loaned to each member of the Supervisory Board, except for members representing the French State.

#### 3.1.2. INDEPENDENCE OF MEMBERS OF THE SUPERVISORY BOARD

The independence of the members was determined in accordance with criteria established in the Afep-Medef Code of Governance. The Supervisory Board had applied an additional criterion for independence by which, to be considered independent, the member of the Supervisory Board could not be the representative of a shareholder holding more than 10% of the company's share capital and/or

<sup>(1)</sup> Given that the provisions of article 51 of French law no. 96-314 of April 12, 1996 are no longer applicable to AREVA since January 8, 2015 due to the transition to the system of order no. 2014-948 of August 20, 2014 and its implementing decree.

voting rights of or in the company, to the extent that such shareholder participated in the control of the company.

Based on these criteria, at December 31, 2014, 5 of the 15 members of the Supervisory Board were considered to be independent:

- Mr. Pierre Blayau;
- Mrs. Sophie Boissard;
- Mr. François David;
- Mrs. Agnès Lemarchand;
- Mrs. Guylaine Saucier.

The proportion of at least one third of the members of the Supervisory Board as independents, as recommended by the Afep-Medef Code, was thus met.

None of the independent members of the Supervisory Board had significant business relations with the company. The main criterion used for this determination was the lack of a material portion of the revenue of, respectively, the company and the members in question, resulting from their mutual business relations.

#### 3.1.3. CHANGES IN THE COMPOSITION OF THE SUPERVISORY BOARD IN 2014

The following changes were made to the composition of the Supervisory Board in 2014:

- Mr. Christian Masset was appointed to the Supervisory Board as a representative of the French State by ministerial order of September 29, 2014, replacing Mr. Pierre Sellal;
- Mr. Philippe Varin was co-opted as a member of the Supervisory Board on November 26, 2014, replacing Mr. Christophe Béhar, who had resigned;
- Mr. Alexis Zajdenweber was appointed to the Supervisory Board as a representative of the French State by ministerial order of December 8, 2014, replacing Mrs. Claire Cheremetinski.

#### 3.1.4. MEMBERS OF THE SUPERVISORY BOARD UNTIL THE CHANGE OF GOVERNANCE

#### MEMBERS COOPTED BY THE SUPERVISORY BOARD/APPOINTED BY THE SHAREHOLDERS

#### Pierre Blayau (age 64 - French nationality) - Chairman

Mr. Pierre Blayau was co-opted by the Supervisory Board at its meeting of June 24, 2013 as member and Chairman of the Supervisory Board, replacing Mr. Jean-Cyril Spinetta, who had resigned.

His appointment was ratified by the General Meeting of Shareholders on May 20, 2014. His term as member and Chairman of the Supervisory Board ended on January 8, 2015 as a result of the change of governance.

Mr. Pierre Blayau is a graduate of École normale supérieure of Saint Cloud, of the Institut d'études politiques and of École nationale d'administration.

#### Other offices held

- Director of Édition de Canal Plus <sup>(1)</sup>;
- Director of Fimalac <sup>(1)</sup>;
- Chairman of Harbour Conseils;
- Chairman of the Board of Directors of Caisse Centrale de Réassurance.

#### Other offices held during the past five years

- CEO of Geodis;
- Chairman of the Board of Directors of Geodis:
- Chairman of the Board of Directors of Transport et Logistique Partenaires;
- Chairman of the Board of Directors of Ermewa Holding;
- Chairman of the Supervisory Board of Société de transports de véhicules automobiles (STVA);
- Member of the Investment Committee of Arkéa Capital Partenaire.

#### Bernard Bigot (age 64 – French nationality)

Mr. Bernard Bigot was co-opted as a member of the Supervisory Board and appointed Vice Chairman on February 5, 2009. The Shareholders ratified his cooptation on April 30, 2009. Mr. Bernard Bigot's term was renewed by the Shareholders on April 27, 2011, and his term as Vice Chairman of the Supervisory Board was renewed by the Board on that same date. Both of these terms ended on January 8, 2015 as a result of the change of governance.

Mr. Bernard Bigot had been Chairman of the CEA and Chairman of the Board of Directors of the CEA until January 8, 2015. He is a graduate of École normale supérieure of Saint Cloud and holds the *agrégation* in physical sciences and a PhD in chemistry.

#### Other offices held

- Director representing the French State, on behalf of the minister of Industry, to the Board of Directors of AREVA NC (AREVA);
- Chairman of the Fondation de la Maison de la Chimie and of the Association de l'École supérieure de chimie électronique of Lyon;
- Vice Chairman of the Fondation Jean Dausset and of the Association du Laboratoire des énergies du Sud Rhône-Alpes;
- Chairman of the Coordinating Committee of Alliance nationale de coordination de la recherche pour l'energie (ANCRE);
- Chairman of École supérieure de chimie électronique of Lyon (CPE);
- Director-General of Iter.

#### Other offices held during the past five years

 Chairman of the Board of Directors of the Institut national de la recherche pédagogique until December 2010.

#### Sophie Boissard (age 44 – French nationality)

Mrs. Sophie Boissard was appointed to the Supervisory Board by the Shareholders on April 27, 2011. Her term ended on January 8, 2015 following the change of governance.

Mrs. Boissard is General Manager in charge of organizing SNCF Immobilier (SNCF).

A graduate of École normale supérieure and École nationale d'administration, Mrs. Boissard is also *Conseiller d'État*.

#### Other offices held

- Director of Sanef <sup>(1)</sup>;
- Director of Eurostar International Limited (SNCF);
- Chairman of SNCF Participations (SNCF).

<sup>(1)</sup> Publicly traded company.

#### Other offices held during the past five years

- Director of GIAT Industries;
- Member of the Board of Directors of AREP;
- Chairman and Chief Executive Officer of A2C;
- Vice Chairman of the Union des Transports publics.

# Commissariat à l'énergie atomique et aux énergies alternatives (CEA), represented by Christophe Gégout

The CEA was appointed to the Supervisory Board on May 2, 2006. Its term was renewed by the Shareholders on April 27, 2011 and ended on January 8, 2015 following the change of governance.

The CEA is represented by Mr. Christophe Gégout (age 38 – French nationality), who is a graduate of the Institut d'études politiques de Paris and an alumnus of École polytechnique and of the Paris Graduate School of Economics, Statistics and Finance (Ensae). He is Chief Financial Officer and head of the Management Control and Information Systems Division of the CEA.

#### Other offices held by the CEA

- Director of CEA Investissement (CEA);
- Director of AREVA TA (AREVA);
- Director of FT1Cl;
- Director of La Route des Lasers;
- Director of Minatec Entreprise.

#### Other offices held during the past five years

None.

#### Other offices held by Mr. Gégout

- Chairman of the Board of Directors of CEA Investissement (CEA);
- Director of AREVA NC (AREVA);
- Director of AREVA Mines (AREVA);
- Permanent representative of the CEA to the Board of Directors of FT1CI.

#### Other offices held during the past five years

- Member of the Supervisory Board of Emertec Gestion;
- Member of the Supervisory Board of Avenium Consulting;
- Permanent representative of the CEA to the Board of Directors of GIP Sources HA;
- Director of Co-Courtage Nucléaire;

#### François David (age 72 - French nationality)

Mr. François David was appointed to the Supervisory Board on April 17, 2008. His term was renewed by the Shareholders on May 7, 2013; it ended on January 8, 2015 following the change of governance.

Mr. François David is a graduate of the Institut d'études politiques of Paris and École nationale d'administration. He is Honorary Chairman of Coface and Senior Advisor to Moelis & company.

#### Other offices held

- Member of the Supervisory Board of Lagardère SCA <sup>(1)</sup>;
- Member of the Supervisory Board of Galatée Films;
- Member of the Board of the Order of the Legion of Honor.

#### (1) Publicly traded company.

#### Other offices held during the past five years

- Chairman of the Board of Directors of Coface SA;
- Director of Vinci;
- Director of Rexel;
- Director of Natixis Coficine SA.

#### Agnès Lemarchand (age 59 – French nationality)

Mrs. Agnès Lemarchand was appointed to the Supervisory Board by the Shareholders on April 27, 2011. Her term ended on January 8, 2015 following the change of governance.

Mrs. Agnès Lemarchand is Executive Chairman of Steetley Dolomite Ltd (formerly Lafarge Lime).

A graduate of Massachusetts Institute of Technology (MIT) and of Insead, Mrs. Agnès Lemarchand spent most of her career in the Rhône-Poulenc and Lafarge groups.

#### Other offices held

- Director of Saint-Gobain <sup>(1)</sup>;
- Director of CGG <sup>(1)</sup>;
- Director of Biomérieux <sup>(1)</sup>;
- Member of the Supervisory Board of Vivescia Industries, representing Bpifrance Participations.

#### Other offices held during the past five years

- Member of the Supervisory Board of Mersen;
- Member of the Economic, Social and Environmental Board, Economic Activities Section.

#### Guylaine Saucier (age 68 - Canadian nationality)

Mrs. Guylaine Saucier was appointed to the Supervisory Board on May 2, 2006. Her term was renewed by the Shareholders on April 27, 2011; it ended on January 8, 2015 following the change of governance.

Guylaine Saucier is a chartered accountant and a graduate of HEC Montreal.

#### Other offices held

- Director of AREVA Canada Inc. (AREVA);
- Director of SCOR SE<sup>(1)</sup>;
- Director of Junex Inc. <sup>(1)</sup>;
- Director of Wendel <sup>(1).</sup>

#### Other offices held during the past five years

- Director of the Danone group;
- Director of Axa Canada;
- Director of Petro-Canada;
- Director of CHC Helicopter Corp;
- Director of the Bank of Montréal.





#### Philippe Varin (age 62 – French nationality)

Mr. Philippe Varin was coopted to the Supervisory Board on November 26, 2014, replacing Mr. Christophe Béhar, who had resigned.

His term as a member of the Supervisory Board ended on January 8, 2015 as a result of the change of governance.

Mr. Philippe Varin is a graduate of École polytechnique and of École des mines of Paris.

#### Other offices held

- Director of EDF <sup>(1)</sup>;
- Director of Saint-Gobain <sup>(1)</sup>;
- Chairman of the Cercle de l'Industrie;
- Special envoy of the Minister of Foreign Affairs and International Development to ASEAN countries.

#### Other offices held during the past five years

- Chairman of the Managing Board of Peugeot SA;
- Chairman of the Board of Directors of Peugeot Citroën Automobiles SA;
- Chairman of the Board of Directors of GEFCO SA;
- Director of Banque PSA Finance SA;
- Director of Faurecia SA;
- Director of PCMA Holding BV;
- Director of BG Group Plc.

# MEMBERS REPRESENTING THE FRENCH STATE, APPOINTED BY MINISTERIAL ORDER

#### Laurence Dubois-Destrizais (age 52 - French nationality)

Mrs. Laurence Dubois-Destrizais was appointed to the AREVA Supervisory Board as a representative of the French State by ministerial order of June 24, 2013, replacing Mrs. Marion Guillou. Her term ended on January 8, 2015 following the change of governance.

Mrs. Laurence Dubois-Destrizais is a graduate of École nationale d'administration. She is Minister-Counselor for economic and financial affairs and head of the regional economic service for the United Kingdom and Republic of Ireland at the French Embassy in London.

#### Other offices held

None.

#### Other offices held during the past five years

None

#### Pascal Faure (age 51 - French nationality)

Pascal Faure was appointed to the AREVA Supervisory Board as a representative of the French State by ministerial order of January 29, 2013, published in the *Journal officiel* on February 6, 2013, replacing Mr. Luc Rousseau. His term ended on January 8, 2015 following the change of governance.

Mr. Pascal Faure is a graduate of École polytechnique and École nationale supérieure des télécommunications of Paris, and is *Ingénieur général* in the Corps des mines. Mr. Faure is Director General of Competitiveness, Industry and Services at the Ministry of Industrial Renewal.

#### (1) Publicly traded company.

#### Other offices held

- Government Commissioner to La Poste <sup>(1)</sup>, the Commission nationale d'aménagement commercial, and GIP Guichet entreprises;
- Representative of the French State to the Board of Directors of Renault <sup>(1)</sup>;
- Representative of the French State to the Board of Directors of Bpifrance Participations (Bpifrance);
- Representative of the French State to the Board of Directors of Bpifrance Investissement (Bpifrance);
- Representative of the French State to the Board of Directors of the Agence nationale de la recherché;
- Representative of the French State to the Board of Directors of Mines Paris Tech.

#### Other offices held during the past five years

- Representative of the French State to the Board of Directors of École polytechnique;
- Representative of the French State to the Board of Directors of Institut Mines-Télécom;
- Representative of the French State to the Board of Directors of Française des jeux and France Télécom;
- Representative of the French State to the Board of Directors of École normale supérieure.

#### Christian Masset (age 57 – French nationality)

Mr. Christian Masset was appointed to the Supervisory Board as a representative of the French State by ministerial order of September 29, 2014, replacing Mr. Pierre Sellal. His term ended on January 8, 2015 following the change of governance.

Mr. Christian Masset is Secretary-General of the Quai d'Orsay (Ministry of Foreign Affairs and International Development).

#### Other offices held

- Director of EDF <sup>(1)</sup>;
- Director of École nationale d'administration;
- Director of the Institut Français;
- Director of the Agence nationale des titres sécurisés (national agency for secure identity documents);
- Director of the Commission de récolement des dépôts d'œuvres d'art (commission for verification of registered works of art);
- Director of the Établissement de préparation et de réponse aux urgences sanitaires (health emergency planning and response institution);
- Director of France medias monde;
- Member of the Comité de l'énergie atomique (French Atomic Energy Board);
- Member of the Board of the l'Institut du monde arabe (Arab World Institute).

#### Other offices held during the past five years

- Director of AREVA NC;
- Director of Agence pour l'enseignement du français à l'étranger;
- Director of France cooperation internationale, which became France expertise internationale in 2010;
- Director of Cultures France, which became the Institut Français in 2010;
- Director of the Agence française de développement (French Development Agency);
- Director of the France-Israel Foundation.



#### Alexis Zajdenweber (age 38 - French nationality)

Mr. Alexis Zajdenweber was appointed to the Supervisory Board as a representative of the French State by ministerial order of December 8, 2014, replacing Mrs. Claire Cheremetinski. His term ended on January 8, 2015 following the change of governance.

Mr. Alexis Zajdenweber is a graduate of the Institut d'études politiques (Paris) and École nationale d'administration.

#### Other offices held

- Director of Eramet <sup>(1)</sup>;
- Member of the Supervisory Board of ERDF;
- Director of the French Geological Survey (BRGM).

#### Other offices held during the past five years

Director of La Monnaie de Paris.

# MEMBERS OF THE SUPERVISORY BOARD REPRESENTING COMPANY PERSONNEL

#### Jean-Michel Lang (age 52 – French nationality)

Mr. Jean-Michel Lang was elected by the employee electoral college on May 24, 2012 as member of the Supervisory Board representing company personnel. His term became effective on June 21, 2012 and ended on January 8, 2015 following the change of governance.

Mr. Lang is a quality expert to the head of product quality for AREVA NC.

#### Other offices held

None.

#### Other offices held during the past five years

Member of the Board of Directors of MELOX.

#### Françoise Pieri (age 47 - French nationality)

Mrs. Françoise Pieri was elected by the employee electoral college on May 24, 2012 as member of the Supervisory Board representing company personnel. Her term became effective on June 21, 2012 and ended on January 8, 2015 following the change of governance.

Mrs. Françoise Pieri is an integrated management system specialist (AREVA NC).

#### Other offices held

None.

#### Other offices held during the past five years

None.

#### Philippe Pinson (age 58 - French nationality)

Mr. Philippe Pinson was elected by the electoral college of engineers and managers on June 19, 2012 as member of the Supervisory Board representing company personnel. His term began on June 21, 2012 and ended on January 8, 2015 as a result of the change of governance.

Mr. Philippe Pinson is an expert in the Recycling Operations Department of AREVA NC.

#### Other offices held

None.

#### Other offices held during the past five years

Director of AREVA NC representing company personnel.

In 2014, Mr. Marcel Otterbein, representing AREVA's Works Council, attended the meetings of the Supervisory Board in an advisory capacity.

#### Economic and financial comptroller general

Mr. Bruno Rossi, appointed head of the Atomic Energy Control Mission of the General Economic and Financial Control Department by a decision of the Ministry of the Economy, Industry and Employment on June 24, 2008, served as the Economic and Financial Comptroller General of the company in application of article 3 of decree no. 83-1116 of December 21, 1983, as amended. Mr. Rossi was represented by Mr. Christian Bodin, who reported to him on his control of AREVA and attended meetings of the Supervisory Board and of its specialized Committees.

#### Government commissioner

Mr. Laurent Michel, appointed Director-General for Energy and Climate by decree of December 19, 2012, served as the Government Commissioner for the company in application of article 3 of decree no. 83-1116 of December 21, 1983, as amended. In that capacity, he attended the meetings of the Supervisory Board and of its specialized Committees.

#### Censors

AREVA's articles of association stipulated that the Supervisory Board could appoint one or more censors, whose mission was to assist the Supervisory Board in its control functions, and who attended the meetings of the Supervisory Board without the right to vote.

The Supervisory Board did not appoint a censor.

#### Secretary of the Board

Mr. Pierre Charreton, General Counsel and Chief Administrative Officer of AREVA, served as Secretary of the Supervisory Board in 2014.

Mrs. Malak Tazi, Legal Director of Governance, Companies and Securities & Finance, served as Deputy Secretary to the Supervisory Board in 2014.



### **3.2. FUNCTIONING OF THE SUPERVISORY BOARD**

The Supervisory Board, whose functioning was specified in rules of procedure, exercised ongoing control of the Executive Board's management of AREVA. The Executive Board regularly informed the Supervisory Board of the business and operations of AREVA and of the group through quarterly reports. The Supervisory Board performed such verifications and procedures as it deemed necessary.

Among others, the Supervisory Board had responsibility for appointing the members of the Executive Board and designating its Chairman, and for recommending their dismissal to the Shareholders. The Supervisory Board also had the power to convene the Annual General Meeting of Shareholders.

The Supervisory Board met at least once quarterly at the corporate office or at any other place indicated in the notice of meeting issued by the Chairman, or by the Vice Chairman in the absence of the former, to review the Executive Board's report.

For decisions of the Supervisory Board to be valid, at least half of the members had to be present. Decisions were made on a majority vote of the members present or represented. In the event of a tie vote, the Chairman of the meeting cast the deciding vote.

The Supervisory Board presented its observations on the Executive Board's report and on the financial statements to the Annual General Meeting of Shareholders.

The Supervisory Board also gave necessary prior authorization to the Executive Board to conclude certain transactions that the latter could not have accomplished without its consent. It had the power to deliberate on the overall strategy of AREVA and of the group. The annual budgets and multiyear plans of AREVA, its direct subsidiaries and the group were subject to its approval, as were subsidiary operations when they fell under article 22-2 of the articles of association mentioned below and involved an amount exceeding the prior authorization threshold in that article.

The Supervisory Board regularly updated its rules of procedure, which stipulated in particular:

- the establishment and functioning of the five Committees described below;
- rules for preparing Supervisory Board deliberations;
- conditions for establishing the schedule of Supervisory Board meetings; and
- resources at the disposal of Supervisory Board members elected by the company personnel.

#### STATUTORY LIMITATIONS ON THE POWERS OF THE EXECUTIVE BOARD

Pursuant to article 22-2 of the articles of association, the following Executive Board decisions were subject to the prior authorization of the Supervisory Board insofar as they involved an amount exceeding 80 million euros:

- the issuance of securities, regardless of type, that could have an impact on share capital;
- significant decisions on opening establishments in France and abroad, either directly (through the creation of an establishment or a direct or indirect subsidiary), or by acquiring an equity interest; similar approval was required for decisions to close such establishments;
- (iii) significant operations that could affect the group's strategy and modify its financial structure or scope of business;
- (iv) acquisitions, increases or sales of equity interests in any company, existing or to be established;
- exchanges of goods, securities or certificates, with or without cash payment, excluding cash management operations;
- (vi) acquisitions of real estate;
- (vii) settlements, agreements or transactions relating to disputes;
- (viii) decisions pertaining to loans, borrowings, credit and advances; and
- (ix) acquisitions and disposals of any receivables by any means.

The following Executive Board decisions were also subject to the prior authorization of the Supervisory Board pursuant to article 22-3 of the articles of association insofar as they involved an amount exceeding 20 million euros:

- projects and investment decisions in respect of the creation of a site or capacity increase of an existing site;
- acquisitions or purchases of equity interests in any company, existing or to be established.

In addition, proposals by the Executive Board for appropriation of the result for the company year were subject to the prior approval of the Supervisory Board.

#### **RULES APPLICABLE TO CONFLICTS OF INTEREST**

The rules applicable to conflicts of interest involving members of the Supervisory Board are those recommended by the Afep-Medef Code.

### **3.3. ACTIVITIES OF THE SUPERVISORY BOARD**

The Supervisory Board's work focused on the Executive Board's quarterly reports; the group's operations; examination of the half-year and annual financial statements and the observations of the statutory auditors on those statements; the report of the Chairman of the Supervisory Board on the Supervisory Board's activities and internal control procedures for 2013; the report on internal control prepared pursuant to article 7 of the decree of February 23, 2007 on the securement of funding for nuclear expenses; the Executive Board's objectives; and related party agreements. To facilitate the Supervisory Board's decision-making, certain subjects were examined by the different Committees, according to their area of responsibility. The Board heard the meeting reports and recommendations of these Committees.

The Supervisory Board also:

- approved the renewal of the bond issue authorization in connection with the Euro Medium Term Notes program (EMTN);
- evaluated the composition, organization and functioning of the Board as recommended by the Afep-Medef Code (see paragraph 3.4 below);
- co-opted Mr. Philippe Varin on November 26, 2014 to replace Mr. Christophe Béhar, who had resigned; and
- approved the wind energy partnership with the Spanish group Gamesa.
- In 2014, the Supervisory Board met 13 times with an attendance rate of 82%.

### 3.4. EVALUATION OF THE SUPERVISORY BOARD

An independent, specialized firm was commissioned to assist the Supervisory Board in connection with its self-evaluation. The results of this evaluation were presented to the Board during its meeting of February 26, 2014.

This independent evaluation concerns the functioning of the Board and the Committees and is not an assessment of its individual members. Matters pertaining to the expertise and individual contributions of members of the Board are examined during the review of the renewal of their terms.

The independent evaluation of the functioning of the Board and the Committees identified the following main areas for improvement:

- reduction in the size of the Supervisory Board;
- improved distribution of roles between the Supervisory Board and the Executive Board;
- improved coordination of the work of the Audit Committee with the work of the End-of-Lifecycle Obligations Monitoring Committee;

- organization of an annual strategy seminar for the Board;
- establishment of a proposal committee to examine major commercial proposals.

The results of this evaluation were taken into consideration during discussions concerning the change of governance of the company, which adopted a corporate form with a Board of Directors as a single governance body on January 8, 2015, including a reduction in the number of members of the Board and a clear distribution of roles of the Board of Directors, the Chief Executive Officer and the Chairman of the Board.

The Board of Directors adopted other measures, including the ability for the Strategy and Investments Committee to meet as a select committee at the initiative of its chairman to examine major commercial proposals (see paragraph 3.5 below) and the organization of an annual strategy seminar.

## 3.5. ACTIVITIES OF THE FIVE COMMITTEES OF THE SUPERVISORY BOARD

In application of article 22 of the articles of association and Chapter I of the rules of procedure of AREVA's Supervisory Board, the Board formed five Committees whose role was to provide it with additional information, recommendations and advice to facilitate decision-making on matters falling under its control. In this respect, each meeting of the Supervisory Board could be preceded by in-depth work by the specialized Committees, whose report was systematically distributed to the members of the Board.

Each Committee was empowered to hire experts to assist its members and to have internal or external audits carried out that it deemed necessary.

The five Committees were as follows: the Strategy and Investments Committee, the Audit Committee, the Compensation and Nominating Committee, the Endof-Lifecycle Obligations Monitoring Committee and the Ethics Committee. Each Committee met throughout 2014 to delve deeper into the matters reviewed hereunder.

#### 3.5.1. STRATEGY AND INVESTMENTS COMMITTEE

At December 31, 2014, the Strategy and Investments Committee was composed of seven members, chosen from among the members of the Supervisory Board: Pierre Blayau (Chairman)<sup>(1)</sup>, Bernard Bigot, Pascal Faure, Agnès Lemarchand<sup>(1)</sup>, Christian Masset, Philippe Pinson<sup>(2)</sup> and Alexis Zajdenweber.

The Strategy and Investments Committee was responsible for advising the Supervisory Board on the strategic objectives of AREVA and of its main subsidiaries, and for assessing the risks and merits of major strategic decisions proposed by the Executive Board to the Supervisory Board. It ensured application of AREVA's strategic plan and its implementation at the subsidiary level.

The Committee was charged with examining projects and decisions to commit as well as transactions affecting the consolidation scope referred to in article 22.3 of the articles of association. It examined, in particular during the annual budget review, a medium-term, three-year plan with precise figures setting forth in detail the planned capital expenditures and anticipated production costs, in particular for each of the mining sites. In 2014, the Strategy and Investments Committee met three times, with an attendance rate of 76%.

#### 3.5.2. **AUDIT COMMITTEE**

At December 31, 2014, the Audit Committee comprised six members, chosen from among the members of the Supervisory Board: Guylaine Saucier (Chairman), Sophie Boissard, François David, Christophe Gégout, Françoise Pieri<sup>(2)</sup> and Alexis Zajdenweber.

The financial and accounting expertise of Audit Committee members appears in paragraph 3.1. *Composition of the Supervisory Board*.

The role of the Audit Committee was to assist the Supervisory Board in exercising its powers and attributions in the following fields: integrity of the financial data published by the company, internal controls, execution of the internal audit function, independence and performance of the statutory auditors, risk management, financial planning, monitoring of major projects, and correct assessment of mineral resources and reserves.

It examined the subjects that are specifically under its purview: half-year and annual financial statements (and the corresponding press releases); quarterly publications on revenue; the risk map; review of the conclusions of the statutory auditors and the Internal Audit department on internal controls; quarterly review of major capital projects and major customer projects; summary of internal audits, etc.

Several presentations were made to the Committee during its meetings: by the statutory auditors on key points of the statutory audit and the accounting options adopted; by the director of Risk Management and Insurance on the group's exposure to risks of all types; and by the Chief Financial Officer on financial risks. The Committee also heard the members of the Executive Board and the Head of Internal Audit. It could call on outside experts. It gave its opinion to the Supervisory

In 2014, the Committee examined the group's strategy international directions and the market for some of its businesses.

<sup>(1)</sup> Independent member of the Board.

<sup>(2)</sup> Member of the Board representing company personnel.

Board on these different activities and could suggest modifications or additions as it deemed necessary.

The Audit Committee examined a call for bids upon expiration of the term of the statutory auditors and recommended that the Supervisory Board renew the term of the current auditors or appoint their successors.

The Audit Committee established an annual schedule of work in fulfillment of its duties. In general, a period of at least five days between the Audit Committee meeting and the Supervisory Board meeting was allowed.

In 2014, the Audit Committee met seven times, with an attendance rate of 81%.

#### 3.5.3. NOMINATIONS AND COMPENSATION COMMITTEE

At December 31, 2014, the Nominations and Compensation Committee comprised four members chosen from among the members of the Supervisory Board: François David <sup>(1)</sup> (Chairman), Agnès Lemarchand, Françoise Pieri and Alexis Zajdenweber.

With respect to compensation, the Committee was responsible in particular for recommending to the Supervisory Board executive compensation levels, retirement and insurance programs, and in-kind benefits for executive officers of AREVA based on comparable factors in the market and on individual performance assessments.

With respect to nominations, it was responsible in particular for reviewing the background of proposed candidates for positions on the Executive Board and conveyed its opinion to the Supervisory Board.

Upon invitation from the Committee Chairman, the Chairman of the Executive Board and/or a member of the Executive Board, or any person designated to represent the company, could attend these meetings.

Among the subjects submitted to the Committee for an opinion in 2014 was the total amount of directors' fees and the rules for their distribution, the independence of members of the Supervisory Board and 2014 objectives for the members of the Executive Board, the evaluation of the Supervisory Board, the replacement of Mr. Christophe Béhar by Mr. Philippe Varin, and the change in corporate governance.

In 2014, the Nominations and Compensation Committee met twice, with an attendance rate of 88%.

# 3.5.4. END-OF-LIFECYCLE OBLIGATIONS MONITORING COMMITTEE

At December 31, 2014, the End-of-Lifecycle Obligations Monitoring Committee comprised four members chosen from among the members of the Supervisory Board: Christophe Gégout (Chairman), Sophie Boissard <sup>(1)</sup>, Jean-Michel Lang <sup>(2)</sup> and Philippe Varin.

The Committee was charged with helping to monitor the earmarked asset portfolio set up by AREVA subsidiaries to cover their future cleanup and dismantling expenses.

In 2014, the Committee was asked, among other things, for an opinion on the status of end-of-lifecycle liabilities at the end of 2014, the management of assets and liabilities and the rate of coverage at year-end 2014, and changes in cost estimates for current and future dismantling operations.

The End-of-Lifecycle Obligations Monitoring Committee met four times in 2014, with an attendance rate of 63%.

#### 3.5.5. ETHICS COMMITTEE

At December 31, 2014, the Ethics Committee was composed of three members chosen from among the members of the Supervisory Board: Sophie Boissard <sup>(1)</sup> (Chairman), Laurence Dubois-Destrizais and Jean-Michel Lang <sup>(2)</sup>.

The Committee's mission was to monitor the group's compliance with best international practices in matters of business ethics. In 2014, the Committee reviewed the outcome of AREVA's ethics approach in 2013 and lessons learned from the procedure regarding the use of sales representatives.

In 2014, the Ethics Committee met once, with an attendance rate of 100%.

On November 26, 2014, the Supervisory Board established an *ad hoc* Committee comprised of Mr. Pierre Blayau (Chairman), Mrs. Sophie Boissard, Mr. Philippe Varin, Mr. Alexis Zajdenweber and the CEA represented by Mr. Christophe Gégout, for the purpose of contributing to the in-depth review of financial information made public by the Executive Board on November 18, 2014, and to work out recovery measures.

The *ad hoc* Committee met once in 2014, with an attendance rate of 100%.

<sup>(1)</sup> Independent member of the Board.

<sup>(2)</sup> Member of the Board representing company personnel.

# 4. COMPOSITION AND FUNCTIONING OF THE BOARD OF DIRECTORS AS FROM THE CHANGE OF GOVERNANCE

### 4.1. COMPOSITION OF THE BOARD OF DIRECTORS

Following the change of governance and in accordance with Article 15 of the Articles of Association, the company is governed by a Board of Directors comprised of no less than 3 and no more than 18 members, including, if applicable, a representative of the French State and directors appointed by the General Meeting of Shareholders on the proposal of the French State in application of Order no. 2014-948 of August 20, 2014 and Decree no. 2014-949 of August 20, 2014.

As of the date of this report, the Board of Directors comprises 12 members:

- 8 of whom are appointed by the Shareholders (including 2 directors appointed on the proposal of the French State);
- 1 of whom represents the French State and is appointed by ministerial order; and
- 3 of whom are elected by company personnel.
- It is chaired by Mr. Philippe Varin.

Mr. Daniel Verwaerde was appointed Vice Chairman of the Board of Directors on February 2, 2015, replacing Mr. Bernard Bigot, who had been appointed to that position on January 8, 2015.

Every year, on a recommendation of the Nominations and Compensation Committee, the Board of Directors re-examines the Board's composition and that of its Committees to achieve an appropriate balance between men and women and to ensure the presence of independent members with recognized expertise representing different backgrounds in order to enrich the knowledge and experience within the Board and to bring in an outside view and a diversity of skills and experience among its members, in particular in the management of large publicly-traded groups, with solid expertise in international business relations, industrial vision, and recognized skills in accounting, finance, strategic planning and development.

#### MEMBERS APPOINTED BY THE SHAREHOLDERS/COOPTED BY THE BOARD OF DIRECTORS

The Shareholders appointed eight directors on January 8, 2015, including two women, giving a proportion of 25%.

The members of the Board of Directors are:

- Mr. Philippe Varin (Chairman);
- Mrs. Sophie Boissard;
- Mr. Claude Imauven;
- Mr. Philippe Knoche;
- Mr. Christian Masset (appointed on the proposal of the French State);
- Mr. Denis Morin (appointed on the proposal of the French State);
- Mrs. Pascale Sourisse;
- Mr. Daniel Verwaerde (coopted by the Board of Directors on February 2, 2015 to replace Mr. Bernard Bigot, who had been appointed on January 8, 2015).

Their respective terms will expire at the end of the Annual General Meeting of Shareholders convened to approve the financial statements for the year ending December 31, 2018.

#### Philippe Varin (age 62 - French nationality) - Chairman

Mr. Philippe Varin was appointed as a member of the Board of Directors by the Shareholders on January 8, 2015 and Chairman of the Board by the Board of Directors on that same date. His four-year term will expire at the Annual General Meeting of Shareholders convened to approve the financial statements for the year ending December 31, 2018.

Information concerning Mr. Philippe Varin, who served previously as a member of the Supervisory Board, is presented in paragraph 3.1 of this report.

#### Sophie Boissard (age 44 – French nationality)

Mrs. Sophie Boissard was appointed director by the Shareholders on January 8, 2015. Her four-year term will expire at the Annual General Meeting of Shareholders convened to approve the financial statements for the year ending December 31, 2018.

Information concerning Mrs. Sophie Boissard, who served previously as a member of the Supervisory Board, is presented in paragraph 3.1 of this report.

#### Claude Imauven (age 57 - French nationality)

Mr. Claude Imauven was appointed director by the Shareholders on January 8, 2015. His four-year term will expire at the Annual General Meeting of Shareholders convened to approve the financial statements for the year ending December 31, 2018.

He is a graduate of École polytechnique and holds the rank of *ingénieur* in the Corps des Mines.

Mr. Claude Imauven is Deputy CEO of Saint-Gobain, where he is in charge of the Construction Products division.

#### Other offices held:

- Director and Chairman of the Board of Directors of Saint-Gobain PAM (Saint Gobain);
- Director and Chairman of the Board of Directors of Saint-Gobain Isover (Saint Gobain);
- Director and Chairman of the Board of Directors of Saint-Gobain Weber (Saint Gobain);
- Chairman of the Board of Saint-Gobain Matériaux de Construction SAS and Saint-Gobain Produits pour la Construction SAS (Saint Gobain);
- Director of Banque CIC Est;
- Director of Artelia Holding SAS.

#### Other offices held during the past five years:

- Chief Executive Officer and Director of BPB Limited;
- Chairman of the Board of SG Rakennustuotteet Oy;
- Director of Inversiones BPB Chile Ltda.



#### Philippe Knoche (age 45 - French nationality)

Mr. Philippe Knoche was appointed as a member of the Board of Directors by the Shareholders on January 8, 2015 and appointed Chief Executive Officer of the company by the Board of Directors on that same date.

Mr. Philippe Knoche holds 1,000 AREVA shares.

He is a graduate of École polytechnique and of École des mines.

#### Other offices held:

- CEO and Director of AREVA NC/Chairman of the Board of AREVA NC since January 22, 2015 (AREVA);
- Chairman of AREVA NP SAS (AREVA);
- Member of the Supervisory Board of AREVA GmbH (AREVA);
- Chairman of the Board of Directors of AREVA Inc. (AREVA).

#### Other offices held during the past five years:

None.

#### Christian Masset (age 57 - French nationality)

Mr. Christian Masset was appointed director by the Shareholders on the proposal of the French State on January 8, 2015. His four-year term will expire at the Annual General Meeting of Shareholders convened to approve the financial statements for the year ending December 31, 2018.

Information concerning Mr. Christian Masset, who served previously as a member of the Supervisory Board, is presented in paragraph 3.1 of this report.

#### Denis Morin (age 59 – French nationality)

Mr. Denis Morin was appointed director by the Shareholders on the proposal of the French State on January 8, 2015. His four-year term will expire at the Annual General Meeting of Shareholders convened to approve the financial statements for the year ending December 31, 2018.

He is a graduate of Ecole des hautes études commerciales de Paris (HEC), the Institut d'études politiques of Paris and École nationale d'administration.

Mr. Denis Morin is Director of Budget at the French Ministry of Economy and Finance.

#### Other office held:

Director of SNCF <sup>(1)</sup>.

#### Other offices held during the past five years:

Director of EDF.

#### Pascale Sourisse (age 52 – French nationality)

Mrs. Pascale Sourisse was appointed director by the Shareholders on January 8, 2015. Her four-year term will expire at the Annual General Meeting of Shareholders convened to approve the financial statements for the year ending December 31, 2018.

She is a graduate of École nationale supérieure des télécommnications (ENST) and of École polytechnique.

Mrs. Pascale Sourisse is Director of International Development for the Thales<sup>(1)</sup> group.

#### Other offices held:

- Director of Vinci <sup>(1)</sup>;
- Director of Renault <sup>(1)</sup>;
- Chairman of the Board of Thales International SAS and of Thales Europe SAS (Thales);
- Director of the Agence nationale des fréquences (French frequency agency);
- Chairman of the Board of Ecole de Télécom Paris Tech;
- Permanent representative of Thales as Director of Odas and Sofresa.

#### Other offices held during the past five years:

- CEO of Thales Communications & Security;
- Chairman of the Board of Thales Services SA;
- Member of the Supervisory Board of Thales Alenia Space;
- Director of DCNS;
- Director of the Institut Télécom;
- Chairman of the Board of Thales Canada Inc.;
- Director of Thales UK Ltd.;
- Director of Thales Electronics plc;
- Director of Thales Netherland plc;
- Director of Thales Australia Holdings pty Ltd;
- Director of Thales USA Inc.

#### Daniel Verwaerde (age 60 - French nationality)

Mr. Daniel Verwaerde was coopted as a director by the Board of Directors on February 2, 2015 to replace Mr. Bernard Bigot for the remainder of the term of his predecessor, i.e. until the Annual General Meeting convened in 2019 to approve the financial statements for the year ending December 31, 2018. This cooptation is subject to ratification at the Annual General Meeting of Shareholders of May 21, 2015.

Mr. Verwaerde is a graduate of École centrale de Paris.

#### Other offices held:

Chairman of the CEA.

#### Other offices held during the past five years:

Director of Sodern.

#### MEMBER REPRESENTING THE FRENCH STATE, APPOINTED BY MINISTERIAL ORDER

#### Alexis Zajdenweber (age 38 - French nationality)

Mr. Alexis Zajdenweber was appointed representative of the French State to the Board of Directors of AREVA as from January 8, 2015 by ministerial order of January 7, 2015. His term will expire at the end of the Annual General Meeting of Shareholders convened to approve the financial statements for the year ending December 31, 2018.

Information concerning Mr. Alexis Zajdenweber, who served previously as a member of the Supervisory Board, is presented in paragraph 3.1 of this report.

<sup>(1)</sup> Publicly traded company.

# MEMBERS OF THE BOARD OF DIRECTORS REPRESENTING COMPANY PERSONNEL

#### Jean-Michel Lang (age 52 - French nationality)

Mr. Jean-Michel Lang was elected by the employee electoral college on October 31, 2014 as director representing company personnel. His four-year term took effect on January 8, 2015 and will end no later than the proclamation of the results of the election preceding the Annual General Meeting of Shareholders convened to approve the financial statements for the year ending December 31, 2018.

Information concerning Mr. Jean-Michel Lang, who served previously as a member of the Supervisory Board, is presented in paragraph 3.1 of this report.

#### Odile Matte (age 55 - French nationality)

Mrs. Odile Matte was elected by the employee electoral college on October 31, 2014 as director representing company personnel. Her four-year term took effect on January 8, 2015 and will end no later than the proclamation of the results of the election preceding the Annual General Meeting of Shareholders convened to approve the financial statements for the year ending December 31, 2018.

Mrs. Odile Matte is a project administrator with AREVA TA.

#### Other offices held

Director elected by the employees of AREVA TA (AREVA).

#### Other offices held during the past five years

Manager of SCI Les Cèdres.

#### Françoise Pieri (age 47 - French nationality)

Mrs. Françoise Pieri was elected by the employee electoral college on October 31, 2014 as director representing company personnel. Her four-year term took effect on January 8, 2015 and will end no later than the proclamation of the results of the election preceding the Annual General Meeting of Shareholders convened to approve the financial statements for the year ending December 31, 2018.

Information concerning Mrs. Françoise Pieri, who served previously as a member of the Supervisory Board, is presented in paragraph 3.1 of this report.

# Economic and financial comptroller general and government commissioner

Information concerning the Economic and Financial Comptroller General and the Government Commissioner is presented in paragraph 3.1 of this report.

#### Censors

In application of article 18 of AREVA's articles of association, adopted January 8, 2015, the Board of Directors appointed Mr. Pascal Faure and the CEA, represented by Mr. Christophe Gégout, as censors.

The censors' mission is to assist the Board of Directors in the performance its duties; they attend meetings of the Board of Directors without the right to vote.

Each censor is appointed for a period of one year, which may be renewed without limitation.

#### Secretary of the Board

Mr. Pierre Charreton, General Counsel and Chief Administrative Officer of AREVA, serves as Secretary of the Board of Directors.

Mrs. Malak Tazi, Legal Director of Governance, Companies and Securities & Finance, serves as Deputy Secretary of the Board of Directors.

#### **INDEPENDENT MEMBERS OF THE BOARD OF DIRECTORS**

As of the date of this report, the Board of Directors is comprised of a total of eight members, including three independent members. The proportion of at least one third of the members as independents, as recommended by the Afep-Medef Code of Governance, is thus met.

The independence of directors is examined each year by the Board of Directors in accordance with the provisions of the Afep-Medef Code of Governance.

AREVA added an additional criterion by which, to be considered independent, the director in question must not be the representative of a shareholder holding more than 10% of the company's share capital and/or voting rights, to the extent that such shareholder participates in the control of the company.

In application of these criteria, the following members of the Board of Directors are considered independent:

- Mrs. Sophie Boissard;
- Mr. Claude Imauven;
- Mrs. Pascale Sourisse.

None of the independent members of the Board of Directors had significant business relations with the company. The main criterion used for this determination was the lack of a material portion of the revenue of, respectively, the company and the members in question, resulting from their mutual business relations.

### 4.2. RESPONSIBILITIES AND FUNCTIONING OF THE BOARD OF DIRECTORS

The responsibilities of the Board of Directors and the preparation and organization of its work are defined in the legislative and regulatory framework governing corporations (*sociétés anonymes*) in France, AREVA's articles of association and the rules of procedure of the Board of Directors <sup>(1)</sup>.

The Board of Directors determines the direction of the company's activities and oversees its implementation. Except for the powers specifically attributed to the General Meetings of Shareholders, and subject to limitations as regards the company's purpose, it may take up any matter concerning the company's operations and, through its deliberations, rules on matters concerning it.

Within the framework of its mission, and without this list being exhaustive, the Board:

 determines the company's and the group's strategic directions after receiving an opinion from the Strategy and Investments Committee;

- designates the officers in charge of managing the company within the framework of this strategy and sets their compensation on a recommendation from the Nominations and Compensation Committee;
- is kept informed of all significant transactions outside the company's official strategy;
- at any time of the year, carries out verifications and controls as it deems necessary and has the documents it considers useful to the accomplishment of its mission sent to it;
- defines the company's financial communications policy and ensures the quality of information provided to Shareholders and to the financial market, in particular in financial statements or in connection with major transactions;

<sup>(1)</sup> The articles of association and rules of procedure are available on the AREVA website, www.areva.com.

- is regularly informed by the Audit and Ethics Committee of the company's financial situation, cash position and commitments; is also informed in a timely manner of the company's liquidity position and makes decisions as necessary concerning its financing and debt position;
- approves the financial statements, prepares the annual management report, and convenes and sets the agenda of the General Meetings of Shareholders;
- approves the Report of the Chairman of the Board of Directors on governance, internal control procedures and risk management, stipulated in article L. 226-37 of the Commercial Code;
- approves the company's annual budget and multiyear plan;
- conducts an annual review of the company's equal opportunity and equal pay policy;
- may authorize the CEO to provide sureties, endorsements or guarantees in the company's name;
- may authorize the CEO to undertake the activities described in paragraph 4.4 below.

#### DISSOCIATION OF THE POSITIONS OF CHAIRMAN OF THE BOARD AND CHIEF EXECUTIVE OFFICER

Under the provisions of article L. 225-51-1 of the French Commercial Code, the Board of Directors opted to dissociate the positions of Chairman of the Board of Directors and Chief Executive Officer, with Mr. Philippe Varin serving as Chairman of the Board and Mr. Philippe Knoche as CEO.

The dissociation of these positions is intended to establish a clear separation between the functions dealing with strategic direction, decision-making and control, and those dealing with operational and executive functions, between the Chairman of the Board and the Chief Executive Officer. It is also intended to improve the functioning of the Board through the presence of a person dedicated to chairing it, and the balanced distribution of powers limiting the isolation of a single executive and promoting dialogue among equals.

Furthermore, as a member of the Board of Directors, the Chief Executive Officer participates in the determination of the company's and the group's strategic directions.

The respective powers of the Chairman of the Board of Directors and the Chief Executive Officer are described in paragraph 4.4 below.

#### **RULES APPLICABLE TO CONFLICTS OF INTEREST**

The rules to be followed by members of the Board of Directors to prevent conflicts of interest appear in article 4.6 of the Board of Directors' rules of procedure. They include the following stipulations:

- the director shall preserve his or her independence of judgment, decision and action under all circumstances;
- the director shall endeavor to avoid any conflict that may exist between his or her corporate and financial interests and those of the company;
- the director shall inform the Board of Directors of any conflict of interest in which he or she may be involved directly or indirectly;
- in the event of a confirmed or potential conflict of interest situation, the director involved shall, upon receipt of the meeting agenda, inform the Chairman of the Board of Directors and, if applicable, the Chairman of the Committee concerned, that appropriate measures need to be taken to prevent the materialization of the confirmed or potential situation;
- the director, or a permanent representative if the director is a corporate entity, may
  participate personally in companies or activities in competition with the group
  only if the Board of Directors was informed of it beforehand and gave its approval;
- a director who considers that he or she has lost the ability to discharge his or her duties as a member of the Board or of a Committee must resign.

As of the date of this Reference Document and to the best of AREVA's knowledge, there are no potential conflicts of interest concerning AREVA between the duties of the members of the Board of Directors and the company's senior managment on the one hand, and their private interests or duties on the other. The Board of Director's rules of procedure include a procedure for preventing conflicts of interest applicable to all directors.

#### **RULES APPLICABLE TO EVALUATIONS**

The rules of procedure of the Board of Directors stipulate that, at least once a year, the Board of Directors must include on the meeting agenda time for discussion to examine its composition, functioning and organization, as well as that of the Committees, and to verify that important matters are properly prepared and discussed. In addition, at least once every three (3) years, it undertakes or commissions a formal evaluation of its work. Every year, it informs the Shareholders of the evaluations carried out and any follow-up actions.

Once a year, a meeting of the Board of Directors is planned to evaluate the performance of its Chairman, of the Chief Executive Officer and, if applicable, of the Chief Operating Officer(s). Those parties do not attend the meeting.

### 4.3. COMMITTEES OF THE BOARD OF DIRECTORS

The Board of Directors may create Committees within it and determines their composition and duties.

The role of these Committees is to collect appropriate additional information and provide it to the Board of Directors, and to facilitate decision-making by making recommendations as necessary. They have no authority as such and exercise their duties under the authority of the Board of Directors.

The Committees may request independent technical assessments of subjects within their purview, subject to the consent of the Chairman of the Board of Directors and subsequent reporting to the Board. The Committee must take care to ensure the expertise and independence of the external experts on which it calls.

The composition and functioning of the Committees are defined in the legislative and regulatory framework governing corporations (*sociétés anonymes*) in France, AREVA's articles of association, and the rules of procedure of the Board of Directors.

The Board of Directors created four standing Committees on 8 January 2015:

- an Audit and Ethics Committee;
- a Strategy and Investments Committee;
- a Nominations and Compensation Committee;
- an End-of-Lifecycle Obligations Monitoring Committee.

The composition, functioning and responsibilities of each Committee are described below.



Committee members are not entitled to compensation for their duties other than the directors' fees that the Board of Directors may allocate to them.

The Chief Executive Officer and, if applicable, the Chief Operating Officer(s) attend Committee meetings at the request of the Committee Chairman. The same rule applies to the Chairman of the Board of Directors when he is not a member of the Committee in guestion.

The term of a member of a Committee coincides with the member's term as a director. He or she may be renewed at the same time as the latter. However, the Board of Director may dismiss a Committee member, or its chairman, at any time.

The Chairman of each Committee is appointed by the Board of Directors on a recommendation from the Nominations and Compensation Committee. If the Chairman is unable to attend, the Committee's other members designate a chairman of the meeting. The Committee Chairman designates a secretary.

The members of the Committee may be convened by any means (mail, fax, email, etc.), or even verbally. Except for emergencies or exceptional circumstances, the meeting documents are sent to the Committee members at least five (5) calendar days before the date of the meeting. The notice of meeting must include the agenda, which is set by the person convening the meeting.

A Committee member may not appoint a proxy to represent him/her during the meeting.

#### 4.3.1. AUDIT AND ETHICS COMMITTEE

As of the date of this report, the Audit and Ethics Committee comprised five members: Sophie Boissard <sup>(1)</sup> (Chairman), Denis Morin, Françoise Pieri <sup>(2)</sup>, Pascale Sourisse <sup>(1)</sup> and Alexis Zajdenweber.

The Audit and Ethics Committee follows matters related to the preparation and control of accounting and financial information, including the process for preparing the financial information, the effectiveness of internal control and risk management systems, the statutory audit of the annual corporate and consolidated financial statements by the statutory auditors and the consistency of accounting methods, the independence of statutory auditors, the correct valuation of mineral resources and reserves, the supervision of the execution of large projects and the risk mapping process.

To accomplish its mission, the Committee hears the head of the Internal Audit Department and gives its opinion on the department's organization. The Committee receives Internal Audit Department reports or a periodic summary of those reports. The Committee also hears the statutory auditors, the Chief Financial Officer and the director of Accounting And Treasury.

The Committee examines the list of consolidated companies and, if appropriate, the reasons for which companies are or are not included on it.

Accounts must be provided to the Committee for review sufficiently in advance (at least three (3) calendar days before their review by the Board of Directors). The examination of the financial statements by the Audit and Ethics Committee must be accompanied by a presentation by the statutory auditors highlighting key items of the statutory audit (including audit adjustments and significant weaknesses in internal controls identified during their work), and the accounting options selected. It must also be accompanied by a presentation by the Chief Financial Officer describing the company's risk exposure and significant off-balance-sheet commitments.

The Audit and Ethics Committee must review ethical aspects related to the company at least twice a year.

#### 4.3.2. STRATEGY AND INVESTMENTS COMMITTEE

As of the date of this report, the Strategy and Investments Committee is comprised of six members: Philippe Varin (Chairman), Claude Imauven, Christian Masset, Odile Matte<sup>(2)</sup>, Daniel Verwaerde and Alexis Zajdenweber.

The Strategy and Investments Committee is responsible for analyzing the main strategic directions available for the group's development and for assessing the soundness of the most important strategic decisions proposed by the Chief Executive Officer. It ensures application of the company's strategic plan and its implementation at the subsidiary level.

The Committee is responsible for examining proposed transactions subject to the prior approval of the Board of Directors (see paragraph 4.4 below). It examines, in particular during the annual budget review, a medium-term, three-year plan with precise figures setting forth in detail the planned capital expenditures and anticipated production costs, in particular for each of the mining sites.

The Strategy and Investments Committee may meet as a select committee at the initiative of its Chairman. The select committee's purpose is to examine major commercial proposals subject to the authorization of the Board of Directors.

#### 4.3.3. NOMINATIONS AND COMPENSATION COMMITTEE

As of the date of this report, the Nominations and Compensation Committee is comprised of four members: Claude Imauven <sup>(1)</sup> (Chairman), Sophie Boissard <sup>(1)</sup>, Jean-Michel Lang <sup>(2)</sup> and Alexis Zajdenweber.

The mission of the Nominations and Compensation Committee is, among others, to recommend to the Board of Directors individuals who may be eligible for appointment as officers of the company; to discuss each director's status as independent director; to formulate recommendations and proposals to the Board of Directors concerning compensation, pension and insurance benefits, additional retirement benefits, non-cash benefits and other financial benefits for the company's officers, including severance pay if applicable; to examine the system for distribution of directors' fees among the members of the Board of Directors; and to determine the objectives, methods and outcome of the Board's policy on representation of men and women, nationalities and diverse skills within it.

The company's officers participate in the Committee meeting dedicated to reviewing the compensation policy for key executives who are not company officers.

# 4.3.4. END-OF-LIFECYCLE OBLIGATIONS MONITORING COMMITTEE

As of the date of this report, the End-of-lifecycle Obligations Monitoring Committee is comprised of four members: Pascale Sourisse <sup>(1)</sup> (Chairman), Jean-Michel Lang <sup>(2)</sup>, Denis Morin and Daniel Verwaerde.

The Committee is charged with helping to monitor the portfolio of assets earmarked by AREVA's subsidiaries to cover their future cleanup and dismantling expenses.

On January 8, 2015, the Board of Directors decided to renew, until the date of the meeting of the Board of Directors called to approve the financial statements for 2014, the *ad hoc* Committee established by the Supervisory Board on November 26, 2014 to prepare the company's performance plan, which is comprised of the following members: Philippe Varin (Chairman), Sophie Boissard, Claude Imauven, Christophe Gégout, Pascale Sourisse and Alexis Zajdenweber.

<sup>(1)</sup> Independent director.

<sup>(2)</sup> Director representing company personnel.

### 4.4. POWERS OF THE CHAIRMAN OF THE BOARD AND OF THE CHIEF EXECUTIVE OFFICER

#### **CHAIRMAN OF THE BOARD OF DIRECTORS**

The Chairman represents the Board of Directors and, unless exceptional circumstances arise, is the only person with the authority to act or make a statement in the name of the Board of Directors.

In coordination with the company's executive management, the Chairman may take part in defining the group's strategic directions and may represent the group in France and abroad in its relations with public officials and the group's partners.

The Chairman organizes and leads the work of the Board of Directors and ensures that the corporate bodies operate appropriately and in accordance with principles of good governance. He coordinates the work of the Board of Directors with that of its Committees.

He ensures that the directors and censors receive all information, in a clear and appropriate form, needed to exercise their responsibilities in a timely manner.

The Chairman provides liaison between the Board of Directors and the company's shareholders, in concert with executive management.

Meetings of the Board of Directors are chaired by the Chairman, who leads the discussions, or in his absence by the Vice Chairman, or in the absence of the latter by a member of the Board of Directors designated at the beginning of the meeting by a simple majority of the members present.

#### **CHIEF EXECUTIVE OFFICER**

The Chief Executive Officer is responsible for the company's executive management and represents the company in its relations with third parties.

Full powers are vested in him to act on behalf of the company in all circumstances, except for powers attributed by law to the Board of Directors and to the Shareholders, and as stipulated in the company's own rules of governance.

The Chief Executive Officer reports on major events in the group at each meeting of the Board of Directors.

Under the terms of article 17-2 of AREVA's articles of association, the following operations of the company and its subsidiaries are subject to the prior authorization of the Board of Directors:

- (a) operations that may affect the group's strategy and change its financial structure or scope of business;
- (b) for amounts in excess of 80 million euros:
- (i) the issuance of securities of direct subsidiaries, regardless of their nature,
- (ii) exchanges, with or without cash payment, of goods, securities or assets; loans, borrowings, credit transactions and prepayments; acquisitions or disposals, by any means, of all debt instruments, excluding cash management operations in the ordinary course of business,
- (iii) settlements, agreements or transactions relating to disputes;
- (c) for amounts in excess of 20 million euros:
- proposed investments concerning the creation of a site or the capacity increase of an existing site,
- acquisitions, increases or sales of equity interests in any company, existing or to be established,
- (iii) decisions to create an entity to establish an operation in France or abroad, or to withdraw an operation,
- (iv) acquisitions of real estate.

As an exception, and unless the Chairman of the Board of Directors requests otherwise, the transactions referred to under (a), (b) and (c) above are not subject to the prior approval of the Board of Directors when they are carried out between companies of the group;

(d) commercial offers meeting the criteria defined in the Board of Directors' rules of procedure.

# 5. SYSTEM OF INTERNAL CONTROLS

### **5.1. INTRODUCTION**

This section, which describes the group's system of internal controls, is structured according to the frame of reference for internal controls published by the Autorité des marchés financiers (French stock market authority AMF) in July 2010.

The scope of internal controls described below applies to AREVA as the parent company as well as to all of the companies it controls, regardless of their legal form of business.

#### 5.1.1. AREVA'S COMMITMENTS

AREVA defined and implements a number of fundamental commitments regarding the conduct of its operations. The environment for internal controls is based on these commitments, among other things. The Values Charter is the reflection of the group's culture of business ethics and the expression of its commitments, in particular sustainable development and anticorruption commitments. It sets forth Values, Action Principles and Rules of Conduct that apply to all of the group's executives and employees as well as to the members of the Supervisory Board. The group's values, which were reaffirmed after the Fukushima accident, are performance, safety and security, customer satisfaction, responsibility, integrity, partnership and transparency.

In 2014, the group's business ethics advisor coordinated the annual report of compliance with the Values Charter and presented the executive summary of the report to the Supervisory Board's Ethics Committee. One of the Committee's missions was to monitor the group's compliance with best international practices in matters of business ethics.

The Ethics pages of the group's intranet presents its ethics policy and in particular its commitment to fighting corruption. The policy presents the main characteristics of the British anti-corruption law which came into effect in mid-2011 and emphasizes the law's supranational reach, similar to that of the US anti-corruption law (FCPA), which served as the international benchmark until then.

The group's business ethics advisor also worked to ensure that the management of the relevant AREVA units continues to implement the Nuclear Power Plant Exporters' Principles of Conduct, an industry initiative launched by the Carnegie Endowment for International Peace, which AREVA actively helped to define.

In addition, to the maximum extent possible, the group ensures employee compliance with the obligations resulting from competition law. To this end, the Legal Department in charge of European and Competition Law is asked to review the group's projects and serves as an advisor on competition law at every level of the company. The department distributed a series of practical guidelines aimed in particular at enabling the Legal Department to better identify and address early in the process competition issues with which the group is regularly confronted, such as requests for proposals, meetings with competitors, and consortiums. These guidelines are supplemented by training sessions for the operating teams.

#### 5.1.2. INTERNAL CONTROL STANDARDS

In the "Frame of Reference for Internal Control" of the Autorité des marches financiers (AMF), to which the group defers, the internal control system is characterized by:

- an organization with a clear definition of responsibilities, sufficient resources and expertise, and appropriate information systems, procedures, tools and practices;
- the internal dissemination of relevant and reliable information enabling each person to discharge his or her responsibilities;
- a system to identify, analyze and manage risk;

- control activities designed to reduce this risk; and
- continuous monitoring of the internal control system.

The group ensured that the approach taken is consistent with the standards of the AMF. In particular, it verified the consistency between:

- the "implementing guidelines for the internal control of accounting and financial data reported by issuers" included in the AMF Frame of Reference; and
- the system for self-assessment of internal controls within the group (Self Audit Income), which was carried out to ensure that all the standards are met (see Section 5.6, *Continuous oversight of the internal control system*).

#### 5.1.3. INTERNAL CONTROL OBJECTIVES

Internal controls contribute to the management of operations. They aim in particular to ensure:

- compliance with laws and regulations;
- implementation of instructions and guidelines set by the governing bodies;
- efficient implementation of the group's processes, in particular those contributing to the preservation of its assets;
- the reliability and quality of the information generated and communicated, with particular emphasis on financial information.

The scope of internal control is not limited to procedures for ensuring the reliability of accounting and financial information.

No matter how well designed and implemented, internal control mechanisms are not sufficient by themselves to guarantee with absolute certainty that these objectives will be met.

AREVA's internal control system is consistent with the group's commitments regarding the conduct of its operations, particularly as regards the Values and Sustainable Development Charter.

### 5.2. ORGANIZATION, GOVERNANCE, RESOURCES, INFORMATION SYSTEMS AND OPERATING PROCEDURES

Internal controls are implemented throughout the group by all employees under the overall responsibility of the existing governing bodies.

#### 5.2.1. ORGANIZATION OF THE AREVA GROUP

In 2014, the executive and management authority vested in the Executive Board was separate from the control and decision-making authority vested in the Supervisory Board and the General Meeting of Shareholders.

AREVA's Executive Board and the Executive Management Board (EMB) designed and supervised the internal control systems.

The composition of the Executive Board and the distribution of responsibilities among the members of the Executive Board are described in Sections 14 and 16 of this Reference Document.

In addition to the powers that had been given to it by law, the Executive Board was in charge of:

- defining the group's strategy and its implementation;
- defining the group's performance objectives (financial, commercial, operational, nuclear and occupational safety, etc.) and their application by business, and monitoring their achievement;

- allocating the group's resources (human, financial, etc.), in particular the decision to launch capital spending programs and appointments of senior executives; and
- defining organizational principles and processes to serve customers and build talent.

Within the framework of that organization, the Executive Board involved the following persons in its work through bimonthly meetings of the Executive Management Board, whose members were:

- the Chief Commercial Officer;
- the Senior Executive Vice President of Communications;
- the Senior Executive Vice President of Human Resources;
- the Senior Executive Vice President of Safety, Security and Operations Support;
- the Senior Vice President of Public Affairs;
- the Chief Administrative Officer;
- the Secretary of the Executive Management Board.

The group's operating organization overseen by the Executive Board and its Executive Management Board comprised:

- five Business Groups (BG);
- crosscutting departments, in particular an Engineering & Projects organization (E&P);
- functional departments and regions.

In 2014, the Business Groups managed the group's operating activities. The Marketing & Sales Department provided commercial leadership, in particular for the International Commercial Organization.

The Business Groups, Engineering & Projects organization, International Commercial Organization, functional departments and regions reported to the Executive Board.

The Executive Board relied on six coordination and steering committees, which reported to it directly and had broad delegation of authority:

- the Operations Committee to regularly examine and arbitrate between operational matters across the operating departments (Business Groups and Engineering & Projects organization), the operations support departments and the regions;
- the Major Proposals Committee, charged with approving sales offers;
- the Major Projects Committee, which monitored major projects led by the group;
- the Human Resources Committee;
- the Risk Committee, charged with coordinating analysis of the group's principal risks;
- the Resources and Reserves Committee (including independent experts) to validate data relating to the group's mineral resources and reserves.

#### 5.2.2. DEFINITION OF RESPONSIBILITIES AND AUTHORITY

The group has a frame of reference with clearly defined powers and duties. It is based on:

- formal written and duly signed organizational notes describing missions and responsibilities at the level of the group, the operational departments and the functional departments;
- formal written delegations of authority in the procedure "Delegation of Authority Thresholds and Decision Channels", which defines internal rules for authorization and decision-making for the leading operational processes; and
- delegations of authority and signature authority throughout and at each level of the group to conduct business as appropriate and in a manner consistent with applicable laws and regulations.

The organization and delegations of authority are defined to comply with the principle of the separation of duties. In particular, governance and internal control principles applicable to delegations of authority set financial limits by type of transaction, for which information must be provided to or authorization received from the competent authority.

#### 5.2.3. HUMAN RESOURCES MANAGEMENT PLAN

The Human Resources management policy implemented by the group's Human Resources Department focused on four major areas in 2014:

 development of leadership skills for the group's executives and managers to lead the 2016 Strategic Action Plan and the group's transformation;

- promotion of a culture rooted in the group's values while being oriented towards profitability and performance;
- design and implementation of a human resources policy that strengthens the group's social cohesion and creates a common bond;
- inclusion of Human Resources in a strategic vision, and anticipation and planning for future needs.

#### 5.2.4. INFORMATION SYSTEMS

The mission of the Information Systems and Services Department is to ensure the availability, confidentiality and integrity of the group's information systems. To accomplish this, it is organized to meet the following objectives:

- orient the information system towards services to the group's businesses, in alignment with the organization of the group's business processes;
- standardize, streamline and consolidate the technical and functional infrastructure to ensure its performance and reliability, taking into account economic, geographic and security-related considerations.

#### 5.2.5. **OPERATING PROCEDURES**

#### 5.2.5.1. General internal control procedures

The group's internal control procedures consist of rules, directives and operating procedures defined by the governing bodies.

Supplementing this, the businesses have translated their internal control systems into charters and policies.

The charters establish rules of governance and principles for internal controls, as follows:

- the Nuclear Safety Charter spells out the group's commitments in the field of nuclear safety and radiation protection to ensure that requirements are met throughout the facility operating period;
- the Audit Charter describes the purpose, missions, roles and responsibilities and applicable procedures of the group's internal audit;
- the Network Security Charter defines the basic principles of the AREVAnet computer information network and the rules to be followed to access various services.

Policies define the operating principles and procedures that are a step above specific business procedures. The group has established the following policies in particular:

- the procurement policy and guide to ethics in procurement set rules, objectives and best practices in procurement and business ethics;
- the payment security policy defines the group's policy for secure payment methods and means to be used to limit the risk of fraud;
- the personnel protection policy is designed to give all group employees an equal level of protection, whether they are traveling on business or live in France or abroad;
- the occupational safety and environmental policies establish rules of conduct for continuing risk reduction;
- the human resources policy aims to boost the company's collective performance by developing each individual's skills and talents.

Consistent with the principle of subsidiarity and to ensure the assimilation of these principles, the operational departments adapt the procedures to their specific circumstances prior to implementation within their entities.

#### 5.2.5.2. Accounting and financial reporting procedures

Internal procedures comply with the following principles:

#### Overall organization of risk management

Information is collected and processed at two operational levels: the operating entities (basic level of information production) and the Business Groups (management and performance analysis at the group level).

Instructions for consolidation are issued by the group's Financial Management Control and Accounting Department for all half-year and annual financial statements. These instructions define:

- the schedule for preparing accounting and financial information for reporting purposes;
- the process for validating this information;
- items requiring particular attention, such as complex issues, changes in the legal environment or new internal procedures; and
- the coordinators for consolidation (at the corporate level) responsible for validating consolidation operations for a portfolio of entities and for conducting crosscutting analyses for the entire group (corresponding to the notes to the consolidated financial statements).

The group's Finance Department modeled the group's main financial processes and provides a complete, up-to-date database shared by all of the parties involved in these processes (corporate departments and Business Groups). This system:

- documents the processes while acting as an interface for applicable group procedures;
- identifies areas for improvement and optimization of those processes.

Modelled processes are available on a dedicated intranet and are updated regularly to reflect changes in the organization.

In 2014, the group's financial communications continued to revolve around the five Business Groups: Mining, Front End, Reactors & Services, Back End and Renewable Energies. They are based on the consolidated financial statements.

#### Implementation and control of accounting principles

The reporting entities' financial statements are prepared in accordance with the group's accounting and financial principles. These rules apply to all entities included in the group's consolidation scope. They include:

- a glossary that defines the main headings of the financial statements and the group's performance indicators;
- an annotated chart of accounts; and
- applicable procedures issued by the Management and Accounting Control Department.

The principles are supplemented by procedures and instructions issued and reviewed on a regular basis by the other units of the Finance Department (Financial Operations and Cash Management Department, Financial Communications Department, Tax Department) and by the Business Groups, and include procedures and instructions dealing specifically with internal controls and fraud.

The "standards and procedures" function of the Management Control and Accounting Department defines and distributes information relating to implementation of the management control and accounting standards, procedures, principles and rules. It also monitors changes in regulations to ensure that the financial statements are prepared in accordance with IFRS rules adopted by the European Union.

#### 5.2.6. **SOFTWARE**

In addition to office equipment used by employees, the group has specific software customized for the management of its operations.

A wide variety of tools are used, including facility control systems, integrated management systems, methods and scorecards, and contribute to the operational control of each business.

In particular, the group has a single, secure reporting and consolidation tool shared throughout the group under the authority of the Finance Department.

In addition, organizational memoranda and standards and procedures applicable to the entire group are distributed using a dedicated software application.

AREVA set up a tool for all SAP core systems in the group (called the AREVA Segregation of Tasks & Roles Optimization project) to strengthen internal controls and streamline access to the management information system. The main purpose of this tool is to secure the management process for access by ensuring that user roles are defined according to best practices for the separation of duties and by automating their management with the SAP Governance, Risk and Compliance suite (SAP GRC).

#### 5.2.7. **PRACTICES**

Internal control relies on all of these components as well as on the practices of all employees, which are themselves based on the group's commitments (Values Charter, compliance with the principles of sustainable development, etc.). "Best practices" are identified to facilitate their dissemination and sharing so as to ensure effective continuous improvement in matters of internal controls.

The "internal control" function jointly coordinated by the Audit Department and the Finance Department within the Internal Control Committee relies on a network of "internal control coordinators" appointed in each of the Business Groups, whose main objectives are:

- to ensure the distribution of information concerning decisions made and their application by the entities ("top-down"); and
- to roll up specific points requiring attention by the entities to the Committee ("bottom-up").

The Internal Audit Department is in charge of monitoring and updating the performance of the internal control system for the group's governance bodies, particularly through the self-assessment exercise. In connection with this mission, it provided support to operational management, the functional departments and the shared service centers to strengthen existing systems by means of preventive and corrective actions.

The person responsible for internal "accounting and finance" controls is tasked more specifically with issues related to internal accounting and finance controls, and works closely with the Audit Department.

### **5.3. DISSEMINATION OF INFORMATION**

Bottom-up and top-down information channels have been established to communicate relevant and reliable information in a timely manner. Examples are provided below.

- bottom-up information:
  - accounting and financial information is processed and reported in accordance with specific procedures using shared tools to record and control the data (*i.e.* a single, secure reporting and consolidation software program shared by the entire group and supervised by the Finance Department),
  - monthly business reviews are used to measure the progress of the action plans indicative of performance and the achievement of strategic objectives;

• top-down information:

- the relevant departments and group entities are informed of resolutions by the corporate decision-making bodies,
- the group monitors laws and regulations on safety, security, health, the environment, accounting and tax, and disseminates this information throughout the group as appropriate, with organizational memoranda, rules, standards and procedures disseminated in accordance with applicable organizational rules, standards and procedures.

Communications with stakeholders are framed with plans designed to ensure the quality of the information provided.

### 5.4. MANAGING RISK AND SETTING OBJECTIVES

## 5.4.1. RISK IDENTIFICATION, ANALYSIS AND MANAGEMENT

The group drew up a risk map when it was established to take into account the potential impact of events on the achievement of the group's strategic and operational objectives. AREVA's Risk and Insurance Department, working with the Risk Managers of the Business Groups (which themselves have a network of Risk Managers in their operating entities), carries out an annual update.

In 2014, the latter was reviewed by the Risk Committee and approved by the Executive Board. The risk map was presented to the Supervisory Board's Audit Committee.

In particular:

 the operational management teams have approved the assessment of risk in their operations. For example, the group's entities have collected, analyzed and measured the risk factors of their respective operations. They have also prepared mitigation plans and management procedures to minimize the risk and have designated the people in charge and the schedule for completion;  the main risk factors identified are described in the Reference Document in the section regarding risk management and insurance (see Section 4. *Risk factors*).
 In particular, matters pertaining to nuclear and industrial safety, which are an absolute priority for the group, are discussed in that section.

In addition, the Safety Health Security Sustainable Development Department is tasked with supervising industrial risk management and, on a practical level, working with the relevant Business Groups to ensure the implementation and effectiveness of action plans that aim to reduce these risks.

In 2014, the Finance Department regularly reported to the Audit Committee on the group's major investment and commercial projects, providing an opportunity to share changes in the risks associated with those projects with the governing bodies.

#### 5.4.2. SETTING OBJECTIVES

In 2014, the process of setting the group's objectives fell within the framework of the ACTION 2016 Strategic Action Plan drawn up by the Executive Board and approved by AREVA's Supervisory Board at the end of 2011.

### **5.5. CONTROL ACTIVITIES**

The functional departments, acting on behalf of the group's governing bodies, deploy their policies and ensure their correct implementation. In particular, the Management and Accounting Control Department defines and ensures the application of management control rules, documents accounting and finance management processes, and ensures compliance with rules on delegations of authority pertaining to financial commitments.

Each operational and functional level implements appropriate control activities to regularly evaluate the level of achievement of established objectives. In particular, the budget updates and reporting documents are used to regularly and progressively compare actual results and the extent to which objectives have been met with those defined when the budgets were approved.

By definition, each organization is responsible for its own internal controls. These controls rely on the mobilization of human, physical and financial resources, the organization of these resources, the deployment of specific objectives within the organization, and the implementation of controls for prevention or detection.

Preventive controls are performed according to specific procedures, whether manual or computerized, involving validations at appropriate levels of the organization, among other things. Detection controls consist of after-the-fact verifications connected with specific supervision of the work performed and analysis of variances or anomalies. Information systems, performance indicators, etc. are used to facilitate this supervision.

In addition, auditing and expert bodies are charged with controlling the most significant issues in relation to the group's specific goals.

In particular, as regards accounting and financial reporting:

each entity has set up a system of controls before transactions are recorded;

- controls are performed at the different stages of the consolidation process:
  - either automatically by the consolidation software (control of debit/credit balances, data traceability, data integrity, access control), or
- manually by the consolidation department, financial controllers and business analysts;
- the group's Tax Department performs tax reviews of the group's main companies.

### 5.6. CONTINUOUS OVERSIGHT OF THE INTERNAL CONTROL SYSTEM

In 2014, AREVA continued to take action to optimize its internal control systems. These activities were carried out under the supervision of the Executive Board and with the oversight of the Supervisory Board through the Audit Committee.

The Office of the Chief Administrative Officer implemented its annual compliance letter process, which applied to all executives in the subsidiaries, the Business Group's Senior Executive Vice Presidents, the Heads of the Business Units and the Regions, and the Directors of the group's corporate functions.

AREVA's Internal Audit Department may intervene everywhere in the group and in any area relevant for internal controls. This department is managed by the Audit Director, who reported to the Executive Board with a functional reporting line to the Audit Committee. Its activities were carried out independently in compliance with the audit charter and according to international standards for the profession. Its IFACI certification (*Institut français de l audit et du contrôle interne*) was renewed for three years in 2012 without any non-compliance.

In 2014, the missions were implemented in accordance with the annual audit plan approved by the Executive Board, presented in the Executive Management Board, and reviewed by the Audit Committee. This department is responsible among others for reporting to the management bodies on its assessment of compliance with and the effectiveness of the internal control systems deployed within the group. In particular, this assessment takes into account the risks identified using the full range of the group's tools (business risk map, internal control selfassessment tools, interviews carried out by the Audit Department with the General Inspectorate, a hundred of the group's top managers and the statutory auditors, etc.). The recommendations resulting from these missions give rise to performance improvement plans, which are monitored in liaison with the managers involved.

Lastly, as is the case each year, the Audit Director presented his internal controls review report to the Executive Board and its Executive Management Board as well as to the Audit Committee.

In addition to audits carried out under the audit plan, the group's entities perform a self-assessment of their internal controls every year following a standard questionnaire (the "Self Audit Income"), duly validated by their operational management, which has complied since 2007 with the "Implementing guidelines for internal controls of accounting and financial information" of the frame of reference published by the AMF. The questionnaire, reviewed by the joint statutory auditors, was deployed in 2014 across the entire consolidation scope of the group, representing 116 entities in some 20 countries. By entity, it covered 200 control items organized into 14 business cycles, and led management to commit to action plans to address the weaknesses identified.

The entities' responses to this self-audit questionnaire are reviewed by the Audit department and shared with the network of internal control coordinators and the statutory auditors. This review and its sharing mechanism contribute to the oversight of the overall system; the results are presented to the appropriate levels of the organization (Business Groups and functional departments in particular). The main elements are summarized in the annual report by the Audit director on the examination of internal controls.

However, clearly, in addition to the recent deterioration of conditions in certain markets, a significant share of the massive losses recognized by the group in 2014 are the result of:

- under-estimates of the consequences of identified risks connected with:
  - o a few proposals, major contracts and nuclear projects,
  - o the attempted strategic diversification in the field of renewable energies;
- non-achievement of performance objectives for certain projects, in particular as regards meeting deadlines and budgets.

Since January 8, 2015, the group's governance has evolved towards a single Board of Directors. This change should make it possible to strengthen the internal control system within the group.

Thus, as described in Chapter 4 of this report, the definition of the strategy and approval of large investments and sensitive or major commercial proposals now fall directly under the authority of the Board of Directors (see paragraph 4.2. *Responsibilities and functioning of the Board of Directors*). In particular, the Board relies on preparatory work carried out by the four standing committees it decided to establish (see paragraph 4.3. *Committees of the Board of Directors*).

For his part, the Chief Executive Officer is responsible for the company's executive management and represents it in his relations with third parties. In addition to the powers conferred on him by law, and subject to the limitations set forth in the articles of association or in the Board of Directors' rules of procedure, the Chief Executive Officer is responsible for:

- defining the group's performance objectives (financial, commercial, operational, nuclear and occupational safety, etc.) and their breakdown by business, and monitoring their achievement;
- allocating the group's resources (human resources, financial resources, etc.);
- defining organizational principles and processes to serve customers and build talent.

In the framework of the group's new governance, and with the oversight of the Board of Directors (in particular through its Audit and Ethics Committee), activities to optimize internal control systems are under the supervision of the Chief Executive Officer.

This report does not contain an analytical section. This is consistent with practices in France and the recommendations of the Autorité des Marchés Financiers, as described in its December 13, 2011 report on corporate governance and internal controls.

Chairman of the Board of Directors



## 6. BUSINESS ADDRESSES OF MEMBERS OF THE BOARD OF DIRECTORS

#### Mr. Philippe VARIN

Chairman of the Board of Directors AREVA Tower - 1 Place Jean Millier 92084 Paris La Défense Cedex, France

#### Mr. Philippe KNOCHE

Chief Executive Officer AREVA Tower - 1 Place Jean Millier 92084 Paris La Défense Cedex, France

#### Mr. Daniel VERWAERDE

Chairman of the Commissariat à l'énergie atomique et aux énergies alternatives CEA/SACLAY CAB/AG Bâtiment Siège (n° 447) 91191 Gif-sur-Yvette Cedex, France

#### Mrs. Sophie BOISSARD

General Manager in charge of organizing SNCF Immobilier SNCF Campus Étoiles SNCF 2, place aux Etoiles CS70001 93633 La Plaine St Denis Cedex, France

#### Mr. Claude IMAUVEN

Executive Vice President Saint-Gobain Construction Products Division Les miroirs 18 Avenue de l'Alsace 92400 Courbevoie, France

#### Mr. Christian MASSET

Secretary General Ministry of Foreign Affairs and International Development 37 Quai d'Orsay 75007 Paris, France

#### Mr. Denis MORIN

Director of Budget 139 rue de Bercy Télédoc 241 75572 Paris Cedex 12, France

#### Mrs. Pascale SOURISSE

Director General of International Development Thales Group Tour Carpe Diem 31 Place des Corolles CS 20001 92098 La Défense, France

#### **MEMBER REPRESENTING THE FRENCH STATE**

#### Mr. Alexis ZAJDENWEBER

Director of Energy Shareholdings Agence des participations de l'État Ministry of Economy and Finance Télédoc 228 139, rue de Bercy 75572 Paris Cedex 12, France



## MEMBERS OF THE BOARD ELECTED BY THE COMPANY PERSONNEL

#### Mr. Jean-Michel LANG

AREVA NC B.P. 124 30203 Bagnols-sur-Ceze Cedex, France

#### Mrs. Françoise PIERI

AREVA NC Pierrelatte Establishment DSI/LOG BP 175 26702 Pierrelatte, France

#### Mrs. Odile MATTE

AREVA TA AREVA TA Aix en Provence CS 50497 13593 Aix en Provence Cedex 03, France

## OTHER PERSONS ASSISTING THE BOARD IN AN ADVISORY CAPACITY ONLY

#### Mr. Laurent MICHEL

Director General of Energy and Climate Government Commissioner Ministry of Ecology, Sustainalbe Development and Energy Tour Sequoïa 1 place Carpeaux 92800 Puteaux, France

#### Mr. Christian BODIN

Economic and Financial Controller General Energy Mission BP 80001 – 67, rue Barbès 94201 Yvry-sur-Seine Cedex, France

#### Mr. Marcel OTTERBEIN

Employee Work Council Representative to the Board of Directors AREVA Business Support Tour AREVA - 1 Place Jean Millier 92084 Paris La Défense Cedex, France

#### Mr. Pascal Faure (Censor)

Director General Ministry of Economy, Industry and Digital General Direction of Competitivity and Energy (DGE) 67, rue Barbès BP 80001 94201 Yvry-Sur-Seine, France

#### Mr. Christophe Gégout (Censor)

CEA/SACLAY CAB/AG Bâtiment Siège (n° 447) 91191 Gif-sur-Yvette Cedex, France



- 1. STATUTORY AUDITORS' REPORT PREPARED IN ACCORDANCE WITH ARTICLE L. 225-235 OF THE FRENCH COMMERCIAL CODE (CODE DE COMMERCE) AND DEALING WITH THE REPORT OF THE CHAIRMAN OF THE BOARD OF DIRECTORS OF AREVA SA
- 2. STATUTORY AUDITORS' SPECIAL REPORT ON RELATED PARTY AGREEMENTS AND COMMITMENTS

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This is a free translation into English of a report issued in French and is provided solely for the convenience of English-speaking readers. This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

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## 1. STATUTORY AUDITORS' REPORT PREPARED IN ACCORDANCE WITH ARTICLE L. 225-235 OF THE FRENCH COMMERCIAL CODE (CODE DE COMMERCE) AND DEALING WITH THE REPORT OF THE CHAIRMAN OF THE BOARD OF DIRECTORS OF AREVA SA

#### To the Shareholders,

In our capacity as Statutory Auditors of AREVA SA and in accordance with article L. 225-235 of the French Commercial Code, we hereby present our report dealing with the report prepared by the Chairman of your company in accordance with article L. 225-37 of the French Commercial Code for the financial year ending 31/12/2014.

The Chairman is responsible for preparing and submitting for the approval of the Board of Directors a report describing the internal control and risk management procedures implemented by the company and disclosing other information as required by article L. 225-37 of the French Commercial Code dealing in particular with corporate governance.

Our own responsibility is to:

- Communicate to you any observations we may have as to the information contained in the Chairman's report and relating to the company's internal control and risk
  management procedures in the area of the preparation and processing of financial and accounting information; and
- Attest that the report includes the other disclosures required by article L. 225-37 of the French Commercial Code. It should be noted that we are not responsible for verifying the fair presentation of those other disclosures.

We have performed our work in accordance with the professional standards applicable in France.

#### INFORMATION RELATING TO THE COMPANY'S INTERNAL CONTROL AND RISK MANAGEMENT PROCEDURES IN THE AREA OF THE PREPARATION AND PROCESSING OF FINANCIAL AND ACCOUNTING INFORMATION

Our professional standards require the application of procedures designed to assess the fair presentation of the information contained in the Chairman's report and relating to the company's internal control and risk management procedures in the area of the preparation and processing of financial and accounting information.

Those procedures involve in particular:

- Obtaining an understanding of the underlying internal control and risk management procedures in the area of the preparation and processing of financial and accounting
  information presented in the Chairman's report, and of the related documentation;
- Obtaining an understanding of the work performed as a basis for preparing that information and the existing documentation;
- Determining if any major internal control weaknesses in the area of the preparation and processing of financial and accounting information identified by us during the course of our engagement have been appropriately disclosed in the Chairman's report.

On the basis of the procedures performed, we have nothing to report on the information relating to the company's internal control and risk management procedures in the area of the preparation and processing of financial and accounting information contained in the report of the Chairman of the Board of Directors prepared in accordance with article L. 225-37 of the French Commercial Code.

### **OTHER DISCLOSURES**

We hereby attest that the report of the Chairman of the Board of Directors includes the other disclosures required by article L. 225-37 of the French Commercial Code.

Drawn up in Courbevoie and Paris-La Défense, on March 18, 2015 The statutory auditors French original signed by

MAZARS

ERNST & YOUNG Audit

Cédric Haaser

Jean-Louis Simon

Aymeric de La Morandière

Jean Bouquot

This is a free translation into English of a report issued in French and it is provided solely for the convenience of English speaking users.

This report should be read in conjunction with, and construed in accordance with, French law and professional standards applicable in France.

## 2. STATUTORY AUDITORS' SPECIAL REPORT ON RELATED PARTY AGREEMENTS AND COMMITMENTS

#### To the Shareholders,

In our capacity as statutory auditors of your company, we hereby report on certain related party agreements and commitments.

We are required to inform you, on the basis of the information provided to us, of the main terms and conditions of those agreements and commitments that have been disclosed to us, or that we may have identified in the performance of our engagement. We are not required to comment as to whether they are beneficial or appropriate or to ascertain the existence of any such agreements and commitments. Under the provisions of article R. 225-31 of the French Commercial Code, it is the responsibility of the shareholders to determine whether the agreements and commitments are appropriate and should be approved.

Where applicable, it is also our responsibility to provide shareholders with the information required by article R. 225-31 of the French Commercial Code in relation to the implementation during the year of agreements and commitments already approved by the Shareholders' Meeting.

We performed those procedures which we deemed necessary in accordance with professional guidance issued by the national auditing body (Compagnie Nationale des Commissaires aux Comptes) relating to this type of engagement. These procedures consisted in verifying that the information provided to us is consistent with the documentation from which it has been extracted.

#### AGREEMENTS AND COMMITMENTS SUBMITTED FOR APPROVAL BY THE GENERAL MEETING OF SHAREHOLDERS

#### Agreements and commitments authorized during the financial year

In accordance with Article L. 225-40 of the French Commercial Code (Code de commerce), we have been informed of certain related party agreements and commitments which received prior authorization from your Board of Directors.

#### 1. With SET (Société d'Enrichissement du Tricastin), an 88%-owned subsidiary of the AREVA NC company, itself a fully-owned subsidiary of the AREVA S.A company.

#### Persons concerned

Mr Bernard Bigot, Mr Philippe Pinson and Mr Christophe Gégout (permanent representative of CEA), members of your company's Supervisory Board until the change of governance on 8 January 2015 and directors of the AREVA NC company.

#### Nature, purpose and conditions: subordination agreement

For the financing requirements of Société d'Enrichissement du Tricastin (SET), which owns and operates the Georges Besse II enrichment plant, the Supervisory Board of the AREVA S.A. company, at its meeting on 26 February 2014, authorized the AREVA S.A. company to sign a subordination agreement.

The purpose of this subordination agreement signed on 13 June 2014 is notably to subordinate the rights of the AREVA S.A. company and the AREVA NC and SET Holding companies with regards to SET in respect of any shareholder financing, to the rights of SET's lending banks, until the amounts owed to the latter have been fully repaid.

## 2. With the AREVA TA company (Technicatome SA), an 83.56%-owned subsidiary of the AREVA S.A. company

#### Person concerned

CEA, represented by Christophe Gégout, a member of your company's Supervisory Board (until the change of governance on 8 January 2015) and director of the AREVA TA company.

## Nature, purpose and conditions: support provided by the company AREVA S.A. to its subsidiary AREVA TA

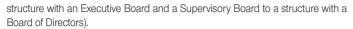
At its meeting on 26 November 2014, your company's Supervisory Board authorized the signature of a letter formalizing your company's commitment to support its subsidiary AREVA TA should the latter suffer significant financial losses.

The conditions of this support are as follows: in the event that the AREVA TA company suffers significant financial losses (exceeding 50 million euros) over and above the losses already provided for relating to the projects in which it is currently engaged, your company's support would then take the form of a shareholder current account contribution, followed by a forgiveness of debt for an amount corresponding to the losses recorded on projects to the extent of the percentage of your company's direct and indirect interests in the AREVA TA company (namely 83.5%), within the limit of 200 million euros. The agreement formalizing the aforementioned forgiveness of debt would include a better fortunes clause concerning the projects generating the aforementioned losses, better fortunes meaning a reduction in the loss upon completion or the return to profit margins on said projects before their completion.

With the aim of providing the AREVA TA company, as a precautionary measure, with the financial resources to address a similar situation in the future, your company's commitment described above must be accompanied by a correlative commitment by the AREVA TA company to propose to the General Meeting of its shareholders a capital increase for the benefit of your company, for an amount at least equal to that of the forgiveness of debt granted, within two years of the forgiveness of debt. As shareholder of the AREVA TA company, your company undertakes to subscribe for this capital increase and pay for it in cash or by offsetting it against a receivable that it may hold from the AREVA TA company.

## AGREEMENTS AND COMMITMENTS NOT SUBJECT TO PRIOR AUTHORIZATION, IMPLEMENTED AFTER CLOSING

In accordance with Articles L. 225-42 and L. 823-12 of the French Commercial Code (Code de commerce), we inform you that the following related party agreements and commitments did not receive prior authorization from your Board of Directors (it being noted that on 8 January 2015 your company changed from a governance



It is our responsibility to inform shareholders of the circumstances by virtue of which the procedure for prior authorization was not followed.

## 3. With CEA (a 54.37% shareholder of the AREVA S.A. company)

#### Persons concerned

Daniel Verwaerde: director of the AREVA S.A. company and Managing Director of CEA

#### Nature, purpose and conditions

On 26 February 2015, the Managing Director of CEA and General Manager of the AREVA S.A. company signed an agreement for the drafting and implementation of the conditions for the final settlement of the situation of the RJH project, on the basis of their current shared vision of what is still to be done, the schedule upon completion and the related resources needed to finalize the project for the construction of this reactor with the aim of loading the first core in October 2019.

These contractual, financial and project governance-related conditions must be reflected in the drafting of a tripartite memorandum of understanding (between CEA, AREVA S.A. and AREVA TA), based on reciprocal concessions satisfying the following guidelines:

- An additional financial contribution by the AREVA S.A. company supplementing the existing arrangement of the bilateral agreement for the financing of the RJH dated 22 December 2006.
- In accordance with the existing contractual framework (project management contracts, FRN and memorandum of understanding of 2011), CEA and the AREVA TA company bearing the costs and risks relating to the agreements and contracts for which they are respectively responsible,
- The "elimination" of the financial and technical risks of the project for the future, based on a different method of management, with an integrated team, minimizing any potential disagreement over responsibilities, with stronger common governance and financial incentives, all part of an approach to project management based on objective costs.

This agreement led the AREVA S.A. company to recognize an additional provision of 207 million euros in the accounts as of 31 December 2014, in order to take into account the terms of the aforementioned agreement.

As it was imperative to reflect the risks associated with the RJH project in the accounts as at 31 December 2014, it was necessary to urgently sign said agreement on 26 February 2015 once an agreement had been reached between CEA and the AREVA S.A. company. It was not possible to convene a meeting of the Board of Directors within the time available and in satisfactory conditions of quorum before this signature.

It may be mentioned that this agreement and the tripartite memorandum of understanding to be entered into on the basis thereof are to be presented for, respectively, ratification and authorization as a related party agreement at the next meeting of the Board of Directors of the AREVA S.A. company on 29 April 2015.

#### AGREEMENTS AND COMMITMENTS APPROVED IN PRIOR YEARS

#### Whose implementation continued during the year

In accordance with Article R. 225-30 of the French Commercial Code (Code de commerce), we have been advised that the implementation of the following agreements and commitments, which were approved by the General Meeting of Shareholders in prior years, continued during the year.

## 1. With AREVA NC (a fully-owned subsidiary of the AREVA S.A. company)

#### Persons concerned

Mr Luc Oursel (a member of the Executive Board of your company and Chairman of the AREVA NC company until 3 December 2014) and Mr Philippe Knoche (General Manager of the AREVA S.A. company and of the AREVA NC company), and Mr Philippe Pinson, Mr Christophe Gégout (as permanent representative of CEA) and Mr Bernard Bigot (members of the Supervisory Board of the AREVA S.A. company until 8 January 2015) and directors of the AREVA NC company.

#### Nature, purpose and conditions: agency agreement

On 8 July 2004, the Supervisory Board authorized the signature of an agency agreement under which the AREVA NC company gave the AREVA S.A. company authority to manage or organize and control, in the name and on behalf of the AREVA NC company, assets earmarked to cover dismantling and radioactive waste management costs. This agreement has an indefinite term with three months' notice required for termination by either party.

This agreement did not give rise to any billing in financial year 2014.

#### Which were not implemented during the year

In addition, we have been advised that the following agreements and commitments, which were approved by the General Meeting of Shareholders in prior years, were not implemented during the year.

The death of Mr Luc Oursel, Chairman of the Executive Board, put an end to the commitments concerning a termination benefit, compensation for a non-compete clause and eligibility for unemployment insurance that had been granted to him within the context of his office.

Similarly, the commitments to Mr Philippe Knoche and Mr Pierre Aubouin concerning a termination benefit and compensation for a non-compete clause ended with the end of their terms of office on 8 January 2015 when the one-tier governance structure with a Board of Directors was adopted.

#### 2. With Mr Luc Oursel (Chairman of the Executive Board until 3 December 2014), and Mr Philippe Knoche and Mr Pierre Aubouin (members of the Executive Board until 8 January 2015)

# Nature, purpose and conditions: commitments relating to a termination benefit, compensation for a non-compete clause and unemployment insurance

The Supervisory Board at its meeting on 21 October 2011 and the General Meeting of Shareholders on 10 May 2012 had authorized and approved the commitments made by the AREVA S.A. company corresponding to indemnities or benefits owed or liable to be owed to the members of the Executive Board who are not under employment contracts (Mr Luc Oursel, Mr Philippe Knoche and Mr Pierre Aubouin) as a result of their duties being terminated or changed. Mr Olivier Wantz has an employment contract which is suspended for the duration of his term of office. No indemnity shall be paid in respect of his office as member of the Executive Board.

The Supervisory Board at its meeting on 19 December 2012 subsequently decided to revise the commitments made by the AREVA S.A. company, previously authorized by the Supervisory Board at its meeting on 21 October 2011 and approved by the General Meeting of Shareholders on 10 May 2012, corresponding to indemnities or benefits liable to be owed to Mr Luc Oursel and Mr Philippe Knoche as a result of their duties being terminated or changed. These new commitments were approved by the General Meeting of Shareholders on 7 May 2013.

The commitments made by the AREVA S.A. company, previously authorized by the Supervisory Board at its meeting on 21 October 2011 and approved by the

General Meeting of Shareholders on 10 May 2012, corresponding to indemnities or benefits liable to be owed to Mr Aubouin, continued to have effect in the same conditions in 2014.

The conditions are as follows:

- In the event of interruption of the terms of office of the members of the Executive Board before their agreed expiry date, under the conditions defined by the Supervisory Board at its meeting on 21 October 2011:
  - Mr Pierre Aubouin may receive a termination benefit for a maximum amount fixed at twice the amount of the last fixed portion of his remuneration, on an annual basis, as of the date on which his duties terminate, and the average of the variable portion of his remuneration, on an annual basis, for the last three years.
  - Mr Luc Oursel and/or Philippe Knoche may receive a termination benefit equal to twice the amount of their annual remuneration as of the date on which their duties terminate.
- The above-mentioned termination benefit shall only be paid in the event of removal from office, unless for just cause, notably in the event of a change in control or strategy, and shall be subject to the following performance conditions:

#### FOR MR LUC OURSEL AND/OR MR PHILIPPE KNOCHE

- If the average achievement rate of the quantitative and qualitative objectives for the last two financial years is equal to or greater than 60%, the termination benefit will be paid automatically,
- If the average achievement rate of the quantitative and qualitative objectives for the last two financial years is less than 60%, the Supervisory Board will assess the performance of the person concerned with regard to the circumstances that have affected business activity for the financial year then ended.

Each year, the Supervisory Board fixes the objectives that must be reached for the payment of the termination benefit.

#### FOR MR PIERRE AUBOUIN

In the event that Mr Pierre Aubouin's removal from office or forced departure occurs before he has discharged his duties for three financial years, the payment of the termination benefit shall be subject to the following performance conditions:

- If the average variable portion of his remuneration during his term of office (on a pro rata basis for incomplete years) is greater than 70% of the maximum variable portion of his fixed remuneration, the termination benefit will be paid,
- If the average variable portion of his remuneration during his term of office (on a pro rata basis for incomplete years) is less than 60% of the maximum variable portion of his fixed remuneration, the termination benefit will not be paid,
- If the average variable portion of his remuneration during his term of office (on a pro rata basis for incomplete years) is between 60% and 70% of the maximum variable portion of his fixed remuneration, the decision to pay all or part of the termination benefit will be made by the Supervisory Board, without the termination benefit being automatically due.

Courbevoie and Paris-La Défense, 27 March 2015

The Statutory Auditors

French original signed by

MAZARS

In the event that Mr Pierre Aubouin's removal from office or forced departure occurs after he has discharged his duties for three financial years, the payment of the termination benefit shall be subject to the following performance conditions:

- If two out of the three previous financial years have given rise to the payment of more than 70% of the maximum variable portion of remuneration, this variable portion being based both on quantitative and qualitative objectives, the termination benefit will be paid automatically,
- If two out of the three previous financial years have given rise to the payment of less than 60% of the maximum variable portion of remuneration, the termination benefit will not be paid,
- If two out of the three previous financial years have given rise to a payment less than or equal to 70% of the maximum variable portion of remuneration, but this proportion was between 60% and 70% for at least one financial year, the decision to pay all or part of the termination benefit will be made at the Supervisory Board meeting.
- Executive Board members (i) who wish to receive their retirement benefits shortly after the end of their terms of office, regardless of the reasons therefor, even if forced, or (ii) whose term of office ends prematurely due to the transformation of the company into a société anonyme (public limited liability company) with a board of directors, or (iii) who are moved to another position within the AREVA group, shall not claim any termination benefit. In the event that Mr Philippe Knoche's term of office is terminated before the end of his current term of office, or in the event of the non-renewal of his term of office, he shall be offered an employment contract with an equivalent level of responsibility. Such a contract shall not be cumulated with the payment of an indemnity for termination of his term of office as provided for by the Supervisory Board at its meeting on 21 October 2011.
- The Supervisory Board may decide to grant compensation as consideration for a non-compete clause to the Executive Board member. The amount of such compensation shall be charged against the termination payment made, if applicable, to the Executive Board member under the above terms and conditions. If no termination payment is made, the amount of compensation due in consideration of a non-compete clause shall be fixed by the Supervisory Board in accordance with customary practice.
- Executive Board members shall be granted the unemployment insurance provided for by the MEDEF, the contributions to which shall be borne 65% by the Company and 35% by the beneficiary Board member.

Any payment in respect of termination benefits must receive the prior consent of the Supervisory Board in accordance with Article L. 225-90-1 paragraph 5 of the French Commercial Code (Code de commerce) and be approved by the Minister of the Economy pursuant to Decree No. 53-707 of 9 August 1953, as amended.

These commitments did not give rise to any payment in financial year 2014.

**ERNST & YOUNG Audit** 

Cédric Haaser

Jean-Louis Simon

2014 AREVA REFERENCE DOCUMENT 333

Ever since its creation, AREVA has given impetus to a proactive sustainable development initiative by making strong commitments to Corporate Social Responsibility. These commitments are deployed and periodically updated through the policies that the group implements in a number of areas – human resources, diversity, nuclear safety, health, occupational safety and the environment – as well as through the Values Charter. These different policies and charters help organize the company's operations in accordance with human rights and in compliance with environmental protect interests and the laws that govern them. AREVA's efforts target continuous performance improvement in every field, particularly nuclear and occupational safety, and take into consideration the expectations of stakeholders directly or indirectly concerned by the group's operations.

AREVA subscribes to the United Nations' Global Compact, to the OECD Guidelines for Multinational Enterprises, to the Extractive Industries Transparency Initiative (EITI) and to the Nuclear Power Plant Exporters' Principles of Conduct published by the Carnegie Endowment. It follows best international practices for corporate responsibility, in particular those of the International Council on Mining and Metals (ICMM).

## **APPENDIX 3** CORPORATE SOCIAL RESPONSIBILITY

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## 1. HUMAN RESOURCES INFORMATION

Social information concerning employment, work organization, social relations, training, equality of treatment, promotion and compliance with the stipulations of the fundamental agreements of the International Labor Organization are presented in Section 17. *Employees*.

### **1.1. OCCUPATIONAL HEALTH AND SAFETY**

The occupational health and safety policy was updated in 2014 for a three-year period. It aims to continuously improve occupational health and safety and to strengthen preventive measures. Our constant goal is to strive for zero lost-time injuries and zero impacts from our operations on the health and safety of our employees, subcontractors and the local communities near our industrial sites. AREVA is committed to:

- ensuring appropriate monitoring of occupational health for all employees by defining and applying international medical standards for medical surveillance of occupational hazards, by strengthening governance, by giving increased attention to the quality of working life, especially as concerns the prevention of occupational stress, by deploying the group's occupational health department in France, and by including specific issues associated with expatriation in the medical follow-up of employees;
- in occupational safety, preventing and managing all risks associated with our industrial activities for employees and subcontractors.

In France, after the group agreement was signed in 2012, having been approved by the administrative authorities in 2013, AREVA deployed the new occupational health service organization, an effort that will continue until 2015, in three successive phases. The creation of a single occupational health department (supported by regional offices) offers all of the group's employees in France the benefit of universal health services with consistent quality.

In all its activities, AREVA aims for excellence in occupational safety. The group continues to direct its efforts towards bolstering a group culture of the highest level

of safety involving all company personnel and subcontractors through the "Safe Together!" project. This project is dedicated to a culture of occupational safety and deployed in all of the group's entities and at every level of the organization, with strong commitment and involvement by management.

In June 2014, more than 120 sites around the world dedicated a day to the topic of safety as part of "Safety Month", with presentations and workshops that brought employees and subcontractors together. Three new safety standards were deployed to supplement the nine standards adopted in 2013.

#### **OCCUPATIONAL HEALTH AND SAFETY DATA**

AREVA's occupational safety record has improved considerably since 2008, with the accident frequency rate (FR) per million hours worked divided by 2.5. The group's rate went from 3.4 in 2008 (392 accidents) to 1.37 at the end of 2014 (99 accidents).

For subcontractors, 97 lost-time injuries were recorded in 2014, compared with 145 in 2013.

This improvement is the consequence of an active occupational safety policy and a prevention approach that draws on principles of organization, management systems, the sharing of best practices among entities, the skills of all specialists and the behavior of each employee.

In 2014, the group was sad to report one accidental death when a pedestrian died after a collision with a forklift truck at the Tricastin site.

Occupational safety data for AREVA employees	2014	2013
Accident frequency rate with lost time (excluding commuting accidents)	1.37	1.72
Accident severity rate (excluding commuting accidents)	0.03	0.05
Number of fatal accidents	1	0

The risks associated with radiation and AREVA's proactive radiation protection policy are outlined in Section 4.3.1. on nuclear risk. The average radiation exposure of AREVA employees remained very low, at 0.90 mSv in mid-2014, the same as the maximum dose to the general public.

Consistent with the group's objective, no AREVA employee received an individual dose of more than 20 mSv. In mid-2014, the maximum recorded dose was 16.43 mSv, with 85.3% of AREVA's employees having received a dose of 0 to 2 mSv and 53.9% a dose of less than the recording level set by regulation, *i.e.* less than 0.1 mSv. It should be noted that, in France, the average annual exposure to naturally occurring radiation is approximately 2.4 mSv (source: IRSN).

Radiation protection and occupational disease* data	2014	2013
Average employee dose from radiation exposure (mSv)	0.90	1.00
Total individual external dose to AREVA group employees over 12 consecutive months (man-millisievert)	16,328	16,667
Total individual internal dose to AREVA group employees over 12 consecutive months (man-millisievert)	4,337	5,268
Average subcontractor dose from radiation exposure (mSv)	0.51	0.56
Occupational diseases	NA	NA

\* Due to the time needed to get the results of passive dosimetry analyses (also called benchmark dosimetry) and the half-year schedule for rolling up these data, the annual results are always expressed as from July 1 of year -2 to June 30 of year -1.

The group received a limited number of claims for occupational diseases concerning various disorders in 2014, mostly for musculoskeletal disorders.



## 2. ENVIRONMENTAL INFORMATION

## 2.1. GENERAL ENVIRONMENTAL POLICY

### 2.1.1. AREVA'S ENVIRONMENTAL POLICY

The environmental policy for the 2013-2016 period aims to prevent environmental risks, both chronic and accidental, through better integration of today's environmental challenges of climate change and biodiversity erosion and by treating the environment as a public asset, as codified in AREVA's Values Charter. The group's six major commitments are organized along three main lines:

### Performance in managing environmental challenges

- 1. Develop and maintain a shared culture of environmental risk prevention;
- 2. Improve facility design by taking their entire lifecycle into account;

## Preventing and managing accident-related environmental hazards

- 3. Strengthen the prevention and management of accidental technological risks;
- 4. Prevent risks related to facility aging and accidental spills;

## Preventing and managing chronic health and environmental hazards

- 5. Strengthen the prevention and management of chronic health hazards;
- 6. Control the environmental footprint of activities to prevent damage to biodiversity.

The quantification of environmental objectives is adjusted based on ongoing risk mapping efforts, stakeholder expectations, best internal and external practices, environmental reporting, an external benchmark, and dialogue with the operating entities. The environmental policy applies to all of the group's entities, both in France and abroad. The operating entities implement the policy through action plans.

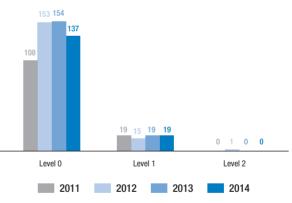
### 2.1.2. ORGANIZATION SET UP FOR ENVIRONMENTAL RISK PREVENTION AND MONITORING

In 2014, the Safety Health Security Sustainable Development Department became the Safety Quality Environment Department. It draws on specific organizations within the Business Groups, the entities and the regions to conduct its activities. It is in charge of managing the safety of the group's nuclear facilities and related activities, whether on its own behalf or for its customers; radiation protection; occupational health and safety for all group employees and subcontractors; product and service quality; prevention of industrial and environmental risks from the facilities; management of activities integral to sustainable development; and management of critical events, emergencies and crises. Within this department, the Environment and Sustainable Development function develops the group's policy on environmental hazards and environment footprint, along with all of the actions in the sustainable development initiative. This function brings together specialists in environmental hazards, eco-performance, conventional waste management, and corporate social and environmental responsibility. An operational support function is in charge of health, safety, security and environmental mapping (periodic risk management assessment for each of the group's sites with significant health, safety and environmental aspects) to set priorities and improvement plans with line personnel.

A General Inspectorate of dedicated inspectors carries out an annual inspection program, develops safety expertise throughout the group, and coordinates a network of specialists. It reports on achievements, best practices and events, and it ensures that experience is shared. It puts out an annual report on the status of safety in the group's nuclear facilities and operations.

The harvesting and sharing of experience from events in the fields of nuclear safety, radiation protection, health, occupational safety, the environment and transportation are managed with a computer program for sharing experience known as AHEAD (AREVA Happened Events Advanced Database), available to all operating entities.

#### NUMBER OF EVENTS RANKED ON THE INES SCALE IN THE AREVA GROUP'S NUCLEAR ENTITIES (OWNERS, OPERATORS, SERVICE PROVIDERS) OR DURING THE SHIPMENT OF RADIOACTIVE MATERIALS IN 2014



Source: AREVA.

### Safety Health Environment training

With the Safety Excellence program, a professional development program for managers with operational delegation of authority was established in 2012 and has gradually been expanded. The program is based on assessments of skills in respect of nuclear safety, radiation protection, materials transportation, materials safeguard, industrial safety, and occupational health and safety, and on a corpus of mandatory training courses. It is intended for site directors, duty officers and facility managers at AREVA's industrial sites.

For site directors, the course includes a Safety Health Security Environment management module. Twenty-two site directors and production managers with delegation of authority took this module in 2014 upon assuming their duties or to maintain their skills. A total of close to a hundred site directors have taken the program since its establishment.

For facility managers, a training program consisting of two modules and personal work devoted to Safety Health Security Environment practices is offered. For new facility managers, the program was made mandatory as of 2014. Thirty-seven managers have taken the course, and so far 80% of all facility managers have received the training.

In addition to the training required by regulation and the training on risk and safety culture given at the operator and site level, the group has defined and offers training in nuclear safety, human and organizational factors (HOF), significant event analysis, and occupational safety for target groups.

In particular, a training program was developed and implemented in 2014 for supervisors of subcontracted services.

The modules on safety culture, general technical regulations and supervision practices were given by site specialists and by the group's training entity, Trihom. A test of skills acquisition is given at the end of the modules and is the basis for appointments. More than 550 employees likely to take on supervisory tasks took this training in 2014.

#### Induction sessions for new hires

AREVA organizes day-long induction sessions on company operations for each newcomer to the group in France. A special module was set up with AREVA University to present risk prevention measures concerning safety, health, security and the environment in an educational format.

#### **Employee information**

AREVA communicates regularly with its employees on Safety Health Security Environment (SHSE) subjects to give them information on policies, applicable documents, the sharing of best practices from operating experience, and risk prevention actions. This information is communicated via email and the AREVA intranet, and through regular network information meetings. In 2014, a Safety First convention was held for all managers involved in carrying out our activities and facility operations to exchange views the challenges of a shared safety culture aimed at integrating new requirements more efficiently while adopting an approach that is commensurate with the stakes involved and with the continuous improvement of risk prevention.

## 2.1.3. AMOUNT OF PROVISIONS AND GUARANTEES FOR ENVIRONMENTAL HAZARDS

#### Provisions and guarantees related to the group's end-oflifecycle obligations and environmental hazards

Provisions totaling 7.404 billion euros had been set aside as of December 31, 2014 for environmental hazards, including the dismantling and rehabilitation of mining sites and facilities, nuclear facility dismantling, radioactive waste retrieval and packaging, final waste disposal, routine cleanup, and pollution control and reclamation of industrial sites and mines. Provisions for nuclear facility dismantling and waste retrieval and packaging total 6.985 billion euros, with AREVA's share representing 6.797 billion euros (see Section 20.2. Notes to the consolidated financial statements for the period ended December 31, 2014, Note 13. End-of lifecycle operations of this Reference Document).

### 2.2. ENVIRONMENTAL RISK MANAGEMENT AND PREVENTION

#### 2.2.1. BIODIVERSITY PROTECTION AND DEVELOPMENT

AREVA pays close attention to monitoring and preserving biodiversity. The protection of plant and animal life begins in the design phase and continues throughout the facility operating period and into site rehabilitation. Special care is devoted to native species and to how species introduced during reclamation adapt to the local biotope (habitat for plant and animal life).

As early as 2006, AREVA began an in-depth review of interactions between its operations and biodiversity, supplemented with an "AREVA and biodiversity" report. The conclusion was that, as for all industrial activities, the group's sites:

- use the natural environment;
- benefit from all of the ecosystem services offered by biodiversity (natural resources, climate regulation, regulation of effluents, etc.);
- contribute as a consequence of their activities to biodiversity erosion (waste production, greenhouse gas emissions, use of resources, dividing up of existing ecosystems).

AREVA integrated these themes into its environmental policy with the goal of preventing, limiting and if necessary offsetting the impacts of its operations on biodiversity.

Comprehensive mapping showed that the main impacts on biodiversity from the group's facilities came from the mining operations and from the operations of some sites with significant environmental aspects. After extensive work in cooperation with international biodiversity experts, AREVA developed a tool to assess interactions between the group's operations and biodiversity. The tool offers a means for increasing employee awareness, methods for assessing the impacts on biodiversity, and a guide for setting up action plans, and may be used by each site.

In addition, to gain a better grasp of the challenges related to local biodiversity, targeted ecological inventories were established at the major industrial sites. The most important of these concerned the Tricastin site. These inventories provide a clear picture of the biodiversity existing at the site and were used to create maps of the ecological challenges related to the preservation of remarkable species.

More generally, the group strives to continually reduce the environmental footprint of its facilities and, more specifically, to take action simultaneously on the five mechanisms known to erode biodiversity. The main actions undertaken involve combatting climate change and the proliferation of invasive species, managing risks related to changes in land use and the potential impacts of releases and other industrial pollution, and working towards the sustainable use of natural resources.



#### 2.2.2. SOIL MANAGEMENT

AREVA's environmental policy for the 2013-2016 period carries on from the policies of previous years, whose objectives are to reduce and manage all of our environmental liabilities. In particular, it reinforces the prevention of the risks of accidents, chronic risks and risks related to facility aging. These risks can in fact lead in the end in some cases to the creation of environmental liabilities.

At the Tricastin site, managing environmental liabilities led to the creation and implementation of two hydraulic containment systems, one in the eastern part of the site and the other in the central part. Environmental monitoring of the immediate surroundings before and after their startup showed that the goals were reached, *i.e.* a significant decrease in the concentrations observed in the Gaffière stream.

At former French mining sites, the campaign to inventory mine tailings and to search for the presence of radon in and around homes is continuing on schedule. In Mongolia, the pre-feasibility and feasibility studies for the Zoovch Ovoo (ZO) project were launched in 2014, along with the related environmental impact studies (*General Environmental Impact Assessment and Detailed Environmental Impact Assessment*).

Cleanup and dismantling operations at the SICN site in Annecy were completed in 2013, and the site received the prefectorial permits for monitoring and public service on July 1, 2014. A company that does mechanical work now occupies the existing buildings at the Annecy site. An urban biomass boiler is being built in collaboration with the municipality. Meanwhile, the Veurey site filed an application for decommissioning in March 2014. ASN is currently reviewing the application. As part of its reindustrialization, the Veurey site is currently hosting the Sofradir company.

The rehabilitation work at the Miramas site continues, with completion set for the end of 2015. The mercury-contaminated soils have been excavated, screened and transferred to appropriate treatment according to type and in compliance with the prefectorial order. The treatment project for the biological purification of soils containing organo-nitro compounds is now finished. The work had been interrupted by the discovery of explosive devices dating from World War II at the site. Specific measures were taken, including shielding for construction machinery, to prevent risks linked to the potential existence of this type of device. Work was able to resume with an appropriate level of safety in mid-2014.

#### 2.2.3. CONSIDERATION OF ENVIRONMENTAL STRESS AND CHRONIC HAZARDS

The impact study of a nuclear facility is updated at each stage of its lifecycle – its creation, modification, shutdown and dismantling. One of the key purposes of these studies is to characterize the potential health effects and environmental impacts of releases and disturbances from the facility in question.

Among these studies, those in which the chemical hazards are assessed look at the neighboring population that might be chronically exposed to facility releases. They are carried out based on normal facility operating scenarios, both in France and abroad, and factor in different potential exposure paths to the neighboring populations in approaches that are as realistic as possible. They are repeated at each material modification of the facilities, based on the latest available scientific knowledge.

Environmental impact studies using risk assessment methods are also used to prevent environmental hazards (protection of plant and animal life). The studies are performed for each new facility and for each notable change in existing facilities. For these types of studies, environmental monitoring regulations also include specific measures to assess their impact on the environment (such as monitoring of radiological and/or chemical markers in different environmental matrices, supplemented as necessary by measures for eco-monitoring of plant and animal life). The Tricastin site, for instance, added eco-monitoring measures to its environmental monitoring program specific to local ecological issues (periodic inventories and standardized ecological indices).

Concerning the asbestos risk, the group's asbestos directive was revised in 2014 to factor in regulatory changes and operating experience from the sites and will be deployed in 2015.

Since September 2008, the carcinogenic, mutagenic and reprotoxic substances directive (CMR) has applied to all sites where the group is the principal operator. Of the two sections in the directive, one deals with managing workstation risk, while the other addresses environmental risk management. The objectives of this directive include identifying and eliminating all class 1A and 1B CMRs if it is technically and economically feasible to do so, and ensuring the traceability of employee exposure through measurement and follow-up.

Prevention of Legionnaires' disease is also a priority for the entities involved, particularly as concerns domestic hot water systems.

Each site manages the prevention of more specific noise, olfactory, light, or visual pollution locally as a function of local issues (such as whether or not there are dwellings close to the sites) and constraints, and regulatory requirements.

#### 2.2.4. TECHNOLOGICAL AND CHEMICAL HAZARDS

The French law of July 30, 2003 on the prevention of risks of technological and natural origin and on compensation for damages, together with its implementing regulations, introduced a new tool for controlling urban development around the group's four "high threshold" Seveso sites in France: the defluorination facility at the AREVA NC Tricastin site, the conversion facilities of AREVA NC Malvési and Tricastin, and the AREVA NP Jarrie site. This is the Technological Risk Prevention Plan (TRPP) to reduce risks, deal with existing situations, plan for the future and stimulate dialogue with stakeholders, including local governments.

In accordance with AREVA's second environmental policy goal, the focus is on prevention and management of environmental risks, in particular the operational risks based on periodic updates to the hazards analyses for the industrial sites (see Section 4.3.2.1. *Seveso risks*).

### **2.3. ENVIRONMENTAL PERFORMANCE**

#### 2.3.1. SUSTAINABLE USE OF RESOURCES, LAND AND RAW MATERIALS

#### Sustainable use of resources

To minimize its environmental footprint, the group takes action to reduce withdrawals from the natural environment and its consumption of materials and energy, and continually searches for opportunities to recycle waste.

In the projects, AREVA's eco-design approach contributed to the early identification of the environmental impacts of major projects and thus to optimization efforts, in particular as concerns projects in the Mining, Front End and Back End Business Groups, with support from the group's engineering companies.

Concrete examples of projects contributing to a sustainable use of resources and a reduction in the consumption of raw materials are presented in the following sections on energy management at AREVA, on the reduction of water usage and on management of the group's waste.

#### Land use

AREVA's industrial and mining activities use land. While the land use of its main industrial operations remains practically unchanged throughout the group, the land use of its mining operations depends directly on the mining technologies employed: an underground mine requires little land compared with an open-pit mine, which requires a larger land area. Roads and related supply systems to the facilities may also influence land use. AREVA is aware of these issues and tries to minimize them.

In addition, it is important to include the operating cycle into land management efforts. Rehabilitation at the end of operations will condition the return to a state of equilibrium. In France, where mining operations ceased nearly 15 years ago, AREVA manages about 250 former mining sites representing some 14,000 hectares of land. Former mines are reclaimed and replanted to limit the residual impacts and integrate the sites into the natural landscape while restoring habitat for different species, in harmony with the natural environment and in agreement with the local stakeholders. An inventory of these sites shows that nearly half of the land occupied and managed by AREVA is considered remarkable from an ecological point of view and is ranked either as a Natura 2000 area or other (e.g. natural area of ecological interest, ZNIEFF).

#### Use of raw materials

Controlling the consumption of raw materials is one of our objectives in waste recovery, which includes materials recovery and energy recovery. Some of the group's waste is recovered internally or externally and is then recycled into the process, limiting raw materials consumption. For example:

 96% of "used" nuclear fuel is recoverable. These materials are extracted at the AREVA NC la Hague site and used in the MOX fabrication process (mixed oxide fuel) at the MELOX industrial site to resupply reactors. Such recycling limits our consumption of natural uranium;

- the chips produced by the manufacture of large forgings and castings at the AREVA NP Creusot site are recycled externally to foundries and recycled into the process;
- the potassium diuranate generated by the AREVA NC Pierrelatte site from the conversion of uranium ore is recovered at the AREVA NC Malvési site.

#### 2.3.2. ENERGY MANAGEMENT AND ENERGY EFFICIENCY

The group's total energy consumption came to 3,046,986 MWh in 2014. This compares with 3,193,661 MWh in 2013. The 4.80% decrease may be explained in part by the drop in consumption connected with the mining operations.

It should be noted that the Georges Besse II enrichment plant built at the Tricastin site, which is based on the ultracentrifugation enrichment process, uses 50 times less energy than the Georges Besse I enrichment plant based on the gaseous diffusion process, which was shut down in 2012. Nevertheless, Eurodif's PRISME project at the Georges Besse I plant (facility rinsing operations in which residual uranium is rinsed away and recovered to reduce the facility's radioactivity and prepare it for future dismantling operations) and the spin-up of the George Besse I plant led to a slight increase in energy consumption related to the enrichment operations om 2014.

All of the group's other sites continued their efforts to improve energy efficiency through targeted audits, particularly as concerns the production and distribution of compressed air, and through the systematic valuation of energy savings investments by drawing on the regulatory system of the second period of Energy Savings Certificates (ESC). In 2014, AREVA identified 100,000 MWh of cumulative discounted savings at its sites with its partner EDF.

AREVA can offer renewable energies solutions to its customers. For example, following the shutdown of the gaseous diffusion process at the Tricastin site, the heat previously produced by the plant – which was used to heat the site, neighboring greenhouses and the city of Pierrelatte – was replaced with a biomass power plant supplied by AREVA.

#### 2.3.3. WATER USAGE

The group consumed a total of 12.2 million m<sup>3</sup> of water in 2014, compared with 13.5 million m<sup>3</sup> in 2013, for a decrease of 9.5%.

A change in reporting protocol now takes into account all volumes of: mine drainage water from mining sites, water used in cooling and geothermal systems, and water tapped for the treatment of environmental liabilities and for hydraulic containment systems.

The total volume of water withdrawn for site requirements was 24.5 million m<sup>3</sup> in 2014, 10.9 million m<sup>3</sup> of which was returned to the environment.



#### 2.3.4. **WASTE**

#### **Conventional waste**

The gross production of conventional waste totaled 42,979 metric tons in 2014, as follows:

- 12,544 metric tons of hazardous waste, including 3,959 metric tons from exceptional operations;
- 30,434 metric tons of non-hazardous waste, including 10,578 metric tons from exceptional operations.

To achieve the objective of final waste volume reduction, programs are being implemented in all of the group's facilities to:

- minimize and control waste generation at the source;
- promote sorting by providing bins for separate waste collection or by creating in-house waste sorting centers;
- recycle materials and reuse waste by selecting the most suitable methods; and
- improve the processing and packaging of non-reusable waste.

#### PCBs and PCTs

In accordance with Council Directive 96/59/EC of September 16, 1996, AREVA's sites in France have eliminated equipment containing more than 500 ppm of polychlorinated biphenyls (PCBs) and polychlorinated terphenyls (PCTs). A second elimination plan was established under decree no. 2013-301 of April 10, 2013. That plan now concerns equipment containing 50 to 500 ppm of PCBs or PCTs. The sites must gradually phase out this equipment according to a schedule set by regulation based on the manufacturing date of the equipment. The new plan concerns approximately 80 equipment items.

#### **Radioactive waste**

Radioactive waste is produced mainly during operations, dismantling and cleanup of nuclear facilities. It is characterized based on its radiological activity (very low-level, low-level, medium-level or high-level) and by the half-life of the radioelements it contains (very short-lived, short-lived or long-lived waste). Each type of waste requires a specific management method, as shown in the table below.

	Very short-lived (half-life < 100 days)	Short-lived (half-life ≤ 31 years)	Long-lived (half-life > 31 years)	
Very Low-level Waste (VLLW)		VLLW Waste Surface Disposal Center (Aube department)		
Low-level Waste (LLW) Management through radioactive decay at the production site	Each type of waste requires a	Research carried out under French law of June 28, 2006 (near-surface disposal at 15-200 meters)		
Medium-level Waste (MLW)	followed by conventional disposal	specific management method, as shown in the table below.	Research carried out under French law of June 28, 2006 (deep disposal, 500 meters)	
High-level Waste (HLW)		Research carried out under French law of June 28, 2006 (disposal in deep geological repository, 500 meters)		

Directives are sent to each operational unit that may produce radioactive waste, specifying the objectives and the organizational and implementational means to be used for safe radioactive waste management. In particular, they outline the course of action pertaining to issues like the strict separation and rigorous management of conventional waste and radioactive waste, the inclusion of performance improvements, shipping risks, the containment-concentration strategy, and the use of any final waste disposal method.

The activities involved are reviewed during multiyear exchanges during AREVA France meetings for waste coordinators, and experience is shared within the AREVA Radioactive Materials and Waste Department's network of coordinators, in addition to the usual contacts. By pooling problems and solutions, the network of coordinators helps boost performance in radioactive materials and waste management. During group-level meetings of the network, a tour of the host facility is organized to enable its members to assess, on the spot, actions taken and improvements mentioned in previous meetings. The purpose of these visits is to avoid compartmentalizing the ideas and work of each facility.

The nuclear waste produced by AREVA's sites is processed in specific facilities at those sites, or by partners with appropriate facilities. As a minimum, processing consists of the following operations in sequence:

 isotopic characterization and activity assessment to adapt the packaging to the activity level;

- size-reduction and/or adaptation (cutting operations);
- packaging in containers suitable to the type of waste and the level of radioactivity (e.g. VLLW = big bag, LLW = metal drums, HLW = stainless steel canisters of vitrified waste).

A quality program including quality control is carried out throughout the process. Best available technologies (BAT) are used for processing and are chosen based on multicriteria analyses that factor in the industrial, environmental and radiological impacts.

#### **Publication of information**

Information related to waste flows and volumes stored in AREVA's nuclear facilities is communicated to the competent authorities in the form of annual waste inventories, supplemented by declarations to the national inventory.

In France, AREVA is contributing actively to the national inventory of the Agence nationale pour la gestion des déchets radioactifs (Andra, the national radioactive waste management agency), which is published every three years. The latest edition gives data on waste and materials inventories as of the end of 2012, along with forecasts through 2020 and 2030, and for end of the operating period of existing or licensed facilities http://www.andra.fr/inventaire2012/#/accueil/

The inventory also gives:

 the storage capacities for radiferous and tritiated high-level waste (HLW), longlived medium-level waste (LL/MLW) and long-lived low-level waste (LL/LLW);

- storage requirements for HLW and LL-MLW destined for deep disposal;
- the quantities of radioactive materials, sites that are contaminated by radioactivity, and information on mill tailings storage sites.

The French National Radioactive Materials and Waste Management Plan (PNGMDR) draws up an exhaustive inventory of the different radioactive waste management methods, identifies their gaps and defines improvement goals and performance improvement actions to be taken. AREVA considers the PNGMDR to be an essential performance improvement tool for radioactive waste management, especially when it comes to informing the public. In that regard, the AREVA group is represented by the Radioactive Materials and Waste Department, which manages and coordinates cross-business actions and studies involved in developing and following the Plan.

#### 2.3.5. **RELEASES**

#### Control of releases and environmental monitoring

AREVA devotes considerable resources to limiting and monitoring releases and to environmental monitoring, irrespective of monitoring performed by the French authorities.

The resources deployed take into account regulatory reporting requirements, including in particular declarations for the European Pollutant Emission Register (EPER), reduction of greenhouse gas emissions under the National Quota Allocation Plan, and renewal of release permits for the nuclear facilities. Among other things, The "INB order" of February 7, 2012 sets general rules for reporting releases from regulated nuclear facilities.

Regarding radioactive releases, AREVA is strongly committed to the standardization program for measurements of effluent radioactivity established in 2007 by the M60-3 Committee of the Bureau de normalisation des équipements nucléaires (BNEN, the French nuclear equipment standards organization) and has designated a representative from each major nuclear site to participate in this effort.

Concerning the monitoring of environmental radioactivity, it has been possible since February 2010 for any member of the public to go to the website managed by IRSN (www.mesure-radioactivite.fr) to see all of the environmental radioactivity measurements carried out in connection with the prescribed environmental monitoring by the operators in the vicinity of their sites. Each site has acquired the tools needed to manage and submit required data. The group's six laboratories – AREVA NC la Hague, AREVA NC Pierrelatte, Eurodif Production, FBFC Romans, SEPA Bessines and Comurhex Malvési – were issued licenses by the French nuclear safety authority ASN for the analyses that they must carry out. These licenses are renewed periodically as a function of the inter-laboratory comparison tests organized by the IRSN. The tests are based on an analytical framework defined by the French national environmental radiation measuring network (RNM).

AREVA performs some 100,000 measurements annually on samples taken at 1,000 locations to monitor environmental radioactivity around its sites.

#### **Releases in water**

In 2014, only releases characteristic of AREVA's operations for which the measured concentrations were above the detection thresholds were reported. Detailed results are presented in Section 2.4.

The nitrogen and uranium releases are directly related to the type and level of radioactivity of the products processed in the group's facilities.

AREVA NC la Hague accounts for most of the group's nitrogen releases (about 600 metric tons per year). These releases have fallen significantly in recent years

and are directly related to the level of site output (nitric acid is used in the process). Major efforts have been deployed since 1995 to reduce them (*e.g.* by recycling the acid to the facilities).

Uranium releases for all group sites total a bit less than 500 kilograms per year. Essentially unchanged for the past several years, observed variations are mostly attributable to the former mining sites, now shut down, where residual uranium releases are directly related to rainfall volumes. It is also explained by changes in production volumes at the sites.

#### Atmospheric releases

The group's operations release certain gases which contribute to global warming, depletion of the ozone layer and atmospheric pollution. These are primarily:

- direct emissions of greenhouse gases (GHG) associated with the burning of fossil fuels (CO<sub>2</sub>) and with nitrogenous releases (N<sub>2</sub>O) from operations related to the treatment of uranium oxide;
- indirect emissions of greenhouse gases associated with the use of electricity and thermal power; and
- gaseous releases such as volatile organic compounds (VOC), acid-forming gases, or ozone-depleting gases. A total of 952 metric tons of VOC were released in 2014, about 24% less than in 2013. This change is due to a reduction in emissions related to the mining operations.

#### Greenhouse gas releases

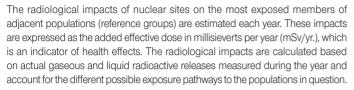
Since 2004, the group has led a goal-directed strategy for reducing its direct emissions of greenhouse gases. The aim of the current environmental strategy is to maintain a high level of performance in terms of environmental footprint.

Direct emissions of greenhouse gases in 2014 amounted to 460,927 metric tons of  $CO_2$  equivalent, compared with 422,021 metric tons equivalent in 2013. This change is due in particular to the increase in  $N_2O$  emissions from conversion operations. Nearly 57% of these emissions are linked to fossil energies.

#### **Radioactive releases**

Radioactive releases have fallen sharply in the past 30 years, reflecting the continuous improvement initiatives deployed by the group's entities. For example, the radiological impacts of the la Hague site have been divided by five to seven in the past 30 years, and the impacts on the reference group have been stable for several years now at around 10 µSv/year, down from about 70 µSv in 1985. These efforts paved the way for compliance with more stringent regulatory standards in the European Union, which were transposed into French law, and which set the maximum added effective dose to the public at 1 mSv per year, compared with about 2.4 mSv per year for natural exposure in France and 1 mSv per year to 10 mSv per year in the rest of the world. Nevertheless, AREVA is continuing its research on the feasibility of reducing radioactive releases from the la Hague plant even further, particularly in connection with the plant's release permit. These actions are also consistent with the ALARA principle ("As Low As Reasonably Achievable") and the use of best available technology (BAT) to the extent that this is technically and economically reasonable, considering the characteristics of the facility, its geographic location and local environmental conditions.

The environmental reports published by the group's French nuclear sites since 1995 and the annual safety reports made available to the public in application of article 21 of the TSN Law list radioactive releases and their trends. Measurements of these releases are subject to independent verification and unannounced inspections by the French nuclear safety authority ASN.



The radiological impact assessment model of la Hague factors in the various types of radiation (alpha, beta and gamma), the two potential exposure pathways (external exposure and internal exposure by ingestion or inhalation), and the specific behavior of each radionuclide in the human body. It is the result of collaborative efforts by French and international experts and associations under the umbrella of the Groupe Radioécologie Nord-Cotentin (GRNC, the Nord-Cotentin radioecology group). Following the recommendations of the GRNC, the site performs sensitivity analyses each year. The radiological impacts are calculated for five nearby villages, where radiological monitoring stations are located. If the impacts on one of the villages are greater than on the reference populations, this is made public. Independent experts conducted epidemiological studies to assess the direct health effects of radioactive releases on exposed members of the public. All of the studies conducted over the past 20 years have concluded that the site has very few impacts, with the added effective dose for one year being equivalent to about one day of exposure to naturally occurring radioactivity in the Nord-Cotentin region of France.

The group has set a goal of optimizing its control of radiological impacts and standardizing its radiological impact assessment models at all sites with radioactive releases, taking into account local circumstances related to the life style and eating habits of the population. The order of magnitude of the impacts from the group's nuclear facilities is very low, at equal to or less than 0.01 mSv <sup>(1)</sup>.

In France, AREVA provides all of the necessary information to the Local Information Commissions (CLI) set up by the government in the vicinity of major energy facilities to foster dialogue with local populations.

The group is also taking measures to limit as much as possible the impacts of added external radiation at the site boundary to 1 mSv/yr. This corresponds to an extreme theoretical scenario in which an individual stays at the site boundary for an entire year without interruption, *i.e.* 8,760 hours. More realistic exposure scenarios are taken into consideration when acceptable solutions on an economic and employment level cannot be found. To ensure the continuity of the program to reduce the dose at the site boundary, the sites have when necessary bolstered dosimetry-based monitoring systems.

#### **Climate change**

Adapting to the consequences of climate change is reflected in the safety assessments carried out periodically in the facilities. Assumptions are regularly reviewed to factor in the latest scientific knowledge in terms of global warming and the impacts on water resources and on extreme climate phenomena.

These assessments are used to adapt facility designs if necessary and to establish significant margins of safety against foreseen natural events and an appropriate crisis management organization (detection of extreme weather phenomena, protection of the facilities).

In 2014, there were some unusual weather events, including heavy rains on several occasions at the group's sites in southeastern France. We suffered no damage or other impacts, demonstrating our facilities' robustness in the face of this type of event.

<sup>(1)</sup> To be compared with the average of about 2.4 mSv per year for naturally occuring exposure in France.

### 2.4. ENVIRONMENTAL PERFORMANCE IMPROVEMENT

		2014	2013	2012
Consumption				
Quantity of energy consumed (MWh)		3,046,986	3,193,661	5,020,439
Quantity of water tapped (m <sup>3</sup> )		12,190,745	13,475,084	15,744,784
Consumption of hazardous chemicals				
Chlorinated solvents (MT)		19.76	17.36	17.75
Conventional waste				
Total tonnage of conventional waste (normal and exceptional				
operations)		42,979	60,671	52,242
Quantity of hazardous waste (MT) related to normal operations		8,586	10,834	10,745
Quantity of non-hazardous waste (MT) related to normal operations		19,856	20,917	25,816
Recycled share in% of hazardous waste related to normal operations		60	62	54
Recycled share in% of non-hazardous waste related to normal				
operations		78	55	76
Releases				
Total nitrogen releases into aquatic environments (MT)		623.2 (1)	633.5	679.62
Aqueous releases of uranium (kg)		461.1 (1)	491.6	434.1
Direct greenhouse gases (MT CO <sub>2e</sub> )	✓ <sup>(2)</sup>	460,927*	422,021	444,944
CO2 emissions from facilities subject to the National Quota Allocation				
Plan (MT CO <sub>2e</sub> )		70,233	73,170 <sup>(3)</sup>	40,330
Toxic gas releases: volatile organic compounds (MT VOC)		952	1,248	1,395
Releases of acid-forming gases: SOx (MT)		1,575*	1,301	1,308
Releases of acid-forming gases: NOx (MT)		989*	431	478
Releases of acid-forming gases: $NH_3$ (MT)		54*	25	31
Releases of ozone-depleting gases (kg CFC-111e)		152	525	269

(1) Including the estimate for AREVA NC la Hague: data not available at the time of publication.

(2) Indicator subject to reasonable assurance.

(3) In 2013, in addition to AREVA NC la Hague, the National Quota Allocation Plan 3 includes Creusot Forge and Eurodif Production.

\* Changes related to difficulties experienced during the restart of Cominak and AREVA Malvési facilities.

## **3. SOCIETAL INFORMATION**

### 3.1. LOCAL, ECONOMIC AND LABOR IMPACTS OF THE BUSINESS

#### CONTRIBUTING TO THE ECONOMIC DEVELOPMENT OF COMMUNITIES

AREVA is actively pursuing its commitment to community involvement through regional activities.

In the labor pool of its French plant sites, AREVA provides funding in the form of owners' equity to small and mid-sized companies that create employment. AREVA's Local Economic Development Department (LEDD) has a venture capital fund called AREVADelfi whose mission is to provide capital or profit-sharing loans. Local development agencies in each employment area help identify most of the investment projects. After review, approximately 15% of the projects are presented

to AREVADelfi's Commitment Committee, which decides whether to authorize funding. This tool has provided financial support to 47 projects since 2009. In 2014, 13 new applications representing 281 new jobs were presented and approved. This includes Dracula Technologies, an innovative company based in the Romans employment area that specializes in ink-jet impression of photovoltaic materials on fabric and other soft materials. Dracula Technologies received a profit-sharing loan of 60,000 euros in exchange for its promise to create 10 new jobs. In the Montreuil-Juigné employment area, AREVADelfi acquired an equity interest in GRN Logistic and contributed 180,000 euros in exchange for a promise to create 30 new jobs. Based in Angers, the company specializes in warehouse organization and fixtures (software, storage, robots). Another way that AREVADelfi practices community

involvement is by managing three business parks in the Chalon-Le Creusot and Saint-Dizier employment areas, where 1,000 people work in 100,000 m<sup>2</sup> of facilities.

In communities in which the Mining Business Group is based, Mines Social Integration Committees (MSC) identify priority community investment projects for each country and prospects for local development and cooperation with stakeholders, and set up multiyear action plans and the corresponding budgets. Five MSCs are now in place in Niger, Gabon, Mongolia, Namibia and Kazakhstan. The committees bring together the heads of the subsidiaries, local community development managers, teams in charge of project coordination, and corporate support staff. In 2014, 9 MSCs met to finance more than 100 economic development and corporate philanthropy projects.

At the group's other industrial sites, AREVA's philanthropic initiatives further advance its community involvement agenda in countries in which it is based by supporting

projects in the general interest and solidarity projects focused on health, education and culture. To be selected, these projects must be practical and sustainable while meeting a specific need identified at the local level.

For local economic development, we prefer to hire our employees locally. The Mining Business Group pays particular attention to native peoples and communities, for whom the hiring process may present specific challenges. This is the case, for instance, in North Saskatchewan, Canada, where we are leading several initiatives to promote local access to jobs and to give preference to local contractors. Today, in every country in which we are present, a majority of the employees at every level of the organization are local nationals, and 60% of the leadership teams are local managers (consolidated data for the Mining Business Group, 2013, excluding France).

### **3.2. STAKEHOLDER RELATIONS**

We set up and manage organizations for dialogue and consensus building in each of the countries in which we are based. They are integral to an approach committed to the long term with our local and internal stakeholders. They reflect a need to identify stakeholders, to understand their concerns and expectations, and to undertake the actions that will build trust and cooperation for mutual development.

Consensus building activities near the French sites is already well under way, having begun several decades ago, and is institutionalized in legislation which serves as a legal foundation for the missions and contributions of local information organizations, i.e. the local information commissions (commissions locales d'information, CLI) and the site monitoring commissions (commissions de suivi des sites, CSS, a body for dialogue and building consensus between the operator and local stakeholders such as residents, employees, elected officials and associations). These commissions comprise a number of collegial bodies: local elected officials and communities, government representatives, resident associations, environmental protection associations, industry and employee representatives. AREVA maintains regular relations with these commissions. In 2014, the group participated in information seminars for CLI members on dismantling and post-event management, and it attended the national CLI conference. The group also participates in multiparty forums such as the Senior Committee for Transparency and Information on Nuclear Safety (HCTISN) and the National Radioactive Waste and Materials Management Plan (PNGMDR).

Bodies for dialogue and consensus building have also been established in the mining operations. They are multipartite and may be voluntary or regulatory. The participants, the frequency of the meetings and the nature of the discussions reflect local challenges: economic and social development, environmental footprint, health, better knowledge of the current status of our mining and industrial development projects, and other topics. As an example, the CSS in France meet at the initiative of the Prefects. Each year, a summary of the sites' environmental monitoring and risk prevention activities is sent to the CSS. In Mongolia, a CLI was established voluntarily. It brought together elected officials and representatives of the local communities to better present the mining project during the exploration phase and the related challenges. In Niger, a Bilateral Orientation Committee (CBO) brings together local elected officials, relevant government agencies and civil society to help strengthen local governance of community development projects in the best

interests of the public. These bodies help define local development policy, select projects based on local priorities, issue recommendations for the projects and ensure their financing. In Canada, the Athabasca Working Group (AWG) brings together six North Saskatchewan communities and representatives of the mining companies (AREVA Resources Canada Inc. and Cameco Corporation) for dialogue on employment, training, environmental protection and financial support for the communities. These meetings are summarized in an annual report published by the AWG.

#### **AREVA CORPORATE FOUNDATION**

The AREVA corporate foundation was created in 2007 to support humanitarian and public-interest projects in three fields:

- health: fight against AIDS and malaria, access to healthcare and acquisition of medical equipment;
- education: prevention of illiteracy, literacy training, access to education and support for students;
- culture: cultural outreach for members of the public who would not otherwise benefit.

The Foundation supports targeted, concrete programs carried out near the group's facilities in France and overseas. These are long-term programs benefitting disadvantaged people, with women, children and students being the priority.

It also fosters employees' social commitment by conducting projects specifically for them: calls for internal projects, volunteering opportunities, leave for humanitarian activities and mentoring of young scholarship students.

In 2014, the AREVA corporate foundation supported 43 projects in 6 countries in which the group is based, 11 of which involved its employees.

With a budget of 7.5 million euros until 2017, the Foundation is pursuing a multiyear program with major national and international partners such as Institut Pasteur, the François-Xavier Bagnoud association, Secours populaire français, the National Agency for the Fight against Illiteracy, the Association for Equal Opportunities in the Schools, the Quai Branly Museum and the Guimet Museum.

### **3.3. SUBCONTRACTING AND SUPPLIERS**

Subcontracting activities are monitored very closely at all levels of the AREVA group. This promotes better integration of health, safety, security and environmental requirements in the purchasing process. An annual report on the AREVA group's subcontracting activities in France was submitted to the Ministry of Ecology, Sustainable Development and Energy. It includes quantitative data and examines AREVA's activities and initiatives in the context of the principal/supplier relationship. The report may be consulted on our website.

Subcontracting is governed by formal procurement processes and procedures. A system was established to list subcontractors pre-qualified to work at our sites or to supply products and services to the group. The listing of AREVA suppliers is based on their capabilities, certifications and a qualification or follow-up audit.

As part of its Responsible Purchasing Policy, the group integrates its social and sustainable development commitments into the supply chain/purchasing process and into the management of its supplier relations. This policy contributes to the company's economic performance while respecting human rights, protecting its environment, complying with the laws that protect them, anticipating risk, and committing to responsible initiatives with suppliers that create innovation and value.

The Responsible Purchasing Policy rests on the pillars of:

- buyer training and awareness;
- sustainable development integration into the supply chain;
- supplier commitment.

In 2008, the Supply Chain Department created a training module on Responsible Purchasing as part of a professional training program.

AREVA asks its service providers to support its sustainable development policy by signing its "Sustainable Development Commitment applicable to suppliers", which identifies the standards and commitments expected by the group.

### **3.4. FAIR PRACTICES**

Actions taken to prevent corruption and support human rights are described in Appendix 6 of AREVA's 2014 Reference Document.



## 4. TABLE OF CONCORDANCE FOR DATA REQUIRED UNDER ARTICLE R. 225-105-1 OF THE FRENCH COMMERCIAL CODE IN MATTERS OF SOCIAL, SOCIETAL AND ENVIRONMENTAL RESPONSIBILITY

Article R.225-105-1 of the French Commercial Code	Section of the 2014 Reference Document
Human resources information	Section 17
Employment	Section 17.1.
Total workforce and distribution by gender, age and geographical area	Section 17.1.1.
Staffing and layoffs	Section 17.1.2.
Compensation and trends	Section 17.1.3.
Organization of work	Section 17.2.
Organization of working hours	Section 17.2.1.
Absenteeism	Section 17.2.2.
Labor relations	Section 17.3.
Organization of social dialogue, in particular procedures for information, consultation and negotiation with personnel	Section 17.3.1.
Status of collective bargaining agreements	Section 17.3.2.
Health and safety	Appendix 3 Section 1.1.
Occupational health and safety conditions	Section 1.1.
Status of agreements on occupational health and safety signed with labor organizations or employee representatives	Section 17.4.2.
Frequency and severity rates of occupational injuries and accounting of occupational diseases	Section 1.1.
Training	Section 17.5.
Training policies	Section 17.5.1.
Total hours of training	Section 17.5.2.
Equal treatment	Section 17.6.
Measures in favor of gender equality	Section 17.6.1.
Measures in favor of employment and integration of persons with disabilities	Section 17.6.2.
The fight against discrimination	Section 17.6.3.
Promotion and compliance with the stipulations of fundamental agreements of the International Labor Organization concerning:	Section 17.7.
Respect for the freedom of association and the right to collective bargaining	Section 17.7.1.
Elimination of discrimination related to employment and occupation	Section 17.7.2.
Elimination of forced or compulsory labor	Section 17.7.3.
Effective abolition of child labor	Section 17.7.4.
Environmental information	Appendix 3
General environmental policy	Section 2.1.
Company organization for addressing environmental issues and environmental assessment or certification initiatives as applicable	Section 2.1.2.
Employee training and information concerning environmental protection	Section 2.1.2.
Resources devoted to preventing pollution and environmental risk	Section 2.1.2.
Amount of provisions and guarantees for environmental risk, unless this information could seriously prejudice the company in an ongoing dispute	Section 2.1.3.
Pollution control and waste management	
Prevention, reduction or mitigation of releases in the air, water and ground seriously impacting the environment	Section 2.2.
Measures to minimize, recycle and dispose of waste	Section 2.3.4.
Consideration of noise pollution and any other form of pollution specific to an activity	Section 2.2.3.

Article R.225-105-1 of the French Commercial Code	Section of the 2014 Reference Document
Sustainable use of resources	Section 2.3.
Water consumption and supply based on local conditions	Section 2.3.3.
Energy consumption and measures to improve energy efficiency and the use of renewable energies	Section 2.3.2.
Consumption of raw materials and measures to improve the effectiveness of their use	Section 2.3.1.
Land use	Section 2.3.1.
Climate change	
Greenhouse gas releases	Section 2.3.5.
Consideration of the impacts of climate change	Section 2.3.5.
Biodiversity preservation	Section 2.2.1.
Measures to preserve or increase biodiversity	Section 2.2.1.
Societal information	Appendix 3
Local, economic and labor impacts of the business	Section 3.1.
in terms of employment and regional development	Section 3.1.
on the local or neighboring population	Section 3.1.
Stakeholder relations	Section 3.2.
Conditions for dialogue with stakeholders	Section 3.2.
Partnership and philanthropic programs	Section 3.2.
Subcontracting and suppliers	Section 3.3.
Inclusion of social and environmental aspects in the purchasing policy	Section 3.3.
Importance of subcontracting and social and environmental responsibility in relations with suppliers and subcontractors	Section 3.3.
Fair practices	Section 3.4.
Actions taken to prevent corruption	Section 3.4.
Measures in favor of consumer health and safety	Section 3.4.
Other actions taken in favor of human rights	Section 3.4.



## APPENDIX 4 NON-FINANCIAL REPORTING METHODOLOGY AND INDEPENDENT THIRD-PARTY REPORT ON CORPORATE SOCIAL RESPONSIBILITY DATA

1. REPORTING METHODOLOGY	347 2.	INDEPENDENT VERIFICATION OF CONSOLIDATED CORPORATE SOCIAL RESPONSIBILITY DATA IN THE MANAGEMENT REPORT	348
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## **1. REPORTING METHODOLOGY**

The indicators published in Section 17 and Appendix 3 of this report are used to measure the leading social, environmental and societal impacts and challenges related to the AREVA group's activities.

These indicators were developed by a group of experts representing the group's different businesses and departments, and reflect the regulatory framework of article R. 225-105-1 of the French Commercial Code and international standards such as GRI version 3 <sup>(1)</sup> and WBSCD <sup>(2)</sup>.

### SCOPE AND CONSOLIDATION

**Reporting period:** The reporting period is the calendar year (January 1 to December 31).

**Scope of reporting:** The scope of reporting covers all of the group's worldwide operations. By "group", we mean AREVA, its subsidiaries and all of the operational and functional entities in which AREVA's interest is 50% or more at December 31, 2013. Some minority-owned subsidiaries are included on an exceptional basis, along with the majority-owned subsidiaries, to reflect the group's operational involvement; this is the case for example for Cominak in Niger. Units whose sale was in progress and irreversible in 2013 were not included in the scope of reporting. Newly acquired entities are not consolidated in the year of their acquisition so that systems for collecting and inputting data can be set up and data reliability ensured.

Office buildings with a total surface area of less than 1,000 m<sup>2</sup> must as a minimum report indicators in the fields of occupational safety, health, employment and dosimetry (if applicable) and, if possible, the other fields of the reporting procedure if the issue is a major one.

**Consolidation rules:** for "Environment, Health and Safety" data, the full consolidation method is used (data from majority-owned subsidiaries are fully consolidated). The consolidation method selected for data pertaining to human resources is aligned with the method used for financial consolidation. Thus, data for subsidiaries in which AREVA has a minority interest are reported in proportion to AREVA's interest. For projects conducted at customer locations, social data (occupational safety, health, workforce, dosimetry) and governance data (ISO 14001 certification) are consolidated at the group level. For AREVA investment projects (*e.g.* Comurhex II and Georges Besse II), all of the environmental, health, safety and social data are consolidated at the group level.

**Changes in consolidated group:** The main changes in the consolidated group were as follows in 2014:

 deconsolidated: CEZUS SA – AREVA Renewables Inc. – Groupe Euriware SAS and the direct and indirect subsidiaries of Euriware SA – CERCA SAS.

<sup>(1)</sup> Global Reporting Initiative (www.globalreporting.org).

<sup>(2)</sup> The Greenhouse Gas Protocol is developed by the World Business Council for Sustainable Development (WBCSD) [www.wbcsd.org] and the World Resources Institute (WRI).



APPENDIX 4 NON-FINANCIAL REPORTING METHODOLOGY AND INDEPENDENT THIRD-PARTY REPORT 2. Independent verification of consolidated corporate social responsibility data in the management report

### METHODOLOGY

**Reference base:** The measurement methods used for environmental, social and safety indicators and the related reporting criteria are documented in an "AREVA sustainable development and continuous improvement measurement and reporting procedure". This procedure, which is updated in the first quarter of each year, is provided to anyone, at any level, involved in developing and reporting data.

**Tools used:** Dedicated software – STAR for environmental indicators, AHEAD for safety, and POLYPHEME for social data – are used to report the indicators presented in Section 17 and in Appendix 3.

**Internal controls:** To increase data reliability, the HSE managers of the Business Groups and subject-matter specialists check the data reported by the sites for consistency.

**Independent verification:** The group had an independent third-party organization verify its key environmental, social and societal performance indicators. The scope of this verification was defined for all 42 categories of information identified in the implementing order for article 225 of the Grenelle II law. In accordance with these regulations, the verifications concern the consolidated social, environmental and societal data presented in Section 6 of the management report. The data are presented in Section 17 and Appendix 3 of the Reference Document. The independent third-party report is presented below in this Appendix 4.

### **ADDITIONAL INFORMATION ON SELECTED INDICATORS**

**Dosimetry:** The performance indicators for dosimetry are collected every 6 months and concern a reference period of 12 consecutive months, with a 6-month lag for data acquisition. For the annual campaign of January 2015, the data concern the period from July 2013 to June 2014. The mean internal and external dose calculation includes all monitored personnel, including personnel that received a non-detectable dose or no dose at all. For reasons of confidentiality, the independent third-party organization did not review internal dosimetry data. For this indicator, the review is limited to the sum of individual external doses resulting from occupational exposure to radiation by the group's employees.

**Direct greenhouse gas emissions:** The following gases were taken into account:  $CO_2$ ,  $CH_4$ ,  $N_2O$  and halogen compounds (CFC, HCFC, HFC, PFC and  $SF_6$ ). The figures disclosed in this report do not include indirect greenhouse gas emissions related to purchases of electricity, heating or cooling.

## 2. INDEPENDENT VERIFICATION OF CONSOLIDATED CORPORATE SOCIAL RESPONSIBILITY DATA IN THE MANAGEMENT REPORT

#### To the Shareholders,

In our capacity as an independent verifier accredited by COFRAC <sup>(1)</sup> under the number 3-1050, and as a member of the network of one of the statutory auditors of AREVA, we hereby present our report on the consolidated social, environmental and societal information for the year ended December 31, 2014, presented in Section 6 of the management report, hereinafter referred to as "CSR Information", pursuant to the provisions of article L. 225-102-1 of the French Commercial Code.

<sup>(1)</sup> Scope of accreditation available at www.cofrac.fr



### **RESPONSIBILITY OF THE COMPANY**

It is the responsibility of the Board of Directors to establish a management report including CSR Information referred to in article R. 225-105-1 of the French Commercial Code, in accordance with the company's internal social and environmental reporting standards in the versions dated 2013 (the "Guidelines"), a summary of which is provided in Appendix 4 of the Reference Document (the "Methodological Note").

### INDEPENDENCE AND QUALITY CONTROL

Our independence is defined by the regulatory requirements, the code of ethics of our profession and the provisions of article L. 822-11 of the French Commercial Code. In addition, we have implemented a quality control system including documented policies and procedures to ensure compliance with ethical requirements, professional standards, and applicable laws and regulations.

### **RESPONSIBILITY OF THE INDEPENDENT VERIFIER**

It is our role, based on our work:

- to attest whether the required CSR Information is present in the management report or, in the case of its omission, an appropriate explanation has been provided, in accordance with paragraph 3 of article R. 225-105 of the French Commercial Code (Attestation of presence of CSR Information);
- to express a limited assurance on whether the CSR Information is presented, in all material aspects, in accordance with the Guidelines (Opinion on fairness of CSR Information);
- to express, at the request of the company, a reasonable assurance on whether direct greenhouse gas emissions identified by the sign ✓ in Section 6 of the management report is presented, in all material respects, in accordance with the Guidelines.

Our verification work was undertaken by a team of five people and took place from November 2014 to February 2015 for an estimated time period of fifteen weeks.

We conducted the work described below in accordance with the professional standards applicable in France and the Order of May 13, 2013 determining the conditions under which an independent verifier performs its mission and, in relation to the opinion of fairness and the reasonable assurance report, in accordance with the international standard ISAE 3000 <sup>(1)</sup>.

## **2.1. ATTESTATION OF PRESENCE OF CSR INFORMATION**

We obtained an understanding of the company's CSR issues, based on interviews with the management of relevant departments, a presentation of the company's strategy based on the social and environmental consequences linked to the activities of the company and its societal commitments, as well as, where appropriate, resulting actions or programs.

We compared the information presented in the management report with the list contained in article L. 225-105-1 of the French Commercial Code.

In the absence of certain consolidated information, we verified that the explanations were provided in accordance with the provisions of article R. 225-105, paragraph 3, of the French Commercial Code.

We verified that the information covers the consolidation scope, namely the company and its subsidiaries under the meaning of article L. 233-1 of the French Commercial Code, and the companies which it controls under the meaning of article L. 233-3 of the French Commercial Code, with the limitations specified in the Methodological Note presented in Appendix 4 to the Reference Document.

Based on this work, and given the limitations mentioned above, we confirm the presence in the management report of the required CSR Information.

<sup>(1)</sup> ISAE 3000 - Assurance engagements other than audits or reviews of historical information.

### 2.2. OPINION ON FAIRNESS OF CSR INFORMATION

#### NATURE AND SCOPE OF WORK

We undertook about twenty interviews with the persons responsible for preparing the CSR Information in the departments charged with information gathering and responsible for internal control and risk management procedures to:

- assess the appropriateness of the Guidelines as regards their relevance, completeness, neutrality, clarity and reliability, taking into consideration, where applicable, the good practices in the sector;
- verify the implementation of a process for the collection, compilation, treatment and control of the CSR Information for its completeness and consistency, as well as obtain an understanding of internal control and risk management procedures related to the preparation of the CSR Information.

We determined the nature and extent of our tests and controls based on the nature and importance of the CSR Information in terms of company's characteristics, social and environmental issues related to its activities, its orientation in terms of sustainable development and sectorial best practices.

For the CSR information which we considered the most important <sup>(1)</sup>:

 at the level of the consolidating entity, we consulted documentary sources and conducted interviews to corroborate the qualitative information (organization, policies, actions, etc.), we implemented analytical procedures on the quantitative information and verified on a test basis the calculations and data consolidation, and we also verified the coherence of those data and consistency with the other information contained in the management report; at the level of the representative selection of sites and entities which we chose <sup>(2)</sup> based on their activity, their contribution to the consolidated indicators, their location and a risk analysis, we undertook interviews to verify the correct application of the procedures and undertook detailed tests based on a basis of samples, consisting in verifying the calculations and linking them with the information in supporting documentation. The sample selected represented on average 18% of the total workforce and between 39% and 72% of quantitative environmental information.

For the other consolidated RSE Information, we assessed its fairness and consistency in relation to our knowledge of the company.

Finally, we assessed the relevance of the explanations given in the event of the partial or total absence of certain information.

We consider that the sampling methodologies and the size of the samples that we considered, by exercising our professional judgment, allowed us to formulate a limited assurance on the CSR Information, considered as a whole; an assurance of a higher level would have required more extensive verification work. Due to the use of sampling techniques and other limitations inherent in the functioning of any information and internal control system, the risk of non-detection of a significant anomaly in the CSR Information cannot be entirely eliminated.

### CONCLUSION

Based on our work, we have not identified any significant misstatement that causes us to believe that the CSR Information, taken together, has not been presented sincerely, in compliance with the Guidelines.

Social information: employment (total workforce and distribution, hires and lay-offs); occupational injuries, including their frequency and severity; occupational diseases; and diversity and equal opportunity/equal treatment (measures taken for gender equality, anti-discrimination efforts).

(2) Somair (Niger – limited review), Katco (Canada), Bessines (France), ANF Lingen (Germany), SET (France), AREVA NC Pierrelatte (France), AREVA NP Jeumont (France), FBFC Romans (France), Jarrie CEZUS (France), AREVA NC la Hague (France).

<sup>(1)</sup> Environmental and societal information: the general environmental policy (number of sites with ISO 14001 certification); prevention measures; air release reduction or restoration measures (VOC emissions); waste prevention, recycling and disposal measures (metric tons of conventional waste produced); the sustainable use of resources and climate change (energy consumption, water consumption, scope 1 greenhouse gas emissions); the extent of subcontracting; and the inclusion of social and environmental aspects in the purchasing policy and in supplier and subcontractor relations.



### **2.3.** REPORT OF REASONABLE ASSURANCE ON A SELECTION OF CSR INFORMATION

#### NATURE AND SCOPE OF WORK

Concerning scope 1 greenhouse gas emissions, we conducted work similar to that described in paragraph 2 above but in a more thorough manner for the CSR information considered to be most important, in particular as concerns the number of tests.

We believe that this work enables us to express reasonable assurance on this data.

### CONCLUSION

In our opinion, direct greenhouse gas emissions identified with the sign 🗸 in Section 6 of the management report were drawn up fairly in all material respects, in accordance with the Guidelines.

Paris-La Défense, March 4, 2015

Independent Verifier ERNST & YOUNG et Associés

Christophe Schmeitzky Associate Sustainable Development Bruno Perrin Associate



## **APPENDIX 5**

ORDINARY AND EXTRAORDINARY SHAREHOLDERS' MEETING

OF MAY 21, 2015

AGENDA

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RESOLUTIONS TO BE CONSIDERED BY THE ORDINARY AND EXTRAORDINARY SHAREHOLDERS' MEETING OF MAY 21, 2015	353
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## AGENDA

## RESOLUTIONS TO BE CONSIDERED BY THE ORDINARY SHAREHOLDERS' MEETING

- Approval of the financial statements for the fiscal year ended December 31, 2014 (1<sup>st</sup> Resolution);
- Approval of the consolidated financial statements for the fiscal year ended December 31, 2014 (2<sup>nd</sup> Resolution);
- Allocation of 2014 financial results (3<sup>rd</sup> Resolution);
- Agreements subject to the provisions of articles L. 225-38 et seq. of the French Commercial Code (4<sup>th</sup> and 5<sup>th</sup> Resolutions);
- Ratification of the appointment by cooptation of Mr. Daniel Verwaerde as Director (6<sup>th</sup> Resolution);
- Opinion on components of compensation for 2014 due or awarded to Mr. Luc Oursel, Chairman and member of the Executive Board (7<sup>th</sup> Resolution);
- Opinion on components of compensation for 2014 due or awarded to Messrs.
   Philippe Knoche, member of the Executive Board and Chief Operating Officer

then Chief Executive Officer, Olivier Wantz, member of the Executive Board and Senior Executive Vice President, and Pierre Aubouin, member of the Executive Board and Chief Financial Officer (8<sup>th</sup> **Resolution**).

## RESOLUTIONS TO BE CONSIDERED BY THE EXTRAORDINARY SHAREHOLDERS' MEETING

 Modification of the conditions for shareholder participation in General Meetings; corresponding amendment of article 29 of the Articles of Association (9<sup>th</sup> Resolution).

#### POWERS

Powers to carry out formalities (10th Resolution).



## **RESOLUTIONS TO BE CONSIDERED BY THE ORDINARY AND EXTRAORDINARY SHAREHOLDERS' MEETING OF MAY 21, 2015**

### **RESOLUTIONS TO BE CONSIDERED BY THE ORDINARY SHAREHOLDERS' MEETING**

#### **FIRST RESOLUTION**

## Approval of the financial statements for the fiscal year ended December 31, 2014

The Shareholders' Meeting, voting under the conditions of quorum and majority required for ordinary Shareholders' Meetings, having read the Board of Directors' management report, and the Auditors' report on the financial statements, approves the financial statements for the year ended December 31, 2014, as submitted to it, and the transactions represented in these accounts or summarized in these reports, showing a net loss of 5,309,351,289.30 euros.

The Shareholders' Meeting acknowledges the report by the Chairman of the Board of Directors on the composition of the Board and application of the principle of balanced representation of men and women on the Board, the conditions for preparing and organizing the Board's work, and internal control and risk management procedures put in place by the Company and the Auditors' report on this report.

Pursuant to article 223 quater of the French General Tax Code, the Shareholders' Meeting expressly approves the total amount of expenditure and charges referred to in paragraph 4, article 39 of the General Tax Code, which amounts to 56,703.54 euros during the past year, corresponding to corporate tax expense of 19,523.03 euros.

#### SECOND RESOLUTION

## Approval of the consolidated financial statements for the fiscal year ended December 31, 2014

The Shareholders' Meeting, voting under the conditions of quorum and majority required for ordinary general Shareholders' Meetings, having read the Board of Directors' report and the Auditors' report on said statements, approves the consolidated financial statements for the fiscal year ended December 31, 2014, as submitted to it, and the transactions represented in these accounts or summarized in these reports.

#### THIRD RESOLUTION

#### Allocation of 2014 financial results

The Shareholders' Meeting, voting under the conditions of quorum and majority required for ordinary Shareholders' Meetings, resolves to allocate the loss for the year ended December 31, 2014, amounting to 5,309,351,289.30 euros, to retained earnings, which would be decreased from 3,896,176,541.70 euros to (1,413,174,747.60) euros.

The Shareholders' Meeting acknowledges, in accordance with the law, that no dividends have been distributed in the three previous fiscal years.

#### FOURTH RESOLUTION

## Agreement subject to the provisions of articles L. 225-86 et seq. of the French Commercial Code

The Shareholders' Meeting, voting under the conditions of quorum and majority required for ordinary Shareholders' Meetings, having read the Auditors' special report on the agreements and commitments referred to in article L. 225-86 of the French Commercial Code, approves the subordination agreement aiming, notably, to subordinate the rights of AREVA SA, AREVA NC and SET Holding against SET under any shareholders' funding agreement, to the rights of lending banks of SET, until the amounts due to them have been entirely reimbursed, authorized by the Supervisory Board on February 26, 2014 and signed on June 13, 2014.



#### **FIFTH RESOLUTION**

## Agreement subject to the provisions of article L. 225-86 et seq. of the French Commercial Code

The Shareholders' Meeting, voting under the conditions of quorum and majority required for ordinary Shareholders' Meetings, having read the Auditors' special report on the agreements and commitments referred to in article L. 225-86 of the French Commercial Code, approves the agreement formalizing the commitment of the Company to support its subsidiary AREVA TA in the event that the latter should not be able to assume its significant loss, authorized by the Supervisory Board of November 26, 2014 and signed on that same day.

#### SIXTH RESOLUTION

#### Ratification of the appointment by cooptation of Mr. Daniel Verwaerde as Director

The Shareholders' Meeting, voting under the conditions of quorum and majority required for ordinary Shareholders' Meetings, ratifies the appointment by cooptation of Mr. Daniel Verwaerde as member of the Board of Directors, by the Board of Directors on February 2, 2015, to replace Mr. Bernard Bigot until the end of his predecessor's remaining term of office, i.e. until the Shareholders' Meeting that will be called to approve the financial statements for the fiscal year ending December 31, 2018.

#### **SEVENTH RESOLUTION**

#### Opinion on components of compensation for 2014 due or awarded to Mr. Luc Oursel, Chairman and member of the Executive Board

Pursuant to the quorum and majority requirements of Ordinary Shareholders' Meetings, the Shareholders' Meeting, consulted in accordance with the

recommendations of paragraph 24.3 of the Afep-Medef Corporate Governance Code for Listed Companies of June 2013, the code to which the Company refers pursuant to article L. 225-37 of the French Commercial Code, having considered the presentation on the components of compensation for 2014 due or awarded to Mr. Luc Oursel, Chairman and member of the Executive Board until December 3, 2014 included in the report of the Board of Directors, issues a favorable opinion on said components, as listed in Section 15, paragraph 15.1.1 of the AREVA Reference Document 2014.

#### **EIGHTH RESOLUTION**

Opinion on compensation items for 2014 due or awarded to Messrs. Philippe Knoche, member of the Executive Board and Chief Operating Officer then Chief Executive Officer, Olivier Wantz, member of the Executive Board and Senior Executive Vice President, and Pierre Aubouin, member of the Executive Board and Senior Executive Vice President

Pursuant to the quorum and majority requirements of Ordinary Shareholders' Meetings, the Shareholders' Meeting, consulted in accordance with the recommendations of paragraph 24.3 of the Afep-Medef Corporate Governance Code for Listed Companies of June 2013, the code to which the Company refers pursuant to article L. 225-37 of the French Commercial Code, having considered the presentation on the components of compensation due or awarded to Messrs. Philippe Knoche, member of the Executive Board and Chief Operating Officer then Chief Executive Officer, Olivier Wantz, Senior Executive Vice President and member of the Executive Board, and Pierre Aubouin, member of the Executive Board and Chief Financial Officer, for the fiscal year ended December 31, 2014 included in the report of the Board of the Directors, issues a favorable opinion on said components, as listed in Section 15, paragraph 15.1.1 of the AREVA Reference Document 2014.



## RESOLUTIONS TO BE CONSIDERED BY THE EXTRAORDINARY SHAREHOLDERS' MEETING

#### **NINTH RESOLUTION**

#### Amendment of the conditions concerning participation at Shareholders' Meetings; amendment of article 29 of the Articles of Association

The Shareholders' Meeting, voting under the conditions of quorum and majority required for extraordinary Shareholders' Meetings, having read the report of the Board of Directors, decides, in accordance with articles L. 225-106 I and R. 225-85 of the French Commercial Code, to modify the conditions for participation in Shareholders' Meetings by setting the record date at the second business day preceding the meeting.

Consequently, the Shareholders' Meeting decides to amend article 29 "Admission to General Meetings – Share Ownership" of the Company's Articles of Association, as follows:

« 1. Any shareholder may attend General Meetings, in person or by proxy, as provided by law, by offering proof of identity and share ownership, either by registering the shares with the Company at least two days prior to the General Meeting or, in the case of bearer shares, by providing a statement issued by the custodian confirming that the shares have been recorded in the register of bearer shares.

(...) »

The rest of article 29 is not amended.

#### TENTH RESOLUTION

#### Powers to carry out formalities

The Shareholders' Meeting, voting under the conditions of quorum and majority required for ordinary and special Shareholders' Meetings, grants all powers to the holder of an original, copy or excerpt of the minutes of its deliberations, to carry out any filings and formalities required by law.



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## **1. PREAMBLE**

#### A Shared and Responsible Vision

As a commercial company in a competitive market, we offer low-carbon solutions for power generation in the nuclear and renewable energies fields. Our goal is to achieve the highest possible returns and performance by designing, marketing and supplying products and services that are competitive, safe and harmless to the environment, and that help improve standards of living for our planet's inhabitants. We expect every one of our employees to work towards this goal. The AREVA employee complies with the laws of the country in which he or she works, and in compliance with the principles of Human Rights as defined in the Universal Declaration of Human rights.

Energy is a basic requirement for worldwide economic development, particularly in less developed countries, but the greenhouse effect depends to a great extent on how that energy is produced. AREVA feels a strong sense of responsibility towards our neighbors on this planet and towards the generations that will succeed us. We endorse the U.N. Global Compact, and sustainable development and continuous improvement form the core of AREVA's industrial strategy. We also comply with the OECD Guidelines for Multinational Enterprises, with the Extractive Industries Transparency Initiative (EITI) and with the Nuclear Power Plant Exporters' Principles of Conduct published by the Carnegie Endowment.

In a complex, changing and multicultural world, Our Values at AREVA, the group's Values Charter, offers guidance to our employees. Not only will they find in them a clear explanation of their rights and responsibilities with regard to AREVA and all of our stakeholders, they will also find values with which they can identify, values worth defending.

AREVA's values express the group's responsibility to our customers, our employees, our shareowners and all of the communities in which we play a role, directly or indirectly.



### 2. **OUR VALUES AT AREVA**

Our values at AREVA are all about the best possible economic performance as a company while respecting human rights, the environment in the broadest sense of the term, and the laws that protect them. In a word, these values seek to satisfy stakeholder requirements, in the present and over the long term.

### Safety and Physical Security

The very nature of our businesses demands an acute sense of professionalism. For AREVA this translates into implementation of the highest standards for safety and physical security. It also implies superior know-how as well as constant vigilance in the fields of quality and environmental protection. AREVA fosters team spirit and creates working conditions that are conducive to professional fulfillment.

### Transparency

Transparency, sincere communications and openness to dialog are hallmarks of our communication programs. Our goal is to provide reliable and pertinent information enabling an objective assessment of our environmental, financial, social and societal performance.

### Profitability

We have a duty to achieve and maintain high returns for our shareowners, our employees and all of our stakeholders.

#### Responsibility

As a major player in the energy market, we have a special responsibility not only to our direct stakeholders, but to the public at large, which will ultimately benefit from our products and services.

#### Integrity

Honesty, integrity and fairness govern all our actions and practices. We comply scrupulously with the laws and regulations of every country in which we operate.

#### **Customer Satisfaction**

Our growth and sustainability as a group, and thus our ability to meet our commitments to our stakeholders, are conditioned on customer satisfaction.

#### Partnership

AREVA seeks to build frank and constructive relationships with all stakeholders. To meet their needs, we cultivate a spirit of partnership based on mutual responsibility. receptiveness and dialog. Our approach is to become involved in every one of the communities in which we do business. It is based on respect for local customs and on understanding the communities' wishes.



## **3. ACTION PRINCIPLES**

#### With Regard to AREVA's Stakeholders

#### Customers

AREVA's goal is to offer products, services and expertise enabling our electric utility and manufacturing customers to grow while meeting their responsibilities with regard to their own stakeholders.

AREVA's ears are always open to our customers. We try to anticipate as well as meet their needs. We deliver what we promise and we don't promise more than we can deliver.

At AREVA, we respect our customers' culture and work to protect their image and their interests

Our technologies and services are designed, supplied and marketed in accordance with the highest safety, physical security, environmental protection and quality standards.

We protect the confidentiality of the data and know-how that our customers and partners entrust to us with the same degree of care as if they were our own, to the fullest extent of the law and regulatory requirements.

#### Shareholders

## AREVA is guided by principles of corporate governance, particularly in its pursuit of shareholder returns and the growth of their invested capital.

Our shareholders deserve accurate and pertinent financial information, and we at AREVA make every effort to ensure that they receive it.

We believe that all shareholders should be treated equally, and we go beyond the minimum requirements set by stock market regulators to ensure that we do so.

#### **Employees**

#### AREVA's Commitments to its Employees

AREVA's workforce is constituted without discrimination as to, in particular, race, color, religion, age, gender, sexual orientation, political opinions, national extraction or social origin. We believe that management should increasingly mirror this diversity.

We are committed to creating good working conditions and providing our employees with the resources they need to achieve professional fulfillment.

We trust our employees and are committed to honest, frank, two-way dialog with them and the organizations that represent them.

We wish to help employees maintain and increase their know-how in every aspect of their job, and we offer training programs for that purpose.

At AREVA, we respect the privacy of our employees. AREVA remains neutral regarding political opinions, philosophical beliefs and religious faiths. We expect our employees to respect the beliefs of others and to refrain from any proselytizing.

#### **Employee Commitments to AREVA**

Employees are expected to comply with the AREVA Values Charter. They are the owners and the defenders of these values, individually and as a group. The same is expected of temporary personnel.

AREVA employees are customer-oriented.

They demonstrate an acute sense of professionalism, skill, precision and rigor, and obey laws and regulations. They shall keep a formal trace of all operations they perform, as well as of those subcontracted to others.

Alerting management to a malfunction or a legal or regulatory non-compliance is both a reflex and a duty. When it comes to AREVA's proper operation, there shall be no internal hierarchical barrier to the transmittal of the alert.

AREVA employees take pride in achieving and maintaining excellence in product and service quality. They impart knowledge to each other to ensure that everyone does the same. Lessons learned are systematically put into practice.

#### Suppliers and Subcontractors

# AREVA seeks, through a competitive process, lasting partnerships with its suppliers and subcontractors as a means of offering its customers the best possible level of service.

AREVA shall do its utmost to ensure that regular suppliers to its core businesses, subcontractors, financial partners, consultants and commercial intermediaries (distributors, agents, etc.) subscribe to this Charter. Their own regular suppliers and subcontractors and AREVA's manufacturing partners are also urged to subscribe to it, at least for those activities directly relating to AREVA.

# We are committed to frank, fair, unbiased and mutually respectful relations with all of our suppliers, subcontractors and partners from the very beginning of the procurement process.

We protect their image and confidential data with the same degree of care as if they were our own.

We reserve the right to verify that supplier and subcontractor practices are consistent with the AREVA Values Charter at any time and at any point in the supply chain for goods and services.

When our subsidiaries serve as suppliers, they are treated with the same fairness and respect as other suppliers.

#### The Public, the Planet

At AREVA, we are committed to openness and involvement in public forums, and we use our information and communication resources ethically. We make every effort to provide straightforward information on our business strategy, our technologies and our performance to decision-makers and citizens alike.

For AREVA, protecting the common good that is our environment encompasses every aspect of human welfare in its interaction with nature. AREVA's environmental policy and its risk management programs are based on this principle and aim at reducing the environmental footprint of its activities and at preserving biodiversity in the regions where the Group is an industrial or mining operator. Preserving natural resources through recycling also demonstrates AREVA's care for the Planet.



## 4. RULES OF CONDUCT

## **International Treaties**

In the nuclear business, we supply products, services and technologies only to nations and companies from those nations that comply with international provisions in force relative to non-proliferation, IAEA safeguards and export controls. This is an absolute condition. We also comply with the governmental export policies, laws and regulations of the nations in which AREVA is located.

## **Conflicts of Interest**

All employees shall show loyalty to AREVA. Any situation in which their personal interests or those of their relations might conflict with the business interests of the AREVA group should be immediately called to the attention of their immediate supervisor. Such conflicts include relationships with suppliers, customers, known competitors or any organization or person associated with AREVA or that seeks such association.

# Employees shall not intentionally place themselves in a conflict of interest situation and may not participate in any evaluation, meeting or decision relative to subjects in which they or their relations have a personal interest.

To avoid any ambiguity or appearance of favoritism, a spouse, child or other relation of the employee may be hired or given an assignment of any kind only with the permission of the employee's supervisor, following the same conflict of interest rules, and only based on objective criteria. The employee in question may not participate in the selection of his or her relation.

Conflicts of interest called to the attention of a supervisor are reviewed case by case by both the supervisor and the supervisor's supervisor. They shall settle the conflict in accordance with the law and regulations in effect.

It is not possible to list every conceivable conflict of interest situation. The following potential conflicts of interest shall in particular be declared by employees:

- a manager or a relation holding personal interests in a company that is a customer, supplier (including consultants, financial partners and others) or competitor of the group;
- an employee sitting on the Board of Directors or who is an executive of an outside company associated with the group;
- an employee or a relation who is a consultant or occupies a management position or is a member of the marketing and sales or purchasing department of another company associated with the group or that seeks such association;
- an employee or a relation who provides premises, equipment or personal property to the group for a fee.

## **Insider Trading**

Business confidential information is identified to management and employees and it is their duty to maintain the confidentiality of such information with regard to others, including their relations. They are aware of the insider trading risks that this information entails and shall comply with the procedure for good conduct in force in the Group with respect to inside information.

Managers agree not to acquire or to sell, directly or indirectly, shares or securities in subsidiary companies, whether publicly listed or not, as provided by law, except as provided in an AREVA group procedure relative to the protection of inside information. They further agree to inform the appropriate management control body of their company immediately if any such acquisition or sale is made.

## Corruption, Gifts and Unfair Advantage

## **General practice**

There is zero tolerance for corruption. Relations between group employees and the group's customers, suppliers, partners and public services are handled with objectivity and integrity. Management shall be notified forthwith of any known cases of corruption, be it active or passive, and of any attempts to corrupt third parties, and shall immediately take measures it deems appropriate to determine the veracity of the situation, notably by performing the appropriate audits, and put an end to such unlawful behavior should it be proven.

AREVA prohibits corruption in any form whatsoever, whether public or private, active or passive. AREVA shall refrain from giving, proposing, promising or soliciting, either directly or indirectly, all payment or supply of services, gifts or leisure activities from or to a government official or private agent, in order to illegally obtain or conserve a market or a competitive advantage.

Employees shall avoid all situations in which they might find themselves beholden to a third party, however temporarily, as well as all ambiguous situations and all situations in which misunderstanding is possible.

## Gifts

AREVA is perfectly aware that exchanging small gifts or invitations of nominal value can, on occasion, make a legitimate contribution to good business relations. However, in both the public and private sectors, gifts or invitations shall be offered and received by employees in strict compliance with all applicable laws and regulations, and in a totally transparent manner. Gifts or invitations should never influence decisions, or be seen as having an influence on those giving and receiving them.

In this respect, employees must demonstrate sound judgment and a heightened sense of responsibility. If an employee is obliged to accept or give a gift or invitation of considerable value to comply with local custom, protocol and other circumstances, he/she shall refer the matter to the appropriate managerial level where a decision will be taken as quickly as possible in accordance with all applicable laws and regulations.

Gifts between AREVA business units or subsidiaries and any other internal marketing expenses are not allowed.

## Payments

All AREVA entities and all managers must be able to justify the actual source and use of any sum at all times. This also applies to interim project accounting.

## All sums, whether paid or received, must be completely and exactly described in a contract and recorded as such in the corporate accounts.

Payment methods that intentionally or unintentionally hide the identity of a payer or a beneficiary are forbidden.

Any contract with a commercial intermediary must be approved in advance by the legal and financial management of the main reporting subsidiary.



### **Political Financing**

No AREVA group company shall provide funds or services to a political party, a holder of a public office, or a candidate for such office.

However, in member nations of the OECD, where corporate contributions of this kind are legal, electoral campaign funding that complies with the legislation in effect in those nations is allowed. These contributions are subject to the prior written approval of the senior executive of the subsidiary in question, who shall endeavor to keep them to a minimum.

The amount of the funding and the recipients shall be listed in the summary report attached to the annual compliance letter prepared by the senior executive of the subsidiary.

#### Philanthropy, Donations, Humanitarian Activities

The AREVA Foundation defines policy and establishes programs for such activities. Employee involvement in the programs is of particular interest to the AREVA Foundation.

#### Spirit

AREVA's philanthropical and sponsorship activities follow the principles set forth in the Preamble to this Charter. These activities are strictly benevolent and are not contingent upon a commercial or administrative benefit to the group.

## Conditions

AREVA's role in these activities is limited to sponsorship. AREVA takes no responsibility for the management or execution of the activities it sponsors and agrees to sponsor projects or activities on the express condition that the organizers take sole responsibility for them and have met all of the pertinent legal and administrative requirements and secured the necessary approvals and guarantees.

Donations to governmental agencies, local administrations or individuals are not allowed, nor are cash payments for any reason.

## Competition

AREVA and its employees shall comply with all applicable French, European and international competition laws and with the laws in force in all countries in which the Group does business.

AREVA and its employees shall refrain from distorting, either directly or indirectly, a free spirit of competition in all of its commercial transactions. They shall also refrain from all unfair behavior towards competitors and shall not enter into illegal competition agreements.

All information on third parties, particularly AREVA's competitors, shall be collected or used in strict compliance with all applicable laws.

#### **Threats against Persons and Property**

Employees shall immediately call any situation that may threaten persons or property to the attention of management.

#### Persons

AREVA shall ensure that operations performed at its sites comply with applicable rules and regulations and with the group's policies on health, safety and environmental protection.

#### We conduct our operations with the utmost respect for human dignity and will not tolerate harassment of any kind nor any violation of human and children's rights.

Any failure to meet these obligations shall be called to the attention of the appropriate level of management, which shall immediately ascertain whether such practices have occurred, call for the necessary audits to be conducted, and put a stop to such practices immediately.

#### Reputation and brand image

AREVA's reputation is one of its most vital assets.

Employees shall neither do or say anything that could have a deleterious effect on AREVA's reputation, image or credibility.

Criticism, smugness, rudeness and disregard for others in an international setting are a sign of disrespect for one's host and are unacceptable behavior in our employees.

#### Intangible corporate assets

Employees shall ensure that confidential information, whether marked as such or not, is protected from infringement, theft, loss, deterioration, diversion, disclosure, reproduction, falsification or use for non-work-related, illicit or secret purposes, particularly on the internet and intranet.

This relates in particular to technical and administrative data; files on customers, prospects and suppliers; software; passwords; documentation and drawings; methods and know-how; proprietary manufacturing methods, skills and parameters; intellectual and industrial property; estimates; contracts and agreements; unpublished cost and sales prices; strategic and commercial objectives; R&D information; financial and labor-related information; and the names of specialists and experts and their contact information.

#### **Primacy of Our Values at AREVA**

Any employee who receives an order that is manifestly contrary to the AREVA Values Charter may legitimately refuse to comply, shall immediately report the matter to the AREVA group, and will not suffer any kind of retaliation if the facts cannot be questioned.



## 5. THE TEN PRINCIPLES OF THE U.N. GLOBAL COMPACT

The Global Compact's principles in the areas of human rights, labor and the environment enjoy universal consensus derived from:

- the Universal Declaration of Human Rights;
- the International Labor Organization's Declaration on Fundamental Principles and Rights at Work;
- the Rio Declaration on Environment and Development.

The ten principles are:

## **Human Rights**

#### Principe 1

Businesses are asked to support and respect the protection of international human rights; and

#### Principe 2

make sure their own corporations are not complicit in human rights abuses.

#### Labor

#### Principe 3

Businesses are asked to uphold the freedom of association and the effective recognition of the right to collective bargaining;

#### Principe 4

the elimination of all forms of forced and compulsory labor;

#### Principe 5

the effective abolition of child labor; and

## Principe 6

the elimination of discrimination in respect of employment and occupation.

#### Environment

## Principe 7

Businesses are asked to support a precautionary approach to environmental challenges;

#### Principe 8

undertake initiatives to promote greater environmental responsibility; and

#### Principe 9

encourage the development and diffusion of environmentally friendly technologies.

## Anti-corruption

## Principe 10

Businesses should work against all forms of corruption, including extortion and bribery.

## **OUR VALUES**

## SAFETY AND PHYSICAL SECURITY – TRANSPARENCY – PROFITABILITY – RESPONSIBILITY – INTEGRITY – CUSTOMER SATISFACTION – PARTNERSHIP

Headings	s of the Board of Directors' Management Report	Sections of the 2014 Reference Document
1	Situation and activities of the company and its subsidiaries	
1.1	Overview	Section 9.1
1.2	Situation and activities of the company and its subsidiaries by business segment during the year	Section 9.2
1.3	Research and Development activities	Section 11.1.1
1.4	Key non-financial performance indicators related to the company's specific activities	Appendix 3, Section 2.4
1.5	Foreseeable developments and future prospects	Section 12
1.6	Significant events between the date of closing and the date of preparation of the management report	Section 9.3
1.7	Description of major risks and uncertainties confronting the company	Sections 4.1./4.2./4.3. 4.4./4.5. and 4.7
1.8	Company exposure to price, credit, liquidity and cash management risk	Section 4.6
1.9	Information on accounts payable to suppliers	Section 20.6
1.10	Acquisitions during the year of a significant interest in or control of companies whose head office is on French territory	Section 25.1
2	Presentation of the annual financial statements	Sections 20.1 to 20.4
3	Information on the share capital	
3.1	Share capital and treasury shares	Section 21.1
3.2	Status of employee shareholding as of the last day of the period. Percentage of share capital held by employees of the company and of its associates	Section 18.
4	Information on directors and officers	
4.1	List of offices and functions exercised in any company by each of the directors and officers	Section 14.
4.2	Status of directors and officers: appointment, renewal, notification of cooptation	Appendix 1, Section 3.
4.3	Compensation and advantages of any kind paid during the reporting period and criteria applied to their calculation or the circumstances under which they were established	Section 15.
4.4	Detail of commitments of any kind made by the company towards its directors and officers, and in particular any item of compensation, payments or benefits due or likely to be due as a result of the assumption, cessation or change of and in these functions or thereafter. Description of methods for determining said commitments as well as their amounts if they appear in the agreements.	Section 15.2
4.5	Stock options allowing subscription or acquisition of shares for no consideration	Section 15.2
5	Miscellaneous information	
5.1	Resolutions submitted to the Annual General Meeting of Shareholders	Appendix
5.2	Injunctions and fines for anti-competitive practices	Sections 20.2., Note 34/20.8
5.3	Agreements referred to in Article L. 225-102-1 paragraph 13 of the French Commercial Code	Section 21.
6	Social, societal and environmental information	
6.1	Human resources information	Sections 17.1./17.2. and 17.3
6.2	Health and safety	Sections 17.4./17.5./17.6 and 17.7., Appendix 3 Section
6.3	Environmental information	Appendix 3, Section
6.4	Societal information	Appendix 3, Sections 3 and
6.5	Reporting methodology and report of the Statutory Auditors on certain social, environmental and societal information	Appendix
7	Documents to be appended to the management report	
7.1	Five-year financial summary	Section 20.5
7.2	Summary of delegations of competence and authority in effect given to the Executive Board by the Shareholders concerning capital increases, and the use of those delegations during the year ended December 31, 2013.	Section 21.1.5

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## **GLOSSARIES**

1. TECHNICAL GLOSSARY

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2. FINANCIAL GLOSSARY

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## 1. TECHNICAL GLOSSARY

## > Actinide

Chemical element whose nucleus contains from 89 to 103 protons. In ascending order: actinium, thorium, protactinium, uranium and transuranics (more than 93 protons). Neptunium, americium and curium are often called minor actinides.

## > Activation

Process by which a stable atomic nucleus is transformed into a radioactive nucleus. The transformation mainly takes place when an atomic nucleus bombarded by a neutron flux captures a neutron.

#### > Air treatment system

Generally used to reduce emissions of pollutants to the atmosphere (CO $_2$ , dust, NOx, SOx, HCI, dioxins, etc.).

May also be used to maintain an atmosphere that is favorable to machinery placed in a corrosive environment, such as offshore wind turbines, where the humidity and salinity of the air can cause rapid deterioration of the equipment.

#### > ALARA ("as low as reasonably achievable")

Concept used to keep public and personnel exposure to ionizing radiation as low as reasonably achievable, taking into account social and economic factors.

#### > Alloy

Metallic compound consisting of a mixture of several metals.

#### > Americium

Artificial element included in transuranics. It has several isotopes, all of which are radioactive. It is formed in nuclear reactors by neutron capture on the uranium and plutonium, followed by radioactive decay.

## > Anaerobic

Characteristic of a medium defined by the absence of oxygen. Anaerobic fermentation is the biological degradation of organic matter by microorganisms in the absence of oxygen.

#### > ANDRA (Agence nationale pour la gestion des déchets radioactifs)

An établissement public à caractère industriel et commercial (public industrial and commercial agency) created by French law on December 30, 1991 in charge of long-term radioactive waste management and disposal operations.

It has three areas of responsibility:

- an industrial mission, by which the agency provides for the management, operation and monitoring of radioactive waste disposal centers, designs and builds new centers for waste that is not acceptable in existing facilities, and defines radioactive waste packaging, acceptance and disposal specifications in accordance with nuclear safety rules;
- a research mission, by which the agency participates in and contributes to research programs pertaining to the long-term management of radioactive waste, in particular in cooperation with the Commissariat à l'énergie atomique (CEA); and
- an information mission, in particular through the periodic development of a register of all radioactive waste and materials on French territory.

#### > ARIA scale

European severity scale for industrial accidents made official in 1994 by the Committee of Competent Authorities of the Member States, which implements the Seveso directive. It is based on eighteen technical parameters designed to objectively characterize the effects or consequences of accidents: each of these eighteen parameters includes six levels. The highest level determines the accident's severity index.

#### > ASN (Autorité de sûreté nucléaire)

The ASN is an independent administrative authority charged by the French State to regulate nuclear safety and radiation protection and to keep the public informed of these subjects. It reports to the French Parliament.

#### > Assembly, fuel assembly

A monolithic assembly of nuclear fuel rods filled with fuel pellets (in the case of MOX fuel, made of a mixture of uranium and plutonium oxides). Depending on its generating capacity (*e.g.* from 900 MWe to 1,600 MWe), the reactor core of a pressurized water reactor (PWR) contains from 150 to 240 fuel assemblies. The dimensions of the assemblies and the quantity of fissile material they contain are a function of the reactor type.

#### > Atom

Component of matter consisting of a nucleus containing positively charged or neutral particles (protons and neutrons), which account for almost all of its mass, around which negatively charged particles (electrons) spin.

## > Becquerel (Bq)

See unit of measurement.

## > Bioenergy

Fuel of animal, organic or plant origin (agricultural or forest) used to produce energy (heat and/or electricity).

## > Biofuel (or agrofuel)

Fuel for transportation applications produced from biomass. A distinction is made today between first generation biofuels (biodiesel and bioethanol) and second generation biofuels (biomass-to-liquid and cellulosic ethanol); third generation biofuels (algae fuels) are anticipated in the future.

#### > Biogas

Gas produced by biomass fermentation composed primarily of  $CH_4$  and  $CO_2$ , but also of  $N_2$ ,  $O_2$ ,  $H_2O$ ,  $H_2S$  and  $NH_3$ . It is currently produced from treatment plant sludge, household refuse, agricultural waste and waste from the agri-food industry.

#### > Biogas power plant

Power plant that produces biogas from wet biomass to generate heat and/or electricity. Its main components are the fermenter, which converts wet biomass into biogas, biogas storage, a biogas treatment system, digester sludge storage, and a gas turbine or engine to produce energy.

#### > Biomass

Any organic matter of plant, animal or human origin. Biomass can be classified by origin, chemical composition or its use for energy. When used to produce energy, solid biomass from forestry, agriculture and agri-food activities, wet biomass such as waste, effluents, or treatment plant sludge, and other biomass may be chosen, in addition to energy crops, which are plants cultivated exclusively for energy production (algae, corn silage, soybeans, etc.).

#### > Biomass burner

Component of a biomass power plant in which a solid biomass fuel is burned. The heat released by combustion is used to raise the temperature and/or pressure of a heat transfer fluid (typically water) for different types of applications.

#### > Biomass power plant

Typically, a power plant that generates heat and/or electricity from the combustion of a solid biomass fuel. Its main components are a fuel handling system including a storage silo, a system to feed the fuel into the burner, the burner itself (including the fixed or fluidized bed combustion technology and the dog leg system), a steam turbine-generator combination, and combustion fumes to reduce the emission of pollutants to the atmosphere.

#### > Burnup

Assessment of fuel depletion expressed in gigawatt days per metric ton of heavy metal (GWd/MTHM). This is the unit of measurement for the thermal energy supplied by the fuel during its irradiation in the reactor. The term "heavy metal" designates isotopes starting with uranium and up.

#### > BWR (boiling water reactor)

Nuclear reactor moderated and cooled by light water brought to the boiling point in the reactor core under normal operating conditions.

## > Carbon credits

Units allocated to companies leading projects that reduce greenhouse gas emissions. The credits can be sold to help finance the projects. Usually calculated in metric tons of  $CO_2$  equivalent, one carbon credit represents a reduction of one metric ton of  $CO_2$ . It can be used to compensate for greenhouse gas emissions in any sector: industrial, transportation or residential.

Countries that have signed the Kyoto Protocol use carbon credits to achieve their greenhouse gas emissions reduction objectives.

#### > Cask

Structure designed to safely contain the radioactive material transported. It may include a variety of special materials, such as radiation-absorbing materials or thermal insulation materials, as well as service equipment, impact limiters, and devices for handling and securing.

## > CEA (Commissariat à l'énergie atomique et aux énergies alternatives)

A public scientific, technical and industrial research organization that is in a category by itself in France.

In addition to its fundamental research activities in materials and life sciences, the CEA is active in three major fields: defense and global security, energies that do not emit greenhouse gases, and technologies for information and health. It is tasked with promoting the use of nuclear power for scientific and industrial purposes and for national defense.

## > Centrifugation

Uranium enrichment process that takes advantage of the difference in mass between the 235 and 238 isotopes of uranium, whereby a gaseous mixture of isotopes is spun at high speed and the centrifugal force is used to modify the composition of the mixture. Ultracentrifugation currently has the highest efficiency of the enrichment processes.

## > Chemical element

Category of atoms that all have the same number of protons in their nucleus.

## > Cladding

Sealed metal tube constituting the outside of the fuel rod in which the nuclear fuel is inserted to protect it from corrosion by the coolant and prevent the dispersion of fission products. Cladding constitutes the primary containment barrier. For pressurized water reactor fuel, the cladding is made of zircaloy, an alloy of zirconium.

#### > Cleanup

All technical operations to eliminate the risks related to industrial operations and radioactivity in a nuclear facility, consisting of decontaminating the structures, fixtures, floors and walls of the buildings.

## > Cogeneration

Combined production of heat and electricity in the same power plant. One or more fuels may be used, including biomass, biogas (methane), natural gas, coal and fuel oil.

## > Compact linear Fresnel reflector (CLFR)

Technology using rows of flat or very slightly curved mirrors to concentrate the sun's rays towards a fixed horizontal linear receptor consisting of a tube or a bundle of tubes in which the heat transfer fluid flows. The operating fluid is heated by the incident rays of the sun. When the fluid is water, it is referred to as direct steam generation technology (DSG). The luminous energy is converted into thermal energy; the water is heated and converted into steam, and may subsequently be superheated. The steam can then be used directly as process steam for industrial applications or sent to a turbine to generate electricity.

## > Complex biomass and biomass mixture

Complex biomass and biomass mixtures require suitable combustion equipment with better control than for standard biomass.

Complex biomass from farming or forestry are characterized by physico-chemical properties that are difficult to keep under control, such as high concentrations of chlorine (straw), causing corrosion, alkalis (oil palm stalks, empty fruit bunches), causing fouling, or moisture (eucalyptus bark), causing incomplete combustion.

Biomass mixtures are difficult to process due to differences of form among types of biomass and of the previously mentioned physico-chemical properties.

It takes a specially designed burner and combustion bed to be able to recover the maximum energy from this type of biomass without wearing out the equipment prematurely.

## > Concentrated solar power plant (CSP)

Power plant in which the source of heat is a solar field. The field consists of mirrors that concentrate the sun's rays on a fluid, raising its temperature, so that luminous energy can be converted to thermal energy. The thermal energy is then converted into mechanical energy and finally into electrical energy via a turbine.

## > Containment

System of protection that consists of containing radioactive products inside a defined area.

## > Containment area

During the construction of a facility designed to contain radioactive materials, a series of containment barriers is put up between the materials inside and the environment outside the facility as part of the engineered structures. This creates separate areas called "containment areas".

## > Containment barrier

System capable of preventing or limiting the dispersion of radioactive materials.

## > Contamination

Presence of radioactive substances (dust or liquid) on the surface or inside a medium. Contamination in humans may be external (on the skin) or internal (via the skin or the respiratory or digestive tracts).

## > Controlled areas

Areas where access and conditions for residence time are restricted for reasons of radiation protection.

## > Control rods

Made of neutron-absorbing chemical elements such as boron or hafnium, these rods, often assembled as "clusters", are inserted in the core of a nuclear reactor to control the chain reaction, *i.e.* to regulate the neutron flux.

## > Conversion

Series of chemical transformations that convert the solid uranium concentrate (usually in the form of an oxide) into uranium hexafluoride (UF<sub>6</sub>, which sublimates at about 56°C) for the purpose of enriching it in fissile uranium (<sup>235</sup>U), and vice versa.

## > Coolant, heat transfer fluid

Fluid flowing in the core of a nuclear reactor (coolant) or in the recipient of a solar steam generator (heat transfer fluid) to transfer heat.

#### > Criticality

A medium containing a fissile nuclear material becomes critical when neutrons are produced by fission of the material at the same rate as they dissipate through absorption and/or escape to the outside. To sustain a fission chain reaction, a continuously operating reactor must be maintained in a critical state. In a subcritical state, not enough neutrons are produced and the reaction stops. In a supercritical state, too many neutrons are produced and a runaway nuclear reaction can occur that can rapidly get out of control.

#### > CSP (concentrated solar power)

Concentrated solar power is one way to use solar radiation directly. The technology consists of concentrating solar radiation to heat a fluid to a high temperature and then generate electricity using a turbine, or provide process steam or heat to industry.

### > Cumac

Name of the accounting unit used in the French system for "white certificates", or energy consumption reduction certificates. "Cumac" is a combination of the French words for cumulative (cumulé) and discounted (actualisé) over the product lifecycle. kWh Cumac and GWh Cumac are typically used.

#### > Decay

Natural reduction of the activity of a radioactive substance through spontaneous disintegration.

#### > Decommissioning

Administrative procedure consisting of removing a facility from the list of regulated nuclear facilities. At that point, the facility is no longer subject to the legal and administrative requirements pertaining to regulated nuclear facilities.

#### > Decontamination

Decontamination is a physical, chemical or mechanical operation designed to eliminate or reduce the presence of radioactive or chemical materials deposited on a person or equipment, or in a facility or open area.

#### > Defense in depth

A series of lines of defense designed to prevent the appearance, or limit the consequences as necessary, of human or technical failures that could lead to accidental situations.

#### > Deuterium

Isotope of hydrogen whose nucleus consists of one proton and one neutron.

#### > Dismantling

Technical and administrative procedures carried out following the final shutdown of a nuclear facility to achieve a designated final state enabling it to be decommissioned. Besides the physical dismantling of all machinery and equipment, dismantling includes decontamination and radioactive waste management.

#### > Dose

Measurement of the exposure of an individual to radiation. Exposure is a function of the energy received and the effects related to the type of radiation. Doses are measured in millisieverts (mSv), a subunit of the sievert (1 Sv = 1,000 mSv). The mean annual dose from exposure to natural background radiation in France is 2.4 mSv/person.

#### > Dosimeter

The instrument for measuring radioactive doses received by an individual, or by certain of that individual's organs (passive or operational dosimetry), or by the environment (site dosimetry).

#### > Eco-design

Design of a product or an industrial installation that helps reduce the consumption of natural resources and limit releases likely to impact the environment.

#### > Electrolyzer

Electrochemical system (energy receptor) in which liquid water is separated into oxygen and hydrogen by an electrical current that passes between two electrodes. The ions produced by the oxidation-reduction reactions flow freely from one electrode to the other. The two electrodes (cathode: reduction reaction; anode: oxidation reaction) are linked by the electrolyte and the electric current generator.

In the alkaline electrolyzer, the electrolyte is a potash solution that circulates or is immobilized in a retention matrix; in the membrane electrolyzer, the electrolyte is in the form of a proton conduction ion exchange membrane.

#### > End-of-lifecycle operations

All of the regulatory obligations for shutting down and dismantling nuclear facilities and managing radioactive waste.

#### > Enriched uranium, depleted uranium

Before it is used to fabricate fuel elements for reactor systems moderated and cooled with ordinary water, natural uranium is enriched in <sup>235</sup>U to a concentration of 3-5%. Natural uranium is used to produce uranium enriched in <sup>235</sup>U. The physical or chemical processes used to enrich uranium also produce uranium that has a lower concentration of <sup>235</sup>U than natural uranium (0.2 to 0.4%): this is known as depleted uranium.

#### > Enrichment

Process used to increase the abundance of fissile isotopes in a chemical element. Naturally occurring uranium essentially consists of 0.7% <sup>235</sup>U (fissile isotope) and 99.3% <sup>238</sup>U (non-fissile isotope), and must be enriched in <sup>235</sup>U for it to be used in a pressurized water reactor. The proportion of <sup>235</sup>U is brought to around 3 to 5%.

#### > Environmentally regulated facility

Installations and facilities "listed in the nomenclature of regulated facilities that may represent hazards or drawbacks, whether for the convenience of the surrounding area, for health and safety, for agriculture, for the protection of nature, the environment and the countryside, or for the preservation of sites and monuments as well aspects of an archeological nature."

#### > Environmental Management System (EMS)

Part of the overall management system, which includes the organizational structure, planning activities, responsibilities, practices, procedures, processes and resources to develop, implement, carry out and maintain the environmental policy.

#### > EPR reactor

Generation III+ pressurized water reactor (PWR). It generates 1,600 MWe of electric power and features a greater level of safety than generations II and III reactors and simplified operations and maintenance. It also has a projected service life of 60 years, compared with an initial service life of about 40 years for the reactors currently in operation around the world.

#### > ERU

Fuel made with recycled uranium.

#### > Euratom

Treaty signed in Rome on March 25, 1957, together with the treaty that founded the European Economic Community (EEC). It institutes the European Atomic Energy Community, which aims to establish "the conditions necessary for the formation and rapid growth of nuclear industries." Its mission consists of contributing, through the development of nuclear energy, to the sharing of knowledge, infrastructure and financing and to ensuring the security of supply within the framework of centralized control. It brings together the 27 member states of the European Union.

#### > Exposure

Exposure of an organ or an organism to a source of radiation, characterized by the dose received.

#### > Fertile

Said of a nuclide that can be converted into a fissile nuclide via capture of a neutron, possibly followed by a series of disintegrations.

#### > Final radioactive waste

Radioactive waste that can no longer be treated, in particular by extracting its reusable content, under current technical and economic conditions.

#### > Fissile

Describes a nuclide capable of undergoing fission; the fission of atoms gives rise to several neutrons.

#### > Fission

The spontaneous or forced splitting of a heavy nucleus – generally after absorption of a neutron – into two or three smaller nuclei, or fission products, accompanied by the emission of neutrons and radiation and the release of a considerable amount of heat. The substantial energy released is the principle underlying nuclear power generation.

#### > Fission products

Fragments of heavy nuclei produced during nuclear fission or the subsequent radioactive decay of nuclides formed during that process. These fission fragments and their decay products are collectively referred to as "fission products".

## > Fuel cell

Electrochemical system that converts the chemical energy of the oxidation reaction of a fuel directly into electrical energy.

In its simplest form, a fuel cell consists of two electrodes (anode and cathode) and is powered with oxidation-reduction couples likely to achieve a balance with the ions contained in the electrolyte. The oxidant in the fuel cells is either pure oxygen or the oxygen in air. The most commonly used reducing agents are gaseous (hydrogen or methanol), liquid (hydrocarbons or methanol) or solid (zinc, aluminum, etc.).

Unlike accumulators, whose energy is dependent on the active matter incorporated into the electrodes, a fuel cell uses reactive chemical species from an external source (outside the cell), and the species formed are constantly eliminated, theoretically ensuring continuous operation.

#### > Fuel cycle

The combination of industrial operations involving nuclear fuel. These operations include uranium ore mining and processing, uranium conversion and enrichment, fuel fabrication, used fuel treatment, recycling of recovered fissile materials to fabricate new fuel, and radioactive waste management. The cycle is said to be "open" when it does not include the recycling of the used fuel, considered as waste to be sent directly to disposal following use in the reactor. Conversely, the fuel cycle is said to be "closed" when it includes used fuel treatment and recycling of fissile materials recovered by such treatment.

#### > Fuel rod

Sealed metal tube made of a zirconium-based alloy measuring about 4 meters long (about 13 feet) and 1 centimeter in diameter (2/5 of an inch) and filled with about 300 pellets of nuclear fuel. The tube is known as cladding.

#### > Fundamental safety rules (règles fondamentales de sûreté, RFS)

Rules designed to clarify the conditions with which compliance, for the specific type of facility under consideration and for its purpose, is deemed to constitute compliance with French regulatory practice.

## > Fused salt

Refers to salts in the liquid phase (fluorides, chlorides and nitrates) that may be used as coolants and for heat storage.

#### > Gaseous diffusion

Process for the isotopic separation of molecular species that uses the difference in the velocity of diffusion of these molecules (related to their different mass), and thus the different rates at which they pass through a semi-permeable membrane. The uranium hexafluorides <sup>235</sup>UF<sub>6</sub> and <sup>238</sup>UF<sub>6</sub> can be separated in this way, causing enrichment in <sup>235</sup>U, the fissile isotope of uranium, for nuclear fuel.

#### > Gear box

The operating concept of wind turbines involves converting the kinetic energy produced by the rotor at slow rotations of around 5 to 15 RPM into electrical energy that is directly supplied to the grid at a frequency of 50 Hz.

The conventional design of wind turbines is based on the use of proven quadripole electrical generators and requires an input speed of 1,500 RPM. A gear box is necessary to adapt the rotor rotation speed to the generator while transmitting energy. A gear box consisting of one or more simple or epicycloidal gear trains is needed to transmit effort while adapting rotation speed.

Hybrid transmission wind turbines such as the AREVA M5000 are based on a multipolar generator (some 40 poles) requiring much lower reduction ratios which are affordable and thus allow the use of much more compact gear boxes.

Direct transmission wind turbines use heavily multipolar generators that are more costly but eliminate the gear box stage completely.

## > General operating rules (règles générales d'exploitation, RGE)

Document describing the operating rules (*règles générales d'exploitation*, RGE) defined for the facility and identifying items important for safety. It describes measures to be taken if facility performance is outside the normal operating mode.

#### > General radiation protection rules

Document containing rules (*règles générales de radioprotection*, RGR) describing the combination of measures taken to protect people and prevent the risk of exposure to radiation.

#### > Generation IV reactor

An innovative reactor system or reactor type that could go on line by the 2040 to 2050 timeframe. These reactor systems are being designed in the framework of international cooperation known as the Generation IV International Forum, in which France is participating. The systems aim to respond to the need to reduce waste volumes, conserve resources, and ensure greater safety and reliability in the nuclear reactors of the future.

#### > Glove box

A transparent enclosure in which equipment or materials can be handled in isolation from the operator. Handling is done with gloves attached in leak-proof manner to openings in the wall of the enclosure or with mechanical manipulators. The enclosure is generally kept at slightly negative pressure to contain radioactive materials.

## > HCTISN (Haut Comité pour la transparence et l'information sur la sécurité nucléaire)

A body for information, consultation and discussion of the risks related to nuclear operations and their impact on public health, the environment and nuclear security. As such, it may issue opinions on any matter in these fields, as well as on related oversight and information. It can also examine any matter pertaining to the accessibility of information on nuclear safety and recommend any measure to ensure or improve transparency in nuclear matters.

#### > Heat recovery

Heat recovery power plants use the residual heat from industrial processes to generate electricity. The technology consists of transferring heat to a heat recovery boiler to produce more heat and electricity via a steam turbine. Heat recovery power plants can reduce demand for energy from industrial facilities and therefore reduce their  $CO_2$  emissions.

## > Heavy metal

Heavy metal is the nuclear material in fuel: uranium and possibly plutonium in the case of MOX fuel. The unit of measurement commonly used for heavy metal is the metric ton of heavy metal (MTHM).

#### > Hulls

Pieces about 3 centimeters long produced by the shearing of the metal cladding (fuel rods) that had contained nuclear reactor fuel.

#### > IAEA (International Atomic Energy Agency)

International organization under the aegis of the United Nations whose role is to promote the peaceful use of nuclear energy and to verify that nuclear materials in users' possession are not diverted to military uses.

#### > INES (International Nuclear and Radiological Event Scale)

International scale designed by the IAEA to facilitate communication about nuclear events. It provides comparative elements that can be used to assess the seriousness of an event. The scale ranges from level 0 (deviation with no safety significance) to level 7 (major accident with considerable health and environmental consequences).

Three criteria apply in the application of the INES:

- offsite radioactive releases;
- the consequences inside the installation (damages or personnel injuries);
- degradation of defense in depth.

#### > Information commission

Established near nuclear sites falling within the realm of National Defense whose mission is to inform the public on the health and environmental impacts of the nuclear operations.

#### > In situ recovery

Mining method consisting of recovering a mineral by injecting an acidic or alkaline oxidizing solution directly into the geologic stratum containing the mineral, thus dissolving it. The term "in situ leaching" is also used.

### > Instrumentation and control system

Combination of electrical and electronic systems used for control, *i.e.* to perform measurements, operate control systems, and ensure the operating safety of a nuclear power plant or any other complex industrial system.

#### > Internal emergency management plan

Describes the organization, response methods and resources to cope with emergency situations (incident or accident) to protect personnel, the public and the environment from radiation, and to maintain the safety of the regulated nuclear facility.

### > Internal operation plan (plan d'opération interne, POI)

Describes organizational procedures and resources available at an industrial site to minimize the consequences of a potentially major disaster for people, property and the environment. It may be required by regulation, pursuant to article R. 512-29 of the French Environmental Code (environmentally-regulated facility with AS classification, any other facility following a prefectorial decision, and certain special facilities such as storage depots of more than 50,000 m<sup>2</sup>).

## > Ionizing radiation

Flux of electromagnetic waves (radio waves, light waves, ultraviolet or X rays, cosmic rays, etc.), of particles of matter (electrons, protons, neutrons), or of a group of such particles. The flux carries energy which rises with the wave frequency or with the particle speed. The effect of radiation on objects and living organisms is to strip electrons from the atoms that make up their matter (whether living or inert), leaving ionized atoms in their wake, which carry electrical charges, hence the generic name of "ionizing" radiation.

### > IPCC (Intergovernmental Panel on Climate Change)

Created in 1988 at the initiative of the G7 countries and made up of UN experts, the IPCC is now part of the World Meteorological Organization in the framework of the UN Environment Program. Its role is to assess scientific, technical and socioeconomic information concerning the risk of human-induced climate change. In this regard, it publishes several reports that forecast, among other things, an average increase in global temperatures in one century.

#### > Irradiation

Exposure of an organism or an organ to radiation when the radiation source is outside the organism.

#### > IRSN (Institut de radioprotection et de sûreté nucléaire)

The French institute for radiation protection and nuclear safety, a public industrial and commercial agency whose mission, in particular, is to conduct research and assessments in the fields of nuclear safety, protection of people and the environment from ionizing radiation, and nuclear materials safeguards. IRSN provides technical support to the ASN and the HFDS.

#### > ISO standards

From the International Standards Organization. The ISO series 9000 standards set organizational and management system requirements for quality to demonstrate the conformity of a product or service, in particular to customer requirements. The ISO series 14000 standards set requirements for the environmental organization and management system designed to prevent pollution and reduce the environmental effects of an activity.

#### > Isotopes

Nuclides whose atoms have the same number of protons in their nuclei, but a different number of neutrons. For example, three main types of uranium isotopes are found in nature: <sup>234</sup>U (92 protons, 92 electrons, 142 neutrons), <sup>235</sup>U (92 protons, 92 electrons, 143 neutrons) and <sup>238</sup>U (92 protons, 92 electrons, 146 neutrons). All of the isotopes of a given element have the same chemical properties, but different physical properties (mass in particular).

#### > Isotopic assay

Ratio of the number of atoms of a given isotope of an element to the total number of atoms of that element contained in matter. Isotopic assay is expressed as a percentage.

#### > Isotopic separation cascade

Arrangement of separative elements ("stages"), which are interconnected to increase the separative effect of a unit element. The gaseous diffusion and centrifugation enrichment processes separate uranium-238 and uranium-235 by exploiting the difference in mass between those isotopes. Because the separative potential of these processes is low to very low, the basic step must be repeated a large number of times in a cascade to achieve the desired level of enrichment. These elementary stages take place in diffusers or centrifuges, which together form a cascade.

#### > ITER (International Thermonuclear Experimental Reactor)

Research initiative that is the product of international scientific cooperation whose objective is to build a controlled fusion demonstrator to validate the potential of nuclear fusion energy.

#### > Jack-up barge

Flat-bottomed boat used to install and maintain offshore wind turbines The barge deploys four pedestals that come to rest at the bottom of the sea to jack it up above sea level so that the foundations, tower, nacelle and rotor can be installed or positioned.

The barges used by AREVA were specifically designed for this purpose and can carry several sets of foundations and turbines to minimize the duration of work at sea.

#### > Leaching, in situ leaching, heap leaching

Extraction of metals through selective dissolution of ore using chemical solutions, whether acidic or alkaline. Leaching may be static, in the case of ore that is placed in a heap on an impermeable pad and sprayed; dynamic, in the case of ore mixed with solutions in a processing plant; or in situ, where solutions are injected into the geologic layer containing the ore and pumped out.

#### > Light water

Consisting of hydrogen and oxygen (whereas heavy water is a combination of oxygen and deuterium), it is used in some reactors both to cool the fuel and to recover the energy produced, and to slow the neutrons so as to increase the probability of fission.

#### > Local information and dialogue committee

Established near all "Seveso high threshold" chemical industry facilities, the committee's mission is to create a framework for dialogue and information on action taken by the operators of regulated facilities, under the oversight of government agencies, to prevent the risk of a major accident at the facilities.

#### > Local information and follow-up committee

Established near the Bure underground research laboratory in France, it is tasked with a general mission of follow-up, information and consultation on radioactive waste management, and in particular on the disposal of such waste in deep geological formations.

#### > Local information commission

Established near a site with one or more regulated nuclear facilities. Their general mission is to provide follow-up, information and consultation in matters pertaining to nuclear safety, radiation protection and the impacts of nuclear operations on people and the environment. The CLI publishes the results of its work in a form that is easily understood by the public.

## > Local information commission for major energy facilities of the Tricastin site

Local information commission set up for the Tricastin nuclear site in France.

#### > Mine tailings

Earth, sand or rock that contains little or no uranium, but that must be extracted to gain access to the ore itself. Their naturally occurring radioactivity is comparable to that of the surrounding rock.

#### > Moderator

Material designed to slow neutrons produced by nuclear fission.

#### > MOX

MOX fuel is a conventional nuclear fuel. It differs from  $UO_2$  fuel, a basic nuclear fuel fabricated only with uranium, in that fact that it contains a low proportion of plutonium from recycled used fuel mixed with uranium (MOX means Mixed Oxides of uranium and plutonium). The proportion of plutonium varies according to the type of fuel, and is generally between 5 and 10%.

#### > MSNR (Mission de sûreté nucléaire et de radioprotection)

The nuclear safety and radiation protection mission (MSNR) reports to the French Ministries of the Environment and Economy; it participates in government missions concerning nuclear safety and radiation protection. In particular, in liaison with the Autorité de sûreté nucléaire (ASN), it recommends government policy in matters of nuclear safety and radiation protection, except for operations and facilities involving national defense and radiation protection for workers. It oversees the activities of the ASN on behalf of the ministers in charge of nuclear safety and radiation protection.

#### > Nacelle

The nacelle is installed at the top of the wind turbine tower and generally houses the mechanical, pneumatic, electrical and electronic components needed for the operation of the wind turbine (directional system, gear box, generators, converters, instrumentation and control system, etc.).

Almost all horizontal axis wind turbines use forced direction. The nacelles are therefore equipped with a system that uses electrical motors and gear boxes to make sure that the rotor – and thus the nacelle – is always oriented in the direction of the wind.

#### > National radioactive waste and materials plan (Plan national de gestion des matières et des déchets radioactifs, PNGMDR)

The PNGMDR is an operational tool for broad-based planning of waste and materials management. Governed by the law of June 28, 2006 on the sustainable management of radioactive waste and materials, its chief goal is to regularly report on the radioactive materials management policy, to assess new requirements, and to set future objectives to be met. The PNGMDR is updated every three years in the form of a published report. The current version is the 2013-2015 edition.

## > NEA (Nuclear Energy Agency)

Specialized agency of the Organization for Economic Cooperation and Development (OECD) whose mission is to assist its member countries in maintaining and further developing, through international cooperation, the scientific, technological and legal bases that are indispensable to the safe, environmentally friendly and economical use of nuclear energy for peaceful purposes.

## > Neutron

Electrically neutral particle that enters into the composition of the atom's nucleus, along with the protons.

#### > Neutron poison

Substance which, when placed or produced in a nuclear reactor, can slow or stop the fission chain reaction by absorbing neutrons.

#### > Non-proliferation

Designates the political and/or technical means used to prevent nuclear proliferation. The international non-proliferation regime consists of the set of international policies and instruments that work to prevent states from acquiring weapons of mass destruction or the means of acquiring them, in violation of their international commitments. The Non-Proliferation Treaty (NPT) is based on distinguishing between nuclear weapons states (NWS) and non-nuclear weapons states (NNWS). The NWS pledge not to transmit their nuclear weapons knowledge to the NNWS, which agree not to acquire a nuclear deterrent capability. In exchange, the NNWS are entitled to access nuclear technologies for peaceful purposes.

#### > Nozzle

Metal component located at the top (top nozzle) or bottom (bottom nozzle) of a fuel assembly. The top nozzle is used for handling of the assembly.

#### > NRC (Nuclear Regulatory Commission)

Counterpart of ASN in the United States.

Field of jurisdiction: nuclear safety and radiation protection.

#### > Nuclear engineering

Any activity relating to the design, construction or optimization of nuclear facilities.

#### > Nuclear fuel

Material designated by the French Defense Code as requiring measures to physically protect them against theft or diversion.

#### > Nuclear island

A system encompassing the nuclear steam supply system and the fuel-related facilities, as well as the equipment required for the system's operation and safety. A "conventional island" consists of the alternating current turbogenerator coupled to the nuclear island, and the equipment required for its operation.

#### > Nuclear materials safeguards

Safequards are of two kinds:

- any measure taken by an operator to secure the materials they hold, including monitoring and accounting, containment, surveillance, physical protection of materials and facilities, and protection during transportation;
- inspections performed by the State (in France, the Senior Official for Defense and Security) or international agencies such as the IAEA and Euratom to verify the effectiveness and reliability of these measures.

In both cases, the purpose of safeguards is to prevent any loss or theft of material, particularly with malicious intent.

## > Nuclear safety

Encompasses all of the technical provisions and organizational measures pertinent to the design, construction, operation, shut-down and dismantling of regulated nuclear facilities, and to the transportation of radioactive materials, and is designed to prevent accidents and limit their consequences.

#### > Nuclear security

According to the French law on transparency and nuclear safety (the "TSN law"), nuclear security includes nuclear safety, radiation protection, prevention and control of acts of malevolence, and emergency preparedness in the event of an accident. In another sense that is closer to the IAEA's definition, it is the prevention of, detection of and response to the theft, sabotage, unauthorized access and illegal moving of nuclear materials, or any other malicious act concerning nuclear materials, any other radioactive substances, or the facilities containing them.

#### > Nuclear steam supply system (NSSS)

A steam production system in which the heat is supplied by a nuclear reactor.

In a pressurized water reactor (PWR), the system consists of heavy components (steam generator, pressurizer and reactor vessel), mobile components (reactor coolant pump sets and control rod drive mechanisms), and the piping that connects them. All of these interconnected components circulate hot water and keep it in a liquid state inside the reactor's primary cooling system. The heat is produced by the fission of atomic nuclei contained in the fuel that is placed in the reactor core, inside the reactor vessel.

## > OHSAS 18001 standard

Occupational health and safety management system specification designed to prevent risk in the workplace. The objective is to provide interested companies with a tool for assessing and certifying their occupational health and safety management systems which is compatible with international management system standards such as ISO 9001 for quality, ISO 14001 for the environment and ILO-OSH 2001 for occupational safety and health.

#### > ONR (Office for Nuclear Regulation)

Counterpart of the Autorité de sûreté nucléaire (French nuclear safety authority, ASN) in the United Kingdom.

Field of jurisdiction: nuclear safety and radiation protection.

#### > Ore

Rock, mineral or combination of minerals containing one or more useful chemical elements at sufficiently high grades and which can be extracted by an industrial process.

### > Periodic inspection

Combination of inspections performed periodically in a facility during a scheduled outage.

## > Plutonium

Chemical element with the atomic number 94 and conventional symbol Pu. Plutonium has many isotopes, the most common of which go from 238 to 242. Plutonium-239, a fissile isotope, is produced in nuclear reactors by neutron capture on uranium-238.

## > Pressurized nuclear equipment

Equipment that is specially designed for nuclear applications and whose failure could give rise to radioactive releases.

Pressurized nuclear equipment is classified:

- into three levels, from N1 to N3, in particular as a function of the magnitude of radioactive releases that could result from their failure; and
- into five categories, from 0 to IV, based on risk, and in particular risk related to the temperature and pressure of the fluids they contain.

#### > Pressurizer

Equipment used to create and maintain pressure in the primary cooling system of a pressurized water reactor (PWR) at a level designed to prevent the primary cooling water from reaching the boiling point. The pressurizer functions at a temperature that is higher than the rest of the cooling system and is where liquid/steam balance is achieved.

#### > PWR (pressurized water reactor)

Nuclear reactor moderated and cooled by light water maintained in the liquid state in the core through appropriate pressurization under normal operating conditions.

#### > Pyrolysis

Thermal decomposition of a solid fuel (biomass, coal, etc.) in the absence of oxygen to produce other products (gas and matter).

#### > Radiation

Also referred to as "ionizing radiation", designates a release and transmission of energy or matter in thermal luminescent, electromagnetic or corpuscular form.

#### > Radiation protection, radiological protection

Set of rules, procedures and means for prevention and monitoring aimed at preventing or reducing employee and environmental exposure to the harmful effects of radiation.

#### > Radiferous material

Material containing daughter products of uranium, including solid radium and radon, which is released in gaseous form.

#### > Radioactive decay

Spontaneous transformation of a radionuclide into another nuclide, accompanied by particle emission.

#### > Radioactive half-life

The time it takes for half of the nuclei of a given radionuclide to disintegrate in a quantity of matter. At the end of that time, the radionuclide's radioactivity has decreased by half. No external physical action can modify the half-life of a radioelement, except its "transmutation" into another radionuclide, through neutron capture, for example. The radioactive half-life is thus a physical characteristic of a given radionuclide.

#### > Radioactive material

Radioactive substance for which an immediate or later use is planned or foreseen, after treatment if required.

#### > Radioactive substance

Substance containing natural or manmade radionuclides whose activity level or concentration warrants radiation protection measures.

#### > Radioactive waste

Waste consisting of radioactive substances for which there are no plans for further use.

#### > Radioactive waste disposal

In France, this consists of placing radioactive waste in a facility especially designed to isolate them permanently from man and the environment, in accordance with the principles laid down in the Environmental Code.

#### > Radioactive waste disposal in a deep geological formation

Disposal of radioactive waste in a specially designed underground facility in accordance with the principle of retrievability.

#### > Radioactivity

Phenomenon in which a nuclide is transformed, releasing radiation. Radioactivity may be natural or artificial (manmade). The radioactivity of an element gradually decreases over time as the unstable nuclei dissipate.

#### > Radionuclide

Atom that emits ionizing radiation.

#### > Radon

Radioactive gas (222 isotope) resulting from the natural decay of the uranium and thorium contained in the ground. It reaches the atmosphere through natural cavities and cracks in the ground and may build up in caves, cellars, homes, etc. if not sufficiently vented.

#### > Reactor, nuclear reactor

Nuclear facility in which controlled nuclear reactions are conducted, producing heat that is used to make steam. The steam activates a turbine, which drives an electric generator.

### > Reactor coolant pump

Motor-driven pump that circulates the water in the primary cooling system of a pressurized water reactor. It turns at close to 1,500 rotations per minute, pumping about 20,000 cubic meters of water per hour.

#### > Reactor core

Consists of the nuclear fuel inside the reactor vessel, arranged in such a way that the fission chain reaction can be maintained.

#### > Reactor system

Family of reactors presenting common general characteristics.

## > Reactor vessel

A thick steel container enclosing the reactor core and the control systems for the fission chain reaction. The primary cooling water circulating in the reactor vessel is heated by recovering the energy produced.

## > Recycling of used nuclear fuel

After a reactor residence time of three to four years, the used nuclear fuel must be unloaded. At that time, about 96% of the fuel materials are reusable (95% uranium and 1% plutonium), while 4% are fission products and minor actinides (final waste). Treatment consists of separating the reusable radioactive materials from the final radioactive waste contained in the used fuel (which is packaged for disposal) for purposes of recycling. Recycling allows for significant conservation of natural resources.

## > Regulated nuclear facilities (INB, installation nucléaire de base)

In France, an *installation nucléaire de base* (INB) is a regulated nuclear facility which by its nature or by the quantity or activity of any radioactive substances it contains, within the meaning of the INB nomenclature, is subject to the French Nuclear Safety and Transparency Law of June 13, 2006 and to its implementing regulations. Monitoring of regulated nuclear facilities is carried out by the inspectors of the Autorité de sûreté nucléaire (French nuclear safety authority ASN). By way of example, a nuclear reactor, an enrichment plant, a fuel fabrication plant and a used fuel treatment plant are all regulated nuclear facilities.

## > Renewable Energy

Energy produced from renewable, non-fossil sources that can be replaced within a human generation.

### > RepU

Recycled uranium from used fuel treatment.

#### > Reserves/Resources

Reserves consist of ore inventories known with certainty that can be feasibly mined in the short term at a competitive economic cost. Resources consist of reserves and of ore inventories whose existence is only assumed or estimated with a certain probability, and that are potentially mineable over the medium to long term.

#### > Residual power

Power released by the radioactivity of the nuclear fuel and other materials in a nuclear reactor that is shut down or in a used fuel assembly.

#### > Rod cluster control assembly (see control rod)

Equipment containing the neutron-absorbing elements used to control the fission chain reaction in a nuclear reactor. The chain reaction can be slowed or stopped by introducing the rod cluster control assembly into the fuel core.

#### > Rotor

Component of a wind turbine consisting of several blades (usually three) attached to a central hub, which are themselves attached to the nacelle.

The wind turns the rotor, producing mechanical energy which is then converted into electrical energy by the generator.

## > Rotor blades

Wind turbine rotor blades capture kinetic energy from the wind and convert it into mechanical energy in the form of aerodynamic lift.

As they are assembled as a rotor by means of a central hub, this linear thrust can be converted into more easily exploitable torque load.

#### > Safety analysis report

Report describing the design of regulated nuclear facilities and the measures taken to ensure safety. It identifies the risks presented by the facility and describes the measures taken to prevent them as well as measures conducive to reducing the probability of accidents and their effects.

#### > Safety review

The safety review of a facility is used to assess the facility's status in terms of the rules applicable to it and to update the assessment of the risks and drawbacks that the facility may present, taking into account in particular the condition of the facility, the experience acquired from operations, the accumulation of knowledge, and the rules applicable to similar facilities.

## > Safety system

A set of documents presenting measures taken to ensure the safety of a facility; the safety analysis report is one such document. In particular, it includes:

- a license decree (in France, if the facility was created or modified after 1963) and the license application file;
- requirements issued by the Autorité de sûreté (ASN);
- a safety analysis report (SAR) and general operating rules (règles générales d'exploitation, RGE) or general monitoring and servicing rules (règles générales de surveillance et d'entretien, RGSE);
- a waste management study for the facility stating the goals for minimizing waste volume and toxicity;
- an internal emergency management plan (*plan d'urgence interne*, PUI), which may include sections that are common to the entire nuclear site in which the facility is located.

#### > SEA sites (sites with significant environmental aspects)

In AREVA's frame of reference, nuclear sites, sites with facilities representing major manmade risk per Seveso regulations, operating mine sites, plant sites with facilities subject to public inquiry, and industrial or office building sites which make a significant contribution to the group's environmental accounting in terms of consumption, releases or hazards.

## > Senior defense and security official (haut fonctionnaire de défense et de sécurité, HFDS)

The French Defense Code tasks the minister of Energy with the control of civilian nuclear materials. To date, due to the current division of powers within the French government, that responsibility has been shared by the Minister of the Economy, Finance and Industry and the Minister of Ecology, Sustainable Development, Transportation and Housing. To carry out these responsibilities, the ministers rely on the Defense, Security and Economic Intelligence Service and its employees in charge of examining cases and drafting regulations. The service answers to the Senior Defense and Security Official (HFDS), who acts as the nuclear safety authority for the Minister of Ecology, Sustainable Development, Transportation and Housing.

## > Shielding, biological shielding, biological protection

Protective shielding from radiation used to limit exposure of people.

#### > Shipping cask

Another name for a cask used to ship radioactive materials.

#### > Specific burnup

See burnup.

#### > Specific response plan (plan particulier d'intervention, PPI)

Describes the emergency response organization set up by government agencies in the event of an accident in a nuclear facility with potential off-site consequences. The mobilization and coordination of necessary resources, tailored to the circumstances, are placed under the authority of the Prefect.

#### > Stator

Static component of an electric motor (such as a reactor coolant pump set) or an alternator.

#### > Steam generator

Heat exchanger in a pressurized water reactor (PWR) that transfers the heat from the water in the primary cooling system to the secondary system, where it is converted into steam that drives a turbine connected to an alternator to generate electricity.

#### > Storage

Temporary storage of radioactive materials or waste in a facility that is specifically designed for that purpose, pending their removal.

## > STUK

Counterpart to the Autorité de sûreté nucléaire (French nuclear safety authority ASN).

Field of jurisdiction: nuclear safety and radiation protection.

#### > SWU (separative work unit)

An enrichment plant's production is expressed in SWU. This unit is proportionate to the quantity of uranium processed and is a measure of the work required to separate the fissile isotope.

## > TDG order

French modal order of May 29, 2009 on the transport of dangerous goods ("TDG order").

The order applies to the national or international carriage of dangerous goods by road, rail and inland navigation in France, including loading and unloading operations, intermodal transfers and halts required by transportation circumstances.

The order stems from international and European Community laws and applies in particular to the carriage of radioactive materials (class 7 carriage).

#### > Ten-year inspection

Every ten years, nuclear reactors are inspected thoroughly, including a detailed inspection of its principal components: the reactor vessel, the primary cooling system, and the reactor containment.

## > Thermonuclear fusion

The energy from the stars, such as the sun, is produced by the nuclear process of fusion of light atoms, such as hydrogen. Fusion is the opposite of fission, for it corresponds to the merging (rather than the splitting) of atomic nuclei.

#### >Thorium

Natural radioelement (232 isotope) that can produce the fissile uranium isotope of uranium, <sup>233</sup>U, through neutron capture.

#### > Tokamak

Acronym from the Russian expression toroidalnaya kamera magnitaya katushka, which means "toroidal chamber and magnetic coil". The ITER reactor is studying hot plasmas in this configuration.

#### > Torrefaction

Torrefaction (or depolymerization) of biomass is a mild form of thermo-chemical treatment (from 200 to 320°C) used to eliminate water and change part of the organic material used in biomass to break down its fibers. During the torrefaction process, light organics are removed and the structure of the biomass is depolymerized and changed, causing the fibers to break. Torrefied biomass, also called biocoal, is a high-quality solid fuel that is ideal for certain types of industrial applications, both general and specific, including electricity generation, heat production, cogeneration and central heating. This new fuel opens up new possibilities for renewable energies.

## > Trading

Commercial transactions in the natural uranium market not directly connected to the group's mining operations, in the form of the purchase, sale, exchange, lease or loan of uranium.

#### > Transportation emergency response and management plan

Instantly activated in the event of a transportation incident involving radioactive materials. It covers the phases of alert, situational analysis and response in the field following an incident or accident involving the transportation of radioactive materials. It makes available specialized human resources and special equipment to the competent authorities. The entire plan is tested on the national scale once a year on average with the leading players, and in particular the competent authorities.

#### > Transuranic elements

Chemical elements in which the nucleus contains more protons than uranium, which has 92. The first transuranic elements are, in increasing order, neptunium, plutonium, americium and curium.

#### > Tritium

Isotope of hydrogen whose nucleus consists of one proton and two neutrons. It emits beta rays and is present in the natural state in the air and in effluents from light water reactors. Tritium and deuterium are the two reagents chosen for controlled fusion projects.

#### > Turbine

Device used to convert the energy contained in a fluid (water, steam, gas, etc.) into a rotary motion. The turbine is also used to drive the rotation of a current generator in units that generate electrical energy.

## > UF<sub>4</sub>

Uranium tetrafluoride.

## > UF<sub>6</sub>

Uranium hexafluoride.

## > Units of measurement

- Becquerel (Bq): international unit of measurement of activity (1 Bq = one atomic particle disintegration per second). The becquerel is a very small unit. Previously, nuclear activity was measured in Curies (one curie = 37,000,000,000 Bq, corresponding to the activity of one gram of natural radium).
- Sievert (Sv): Legal unit of dose equivalent, used to determine the biological effects produced by a given absorbed dose on a living organism. Dose equivalent is not a measurable physical quantity; rather, it is calculated. It is determined by multiplying the absorbed dose (expressed in grays, where 1 gray = 1 joule per kg) by two coefficient factors which depend on the type of radiation and the type of tissue affected. The millisievert (mSv), which represents a thousandth of a sievert, and the microsievert ( $\mu$ Sv), which represents a millionth of a sievert, are used for low doses. By way of example, the average annual natural radioactivity per person in France is 2.4 mSv, a chest x-ray represents about 0.1 mSv, and a round trip by air between Paris and New York is from 50 to 150  $\mu$ Sv.

## > Unit, nuclear unit

Unit for power generation consisting of a nuclear steam supply system, including the reactor, and a turbogenerator. Nuclear power plants generally have several units on one site.

## > UO<sub>2</sub> powder

 $UO_2$  is the symbol for uranium oxide. which comes in powder or pellet form. It is the constituent component of nuclear fuel. It is also the formula for pitchblende (natural uranium ore).

## > Uraniferous material

Material containing uranium.

## > Uranium

Uranium is a radioactive heavy metal. It is a chemical element with the atomic number 92 and the atomic symbol U, with three radioactive natural isotopes:  $^{238}$ U (99.28% fertile),  $^{235}$ U (0.71% fissile), and a very small quantity of  $^{234}$ U. Uranium-234, which comes from the radioactive decay of uranium-238, is not fissile.

## > Uranium concentrate (Yellowcake)

Magnesium, sodium, ammonium uranate or uranium peroxide in solid form resulting from the mechanical and chemical treatment of uranium ore. This marketable concentrate contains about 80% uranium.

## > Used fuel storage pool

Pools in which used fuel is stored for cooling after it is unloaded from a reactor.

#### > Used nuclear fuel

Fuel permanently removed from a reactor core after having been irradiated.

#### > Vitrification

Process used to incorporate concentrated solutions of final radioactive waste (fission products and minor actinides), which have been chemically separated from the used fuel, into a glass structure by mixing it with a glass matrix at high temperature.

## > Waste packaging

Radioactive waste packaging: operation consisting of packaging waste in a form suited to radioactive materials containment, enabling its shipment, storage and final disposal.

- Very low level radioactive waste such as vinyl or cleaning rags is packaged in drums, in special "big bags", or in very large bins. Very low level radioactive rubble is placed loose inside special big bags.
- Low level and medium level waste is first reduced in volume as much as possible, then packaged in specific ways (immobilized or embedded in a special concrete, bitumen or resin matrix). The immobilizing or embedding matrix keeps the toxic and radiotoxic substances contained within the waste package.
- High level waste is vitrified and poured into stainless steel canisters.

#### > Wind tower

Used to place the rotor at a sufficient height to reach higher wind velocities and facilitate its movement; in other words, to extract a much higher energy capacity. The tower houses certain electrical and electronic components, such as the air treatment system, the transformer station and the converter.

#### > Wind turbine

Device that converts kinetic energy from the wind into mechanical energy. This energy is usually converted into electrical energy.

## > Yellowcake

"Cakes" of about 80% uranium concentrates.

#### > Zircaloy

Type 2 or 4 zirconium-based alloys containing tin, copper, iron and nickel. Other alloys, to which only niobium or vanadium are added, do not bear the name zircaloy.

## > Zirconium

Metal chosen for its mechanical strength and corrosion resistance in hightemperature water, combined with its very low thermal neutron absorption, to make the alloy used in the cladding of light water reactor fuel elements. Zirconium is highly resistant to corrosion at high temperature. It is therefore used in the form of an alloy to fabricate nuclear fuel assemblies, including spacer grids, rods, guide tubes, etc.

## 2. FINANCIAL GLOSSARY

## > Backlog

The backlog is valued based on economic conditions at the end of the period. It includes firm orders and excludes unconfirmed options. Orders in hedged foreign currencies are valued at the rate hedged; unhedged orders are valued at the rate in effect on the last day of the period. The backlog reported for long-term contracts recognized under the percentage of completion method and partially performed as of the reporting date is equal to the difference between (a) the projected sales revenue from the contract at completion and (b) the sales revenue already recognized for this particular contract. Accordingly, the backlog takes into account escalation and price revision assumptions used by the group to determine the projected revenue at completion.

#### > Cash flow from end-of-lifecycle operations:

This indicator encompasses all of the cash flows linked to end-of-lifecycle operations and to assets earmarked to cover those operations. It is equal to the sum of the following items:

- income from the portfolio of earmarked assets;
- cash from the sale of earmarked assets;
- full and final payments received for facility dismantling;
- minus acquisitions of earmarked assets;
- minus cash spent during the year on end-of-lifecycle operations;
- minus full and final payments made for facility dismantling.

## > Earnings before interest, taxes, depreciation and amortization (EBITDA)

EBITDA is equal to operating income plus net amortization, depreciation and operating provisions. EBITDA excludes the cost of end-of-lifecycle operations performed in nuclear facilities during the year (facility dismantling, waste retrieval and packaging). It should be noted that the cash flows linked to end-of-lifecycle operations are presented separately.

Note: AREVA modified its definition of EBITDA as of June 30, 2014 in order to exclude all non-cash items of operating income for purposes of greater consistency. The definition used previously was "EBITDA is equal to operating income plus net amortization, depreciation and operating provisions (except for provisions for impairment of working capital items)."

### > Free operating cash flow

Free operating cash flow represents the cash flow generated by operating activities, before corporate income tax. It is equal to the sum of the following items:

- EBITDA;
- plus losses or minus gains included in operating income on sales of property, plant and equipment (PP&E) and intangible assets;
- plus the decrease or minus the increase in operating working capital requirement between the beginning and the end of the period (excluding reclassifications, currency translation adjustments and changes in consolidation scope);
- minus acquisitions of Property, Plant and Equipment (PPE) and intangible assets, net of changes in accounts payable related to fixed assets;
- plus sales of PPE and intangible assets included in operating income, net of changes in receivables on the sale of fixed assets;
- plus prepayments received from customers during the period on non-current assets;
- plus acquisitions (or disposals) of consolidated companies (excluding equity associates), net of the cash acquired.

#### > Gearing

The ratio of net debt to net debt + equity.

## > Net cash flow

Net cash flow is equal to the sum of the following items:

- operating cash flow;
- cash flow from end-of-lifecycle operations cash flow;
- change in non-operating receivables and liabilities;
- financial income;
  - tax on financial income;
  - cash from non-operating investment or divestment activities;
  - Dividends paid to minority interests.

Net cash flow is equal to the change of net debt except for transactions with AREVA shareholders.

## > Net debt (cash)

Net debt (cash) is defined as the sum of current and non-current borrowings minus cash and cash equivalents. NOTA: the AREVA's definition of the net debt was modified on December 31, 2013 to conform to the definition published by the Autorité des Normes Comptables. The definition used previously was the following one: "the net debt is defined as the sum of current and non-current borrowings minus cash, cash equivalents and other current financial assets". The 2012 comparative data were restated according to the new definition.

## > Operating margin

The ratio of operating income to sales revenue.

#### > Operating working capital requirement (OWCR)

Operating WCR represents all of the current assets and liabilities related directly to operations. It includes the following items:

- inventories and work-in-process;
- trade accounts receivable and related accounts;
- non-interest-bearing advances;
- other accounts receivable, accrued income and prepaid expenses;
- currency hedges on operating WCR;
- minus: trade accounts payable and related accounts, trade advances and prepayments received (excluding interest-bearing advances), other operating liabilities, accrued expenses, and deferred income.
- Note: Operating WCR does not include non-operating receivables and payables such as income tax liabilities, amounts receivable on the sale of non-current assets, and liabilities in respect of the purchase of non-current assets.

## > Return on average capital employed (ROACE)

Return on average capital employed (ROACE) is an internal and external indicator used to measure profitability and assess the group's performance. In the group's opinion, this performance indicator measures the long-term productivity of the group's capital.

ROACE is a performance measurement indicator of capital employed by the group, as defined by management rather than by accounting standards. This should be taken into account when using ROACE to make comparisons with other companies.

The group defines ROACE as the return on average capital employed.

ROACE represents the after-tax operating profitability of capital employed by the company for its operating requirements.

ROACE is equal to the ratio of net operating income to average capital employed.

Net operating income is equal to operating income less the corresponding proforma income tax derived by applying the nominal tax rate applicable to the operating income of each subsidiary of the group.

Capital employed comprises the following:

- net property, plant and equipment and intangible assets;
- goodwill, other than goodwill related to equity associates;
- prepayments and borrowings funding non-current assets;
- inventories, trade receivables and other operating receivables;
- less customer advances, trade payables and other operating liabilities;
- less employee benefits and provisions for contingencies and losses, excluding provisions for end-of-lifecycle operations and provisions for tax risk.

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AREVA supplies high added-value products and services to support the operation of the global nuclear fleet.

I he company is present throughout the entire nuclear cycle, from uranium mining to used fuel recycling, including nuclear reactor design and operating services.

AREVA is recognized by utilities around the world for its expertise, its skills in cutting-edge technologies and its dedication to the highest level of safety.

Through partnerships, the company is active in the renewable energy sector.

AREVA's 44,000 employees are helping build tomorrow's energy model: supplying ever safer, cleaner and more economical energy to the greatest number of people.

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