

# EMBRACING CHALLENGES.

## 2010 Key Figures at a Glance.

Field	Performance indicator		2010	2009	2008	2007
Economy	External electricity sales volume	billion kWh	311.2	282.8	317.1	306.4
	External gas sales volume	billion kWh	395.4	332.0	327.8	335.0
	Electricity customers	million	16.2	16.5	14.4	14.6
	Gas customers	million	7.9	8.0	6.2	6.3
	External revenue	€million	53,320	47,741	48,950	42,507
	Share of the RWE Group's revenue earned in countries with a high or very high risk of corruption <sup>1</sup>	%	12.0	12.7	12.9	11.8
	Net income	€million	3,308	3,571	2,558	2,667
	Value added	€million	2,876	3,177	3,453	2,970
	Capital expenditure	€million	6,643	15,637	5,693	4,227
Environment	Power plant capacity	MW	52,214	49,582	45,196	44,533
	NO <sub>x</sub> emissions	g/kWh	0.58	0.67	0.67	0.76
	SO <sub>2</sub> emissions	g/kWh	0.29	0.34	0.39	0.57
	Particulate emissions	g/kWh	0.019	0.024	0.028	0.034
	Primary energy consumption	billion kWh	403.0	368.2	396.0	411.7
	Water consumption <sup>2</sup>	m <sup>3</sup> /MWh	1.41	1.70	1.49	1.69
	Specific CO <sub>2</sub> emissions	mt/MWh	0.732	0.796	0.768	0.866
	Scope 1 CO <sub>2</sub> emissions <sup>3</sup>	million mt	167.1	151.3	174.5	189.7
	Scope 2 CO <sub>2</sub> emissions <sup>4</sup>	million mt	3.1	3.5	3.8	3.6
	Scope 3 CO <sub>2</sub> emissions <sup>5</sup>	million mt	135.7	128.1	127.0	127.8
	Share of the Group's electricity generation accounted for by renewables	%	4.0 <sup>6</sup>	3.5	2.4	2.4
Society	Employees <sup>7</sup>		70,856	70,726	65,908	63,439
	Share of women in the company	%	26.2	26.1	25.6	25.2
	Share of women in executive positions	%	10.8	9.0 <sup>8</sup>	8.9	8.9
	Fluctuation rate	%	8.3	8.7	8.8	9.1
	Health ratio	%	95.6	95.4	95.4	95.6
	Lost-time incident frequency	LTI <sub>f</sub> <sup>9</sup>	3.5	4.3	5.3	6.1
	Fatal work-related accidents <sup>10</sup>		2	5	12	9

1 Countries rated lower than six on a scale of zero to ten in the Corruption Perceptions Index by the anti-corruption organisation Transparency International, with ten corresponding to the lowest risk of corruption

2 Difference between power plant water withdrawals and returns to rivers and other surface waters; excluding power plants with seawater cooling

3 Scope 1: direct CO<sub>2</sub> emissions from in-house sources (electricity generation, oil and gas production, gas transmission)

4 Scope 2: indirect CO<sub>2</sub> emissions from the generation of electricity purchased from third parties which is used when being transmitted over the RWE network (network losses)

5 Scope 3: indirect CO<sub>2</sub> emissions that do not fall under Scope 1 or 2, produced through the generation of electricity procured from third parties, (including network losses in third-party networks), production and transmission of used fuel, and CO<sub>2</sub> emissions of gas sold to customers

6 Electricity generation based on wind (3.1 TWh), hydro (3.5 TWh) and biomass (2.3 TWh)

7 Converted to full-time positions

8 Excluding Essent

9 Number of accidents leading to the loss of at least one person day per million working hours; excluding employees of third-party companies

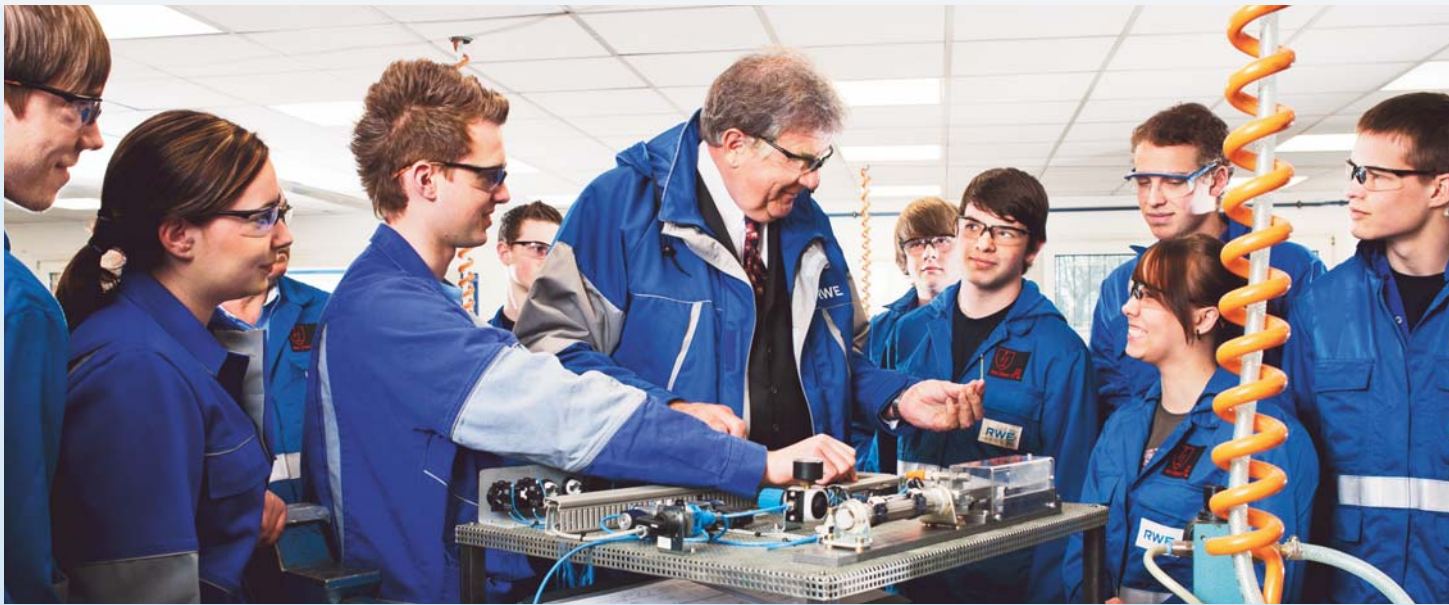
10 Including employees of third-party companies

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This report is published on the internet together with more detailed information and can be accessed at: [www.rwe.com/responsibility](http://www.rwe.com/responsibility). All the key data contained in this report can be viewed there in an interactive data tool and/or downloaded as an Excel file.

“RWE – we are working on the  
energy supply of the future,  
which even now is taking shape  
in the minds of our trainees.”



Dr. Jürgen Großmann, CEO of RWE AG, talking to trainees  
at the Essen-Karnap waste-incineration plant

## Major Events 2010



### JANUARY

#### **Decision to build RWE's first offshore wind farm in Germany**

RWE AG decides to go ahead with the building of its first German offshore wind farm, the Nordsee Ost wind farm northwest of Heligoland. The installation with a capacity of 295 MW is to come on stream in 2013. In the UK, RWE Innogy wins the contract for the development of the offshore wind projects Atlantic Array and Dogger Bank.

### MARCH

#### **RWE Innogy begins building a pelleting plant in Georgia**

RWE Innogy begins work on a large pelleting plant in the state of Georgia, USA. Upon completion, the plant will produce up to 750,000 metric tons of pellets made only from sustainably sourced wood. RWE is thus diversifying its biomass supply on what is a steadily growing market.



### APRIL

#### **RWE ties executive pay to sustainability goals**

Shareholders at the AGM of RWE AG vote in favour of tying 25 % of executives' performance-based remuneration to the achievement of medium-term targets relating to sustainability, employee satisfaction and value added.

#### **Cutting-edge gas-fired power station at Lingen comes on stream**

The 876-MW combined-cycle gas turbine (CCGT) power station has an efficiency of nearly 60 % and was built at a cost of approx. €500 million.

### JUNE

#### **Wind farm joint venture agreed**

RWE Innogy, Stadtwerke München and Siemens agree to go ahead with the building of the Gwynt y Môr wind farm off the coast of North Wales. The 576-MW installation is to come on stream in 2014.



### JULY

#### **Largest single investment in the history of RWE Dea**

RWE Dea decides to invest US\$ 3.6 billion in developing gas fields in the Egyptian concessions of North Alexandria and West Mediterranean Deep Water over the coming two decades. Contracts with commercial partners and the Egyptian authorities are signed. Extraction is to commence by the end of 2014. The gas is destined for the local market and will secure Egypt's energy supply.

### AUGUST

#### **Biomass thermal power station and pelleting plant commissioned**

RWE Innogy and German Pellets commission a biomass-fuelled thermal power station at Wittgenstein in Germany's Sauerland. The neighbouring pelleting plant with an annual output of approx. 120,000 metric tons draws the heat it needs straight from the power station.



#### SEPTEMBER

##### **Lifetime extension of German nuclear power stations and a tax on nuclear fuels**

The German parliament votes in favour of extending the lifetimes of German nuclear power stations for an average of twelve years. A new tax on nuclear fuels is approved at the same time. Operators of nuclear power stations will make payments into a newly created fund to promote renewables.

##### **RWE again on the DJSI**

RWE qualifies for the Dow Jones Sustainability Index (DJSI) for the twelfth year running and is listed in both DJSI World and the European DJSI Stoxx.

##### **Laurels for Companius**

The corporate volunteering initiative RWE Companius is chosen to be a "Selected Landmark 2010" in the innovation contest "365 Landmarks in the Land of Ideas".



#### OCTOBER

##### **Work commences on Gazelle, the Czech Republic's high-pressure gas pipeline**

Our unbundled Czech gas transmission system operator NET4GAS gets down to work on the first section of the project. The 169-km pipeline is to promote security of supply and competition on the Czech gas market.

#### NOVEMBER

##### **First Green GECCO project**

Green GECCO, a joint venture by RWE Innogy and 26 municipal utilities, commences work on the 20-MW An Suidhe wind farm in Scotland, its first joint project.

##### **Site selected for the compressed-air storage**

RWE Power chooses Staßfurt as a possible location for a plant to demonstrate the ADELE adiabatic pressurised-air storage facility.



#### NOVEMBER

##### **New gas-fired power station comes on stream in the UK**

All four units of the Staythorpe combined-cycle gas turbine power station come on stream simultaneously for the first time. The 1,650-MW plant supplies nearly two million households with electricity. The capital expenditure totalled around €800 million.

#### DECEMBER

##### **Contract to sell Thyssengas signed**

The buyers of the company in which our German long-distance transmission network is subsumed are infrastructure funds managed by Macquarie. Every year, Thyssengas transmits almost 10 billion cubic metres of natural gas through pipes with an overall length of 4,100 kilometres. We had made a commitment to the EU Commission to sell the company.

## Foreword



### Dear Readers,

The massive earthquake in Japan and the devastating tsunami that followed in its wake not only brought great suffering, but caused a serious nuclear accident at the Fukushima nuclear power plant. Events that no one expected actually happened. The global debate sparked off by this disaster has been especially intense here in Germany. How safe are our nuclear power stations? Could there be a serious nuclear accident here as well? Many people feel insecure. Large sections of the German population are demanding swift phase-out of nuclear power and redoubling of efforts to expand renewables.

What does this mean for RWE? RWE at present operates nuclear power stations at three separate locations in Germany and is involved in developing nuclear power station projects in the UK as well. Our top priority at all our locations has always been the safe operation of our nuclear plant. We therefore have a dense network of safety and control systems in place and are committed to upholding high safety

standards and a strong culture of safety. After carefully analysing the events in Japan, we will ask ourselves whether we can increase our generous safety margins still further. We do not see any necessity for the immediate shutdown of our nuclear power stations at present, however. The role played by nuclear power in our future generation portfolio will depend on the safety standards that are henceforth deemed necessary and on the outcome of the public debate on the future of nuclear power currently in progress.

What is not in doubt is that the greatest challenge now facing us, which is to adapt our generation portfolio so that we can meet our climate protection objectives, has not been made any easier. The age of carbon-neutral power generation cannot be ushered in overnight. An industrialised nation such as ours cannot simply dispense with nuclear power and coal altogether. Electricity has to be climate-friendly; but it also has to be reliable and affordable. We need nuclear power as a virtually carbon-free technology to tide us over while we are expanding our renewables portfolio.

Shaping the energy supply of tomorrow is a great challenge. We have embraced this challenge and are committed to the goal of a carbon-neutral electricity supply for Europe by 2050. We have a long way to go until then, however. Even in the world of 2020, we will still be dependent on new and modern conventional power stations. This was the thinking behind our two new gas-fired power stations at Lingen in Germany and Staythorpe in the UK, which came on stream in 2010. Our new coal-fired power stations in Neurath, Hamm and Eemshaven will soon follow. They will all emit significantly less CO<sub>2</sub> than older plant. We are also putting a lot of effort into expanding our renewables portfolio and since 2008 have invested billions in a raft of renewable projects, setting a pattern for years to come. And this is how we mean to continue for years to come.



Whether it is a new coal-fired power station or a wind turbine, a biomass plant or new power lines, people want to know how our installations will affect their lives. And they want to have a say in what happens on their doorstep. We therefore make a point of talking to residents at all our locations and trying to find solutions hand in hand with them. Whether it is in Biblis or at our lignite mines in the Rhineland in Germany, at Eemshaven in the Netherlands or at Pembroke in Wales – engaging in dialogue about our business operations with residents and NGOs has become an increasingly important task for us as a company. And against the backdrop of recent events in Japan, it is now more important than ever.

Our stakeholders expect us to act responsibly even beyond the bounds of our own company. We must, and indeed do, bring our influence to bear on suppliers and service providers to ensure that human rights are respected and the environment protected. After all, we purchase significant quantities of hard coal, uranium and biomass from regions where environmental protection and humane working conditions do not count for as much as they do here. Vigilance is therefore important, both today and in future. That is why we signed up to the UN Global Compact back in 2004. Its principles on social and environmental standards have served us as a sure compass ever since.

Any company which assumes responsibility for the communities in which it operates naturally has to abide by its own principles. The Group-wide RWE Social Charter came into force last September. This charter lays down in writing what has long been standard practice at RWE: fair pay, proper health protection and co-determination for all our employees. Strengthening our employees' rights is in our own interests too, by the way. With demographic change looming on all our European markets, attracting and retaining the brightest and the best is now more important than ever. Only by remaining an attractive employer can we be sure of remaining successful once skills become scarce.

Demographic change is one of the ten areas for action in which we are endeavouring to find sustainable solutions. As explained in what follows, we have committed ourselves to measurable targets for each of these areas for action. And part of our executives' performance-linked remuneration now depends on how sustainably RWE develops in relation to climate protection, innovation, occupational safety and demographic change. The targets we have set ourselves are also a result of our dialogue with stakeholders, which we naturally intend to continue – with you, too, if you wish. Please feel free to get in touch with us: [responsibility@rwe.com](mailto:responsibility@rwe.com).

Essen, 31 March 2011



Dr. Jürgen Großmann  
President and CEO



Alwin Fitting  
HR Director and Board member responsible for CR

## 1.1 Group Portrait

**RWE is one of Europe's five leading electricity and gas companies. Our activities comprise the generation, trading, transmission and supply of electricity and gas, lignite mining and oil and gas production. With more than 70,000 employees, we supply some 16 million customers with electricity and nearly eight million customers with gas. In fiscal 2010 we recorded over €53 billion in revenue.**

As an integrated energy utility, we regard it as our responsibility to provide a reliable, affordable, efficient, consumer-friendly and at the same time environment-friendly supply of electricity, gas and heat.

Lowering carbon dioxide emissions is a mainstay of our strategy and is shaping the future of our business. At the end of fiscal 2010 the RWE Group as a whole had 52,200 MW of generating capacity at its disposal. Coal accounts for the lion's share of 50 %, followed by gas (22 %), nuclear power (12 %) and renewables (6 %). Every year we invest billions in making our generation portfolio more efficient and more climate friendly. All our new gas- and coal-fired power stations with a combined capacity of more than 12,400 MW are to come on stream by 2014. We also intend to have a Group-wide renewables-based generating capacity of 4,500 MW either under construction or in operation by that same date. Our goal is a generation portfolio that is 75 % low-carbon or carbon-free by 2025, most of it either renewables- or gas-based.

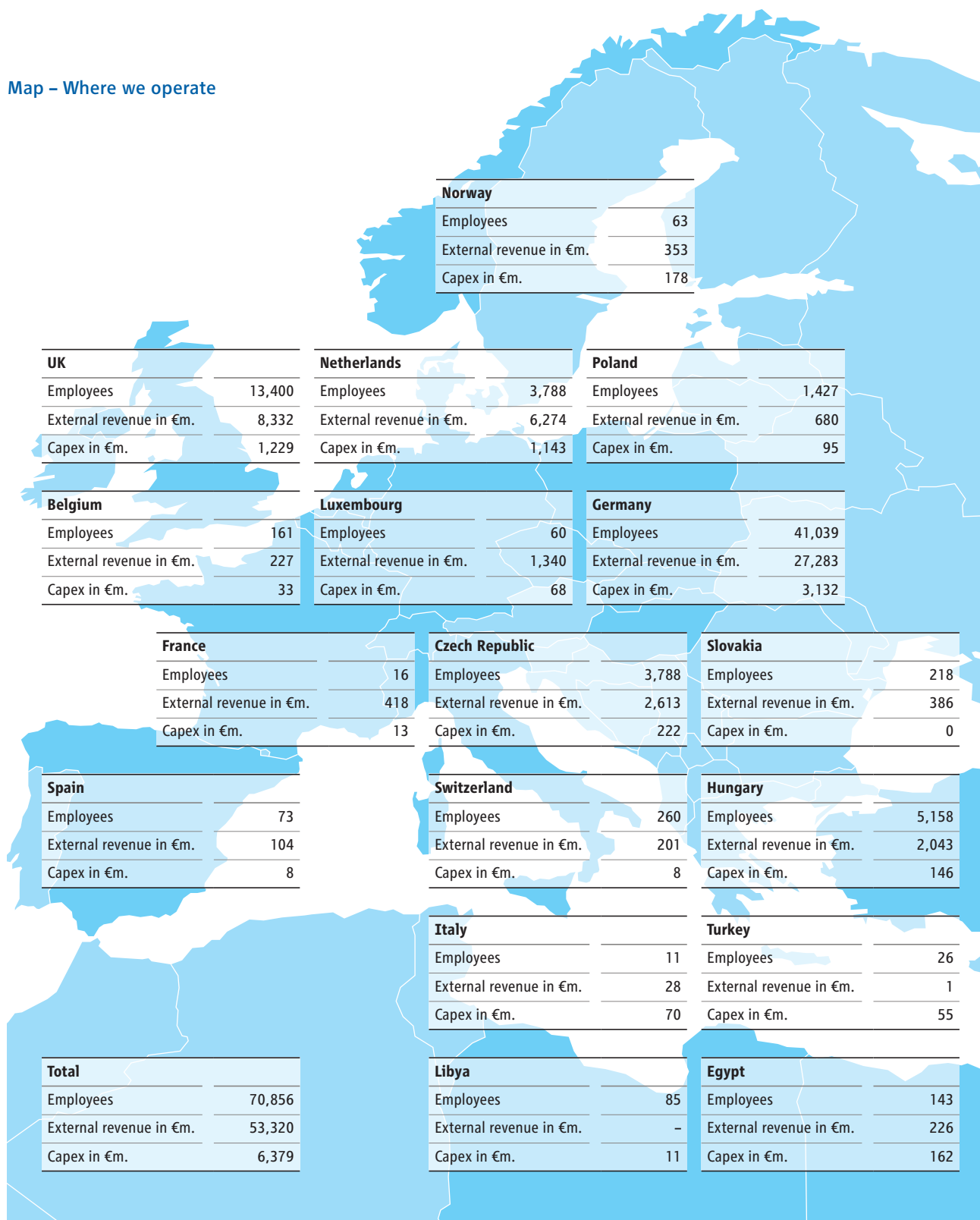
Our business model is premised on long-term planning. When we invest in power stations, renewables, grids and gas and oil production facilities, we have to plan not just years but whole decades ahead. The success of such long-term projects, however, depends on our ability to win acceptance of our actions in society at large. This is the aim of our corporate responsibility (CR) strategy, in which we address the challenges posed by our core business. Our approach is always to take account of the specific requirements of our customers as well as the general conditions and regulatory framework in place in each of the 17 countries in which we operate.

### Our regions

The RWE Group is continuing to develop, entering both new markets and new areas of business. Germany is our largest single market and it is there that 54 % of our turnover is generated and 58 % of our workforce is employed. Many of the Group's most essential functions are shaped by the requirements of German law, among them our corporate governance and the degree of codetermination accorded to our employees. Our other important markets are the UK, where 16 % of our turnover is generated, the Netherlands, which accounts for 12 %, and Poland, the Czech Republic and Hungary, which together account for 11 % of total turnover.

One important milestone on our path to a more international presence for RWE was our takeover of the Dutch utility Essent in 2009. Essent, with its 3,900 employees, contributed €6.5 billion to Group turnover in 2010. Indeed, most of our growth is focused on Europe, where 99 % of our employees are based. We nevertheless have a long-standing presence in Egypt, where we have been engaged in oil and gas exploration and production since 1974, and intend to expand our exploration activities into other north African countries as well. Our 2010 opening of offices in Azerbaijan and Turkmenistan has also given us a foothold in Central Asia. The electricity market in Turkey is enjoying especially vigorous growth. 2010 thus saw the founding of our first Turkish subsidiary as well as the commencement of work on a new 775-MW gas-fired power station.

## Map – Where we operate



Revenues not including gas tax/electricity tax. Capital expenditure (Capex) on financial assets and on property, plant and equipment

## 1.2 Challenges of the Value Chain

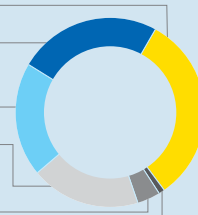
Factoring in of social responsibility (resettlement), sustainable recultivation and environmental protection; social standards to be upheld in oil- and gas-producing countries

Promotion of more liquidity and transparency on energy wholesale markets; respect for human rights and the environment all along the value chain

Swift and sustainable reductions in our CO<sub>2</sub> emissions; more efficient electricity generation; a more flexible generation portfolio



Production (9,420 FTE) <sup>1</sup>	Procurement and trading (1,510 FTE) <sup>1</sup>	Power and heat generation (14,450 FTE) <sup>1</sup>
Mining of lignite in our own opencast mines, purchase of hard coal, gas, nuclear fuels and biomass, oil and gas exploration and drilling	The procurement and trading of electricity, gas, coal, oil, CO <sub>2</sub> certificates and biomass-based renewables in physical and derivative forms; economic optimisation of facilities, long-term contracts and gas supply contracts	Operation of power stations based on lignite, coal, gas, nuclear power, renewable energies and to a lesser extent on waste and oil; use of pumped-storage and run-of-river power plants
<b>Production 2010</b>	<b>Trading volumes 2010</b>	<b>Electricity generation<sup>3</sup> (2010: 225.3 TWh) in %</b>
5 lignite opencast mines (10,614 hectares)	1,497 TWh electricity	<b>31.5 lignite</b>
98.7 million metric tons of lignite	706 billion cubic metres gas	<b>24.5 hard coal</b>
403 terawatt-hours (TWh) primary energy consumption	968 million barrels of oil	<b>20.0 nuclear power</b>
2,786 cubic metres production of natural gas	581 million CO <sub>2</sub> certificates	<b>19.0 gas</b>
2.27 million cubic metres production of oil		<b>4.0 renewables</b>
		<b>1.0 other<sup>4</sup></b>



<sup>1</sup> FTE = full-time equivalents; other employees: 4,800 FTE

<sup>2</sup> Fossil fuels used

<sup>3</sup> Including electricity procured from power stations not owned by RWE that we can deploy at our discretion on the basis of long-term agreements. In fiscal 2010 this amounted to 25,6 billion kWh, of which 23.4 billion kWh were from hard coal.

<sup>4</sup> Pumped-storage and oil-fired power stations and waste incineration plants

<sup>5</sup> The German electricity transmission system operator Amprion and the Czech gas transmission system operator NET4GAS are independent companies. The German gas transmission system operator Thyssengas has been sold.

Reliable grid operations without disruptions; grid expansion for the integration of renewables; non-discriminatory access for all users; residents' interests to be factored in when enlarging the grid

Uninterrupted supply of electricity and gas; development of a smart grid; protection of birdlife and nature conservation; residents' interests to be factored in when enlarging the grid

Affordable, flexible and needs-based products; development of electromobility infrastructure; greater range of products and services to promote energy efficiency



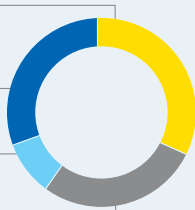
#### Transmission<sup>5</sup>

(1,850 FTE)<sup>1</sup>

Operation and maintenance of an 11,023 km ultra-high-voltage grid (220/380 kV); transmission controlled at the Brauweiler Control Centre; operation and maintenance of a 8,046 km gas transmission grid (8–100 bar)

#### Germany's electricity transmission grid by operator in % (as of 31 Dec 2010)

**31.7** Amprion  
**30.5** TenneT  
**9.8** EnBW  
**28.0** 50Hertz



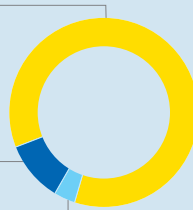
#### Distribution

(10,070 FTE)<sup>1</sup>

Operation and maintenance of a 406,600 km electricity distribution grid (0.4–110 kV) with 276,700 substations and transformers, and an 86,100 km gas distribution grid (0.02–70 bar); operation of 11 gas storage tanks with a working volume of 3,871 standard cubic metres of gas

#### Grid length by country in km (as of 31 Dec 2010)

**347,000** Germany  
**44,200** Hungary  
**15,400** Poland



#### Sales and use

(28,760 FTE)<sup>1</sup>

Supply of electricity to 16.2 million residential and commercial customers and gas to 7.9 million residential and commercial customers; supply of 110.8 TWh electricity and 135.1 TWh gas to industrial customers, as well as consultancy services

#### Electricity and gas supplies

16.2 million residential and commercial customers electricity  
7.9 million residential and commercial customers gas  
110.8 TWh electricity to industrial customers  
135.1 TWh gas to industrial customers



On the internet:

Relevant companies included in this report (as of 31 Dec 2010)

## 2.1 CR Strategy

Our CR strategy defines all the key aspects of corporate responsibility (CR) at RWE. The strategy identifies our main areas for action and the medium-term objectives we are committed to achieving, in pursuit of which we are engaged in an ongoing dialogue with our stakeholders.

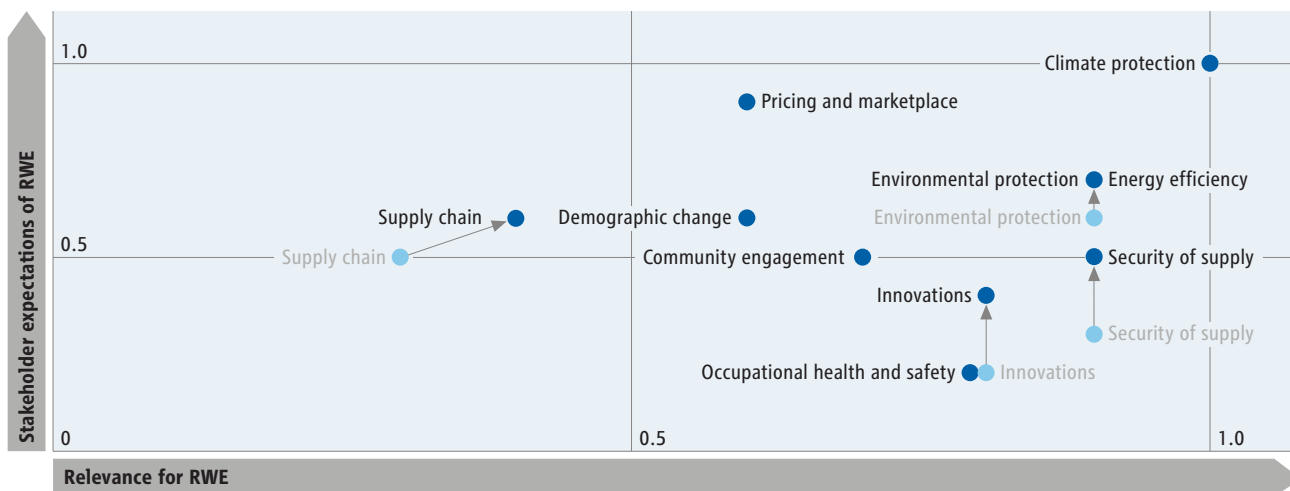
We are committed to transparent, measurable and binding CR. Our CR Roadmap, adopted in 2003, set concrete, long-term goals and demonstrates that we have indeed achieved our objectives. CR has become an integral part of our target agreements. We are one of the first companies in Germany to tie part of its executives' performance-based remuneration to a sustainability index. This index is based on our ten CR areas for action and allows us to measure progress. Standardised procedures for the recording and auditing of our CR data are to be introduced in the coming years. CR data is crucial both to systematic reporting and to accurate assessments of progress.

### Our CR areas for action

Our CR strategy covers the ten areas for action which were agreed by the Executive Board in May 2007. They categorise those topics and issues that pose the greatest corporate responsibility challenges for us, including climate protection, energy efficiency, security of supply and pricing. Both the company's own viewpoint and our stakeholders' expectations were taken into account when defining the areas for action. In July 2009 the Executive Board adopted specific targets and key performance indicators (KPI) for each area for action so that progress and setbacks can be measured. Our CR data are collected regularly and reported to the Executive Board. They are also published annually in our CR report (see p. 18).

Corporate Responsibility Roadmap					
	Launch (1998–2000)	Structuring (2001–2005)	Implementation (2006–2010)	Role of CR driver (2011–2015)	Best in class (2016–2020)
Strategy	Group Directive environmental management	Group CR guidelines	Review of CR areas for action	Continuous updating of the CR areas for action	CR an integral part of Group strategy
		CR strategy	Embedding of CR in all business areas		
Coordination and management	Permanent staff of environmental officers	Introduction of occupational safety management system	Key performance indicators concept for CR	CR as integral part of agreement on targets	CR an integral part of operations management
	Introduction of Environmental Reporting and Information System	Introduction of Group-wide Code of Conduct	Group-wide CR implementation	Regular reporting on KPIs	
Reporting and dialogue	1 <sup>st</sup> systematic environmental report	Convention on the future of sustainable development	Institutionalised stakeholder dialogue	Industry leader in transparency	High level of acceptance in society
	Inclusion in Dow Jones Sustainability Index	1 <sup>st</sup> CR report	Corporate volunteering		

## Material issues 2010 in comparison with the previous year



**Materiality analysis 2010.** Our stakeholders have very definite expectations regarding the areas for action which they want RWE to prioritise. Listening carefully to what they are saying enables us to keep track of any changes in these expectations and to identify new issues looming on the horizon. By comparing these with the measures outlined in our areas for action, we can spot those areas in which we still have work to do.

In the area of Environmental Protection, growing attention is now being paid to biodiversity. The international agreement reached at the Convention on Biological Diversity in Nagoya, Japan, in October 2010 has put this topic high up on the agenda of public discourse. Another area for action that has become increasingly important to our stakeholders is Security of Supply. This is apparent from the at times heated discussion and debate triggered in 2010 by plans to enlarge the transmission grid. If electricity from renewable sources is to be fed into the grid as and when it is available, transmission grids will have to be upgraded. Another topic of debate in 2010 was the Supply Chain. The ethical and social standards

that must be brought to bear when sourcing coal for power stations became a topic of debate in the Dutch parliament. Stakeholders increasingly expect us to do more for climate protection through innovation as well.

We did not observe any significant changes in the relevance to our company or to our stakeholders of the remaining six areas for action during the period under review. The changes seen in 2010 compared with last year's report are visualised in the materiality analysis.

#### Our CR management

Corporate responsibility must be embedded at the highest level. Our tying of executive remuneration to the achievement of our CR objectives is indicative of our top-down approach to CR and ensures that it is an ongoing concern of both the Executive Board and the Supervisory Board of RWE AG. Embedding CR in our processes and operations is equally important. Our CR management is premised on the individual responsibility of all our business areas and divisions. Their Group-wide coordination is the responsibility of the Group Centre, RWE AG, while implementation is



handled by the relevant departments. Group-wide development and implementation of the CR strategy falls within the remit of the HR Director at RWE AG. He is supported by the Corporate Responsibility/ Environmental Protection Unit, which reports directly to him. Its tasks include identifying and evaluating sustainability trends, dialogue with stakeholders, proposing updates of the CR strategy and Group-wide CR reporting.

The CR Unit also acts as a provider of CR services to operational units implementing projects in which CR issues are likely to be of relevance. There is thus a constant interchange of ideas and experience with CR officers in the operating companies and the relevant departments.

Conceptual underpinning for the implementation of our CR management is provided by the RWE Code of Conduct. In that document we commit to the ten principles of the UN Global Compact, our progress on which is presented here in this report. The OECD Guidelines for Multinational Enterprises are another important source of guidance.

#### Management systems

In the interests of consistent CR implementation, the RWE Group has introduced management systems wherever these are deemed necessary to our corporate responsibility and to the embedding of CR in our business processes.

**Environmental protection.** Our environmental management is governed by a binding Group Directive and based on the requirements of international standard ISO 14001 for environmental management systems. Every company in the Group has implemented an environmental management system in keeping with its operations. In 2010 the CR Unit conducted

audits at all major operating companies to ascertain whether the requirements of the Group Directive were being met.

**Occupational health and safety.** Group-wide coordination is handled by the Occupational Safety and Occupational Medicine/Health Care Management competence centres set up in 2009. They report directly to the HR Director of RWE AG. The measures taken to improve occupational safety are agreed in a national and international occupational safety forum. Only the German companies are involved in the coordination of occupational health care management at present. An extension of the system to the whole Group is currently being discussed with the European Works Council.

**Compliance.** Anti-corruption and compliance have become so important that in 2009 we created a new organisational unit, Compliance, which as part of the Group Centre reports directly to the CEO of RWE AG. The new unit oversees compliance with our own anti-corruption rules, is responsible for cooperation with the operating companies' compliance officers and for interpreting and where necessary updating the RWE Code of Conduct.

Relations with business partners and consultants and the handling of donations and sponsorship are governed by binding Group Directives based on the RWE Code of Conduct. Every manager with supervisory responsibilities must confirm his or her unit's compliance with the Code of Conduct once a year. In the interests of greater transparency we set up an intranet database on 1 January 2010 to store all important information and documents relating to expenditure on donations and sponsorship as well as gratuities to holders of public office and compliance-relevant contracts with consultants. Regular spot



On the internet:

CR management – information on how CR is organised, the RWE Code of Conduct and certifications



## Facts 2010

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**98** % of employees are covered by the internal environmental management system

**100** % of employees are covered by the internal occupational safety management system

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checks are conducted to ensure their compliance with the requirements of the RWE Code of Conduct. We did not uncover any serious or systematic cases of non-compliance in 2010. There were several irregularities in connection with charitable donations, however, all of which were later corrected. Only in one case did the relevant directive have to be explained.

Regular training courses are held to sensitise employees to compliance-related issues and the importance of preventing corruption. In 2010, moreover, our Compliance Unit began publishing a regular internal newsletter to address topical issues of relevance to this subject. Employees concerned about possible cases of non-compliance can turn either to their compliance officer or to a lawyer appointed by RWE to act as an independent ombudsman in such cases without first having to inform their line manager. All inquiries are treated strictly confidentially, and anonymously if requested. Matters relating to our own competitive conduct are handled by our legal department. Attendance of a training course in antitrust law is mandatory for all those who work in areas in which it is likely to be an issue.

**Innovation management.** The long-term development of the RWE Group is heavily dependent on our timely evaluation and implementation of innovations. Our central Research and Development Department set up in 2008 coordinates all our R&D activities, many of which have a time frame extending far

beyond 2030. The key criteria applied when evaluating a new technology are its potential contribution to climate protection and security of supply and the specific costs of providing energy connected with the technology in question. Research and Development also coordinates our many collaborative projects with universities and handles our endowment-funded professorships (see p. 47).

### Stakeholder dialogue

The nature of our stakeholder dialogue varies considerably from region to region, depending on the interests at stake as well as differences in legislation and the demands of the market. The central premise is that people affected by our plans should be involved in the decision-making process as early as possible.

Put simply, our stakeholder dialogue takes place at two levels. Our main discussion partners at national and European level are policymakers, legislators, analysts and investors as well as internationally active NGOs. Our stakeholders at regional and local level are municipalities, residents, customers and our own employees.

**Germany.** In Germany we are witnessing ever greater polarisation on the issue of how the energy supply of the future should look. The positions held on key aspects of our business policy, in particular the continued use of nuclear power and coal, have become increasingly entrenched in recent years. The serious nuclear accident at the Fukushima nuclear power station in Japan has sparked off intense debate on the future of nuclear power in Germany, most of it revolving around the issue of how the residual risks of this technology should be assessed. Large sections of society favour a phase-out of nuclear power and greater expansion of renewables.

At regional level, on the other hand, the focus is frequently on a specific infrastructure project such as an opencast mine, a new power station or high-voltage

power lines. When it comes to resettling whole communities – something which is unfortunately necessitated by our lignite mining activities in the Rhineland – we have a tried and tested system of involving the residents affected in the planning and design of their new homes right from the start. We have been practicing this for several decades now and regard it as essential to winning broad public acceptance of our opencast mining operations.

**United Kingdom.** Due to concerns over climate change, neither the British government nor large parts of society would support the building of new coal-fired power stations in the foreseeable future. Until the serious nuclear accident in Japan, the attitude to nuclear power prevailing in the UK was by and large positive. It remains to be seen where policymakers and society in general will stand on this issue in future.

When planning new plant, such as the combined-cycle gas turbine (CCGT) power station at Staythorpe, we meet regularly with local authorities, parish councils and local residents to discuss the impact of the construction programme on the local community and take steps to address its concerns, for example through the strict control of temporary lighting at sensitive locations.

**Netherlands.** When RWE acquired Essent, both the previous owners and the municipalities and provinces in which it operates set great store by the continuation of its commitment to sustainability. We undertook to uphold this by signing a binding Sustainability Agreement, whose implementation is overseen by an independent foundation.

Climate protection is a major topic of debate in the Netherlands, where special attention is paid to the question of whether new coal-fired power stations

with their CO<sub>2</sub> emissions can be justified. We discussed and still are discussing this topic with both policymakers and the public at large in connection with the building of our 1,560-MW power station at Eemshaven in the province of Groningen. In addition to climate protection, factors such as the countries where coal is sourced and their compliance with minimum social and environmental standards were also a subject of intense debate.

**Poland, Czech Republic and Hungary.** Climate protection and the make-up of the generation portfolio are also the main focus of discussion in Hungary. As the operator of the country's only lignite-fired power station, we are especially vulnerable here. In 2010, for example, the prevailing economic conditions, which are shaped in part by Hungary's climate protection policies, left us with no choice but to abandon plans for a new 400-MW lignite-fired unit. The regional value added and the company's community engagement remain important factors for our regional stakeholders in Poland, the Czech Republic and Hungary. We are engaged in intensive dialogue with residents and local policymakers and support them as part of our community engagement.

#### **Dialogue with customers and investors**

Customers and investors are important stakeholders as they have a direct influence on our success as a business, whether by opting for one of our tariffs or through their investment decisions. We are therefore engaged in an intensive exchange of views with them as well. In 2010 RWE Vertrieb AG founded a Customer Council to liaise between RWE and its residential customers. This council is to meet twice yearly and will address such issues as products, sales channels, advertising and customer service. The Customer Council, which is split into separate forums for northern and southern Germany, has 38 members.

Customer relations are an important focus of our stakeholder dialogue in the UK and in July 2010 led to the creation of a Customer Stakeholder Council with seats for key stakeholders such as industrial customers and organisations representing the fuel poor (such as National Energy Action, the Fuel Poverty Advisory Group and Citizens Advice Bureau). Talking directly to key stakeholders on a regular basis enables RWE npower to develop stronger relationships and to review activities aimed at raising customer satisfaction. It also provides it with valuable external input for the development of new products and services.

Rating agencies and analysts specialised in sustainable investments are an important link to potential investors. We provide the data and information they need not only once a year in our annual CR report but also by completing their very detailed questionnaires throughout the year. Direct dialogue is backed up with company presentations and one-on-one talks. The sustainability ratings produced in return together with the feedback we receive from analysts provide us with valuable pointers to potential improvements in our CR management. RWE has been listed in the Dow Jones Sustainability Index since its inception in 1999. We are also diligent about completing the annual questionnaires of the Carbon Disclosure Project (CDP) on both CO<sub>2</sub> emissions and water consumption. A summary of all these ratings and other external assessments of RWE is provided on the internet.

#### Dialogue with policymakers

We firmly believe that companies should be able to lobby for their interests in public discourse just as other social groups do. What is important is that this is done transparently. We therefore have offices in Brussels and in the capitals of the countries in which we operate so that we can engage directly with political decision-makers.

In 2010 we had ourselves added to the European Commission's voluntary register of lobbyists. The sums we spend on lobbying and the positions we hold in political discourse are therefore in the public domain. As expected, our lobbying has nevertheless come in for criticism. The Worst Lobby Award 2010 awarded by the NGO Lobby Control reflects the fundamental differences of opinion that exist on the energy supply of the future. The same is true of the Dinosaur 2010 prize awarded by NABU, a German NGO in the field of nature conservation. For us, these awards are at least an opportunity to engage in frank and open dialogue with our critics.

October 2010 saw the publication in several German newspapers of an "Energy Policy Appeal", one of whose initiators and signatories was RWE. The appeal drew attention to the need for a balanced view of nuclear power, coal and renewables as energy sources in the German government's energy policy concept.

#### CR-relevant memberships

Another aspect of our stakeholder dialogue which tells us a lot about the expectations others have of us is our active membership of national organisations such as econsense, the platform for sustainability-oriented companies in Germany, Business in the Community in the UK and MVO Nederland in the Netherlands. The RWE Group is committed to the principles of the UN Global Compact, and RWE AG has joined the German Global Compact Network on behalf of the Group as a whole. Our subsidiaries in the Netherlands and Poland have also joined their national networks and are doing their bit to advance implementation of UN Global Compact principles in those countries. Our other CR-relevant memberships are published on the internet.

## 2.2 CR Programme

In 2009 we defined specific key performance indicators (KPIs) for each of our areas for action. Further details of the action taken and implementation status are provided in the chapters following.

Area for action	We are committed	KPI	
Climate protection	... to significantly reducing the CO <sub>2</sub> intensity of our generation portfolio. Our goal is to use physical and financial measures to lower our CO <sub>2</sub> exposure to the average level of the competition in our markets no later than 2020.	- CO <sub>2</sub> emissions after allowing for CERs from CDM/JI and savings from portfolio optimisation in metric tons per megawatt hour of electricity generated (mt CO <sub>2</sub> /MWh)	
Energy efficiency	... to increasing both our own energy efficiency and that of our customers.	- Increase in energy efficiency in %	
Innovations	... to ensuring the availability of the best solutions for our purposes in our core processes through innovations.	- Degree of coverage and communication of strategically relevant questions	
Security of supply	... to ensuring the system security of our transmission grids at all times. ... to supplying our customers with the energy they need at all times.	- (n-1) criterion for electricity transmission - System Availability Interruption Duration Indicator (SAIDI) in minutes per year and customer	
Supply chain	... to avoiding reputational risks by making compliance with internationally recognised social and environmental standards an integral part of our supply contracts.	- Supplier management coverage in all procurement areas in %	
Pricing and marketplace	... to having satisfied and hence loyal customers.	- Customer Loyalty Index	
Demographic change	... to ensuring the long-term availability of sufficient numbers of suitably qualified personnel.	- Demography Index	
Occupational health and safety	... to ensuring that all our own and our subcontractors' employees return home just as healthy at the end of the day as they were when they arrived for work. ... to maintaining our employees' productivity.	- Number of accidents leading to the loss of at least one person day per million working hours (LTI <sub>f</sub> : X/1,000,000 h) - Introduction of the Work Ability Index (WAI) in %	
Environmental protection	... to operating our plant safely and in compliance with licensing regulations at all times. ... to 100% implementation of our environmental management system to ensure that our plants and grids are operated in compliance with legal requirements at all times.	- Compliance with licensing requirements in % - Group-wide environmental management coverage in %	
Community engagement	... to strengthening our regional reputation by making efficient use of resources.	- Reputation Index	

	Target	Due	Action	Implementation status 31 Dec. 2010
	- Customary emission factor in 2020 (0.45 mt CO <sub>2</sub> /MWh based on what we know today)	2020	- New-build of 7,219 MW gas-fired, 2,100 MW lignite-fired and 3,088 MW hard coal power stations plus an additional 4,500 MW from renewables either under construction or in operation	- 2,537 MW gas-fired power stations either in operation or in commissioning; all other new-builds in progress
	- RWE power plant: 11 % by 2013 - RWE fleet of vehicles: 20% by 2012 - RWE real estate: 5 % by 2014 - RWE customer projects: 8 % by 2012	2012 - 2014	- New power stations (see above) - Continued implementation of Green Car policy - Energy-conserving modernisation of buildings - Customer advice, smart meters / Smart Home, contracting models for municipal utilities and industry	- See above - 19 % reduction in specific fuel consumption - 17 % energy savings from modernising buildings - 8.3 % energy savings in households ("Cleverer Kiez" project)
	- 95 % coverage	2011	- Sample projects: carbon capture and storage (CCS), CO <sub>2</sub> use, improvements in power station efficiency, marine power, solar thermal power, smart grids, smart meters, smart home	- R&D projects all along the value chain
	- Compliance with the (n-1)-criterion - SAIDI < 25 mins (Germany only)	2011	- Investments totalling approx. €3 billion in 800 km of new transmission lines, 25 new substations - Approx. €25 billion for grid renewal and expansion and Group-wide grid operations in the period 2009 to 2019	- Power transmission grid 100% available - SAIDI (2009): 20.4 min per customer per year (in Germany only)
	- at least 95 %	2011	- Inclusion of CR criteria in the terms of purchase - Compliance checks for hard coal suppliers - Drafting of CR principles for the procurement of goods	- Terms and conditions for health and safety and environmental protection in place - Counter party risk assessments conducted for hard coal suppliers - Biomass policy in preparation
	- Customer Loyalty Index of min. 73	2013	- Regular surveys	Customer Loyalty Index of 71
	- Demography Index score of min. 84	2011	- Ongoing recruitment of young people as needed - Percentage of women among new recruits to be increased	Demography Index score of 83.8
	- LTI <sub>f</sub> of max. 2.5 - Most employees of companies based in Germany have access to some means of measuring their personal WAI.	2013	- Ongoing implementation of "Sicher vorWEg" (the Energy to Lead Safely), safety pass introduced for all construction sites, inclusion of subcontractors' employees in accident statistics - Work Ability Index to be introduced across Germany and the results evaluated	- LTI <sub>f</sub> : 3.5  - Work Ability Index introduced in Germany
	- 100 % compliance - 100 % coverage	2011	- Monitoring and inspecting plant management - Installation of an environmental management system in all new companies with regular internal audits	- No significant deviations from licensing regulations - Environmental management system covers 98 % of operations
	- Best reputation in our peer group	2011	- Systematic development of regional level community engagement - Capturing of Group's value added to be broadened beyond what it covers at present	- Best reputation in our peer group

## 3.1 Climate Protection



### Challenging offshore projects

The greatest potential for expanding renewables is that offered by wind farms out at sea. Our first large offshore wind project was in the UK. It was also in the UK, off the coast of Wales, that our Rhyl Flats wind farm came on stream in 2009. Erecting the 25 wind turbines and laying cable at a depth of 15 metres provided us with valuable experience that will now flow into more ambitious projects. Thus we are part of a joint venture that is erecting 140 turbines at Greater Gabbard off the east coast of England.

**Our long-term goal of a carbon-neutral power supply by 2050 poses enormous challenges. We must invest billions of euros in lowering the carbon dioxide (CO<sub>2</sub>) emitted per megawatt hour of electricity generated without jeopardising security of supply or the commercial viability of power generation.**

We are working hard to make the generation of electricity from fossil fuels both more efficient and less carbon-intensive. We intend to have all our new gas- and coal-fired power stations with a combined capacity of more than 12,400 MW on stream by 2014. The expansion of renewables is another key element in our strategy. Our aim is to have 4,500 MW of renewables-based capacity either under construction or in operation by 2014. Our goal is to use physical and financial measures to lower our CO<sub>2</sub> exposure to the average level of the competition in our markets no later than 2020.

### Progress

The modernisation of our generation portfolio is progressing well. Our new combined-cycle gas turbine (CCGT) power stations at Lingen in Germany and Staythorpe in the UK both came on stream in 2010. Important milestones have been reached in the expansion of renewables, too, which now account for 4 % of the electricity we generate compared with 3.5 % in 2009. Our specific emission factor fell from 0.796 metric tons CO<sub>2</sub> per megawatt hour of electricity generated (mt CO<sub>2</sub>/MWh) in 2009 to 0.732 mt CO<sub>2</sub>/MWh in 2010.

#### Objectives in Climate Protection

##### We are committed

... to significantly reducing our generation portfolio's CO<sub>2</sub> intensity. Our goal is to use physical and financial measures to lower our CO<sub>2</sub> exposure to the average level of the competition in our markets no later than 2020.

##### KPI

CO<sub>2</sub> emissions after allowing for CERs from CDM/JI and savings from portfolio optimisation in metric tons per megawatt hour of electricity generated (mt CO<sub>2</sub>/MWh)

##### Target

Customary emission factor in 2020 (0.45 mt CO<sub>2</sub>/MWh based on what we know today)

## Facts 2010

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**225.3** billion kWh from our power stations

**164.9** million mt CO<sub>2</sub> emissions from electricity generation

**8.9** billion kWh of renewable energy

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### Improving our CO<sub>2</sub> emissions balance

Both policymakers and society expect us, as Europe's largest single emitter of CO<sub>2</sub>, to deliver climate protection solutions. Society's acceptance of our company and of our activities also depends largely on our efforts to protect the climate. What drives us to lower our CO<sub>2</sub> emissions per megawatt hour of electricity generated is thus not just the political demands made of us at national and European level, but equally importantly society's expectations of us. Averting the financial risk posed by CO<sub>2</sub> emissions, moreover, is harder for RWE than for its competitors. The long-term restructuring of our generating capacity will enable us to lower our CO<sub>2</sub> exposure while safeguarding our competitiveness. Our goal is a generation portfolio that is 75 % low-carbon or carbon-free by 2025, most of it either renewables- or gas-based.

Our long-term goal for CO<sub>2</sub> exposure is based on the average CO<sub>2</sub> emissions per MWh of electricity generated. Our goal is to use physical and financial measures to lower our CO<sub>2</sub> exposure to the average level of the competition in our markets no later than 2020. According to current estimates, the customary emission factor in these markets will be in the order of 0.45 mt CO<sub>2</sub> per MWh. Our CO<sub>2</sub> emissions are falling steadily thanks to our new-build programme and our expansion of renewables. The role played by nuclear power in our generation portfolio in future will depend on the safety requirements and on the outcome of the public debate on the future of nuclear

power currently in progress. The financial measures we have adopted to improve our CO<sub>2</sub> emissions balance include the use of certified emission reductions (CERs) from international climate protection projects under the Kyoto mechanisms CDM/JI (Clean Development Mechanism and Joint Implementation) to offset our own emissions. Optimising our portfolio through virtual power plant swaps with other electricity generators is also making a contribution.

### Modernising our power plant portfolio

Our Group-wide new-build programme is now in its third and final phase. We are therefore now in a position to take older and less efficient power stations off the grid without jeopardising security of supply or the commercial viability of power generation. RWE is investing some €12 billion in new-build projects in Germany, the UK, the Netherlands and Turkey. The transformation of our generation portfolio will not stop there, however. In the long run, we are considering supplementing our generation base with additional state-of-the-art combined-cycle gas turbine power stations, as their ability to rapidly vary their load factor ideally complements renewable energy.

**Lignite and hard coal-fired power stations.** The world's most modern lignite-fired units are currently under construction at Neurath in Germany. The 2,100-MW dual-block lignite-fired power plant will have an efficiency of at least 43 % and is scheduled for completion in late 2011. By replacing older plants with an efficiency of 30 to 32 %, these two new units alone will slash our CO<sub>2</sub> emissions by up to 6 million metric tons annually for the same amount of electricity. We are also building two new hard-coal units at Hamm in Germany. These will have a combined capacity of 1,528 MW and are due to come on stream in 2013. With an efficiency of 46 %, they will require 20 % less hard coal than older plants. Two older units at Hamm with a total capacity of approx. 300 MW will be shut down in the course of 2011.



The 1,560-MW hard-coal power station currently under construction at Eemshaven in the Netherlands is to have an efficiency of 46 %. Due to come on stream in 2014, it will be co-fired with up to 15 % biomass.

**Combined-cycle gas turbine power stations.** Gas-fired power stations are the single most important item in our power plant investment package in terms of both the number of projects and their total capacity. With an efficiency of up to 60 %, Combined-cycle gas turbine power stations (CCGT) plant are the most efficient of all fossil-fuel power stations. Combined heat and power (CHP) can raise this figure to as high as 80 %. The 876-MW CCGT power station at Lingen in Germany commenced operation in the spring of 2010. At the end of 2010, all four units of the 1,650-MW plant at Staythorpe in Nottinghamshire went on grid simultaneously for the first time. RWE npower is currently building a second plant of this kind at Pembroke in Wales, which is to have a capacity of 2,188 MW and is to come on stream in 2012. The two UK CCGT

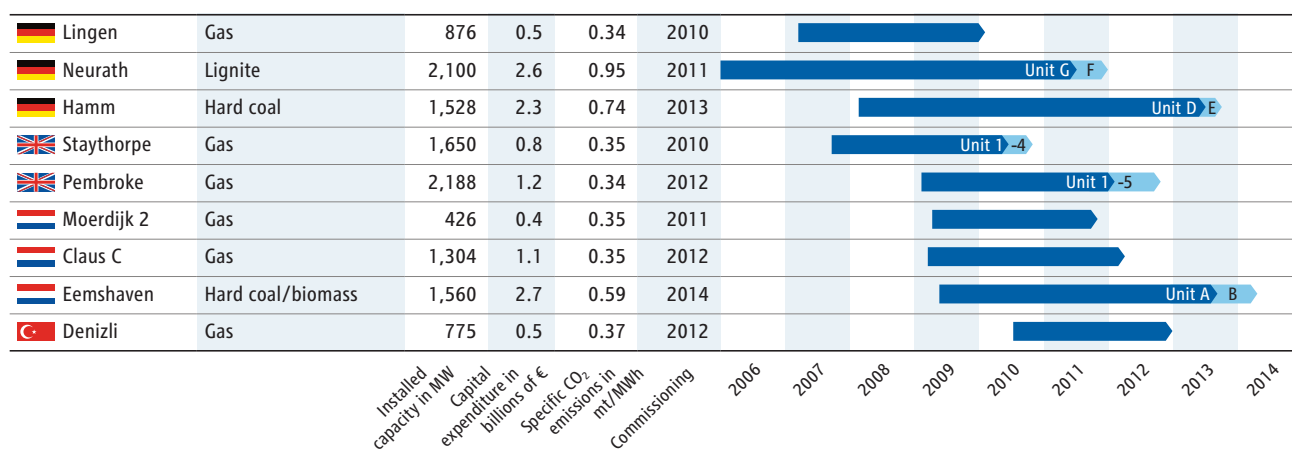
power stations will replace several plant, including our Didcot A and Tilbury coal-fired power plant, which will probably be taken off the UK grid by 2015.

In the Netherlands, meanwhile, our Dutch subsidiary Essent currently has two CCGT power stations under construction: the 426-MW Moerdijk 2, which is to come on stream in the fourth quarter of 2011, and the 1,304-MW Claus C, which is to come on stream in the second quarter of 2012 and will replace the 640-MW gas-fired power plant Claus B. Last year we also decided to build our first power station in Turkey: the 775-MW CCGT plant at Denizli, completion of which is scheduled for 2012.

#### Expansion of renewables

Spearheading our expansion of renewables is RWE Innogy, the subsidiary we founded for this purpose in 2008. Our Group-wide renewables-based generating capacity increased from 2,532 MW at the end of 2009 to 2,947 MW at the end of 2010. To drive the expansion

Status of RWE's Power Plant Projects





sion of renewables, we intend to continue making investments in the order of billions and will finance this out of revenues from our business in force, including from our coal-fired and nuclear power stations. Our aim is to have 4,500 MW of renewables-based generating capacity either under construction or in operation by 2014. Due to reductions in capital expenditure and project delays, we will not be able to achieve this goal by 2012, as originally planned.

Our expansion of renewables is based on mature technologies such as onshore and offshore wind turbines, hydropower and power plant fired by biomass at locations all over Europe. We are also driving the development of new technologies, including solar thermal power. The first such plant is currently in commercial trials (see Innovations, p. 34). Our investment focus is on those technologies that promise the best cost-benefit ratio for the economy as a whole, which is why photovoltaic power generation in Central Europe is not an option for us. RWE Innogy is currently developing renewable projects with a combined installed capacity of 18,200 MW. We currently have plant with a combined capacity of 1,100 MW under construction in Germany, the UK, France, Italy, the Netherlands, Poland, Portugal and Spain.

**Onshore wind power.** RWE operates onshore wind farms with a total installed capacity of approx. 1,600 MW in Germany, the UK, the Netherlands and Spain. Our first Italian wind farm, a 25-MW installation on Sardinia, came on stream in mid-2010 and was followed in December of that year by a 26-MW wind farm in the Molise region of southern Italy. An 8-MW wind farm in France began feeding into the grid in October 2010. In Poland meanwhile, the commissioning of two more wind farms in early 2011 has enlarged our wind-based portfolio in that country to 108 MW.

And RWE Innogy has a further 95 MW of onshore wind-based capacity under construction. With suitable locations in Germany and the Netherlands becoming increasingly scarce, however, we are considering the repowering option, i.e. replacing existing wind turbines with more powerful ones. Poland, on the other hand, still has great potential in our view, as do two countries outside our core markets: Italy and France.

**Offshore wind power.** Most of Europe's wind power is still generated on land; yet it is the wind farms being built out at sea that have the greatest potential for the future. There, space is plentiful and the prevailing winds are stronger. Expanding our offshore capacity is therefore the main focus of our wind power activities. The engineering challenges of erecting, operating and servicing wind farms up to 100 km from land in waters up to 40 m deep are nevertheless considerable. The transmission lines needed to feed the power into the grid, moreover, often have to pass through conservation areas. Working with the authorities to find solutions that will allow us to operate our plant in harmony with the environment is therefore crucial to every offshore project.

Another problem is the limited availability of the special vessels needed to install wind turbines at sea. To prevent unnecessary delays we have therefore ordered two of our own, delivery of which is scheduled for 2011. We have also signed long-term delivery contracts worth a total of €2 billion for the delivery of 250 offshore wind turbines.

Having built two wind farms off the coast of Wales, the 60-MW North Hoyle and 90-MW Rhyl Flats wind farm, which came on stream in 2003 and 2009 respectively, we now have extensive experience of offshore projects. With its long coastline and wind in abun-

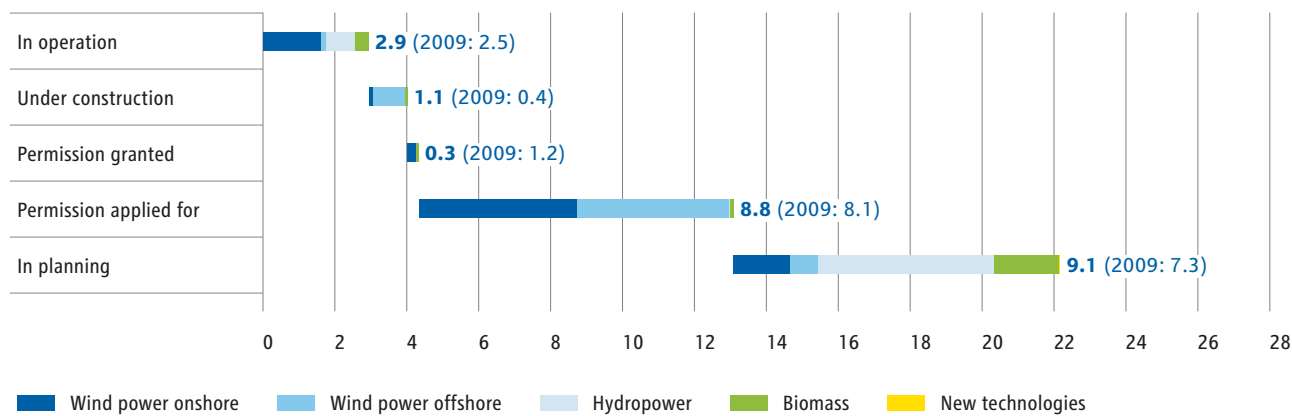
dance the UK is an ideal location for offshore wind farms. It is also more investor-friendly than Germany as sites there can be leased for up to 50 years. Later repowering can thus be included in project planning from the start.

The 504-MW Greater Gabbard wind farm being built off the east coast of England, a project in which RWE Innogy has a 50 % stake, is scheduled to come on stream in 2012. RWE's largest single project, however, is the Gwynt y Môr wind farm off the coast of North Wales, the foundations of which are to be laid starting in late 2011. Upon its completion in 2014, Gwynt y Môr with its 160 turbines will have a capacity of 576 MW, making it the largest offshore wind farm in the world. RWE Innogy also has a 27 % stake in the Thornton Bank wind farm off the coast of Belgium, which is to be expanded from 30 MW to 325 MW by 2013.

Another investment focus is Nordsee Ost, our first offshore wind farm in Germany with a capacity of 295 MW, preparations for which are already underway. Assuming the responsible transmission system operator installs the required high-voltage cable, the first of the 48 wind turbines could begin supplying power as early as 2012. As a European Lighthouse Project for renewables, Nordsee Ost is receiving support from the EU to the tune of €50 million. Meanwhile RWE Innogy is forging ahead with the planning of Innogy Nordsee 1 off the coast of Germany, which at 960 MW is the largest offshore wind farm off the coast of Germany currently in planning.

In January 2010, the UK government announced that RWE Innogy had won the contract to develop the Atlantic Array and Dogger Bank offshore wind projects. We will initially develop the Atlantic Array project alone, which will have up to 1.5 GW in generation

**Expansion of Renewables** (as of 31 Dec 2010)  
in gigawatt



capacity. For Dogger Bank, however, we placed the winning bid as part of a consortium called 'Forewind', in which RWE Innogy holds a 25 % stake. Wind turbines with a total installed capacity of 9 GW are to be built in this area.

**Hydropower.** Run-of-river hydroelectric power stations in Germany, the UK, France and the Iberian Peninsula accounted for approx. 2 % of the electricity we generated in 2010. Most of our run-of-river power stations, especially those on the River Moselle in Germany, have now been operating for over a century. Scope for expanding our hydropower capacity in Western and Central Europe is limited and consists mainly in the modernisation of existing plant and efficiency improvements.

**Biomass.** Europe's climate protection targets can probably be met only through the greater use of biomass. Our Group-wide generating capacity from biomass, including its co-combustion in coal-fired power plant, currently stands at 700 MW. Although co-combustion helps to lower CO<sub>2</sub> emissions, there is no EU-wide system of subsidies. The conditions thus vary from country to country. Our most important market for the use of biomass to generate electricity is the Netherlands, which subsidises the co-combustion of biomass. Our Dutch subsidiary Essent has approx. 320 MW of biomass-based capacity and generates 10 % of its electricity from biomass, most of which is used to co-fire our hard-coal Amer power station at Geertruidenberg. Amer's main supplier in future is to be a large wood-pelleting plant in Georgia, USA, which upon its completion will use only sustainably sourced wood (see p. 38).

Owing to the regulatory situation in Germany, most of our biomass there is used to fuel small combined heat and power (CHP) plants, which besides generating electricity also supply local consumers with heat.

Our 5-MW biomass-fired CHP power station in the district of Siegen-Wittgenstein, for example, came on stream in 2010 and now heats a nearby wood-pelleting plant. We also have two biomass-fired power stations under construction in the UK – the 65-MW Stallingborough Alpha and the 50-MW Markinch facility in Scotland – and have plans for a 19-MW project on Sicily as well. These smaller plants, however, are significantly more expensive than the co-combustion of biomass in large coal-fired power stations.

### Integrating renewables

We have to guarantee a reliable electricity supply at all times irrespective of weather-related fluctuations in the feed-in from renewables. The measures we have adopted are therefore aimed at facilitating the regulation of our thermal generating capacity and at developing and expanding the use of energy storage technologies. Our new combined-cycle gas turbine power stations allow us to supply low-cost electricity on demand even at peak times. Furthermore, we are working on improving the versatility of our coal-fired power stations so that their loads can be varied more easily as and when required.

When it comes to storing electrical power, one tried and tested option is pumped-storage, which works by using surplus power to pump water into a reservoir and then draining it off again to drive turbines whenever demand is high. Through Schluchseewerk AG, a 50 % subsidiary of RWE Power, we have a stake in a new 1,400-MW pumped-storage power station currently in planning in Germany's Black Forest. Work is also progressing well on enlarging Europe's biggest pumped-storage plant in Vianden in Luxembourg to 1,300 MW, or the equivalent of 260 modern offshore wind turbines. The new turbine there is due to commence operation in mid-2013. As part of our innovation strategy we are also developing and testing new storage methods such as compressed-air storage (see p. 35).

Another challenge when expanding renewables is the problem of getting electricity generated at some distance from densely populated areas to the main centres of consumption. In Germany this will require greatly enlarging the transmission grid. According to a study by the German Energy Agency, up to 3,600 km of additional ultra-high-voltage power lines will be needed by 2020, entailing grid investments in the order of €9.7 billion. Amprion, our unbundled transmission system operator, plans to expand its grid by 800 km by 2020 and intends to invest €3 in transmission lines and substations to this end (see p. 38).

#### CDM/JI

Using certified emission reductions (CERs) from international climate protection projects under the Clean Development Mechanism (CDM) and Joint Implementation (JI) mechanism provided for in the Kyoto Protocol is another way of improving our emissions balance. The projects we develop either alone or in collaboration with others are generally based in developing or newly industrialising countries (NICs), or in other industrialised nations. The EU Emissions Trading System allows us to use carbon credits from CDM and JI projects to offset up to 100 million metric tons of our own CO<sub>2</sub> emissions by 2020. Costs for Certified Emission Reductions (CERs) tend to be lower than the market prices charged for EU allowances (EUAs). At the end of fiscal 2010 we were involved in 137 projects altogether, including some in Egypt, China, India, South Korea, Thailand and Vietnam, and had contractually secured CERs for 68.6 million metric tons of CO<sub>2</sub> equivalents. Taking into account the project risks, we expect this portfolio to yield 41.4 million metric tons of CO<sub>2</sub> equivalents. Certificates for 14.5 million metric tons have already been received and the equivalent of 4.6 million metric tons already used.

#### Adapting to climate change

Adapting to climate change is for RWE first and foremost a question of security of supply. Climate change is expected to lead to a higher incidence of extreme weather events such as heavy storms, flooding and droughts, all of which could impinge on security of supply. RWE is therefore actively involved in projects and initiatives to investigate the potential impacts of climate change as well as changes in the local micro-climate. Our main concern is how these will affect the operation of our power stations and transmission grids. Flood protection, the availability of cooling water for our conventional power stations, the availability of renewables and uninterrupted operation of our transmission lines and transformers are among the important issues being considered.

Our existing supply infrastructure is designed to withstand extreme weather conditions; yet long periods of drought in our core markets would inevitably have consequences for our thermal power stations. This is because approx. 80 % of our hard-coal and gas-fired power stations and all of our nuclear power stations draw their cooling water from nearby rivers. Here too, however, there is built-in redundancy to minimise the risks. Our nuclear power station at Biblis, for example, draws its cooling water straight from the Rhine but is also equipped with fan-operated cooling towers. Our lignite-fired power stations would not be affected by changes in the water levels of nearby rivers as they are cooled mainly with water pumped out of the opencast mines that supply them. The safeguards we have developed for those power stations that are cooled with seawater are premised on the maximum credible flood scenario plus safety margins and are designed to exclude the possibility of the plant itself causing flooding in the hinterland. This is the concept being applied at our new power

station at Eemshaven currently under construction. The resilience of our renewables portfolio, in particular that of our offshore wind farms to high winds and heavy seas, has yet to be put to the test.

Our transmission grids are designed to withstand inclement weather. The built-in safety margins are so generous that there have been no widespread outages such as might put the whole system at risk in recent years. The systems' inherent redundancy also ensures that there is always a backup available in the

event of failure. Distribution networks generally have a higher percentage of lines laid underground. Underground lines make for a more resilient network that cannot be knocked out by falling trees in wooded areas, for example. More frequent flooding could still jeopardise security of supply, however, especially if substations and transformers were affected. After the experience of 2010 and especially the floods in Hungary and Poland, we have already begun planning improvements to the flood protection of these plant.

#### Key Figures – Climate Protection

		2010	2009	2008	2007
<b>CO<sub>2</sub> emissions</b>					
CO <sub>2</sub> emissions (EU ETS)	million mt CO <sub>2</sub>	164.9	149.1	172.1	187.1
CO <sub>2</sub> emissions from biogenic fuels	million mt CO <sub>2</sub>	2.0	2.5	2.2	0.8
Scope 1 CO <sub>2</sub> emissions <sup>1</sup>	million mt CO <sub>2</sub>	167.1	151.3	174.5	189.7
Scope 2 CO <sub>2</sub> emissions <sup>2</sup>	million mt CO <sub>2</sub>	3.1	3.5	3.8	3.6
Scope 3 CO <sub>2</sub> emissions <sup>3</sup>	million mt CO <sub>2</sub>	135.7	128.1	127.0	127.8
Specific CO <sub>2</sub> emissions	mt CO <sub>2</sub> /MWh	0.732	0.796	0.768	0.866
<b>Total electricity generation</b>					
Lignite	TWh	71.0	70.9	73.9	76.1
Hard coal	TWh	55.2	44.1	62.0	71.0
Nuclear	TWh	45.2	33.9	49.3	32.1
Natural gas	TWh	42.8	29.7	31.2	29.3
Renewable energy	TWh	8.9	6.5	5.3	5.2
Hydro	TWh	3.5	3.4	3.4	3.7
Wind	TWh	3.1	2.2	1.3	1.1
Biomass	TWh	2.3	0.9	0.6	0.4
Others	TWh	2.2	2.1	2.4	2.4

1 Scope 1: direct CO<sub>2</sub> emissions from in-house sources (electricity generation, oil and gas production, gas transmission)

2 Scope 2: indirect CO<sub>2</sub> emissions from the generation of electricity purchased from third parties which is used when being transmitted over the RWE network (network losses)

3 Scope 3: indirect CO<sub>2</sub> emissions that do not fall under Scope 1 or 2, produced through the generation of electricity procured from third parties, (including network losses in third-party networks), production and transmission of used fuel, and CO<sub>2</sub> emissions of gas sold to customers

## 3.2 Energy Efficiency



### The promise of electromobility

Electric vehicles are an environment-friendly alternative to conventional cars. Developers and carmakers worldwide are working on new technologies and the first commercially available vehicles are due to come on the market in 2011. RWE is working on the installation of the necessary infrastructure, which after all is vital if electromobility is to catch on. To put the technology through its paces, we are taking part in pilot projects in Berlin, along the A40 motorway in the Ruhr region, and in Warsaw and by the end of 2010 had installed some 600 charging points.

**One key to achieving climate protection goals is to maximise energy efficiency. Building new power stations enables us to generate electricity more efficiently. We are also lowering our own energy consumption and helping our customers save energy too.**

There are two ways in which we as an energy utility can help to reduce CO<sub>2</sub> emissions: we can generate electricity more efficiently, for example by making our power stations more efficient, and we can help our customers to use energy more sparingly too. This is the aim of the various innovative products and services that we offer our customers. We are also investing heavily in electromobility, a new business area that we are pursuing in tandem with our expansion of renewables.

### Progress

The first of several new power stations came on stream in 2010. We expect these to raise the mean efficiency of our fossil-fuel power stations by more than 3 percentage points by 2013. Approx. 40 % of our centrally managed fleet of company cars have been replaced by more efficient models since 2009. Projects to improve the energy efficiency of our buildings have been initiated, and the scope of our customer projects broadened. These are expected to yield measurable improvements in efficiency from 2011 onwards.

Objectives in Energy Efficiency			
We are committed		KPI	Target
... to increasing both our own energy efficiency and that of our customers.		Increase in energy efficiency in %	<ul style="list-style-type: none"> <li>- RWE power plant: 11 % by 2013</li> <li>- RWE fleet of vehicles: 20 % by 2012</li> <li>- RWE real estate: 5 % by 2014</li> <li>- RWE customer projects: 8 % by 2012</li> </ul>

## Facts 2010

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**19** % reduction in specific fuel consumption over five years

**17** % energy savings from modernising our buildings

**8.3** % energy savings in private households

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### Increasing our own energy efficiency

Substantial leverage for reducing our CO<sub>2</sub> emissions is to be had from maximising the efficiency of our gas- and coal-fired power stations. But we also want to lower CO<sub>2</sub> emissions by reducing our own energy consumption as well, especially in our buildings, vehicles and IT.

**Efficient electricity generation.** At more than 43 % for lignite and 46 % for hard coal, the efficiency of our most modern power stations is up to 13 percentage points higher than that of old ones. Our modern power stations therefore emit up to 30 % less CO<sub>2</sub> than older power stations with the same output. Our coal-fired power stations currently have an average efficiency of approx. 36 %.

Large parts of our generation portfolio are therefore being modernised. The two new lignite-fired units with a capacity of 2,100 MW and an efficiency of at least 43 % currently under construction at Neurath in Germany are to replace older 150-MW lignite units, which have an efficiency of approx. 30 %. The two hard-coal units currently under construction at Hamm in Germany are designed to have an efficiency of 46 %. We expect the new power stations that are to come on stream between 2011 and 2013 to raise the overall mean efficiency of our power plant portfolio by more than 3 percentage points. The next efficiency-enhancing technology is currently undergoing pre-

commercial trials. A fluidised-bed drying system developed by RWE that uses waste heat to pre-dry lignite is currently being tested in a pilot plant which supplies a 1,000-MW lignite-fired unit with approx. 25 % of its lignite requirements. This system has the potential to raise the efficiency of future lignite-fired power stations to more than 47 %.

**Our own energy consumption.** RWE in Germany runs a centrally managed fleet of some 3,000 company cars, which between them emit more than 20,000 metric tons of CO<sub>2</sub> annually. By 2012, we aim to reduce these CO<sub>2</sub> emissions by 20 % compared with 2007, and in December 2008 introduced a green car policy. What this means in practice is that RWE selects only models which the German automobile association ADAC has rated highly according to its EcoTest rating system. We had purchased 1,100 new vehicles according to these criteria by the end of 2010. In September 2010, RWE npower's customer service teams, which until then had been scattered all over the UK, were brought together under one roof at Rainton House in Sunderland. The new premises has an excellent energy efficiency rating and has enabled RWE npower to vacate older and less efficient buildings.

### Efficient energy use

Our efficiency products and services are intended to bind customers to RWE and open up new market segments. They are also part of our effort to meet policy-makers' expectations with regard to greater energy efficiency. Significant energy savings require both behavioural changes on the part of consumers and a readiness to make the necessary investments. We are committed to winning greater public acceptance for such investments and to forging ahead with their implementation. Our focus is therefore on projects to promote the more efficient use of energy, the development of new technologies and services for private households, and the promotion of electromobility.



On the internet:

Internal efficiency measures – buildings and green IT



**€150 million for energy efficiency.** To win more widespread support for greater energy efficiency among its customers, RWE bundled a whole raft of products and services in a €150-million-strong energy efficiency drive initiated in 2007. Since then, all customer groups from residential customers to municipal utilities have been offered efficiency-enhancing products and services, some of which are heavily subsidised. Assessing the potential energy savings in specific buildings is an important part of this endeavour. To raise awareness of the importance of saving energy, moreover, RWE launched an energy efficiency competition in which more than 18,000 schoolchildren all over Germany took part. In early 2011 the German Energy Agency awarded us its Good Practice Energy Efficiency Label in recognition of our efforts.

**Customer advice.** Residential customers in Germany can make use of our [www.energiwelt.de](http://www.energiwelt.de) internet portal. The portal, which provides support under the headings Information, Analysis and Realisation, allows users to seek individualised advice on specific energy-saving measures, to weigh up the costs and benefits and to consult a list of potential discussion partners. Since 2007 RWE in Poland has been running a programme called RWE Conscious Energy, which includes advising customers on how to save energy without forfeiting convenience.

**Energy contracting.** Our contracting models for the decentralised generation of electricity and heat were developed specifically for our large electricity and energy consumers. The bundling of several, small, decentralised plants in a virtual power plant is a further development of this concept and promises customers additional profits from sales of balancing power.

**Smart meters.** Smart meters provide customers with near real-time information on their power consumption. Customers with smart meters can receive a monthly overview of the electricity they have con-

sumed, and feedback every second is also possible. Customers are therefore given an accurate picture of how much electricity their appliances consume and hence how efficient they are. This new generation of smart meters is being tested in a pilot project in the German city of Mülheim an der Ruhr. Between July 2008 and the end of 2011 more than 100,000 households will have their old meters replaced by new smart meters at no extra cost to themselves. In the UK, the government has mandated the installation of smart electricity and gas meters in all homes, with roll-out to begin – subject to consultation – in the summer of 2012. Meeting the government's proposed timescales will require the installation of approx. 60,000 new meters per month. Before we can go ahead with this, however, we first have to implement the necessary systems on our own premises and provide the training required for our customer service technicians.

**Smart Home.** Smart Home takes smart metering a step further. With the aid of intelligent networking, all the main household energy consumers – the heating system, household appliances and lighting – can be individually regulated, even via the internet if required. One of the advantages of Smart Home is that it does not require any structural changes, as all the relevant appliances can be fitted with a wireless connection to the central control unit. This feature is expected to make it more attractive to customers. RWE is developing Smart Home together with its partners Microsoft and the home automation specialists eQ-3.

**Electromobility.** Powered by green electricity, electric cars run virtually CO<sub>2</sub>-free; they are also much quieter than conventional cars and do not emit pollutants such as particulate matter or nitrous oxides. We expect there to be up to 2.5 million electric vehicles in Germany and more than ten million in Western Europe by 2020. This would represent 19 % of all new vehicle registrations in Western Europe.



We are committed to making this technology fit for everyday use by millions of drivers as fast as possible and have therefore begun installing the necessary infrastructure. We aim to be one of the leading suppliers of charging stations and related services in all our core European markets. RWE already has an intelligent rapid charger for the mass market and is now selling this technology together with the relevant installation, operation and maintenance services on the international market. The electricity for recharging comes from 100 % renewable sources. Customers have been able to place orders for the first e-drive packages comprising a standard electric vehicle, RWE charging infrastructure and a CO<sub>2</sub>-free power supply since October 2010.

RWE and its partners in the automotive industry are conducting several pilot projects to gain more experience of electric vehicles in everyday use: "e-mobility Berlin" launched in 2008 involves 100 electrically powered Smarts supplied by Daimler and a network with 140 charging points supplied by RWE. Our largest project involving 140 electric cars and a planned total of some 400 charging points will assess the suitability of electromobility for commuters in the populous German state of North Rhine-Westphalia. We had installed some 600 charging points by the end of 2010, 530 alone in Germany. To be able to

provide the necessary charging infrastructure, RWE has teamed up with the German automobile association ADAC, the car rental company Sixt, the car park operator APCOA and others. In 2010 we succeeded for the first time in winning the support of three filling station operators as well.

Besides creating the necessary infrastructure, RWE has also signed cooperation agreements with Nissan, the Chinese carmaker BYD and equipment manufacturers such as the HARTING Technology Group. We also have a seat on all the most important German and international standards boards and on the National Electromobility Platform. The goal is to facilitate cross-border e-mobility with a standardised plug for both vehicles and infrastructure, compatible data communications and standardised billing protocols.

In the medium-term future, electric vehicles could help to balance discrepancies between supply and demand in the grid. The powerful batteries that drive electric vehicles make them ideal for the temporary storage of electricity. This aspect becomes all the more important as renewables expand, as the fluctuating electricity supply from renewable sources requires additional storage capacity. The fully automated storage and later retrieval of the power generated will be coordinated by a smart grid (see p. 35).

#### Key Figures – Energy Efficiency

		2010	2009 <sup>2</sup>
<b>Efficiency of our fossil-fuel power stations<sup>1</sup></b>			
Lignite	in %	34.6	33.1
Hard coal	in %	37.0	36.1
Natural gas	in %	49.5	42.7

<sup>1</sup> In 2010 we began defining the efficiency of our power stations as the electricity and heat generated per unit of energy used.

<sup>2</sup> Not including heat

### 3.3 Innovations



#### Solar power in Andalusia

Solar power is usually available only during the day. By using liquid salt as a storage medium, the Andasol 3 solar-thermal power station in southern Spain is able to generate power even when the sun is not shining. This means that solar power can be used to supply baseload power both day and night. Andasol 3 can continue generating electricity for up to 7.5 hours even in complete darkness.

**The energy supply of the future is to be climate-friendly, efficient and intelligent. This is the goal we are pursuing with our partners in 200 projects covering the whole value chain from the production of raw materials to power generation, distribution, and use.**

To meet the demand for a reliable and affordable power supply while at the same time protecting the climate, we are having to take action on several fronts at once. We are endeavouring to maximise the efficiency of our generation portfolio while minimising our CO<sub>2</sub> emissions, we are tapping new energy sources, we are making power distribution more flexible and intelligent, we are developing practicable energy storage solutions, we are facilitating the use of electric vehicles and we are using energy more efficiently.

#### Progress

We have set up a Group-wide innovation management system to coordinate all our various research and development (R&D) activities. This means that all companies engaged in research and development in the RWE Group are now covered by standardised processes such as R&D planning and reporting.

Objectives in Innovations		
We are committed	KPI	Target
... to ensuring the availability of the best solutions for our purposes in our core processes through innovations.	Degree of coverage and communication of strategically relevant R&D questions	min. 95%

## Facts 2010

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**149** million euros for research and development  
**200** R&D projects  
**360** employees solely or partly dedicated to R&D work

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### Clean coal

Fossil fuels will remain important to the generation of electricity for many years to come. To secure public acceptance of the use of coal to fire power stations, we must find reliable ways of minimising the resulting CO<sub>2</sub> emissions. Our development of new technologies for reducing and converting CO<sub>2</sub> is concentrated at our Coal Innovation Centre at our Niederaußem power station in Germany. Our partners in this endeavour include companies in the plant engineering and chemical industries as well as research institutes.

**Carbon capture and storage (CCS).** The first step towards clean coal is the development of effective technologies for separating CO<sub>2</sub> from flue gas. One such method is CO<sub>2</sub> scrubbing, in which a chemical solvent is used to bind any CO<sub>2</sub> present in the flue gas. We began testing this method for large-scale technical use in cooperation with BASF and Linde in a pilot plant attached to a 1,000-MW lignite-fired unit at our Niederaußem power station in August 2009. A 3-MW pilot plant at our hard-coal power station at Aberthaw in Wales is to be used to test alternative chemical detergents. Our goal is to make CO<sub>2</sub> scrubbing a commercially viable retrofit option by 2020. However, if CO<sub>2</sub> scrubbing is to be effective, flue gas pre-treatment must also be improved. In July 2009 RWE and the Austrian engineering firm Austrian Energy & Environment (AE&E) therefore began testing suitable methods at the high-performance desulphurisation system operated at Niederaußem.

Improved flue-gas desulphurisation and dedusting would allow flue gas to be fed straight into a downstream CO<sub>2</sub> scrubbing unit.

In October 2009 RWE and our partners American Electric Power (AEP) and Alstom began large-scale trials of the whole process from carbon capture to transport and storage at the 1,300-MW Mountaineer power plant in New Haven, West Virginia. The CO<sub>2</sub> given off by this hard-coal power plant is now captured and piped into deep geological strata where it can remain indefinitely rather like natural gas. In the absence of any legal framework for the underground storage of CO<sub>2</sub> in Germany we have had to scale back our activities in this field pending further progress. The 450-MW lignite-fired power station with integrated coal gasification that was to be built in Hürth near Cologne has also been affected by this. We are currently exploring the CCS options at our twin-unit hard coal-fired power station currently under construction at Eemshaven in the Netherlands. We could supplement it with a demonstration CO<sub>2</sub> separation unit if we were to receive support from an EU subsidy programme.

**Use of carbon dioxide.** We are also looking into the possibility of using CO<sub>2</sub> for energy conversion and as a source of carbon for chemical intermediates. Together with industrial partners and research institutes, RWE Power is pursuing various avenues of carbon capture and usage (CCU) and developing these wherever possible. One option that merits further attention is carbon capture in microalgae to produce biomass for power generation. The fact that this type of biomass grows faster and requires less land than conventional biomass makes it an especially attractive option for biogas plants. Our DREAM Production project together with Bayer is looking into the possibility of using CO<sub>2</sub> for plastics production. CO<sub>2</sub>RRECT (CO<sub>2</sub>-Reaction using Regenerative Energies and Catalytic Technologies), which is another project with

Bayer as well as Siemens and several leading universities, is exploring the suitability of CO<sub>2</sub> for the chemical storage of energy from primarily renewable sources. In 2010 we teamed up with the biotech company BRAIN to investigate the possibility of using micro-organisms to bind the CO<sub>2</sub> extracted from flue gas in new biomaterials, bioplastics or chemical intermediates for the production of fine and special chemicals.

### Renewable power generation

One major challenge posed by the shift to an energy supply based on renewable sources is how to make them more competitive and hence a realistic alternative to conventional power generation. This is the primary objective underlying our R&D activities in renewables. We are also investing in companies which optimise existing technologies or develop new ones to create commercially viable technologies. Our investment focus is on renewable power generation and the development of energy storage technologies in Europe.

**Offshore wind.** Building wind farms at sea is an expensive undertaking requiring highly specialised know-how. In 2008, therefore, we signed up to Offshore Wind Accelerator (OWA), a British initiative which is seeking to reduce the costs of power from offshore wind farms by 10 % while improving their reliability.

**Solar thermal power.** RWE Innogy has a 12.8 % stake in Andasol 3, a 50-MW solar thermal power station currently under construction in southern Spain. This project will be one of the first to test solar thermal power in conjunction with thermal storage on an industrial scale. The thermal storage system will permit continuous power generation largely independent of the prevailing solar radiation. This is a significant advantage that will greatly facilitate the integration

of the solar thermal power generated in the electricity supply. The erection of the 210,000 parabolic troughs and building of the thermal storage system are progressing to schedule. Andasol 3 is to come on stream in the second half of 2011.

**Desertec.** Ever since 2009 RWE and its partners in the Desertec Industrial Initiative (DII) have been looking into the question of whether, and if so how, Europe could be supplied with solar and wind power from North Africa and the Middle East. Besides selecting the most suitable locations and most appropriate generating technologies, the partners also have to agree on the infrastructure needed to transport the electricity to Europe and ensure that the necessary political and regulatory framework is in place. The Desertec concept rests on the assumption that the initiative could meet 15 % of Europe's electricity demand by 2050.

**Marine power.** To facilitate the efficient and large-scale use of marine power in the long term, we have begun collaborating with manufacturers of marine power plant. Together with Voith Hydro, for example, we are currently installing a 1-MW marine tidal current turbine off the Scottish Orkney Islands.

**Biocoal.** Torrefaction is a method of converting biomass into biocoal pellets, which besides having a higher energy density than conventional wood pellets also burn more evenly. We are building the first industrial-scale plant for the manufacture of biocoal pellets together with Topell Energy in the Netherlands. The plant will have an annual production capacity of 60,000 metric tons of pellets and is to commence operation in 2011. Essent plans to step up the use of biocoal pellets as fuel at its Amer hard coal-fired power station at Geertruidenberg in the Netherlands.



On the internet:  
Small wind turbine – the quiet revolution

### Smart grids

The rising number of small, decentralised power plant resulting from the expansion of renewables has led to changes in the loads that have to be carried by our low- and medium-voltage grids. Grid structures and grid planning have to take account of this. The need for additional lines can be minimised by turning existing grids into smart grids, which are more flexible and have a greater load-bearing capacity. However, a lot of development work in control and regulation will be needed before this becomes a reality. As leader of the Zukunftsnetze/Smart Grids consortium co-sponsored by the German Ministry of Economics and Technology, RWE Deutschland is for the first time putting the smart grid concept into practice in the model region of Bitburg/Prüm in western Germany. The other members of the consortium are ABB, consentec and the Technical University of Dortmund. Commissioning is scheduled for the spring of 2011. The findings obtained are expected to provide important data for the planning and operation of grids in future years and will therefore be made available to all transmission system operators.

### Energy storage

Wind and solar power are both weather-dependent and hence unpredictable. One way of maintaining the balance between supply and demand is to use energy storage systems. However, the scope for new pumped-storage plant in our core markets is limited

by geological factors. Where there may yet be untapped potential is among the slag heaps of Germany's Ruhr region, which we are now exploring in collaboration with RAG Montan Immobilien GmbH. Another very promising alternative are pressurised-air storage facilities. When electricity supply is high, air is compressed and forced into subterranean cavities, where it is stored. Conventional compressed-air storage has an efficiency of only around 55 % or thereabouts owing to the development of heat during the compression process. Working together with General Electric, Züblin and the German Aerospace Centre, RWE began work in late 2009 on a demonstration plant with a heat retrieval system (the ADELE adiabatic pressurised-air storage facility), which will have an efficiency of 70 % and more. The location selected for this demonstration plant is a disused salt mine in Staßfurt, Germany. Developing suitable components such as the compressor and thermal storage units is likely to prove challenging. With a capacity of 1,000 MWh in the first stage of development, ADELE could store the power generated by 40 state-of-the-art wind turbines – during a five-hour period.

### Energy use

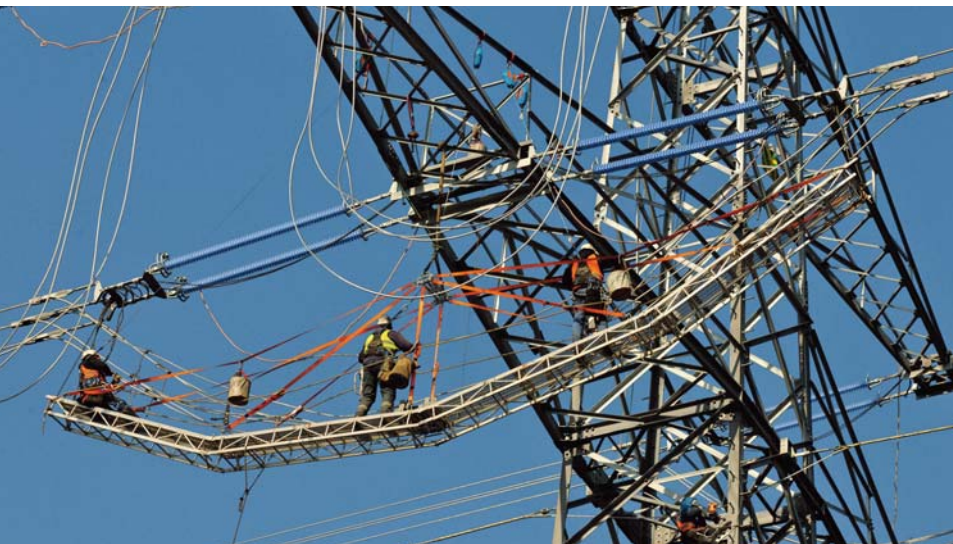
Energy efficiency facilitated by intelligent home automation (Smart Home), smart meters and low-carbon mobility (electromobility) are the main focus of our activities in energy use (see pp. 30/31).

#### Key Figures – Innovations

		2010	2009	2008	2007
Expenditure R&D	€ million	149	110	105	74
Employees R&D <sup>1</sup>		360	350	330	270

<sup>1</sup> Solely or partially dedicated to R&D work

## 3.4 Security of Supply



### Enlarging Europe's ultra-high-voltage transmission grid

New wind farms and new conventional power stations must be connected up to the European interconnected grid. This also improves security of supply. Amprion, the RWE Group's unbundled transmission system operator, connects up both our own and our competitors' power stations. In 2010 grid technicians working at dizzying heights erected a 5-kilometre-long, 380-kV line to connect up a new power station operated by a competitor at Lünen in the German state of North Rhine-Westphalia.

**We want to provide our customers with a reliable and affordable supply of electricity and gas at all times. We therefore produce and purchase the necessary primary energy sources, build and operate conventional power stations and installations for the generation of electricity from renewables, and transmit and distribute both electricity and gas.**

A reliable energy supply depends not only on the generation and procurement of electricity and gas but also on their transmission and distribution. We believe that the best way of minimising the specific risks for security of supply is to have a diversified generation portfolio. We are also investing heavily in the expansion and modernisation of our transmission and distribution grids. Implementation is unfortunately handicapped by protracted licensing procedures in many cases.

### Progress

In 2009<sup>1</sup>, as in previous years, we were able to provide our customers with a largely uninterrupted supply of gas and electricity. There were no outages in the power transmission grid and those in the distribution grid amounted to 20.4 minutes per customer in Germany. The most recent equivalent figure for the gas grid is approx. 3 minutes per customer and year on average.

Objectives in Security of Supply			
We are committed	KPI	Target	
... to ensuring system security across our transmission grids at all times.	(n-1) criterion <sup>2</sup> for electricity transmission	Compliance with the (n-1) criterion	
... to supplying our customers with the energy they need at all times.	System Availability Interruption Duration Indicator (SAIDI) in minutes per year and customer	SAIDI < 25 mins. (Germany only)	

<sup>1</sup> The data for the year 2010 were not available at the time this report went to press.

<sup>2</sup> (n-1) criterion: Steps must be taken to ensure that at any time the failure of one system does not overload another or put the supply as a whole at risk.



## Facts 2010

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11,023 km electricity transmission grid  
 406,600 km electricity distribution grid  
 490 billion kWh gas purchased

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### Availability of fuels

RWE generates electricity from a broad mix of primary energy sources: lignite and hard coal, uranium, natural gas and renewable energy sources, the most important of which is wind. We believe that nuclear power will also remain an important source of reliable and affordable electricity in the coming years.

**Natural gas.** Natural gas is especially important for heating both in private households and in industry. RWE purchases some 490 billion kWh of natural gas per annum for direct sale and as fuel for its gas-fired power stations. Of this total, 81 % goes straight to consumers, while the remaining 19 % is used for power generation. We are stepping up our own gas extraction activities in North Africa and the North Sea and are opening up new gas fields in Central Asia and West Africa. In 2010 we signed an agreement worth 3.6 billion US dollars for the development of two new gas fields in Egypt, where RWE Dea has been operating for more than 30 years. This is the single largest investment in the history of RWE Dea. The gas will supply the local market and thus contribute to greater security of supply in Egypt. This venture is expected to yield more than three billion cubic metres of gas annually for the RWE Group starting in 2015. It will also more than double our own gas production. Two gas fields which we are currently exploring in the North Sea off the coast of England are due to commence production in 2012. Gas is crucial to power generation in the UK, where it accounts

for some 45 % of total electricity generation and is one of the mainstays of the UK's climate protection policy. By stepping up its own gas production, therefore, RWE is helping to secure the UK's lines of supply.

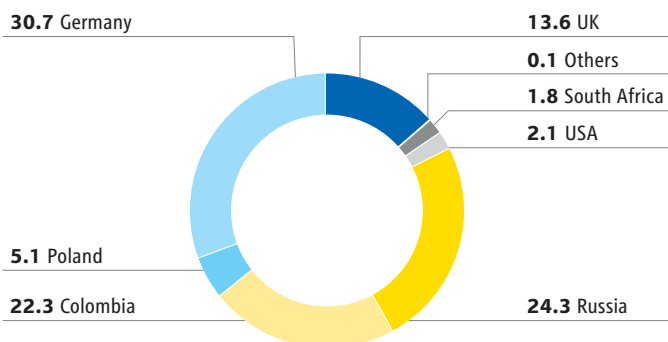
Endowed with huge natural gas resources, Central Asia is becoming increasingly important to the diversification of Europe's energy supply. Having secured the necessary exploration rights in the southeast Caspian Sea in 2009, RWE Dea opened an office in Turkmenistan in April 2010. In March 2010, moreover, we signed a letter of intent to explore the Azeri part of the Caspian Sea in Azerbaijan. Before commencing any new exploration or extraction project, we always conduct detailed studies to ascertain possible environmental impacts. Measures to minimise these impacts are then initiated.

**Uranium.** At present uranium is mined in significant quantities only in some ten countries. According to the German Ministry of Economics and Technology and the OECD, the reserves presumed to exist will last for another 200 years. RWE has binding supply contracts as well as stockpiles of its own all along the supply chain from natural uranium to finished fuel rods. We would therefore be able to tide over any temporary shortfalls in supply.

**Coal.** Lignite is our most dependable energy source and is available cheaply and in large quantities. All our lignite comes from our own opencast mines in Germany and Hungary. The reserves of 4.1 billion metric tons for which we already have mining licences would alone be enough to keep our power stations operating for another 30 to 40 years, with the total minable reserves being much greater. There is also a plentiful supply of hard coal on the world markets. The hard coal we used in 2010 was sourced in several different countries of origin. We therefore regard our coal supply for the coming years as secure.



**Hard coal purchases by country of origin 2010**  
in %



**Biomass.** Worldwide demand for biomass is on the increase. Securing an adequate supply, especially of sustainably sourced biomass, could prove more difficult in future (see p. 40). In Germany we rely mainly on small biomass-fired power plant located close to regional sources. Our Siegen-Wittgenstein biomass power station, for example, is situated in one of the most densely wooded parts of the country and also supplies steam for the neighbouring wood pelleting plant that opened in August 2010.

State subsidies are available for the co-combustion of biomass in coal-fired power stations in the Netherlands. Biomass therefore accounts for up to 25 % of the fuel used at the 600-MW Amer power station 9 operated by Essent. The building of one of the world's largest pelleting plants in Georgia, USA, marked an important step towards securing a sustainable source of biomass for the future. Upon completion, the plant will supply up to 750,000 metric tons of wood pellets annually and so meet a substantial portion of Essent's total needs. Work on the new plant began in August 2010, and it is expected to commence operation in 2011.

### Electricity transmission

The 220-kV and 380-kV ultra-high voltage lines are the backbone of the transmission grid in Germany. The grid operated by Amprion, the RWE Group's unbundled transmission system operator, is located at the centre of the European interconnected grid, making it crucial not only for large parts of Germany, but for large parts of Western Europe as well. Over the next few years the transmission grid will have to be greatly enlarged to enable the transmission of ever more wind power from northern Germany to the main centres of consumption in the west and south. The interconnectors between Germany and neighbouring states will have to be upgraded at the same time.

Amprion intends to forge ahead with investments in the transmission grid in the order of €3 billion by 2020. These will include 25 new substations and 800 km of new transmission lines, including the 130-km line from Meppen in Emsland to Wesel on the Lower Rhine. To protect the landscape, some of the lines near built-up areas in this pilot project will be laid underground. This of course will make their installation more complicated and costly, but will enable us to conduct trials of this new technology in Germany's very close-knit transmission grid. Meanwhile, a 60-km interconnector to the Netherlands to be built by 2015 promises to increase cross-border transmission capacity by 1,000–2,000 MW and will thus contribute to the development of a single European electricity market.

### Electricity distribution

Electricity is distributed at local and regional level on lines in the voltage range 0.4 to 110 kV. Disruptions in the distribution grid have a direct impact on consumers. Germany, where we operate distribution networks with a combined length of 347,000 km, has for many years been Europe's top performer in terms of grid availability. Systemic power outages amounted to just 20.4 minutes per customer in 2009. This is a top result for security of supply throughout Europe, where outages can be twice or even four times as high. To improve security of supply still further and in response to the severe storms we have experienced in recent years, we have begun laying our distribution lines underground in heavily wooded areas.

The havoc that can be wrought by bad weather was felt most acutely in 2010 in Hungary, where we have distribution grids with a total length of 44,200 km. Nationwide flooding disrupted electricity supplies, shutting down transformer substations and switchgear. We got down to work immediately and before long had restored the power supply as well as providing technical support for other transmission system operators.

By budgeting some €25 billion for the renewal, expansion, maintenance and operation of the Group's distribution grids in the period 2009 to 2019, we are making a major contribution to security of supply.

### Gas transmission

Interruptions in the gas supply from Russia in January 2009 exposed just how vulnerable Europe's gas supply is. In 2010 our unbundled Czech gas transmission system operator NET4GAS therefore began work on the 169 km GAZELLE pipeline. This will connect the Czech Republic and Slovakia via the OPAL pipeline to the Nord Stream pipeline in the Baltic and so make them less dependent on supplies that pass through Ukraine.

Our 16.7-percent stake in the Nabucco gas pipeline is crucial to our gas growth strategy and will contribute to the diversification of gas sources and transport routes. Nabucco will provide the first direct gas supply route from the gas fields of the Caspian region and the Middle East. A decision on the construction of the pipeline, however, will not be made until our efforts to negotiate gas supply agreements with the supplier countries have borne fruit. In its final stage of completion, the pipeline will have an annual capacity of up to 31 billion cubic metres of gas.

Liquefied natural gas (LNG) is also important to our efforts to secure a reliable gas supply. To be able to feed into various European gas grids as and when required we are developing our own LNG infrastructure. We hold a 50 % stake in Excelerate Energy, a US corporation which operates nine state-of-the-art LNG tankers, and have a stake in the construction of several LNG terminals.

#### Key Figures – Security of Supply

		2010	2009	2008	2007
SAIDI (Germany only)	min/customer	–*	20.4	24.7	24.4
Natural gas production	million m <sup>3</sup>	2.79	2.92	3.33	3.22
Crude oil production	million m <sup>3</sup>	2.27	2.34	2.52	2.75

\*SAIDI: the results for 2010 will not be finalised until mid-2011.

## 3.5 Supply Chain



### Biomass as an energy source

Biomass is an important aspect of our drive to expand renewables. We take great care to ensure that the biomass used comes from sustainable sources and that fuel crops do not compete for land with food crops. The biomass-fuelled power station at Wittgenstein in Germany's densely forested Sauerland came on stream in August 2010. It is fuelled by biomass derived exclusively from waste wood and storm-felled timber which cannot be used for any other purpose.

Respect for human rights, humane working conditions and environmental protection in our supplier countries are increasingly important to our stakeholders. We want to ensure that our supply chain does not pose any corporate reputational risks.

Requiring partners to comply with minimum social and environmental standards is widely regarded as an effective means of upholding human rights, humane working conditions and environmental protection worldwide. By signing the UN Global Compact and implementing the RWE Code of Conduct, we have committed ourselves to respect for human rights and environmental protection throughout our sphere of influence. As a business, however, we must also ensure that we can procure our fuels, goods and services at competitive rates.

### Progress

Procedures for monitoring our suppliers of standard products and services as well as fuels have already been introduced. Ongoing compliance due diligence enables us to assess their performance against the principles of the UN Global Compact. All service providers are required to comply with RWE standards for both occupational health and safety and environmental protection.

Objectives in Supply Chain			
We are committed	KPI	Target	
... to avoiding reputational risks by making compliance with internationally recognised social and environmental standards an integral part of our supply contracts.	Supplier management coverage in all procurement areas in %	95 % of the procurement volume	

## Facts 2010

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- 9.5 billion euros for the procurement of goods and services
  - 11.6 million metric tons hard coal for electricity generation
  - 2.3 million metric tons biomass for electricity generation
- 

### Goods and services

RWE purchases goods and services worth some €9.5 billion every year. Procurement is handled both centrally, through RWE Service GmbH (purchases totalling approx. €3.3 billion), and decentrally through the individual companies in the Group. The Group Procurement Directive is binding in both cases. Accordingly, the RWE Group's compliance rules and principles as well as the RWE Code of Conduct, including the principles of the UN Global Compact, must be upheld in all procurement-related matters. RWE Service has adopted the requirements of the Group Directive in its procurement manual, which specifies the safety and environmental standards that suppliers must meet and underscores the importance of the UN Global Compact. These requirements are also enshrined in the General Terms of Purchase and Payment.

Our subsidiary RWE npower in the UK checks all purchases worth more than £300,000 for reputational risks resulting from non-compliance with our corporate responsibility (CR) principles. Smaller purchases are also vetted wherever CR issues have a critical role to play.

There is little need for action to ensure implementation of UN Global Compact principles among our suppliers of goods and services in Europe, who account for the lion's share of our total procurements. However, most of the electronic equipment we buy, including all the smart meters that we are now offering our customers as part of our efficiency drive, is made in East and Southeast Asia. Since this poses a new challenge for RWE, we are now looking into various mechanisms that could be used to monitor production conditions. Using the greater leverage of the industry as a whole or working with industry associations or other recognised organisations are among the options being considered.

### Fuels

The risk of non-compliance with minimum social and environmental standards is in our view much greater when purchasing fuels compared with catalogue goods and standard products and services. Many of our fuels are purchased through intermediaries on the international commodity markets, which makes a thorough risk assessment of business partners even more relevant.

**Coal.** Burning hard coal to generate electricity will remain an indispensable part of our generation strategy for many years to come. While 100 % of the lignite we use comes from our own opencast mines in Germany and Hungary, 70 % of our hard coal requirements have to be imported. The conditions under which this coal is mined in the countries of origin became an increasingly important question in the year under review. Our imports from Colombia, which accounted for 22 % of our hard coal purchases in 2010, have repeatedly been a target of criticism, although neither our own assessments nor further

investigations have been able to substantiate the allegations made. We will continue to monitor the situation carefully, while upholding our dialogue with suppliers. Respect for human rights and compliance with environmental standards in the coal mining industry worldwide are currently a topic of intense debate among NGOs in the Netherlands as well as the Dutch government and legislature. The hard coal needed to fire our power stations is imported through our subsidiary RWE Supply & Trading, which buys it on the international coal markets, in many cases from coal merchants. We do not have direct contractual relations with individual mines as a rule. RWE Supply & Trading therefore attaches great importance to thorough reviews of its trading partners and conducts counterparty risk assessments to ascertain whether there are any known cases of human rights violations or failure to provide humane working conditions or to uphold minimum environmental standards. If any such cases are known, the trading partner in question is subjected to further scrutiny and if necessary rejected.

We also obtain information at first hand. RWE Supply & Trading representatives undertake periodic visits to coal mines so that they can form their own impressions of the conditions prevailing there. To enhance our influence on the extraction practices of mine operators we have entered into talks with other European energy utilities to find ways of ensuring full compliance with social and environmental standards all along the coal supply chain.

**Nuclear fuels.** The fuel rods for our nuclear power stations are produced in a multi-stage process. After mining, the uranium ore is refined and then converted into uranium hexafluoride (UF<sub>6</sub>). This compound is then enriched to increase the content of fissile material to approx. 4 %, the amount needed to manu-

facture fuel rods. The working conditions at individual mines and the environmental impact of uranium mining have frequently been a topic of critical debate. RWE does not have direct contractual relations with individual mines. To remain independent of any one mine's ability to deliver, it procures the refined uranium needed to produce nuclear fuels from internationally recognised global players, most of which have a sustainability management system firmly in place. All our procurement contracts have to be co-signed by EURATOM. This is because under the EURATOM Treaty on the peaceful use of atomic power we do not actually own our nuclear fuels in the legal sense. All that we acquire is the right to use them. This system helps to ensure that all purchases of uranium are subject to rigorous controls and meet the standards deemed acceptable by Europe's governments.

**Biomass.** Using biomass to generate electricity can mark significant progress towards climate-neutral power generation, but only if the fuel crops are environmentally sourced and do not harm valuable biospheres or displace food crops. The extent to which we use biomass to generate electricity depends on the economic parameters and above all on the extent of state subsidies. Most of the biomass we use in Germany is waste wood or storm-felled timber, which fuels small, decentralised power stations. The relevant specifications ensure that only sustainably produced biomass is used to generate electricity. In Hungary, too, we comply with state regulations by co-firing only domestically produced biomass at our lignite-fired Mátra power station.

Our extensive use of biomass in the Netherlands is a direct consequence of the state subsidies available in that country. Our coal-fired power stations in the Netherlands co-fired 826,085 metric tons of biomass

in 2010, thus relieving the atmosphere of nearly 1.4 million metric tons of CO<sub>2</sub>. 13 % of the biomass co-fired in 2010 came from the Netherlands itself and 81 % from Canada and the USA. In 2002 Essent introduced a system of independent certification. The Dutch Green Gold Label Foundation was set up to ensure that all biomass imports are sustainably sourced and to coordinate their certification. 95 % of the wood pellets used for co-firing were certified to this standard in 2010, and this figure is to be raised to 100 % by 2015.

RWE npower in the UK did not use much biomass in 2010 (only some 92,500 metric tons) as the focus in that country is on the expansion of wind power. A team of CR experts conducts checks to ensure that the biomass to be used comes from sustainable sources and makes procurement recommendations.

Notwithstanding the regulations in place at national level, we believe there is a need for Group-wide principles governing the procurement of biomass. In 2010 a working group headed by RWE AG therefore began drafting a Group Directive.

**Natural gas.** Our influence on the extraction and transmission of natural gas is exceptionally limited as almost all our gas is procured from wholesalers who are in turn bound by their contracts with producers. Only there where we ourselves do the extracting and transmitting can we bring any real influence to bear. Outside Europe, we extract gas only in Egypt, where we hold a 50 % stake in the production company SUCO. The responsible governance of SUCO is proven by its certification to ISO 14001 for environmental management systems, and ISO 9001 and OHSAS 18001 for quality and occupational safety management.

#### Key Figures – Supply Chain

		2010	2009	2008	2007
<b>Fuels for generating electricity</b>					
Hard coal	million mt	11.5	9.6	12.1	12.9
Lignite	million mt	90.5	92.3	95.4	100.1
Natural gas	billion m <sup>3</sup>	8.9	6.1	6.8	6.6
Biomass	million mt	2.3	1.6	1.1	0.9
Nuclear fuel	mt	109.1	74.0	119.1	74.0
<b>Natural gas for sale</b>	<b>billion m<sup>3</sup></b>	<b>39.6</b>	<b>33.2</b>	<b>32.8</b>	<b>33.5</b>



## 3.6 Pricing and Marketplace



### Advising customers in Poland

Personal customer contact is very important to RWE. In August 2010 RWE Polska opened an ultra-modern customer service centre to cater to its some 900,000 customers in Greater Warsaw. Up to 10,000 customers a month can now seek advice there. Our customers can also contact us via the internet or using our 24-hour hotline set up in 2007. In September 2010 Fundacja Obserwatorium Zarządzania named RWE Polska a Customer Friendly Company in recognition of the high quality of its customer service.

**We want our pricing and our competitive conduct to mark RWE out as a fair and transparent partner. This will enhance our reputation as well as customer satisfaction.**

Our pricing policy, especially for business and residential customers, is crucial to RWE's image. As electricity and heat are essential services, consumers frequently do not appreciate the role played by market forces in shaping prices. RWE therefore has to balance the demands made of it by both customers and the public at large and its own need as a business to make profits.

### Progress

We measure our customers' loyalty on the basis of three factors: their willingness to remain customers of RWE in the long term, their interest in additional products and services and their readiness to recommend RWE to others. We began producing a customer loyalty index – just for Germany to start with – in 2010. Our electricity customers awarded us a score of 71 and hence a solid average in the 2010 survey.

Objectives in Pricing and Marketplace		
We are committed	KPI	Target
... to having satisfied and hence loyal customers.	Customer Loyalty Index*	Customer Loyalty Index of at least 73 by 2013

\* The Customer Loyalty Index is based on surveys conducted among business and residential customers who are asked to score RWE on a scale of 0 to 100 points. Satisfaction is rated low for scores of 70 or less, moderate for scores of 70 to 79 and high for scores of 80 and over.



## Facts 2010

16.2 million electricity customers

7.9 million gas customers

### Business and residential customers

Electricity and gas prices have a crucial impact on our reputation among business and residential customers, even though taxes and charges account for approx. 41 % of the retail price of electricity in Germany. Grid fees are likewise subject to state regulation and currently account for 24 % of the electricity bill. After 16 months of price stability RWE Vertrieb raised its electricity prices in Germany in August 2010. Aware that such increases are unpopular, we have launched a new product called "RWE Strom 36max" which offers residential customers a three-year price guarantee – excepting those charges that are imposed by the state. Market analyses show that more and more customers are learning the advantages of a fixed-price tariff. The Customer Satisfaction Index rated us average to good in Germany's electricity segment and hence better than most of our major competitors. While sales of "green" electricity have been slow among RWE's customers in Germany and the UK, the situation is very different in the Netherlands, where some 980,000 customers opted for green electricity in 2010.

Electricity and fuel costs are a serious burden for vulnerable customers. Through its Health Through Warmth scheme, RWE npower in the UK helps thousands of people to heat their homes properly and so improve their quality of life. In Germany we help vulnerable households by providing individual advice on how to lower energy costs. This was the aim of our "Cleverer Kiez" pilot project in Berlin launched in 2010.

### Municipal and industrial customers

Our GEKKO project enables municipal utilities to buy a stake in our new hard-coal power station at Hamm in Germany and so acquire generation capacity of their own. Green GECCO extends this partnership to renewables and in 2010 alone induced 26 municipal utilities to team up with RWE Innogy. Their first joint project is to be the 20-MW An Suidhe wind farm in Scotland. The electricity auctions for industrial customers that RWE initiated in 2008 continued in 2010, when they again made an important contribution to pricing transparency. These auctions now account for approx. 21 % of our annual sales to industrial customers in Germany.

### Transparent trading markets

RWE Supply & Trading is one of Europe's leading energy traders. In 2008 we responded to the accusation that we were unfairly influencing the market by throttling the electricity supply by launching a transparency offensive. Since then we have published near real-time data on all our generation activities, including power plant availability, so that the same information is available to all market players. RWE supports the initiative for full transparency in wholesale energy trading launched by the European Union in the autumn of 2010.



#### On the internet:

Cleverer Kiez – advice on how to save energy for households in Berlin  
Green tariffs – for residential, commercial and municipal customers

## 3.7 Demographic Change



### RWE Schulforum

The internet portal RWE Schulforum is part of our drive to get children and young people excited about the natural sciences and technology and perhaps even to consider a career in such a field. RWE reaches more than 100,000 young people every year through its projects for schools. The aim is to educate young people in the purposeful use of energy and engineering and at the same time to arouse their interest in a career in the energy industry.

**Our business success depends on our being able to draw on a sufficiently large pool of highly qualified employees both now and in future. We are rising to the challenges posed by demographic change with long-term planning and a raft of measures.**

RWE has identified demographic change and the increasingly fierce competition for talent as a matter of strategic importance. Since the pool of skilled workers and graduates is likely to continue shrinking, competition for the best of them is set to become tougher. Yet a diverse workforce and large pool of potential recruits are essential to our long-term business success. No less important is that women should be given the same career opportunities as their male colleagues.

### Progress

RWE has assigned every job to a specific job family on the basis of the skills and qualifications required to do it. The demographic risks to which each job family is exposed have been assessed and appropriate countermeasures adopted for most of those at risk. Our workforce, especially in Germany, still has an imbalanced age structure in which the age group 40 to 55 is disproportionately large. The share of women in management positions rose from 9 % in 2009 to 10.8 % in 2010.

Objectives in Demographic Change		
We are committed	KPI	Target
... to ensuring the long-term availability of sufficient numbers of suitably qualified personnel.	Demography Index*	Demography Index of at least 84

\* The Demography Index (DEX) measures the age structure of the RWE workforce. The higher the DEX rating, the more evenly distributed the age groups in the companies in the Group. There is a maximum score of 100.

## Facts 2010

**70,856** employees

**28.4** % aged 50 and over

**26.2** % women

### Demography Index

The age structure of our workforce is becoming an increasingly important factor in our long-term human resources planning. We developed the Demography Index (DEX) to make the demographic situation as a whole and the potential risks quantifiable. The DEX is based on the percentage of employees aged under 30 and over 55, the age coefficient, average age and age variance among our employees. The higher the DEX rating, the more balanced the age structure. In 2010 RWE scored 83.8 on a scale of 0 to 100. The focus of our HR policy is on targeted recruiting, measures aimed at maximising employee retention rates and systematic succession management.

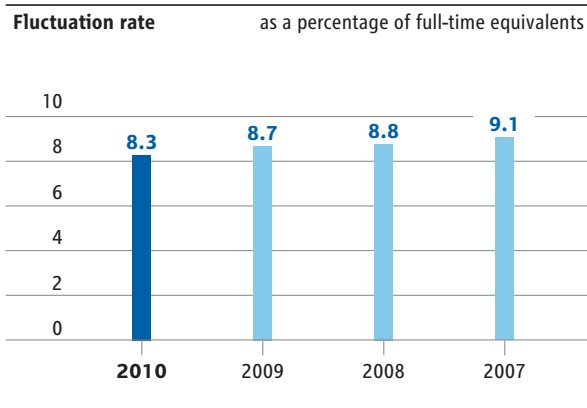
### Attractive employer

RWE can take pride in its employees' loyalty. With the exception of the UK, which because of the more dynamic labour market experiences high staff turnover rates especially in sales, our turnover rates are well below 10 %. In technical fields in particular RWE needs to rely on its employees' expertise and years of experience. Attracting school-leavers and graduates and providing proper training and staff development are therefore top priorities.

**Nurturing young talent.** RWE is committed to promoting an interest in science and technical subjects even among schoolchildren. We send representatives into the classroom to spread the word, run internet portals for schools such as Young Energy and RWE Schulforum, provide teaching materials and try to get

young people interested in energy by cooperating directly with schools. In Germany we take part in initiatives such as the nationwide Girls' Day in an effort to attract more girls to technical subjects and IT.

Our graduate recruitment also starts early. RWE has set up or is co-financing a number of professorships in those energy-related fields that are of special importance to us and is supporting these to the tune of €1 million annually. Moreover, our two stipend programmes, RWE Fellows and Power Engineers, provided nearly 90 students with a monthly stipend of €500 in 2010. Another advantage of the stipends is that they allow the recipients to draw on the support of mentors from our operating companies.



**Training.** To combat the looming skills shortage we have long been taking on extra trainees, whose numbers rose from 584 in 2005 to 656 in 2010. We are especially proud of the rise in traineeships that have gone to women, who in 2010 accounted for 22 % of the total compared with 19.8 % in 2005. In Germany we have traditionally trained more young people than we ourselves require: at the end of 2010 there were 3,079 young people learning a trade at RWE in Germany, a figure equivalent to 7.1 % of the RWE workforce in that country.

**Talent management.** We promote talent systematically throughout the RWE Group. Our aim is to facilitate the acquisition of both technical expertise and soft skills for managers such as social skills and intercultural competence. These are defined in our RWE Model of Competence. Potential assessments for all managers and junior managers, systematic feedback, annual round table discussions between employees and their line managers as well as internal training and professional development measures are helping us to nurture the skills and competences we need.

Top talents are identified with the aid of our Group-wide potential assessments. As part of our succession management, we provide systematic hands-on support in the form of job rotation, Group-wide programmes for high potentials in both technical fields and management as well as coaching and mentoring schemes. We are thus creating a talent pool of our own to ensure that future vacancies can be filled internally and that people with talent at RWE will choose to stay.

**Social Charter for the RWE Group.** In 2010 RWE AG and its European Works Council representing more than 99 % of the Group's workforce agreed a Social Charter for the RWE Group. The charter commits RWE, as a group that does business internationally, to maintaining a balance between its success as a business and its responsibility to its employees. The principles enshrined in the charter include the right to freedom of assembly, occupational health and safety, support for life-long learning, the rejection of all forms of discrimination, fair pay and family-friendly employment models. The Social Charter has now come into force in the eight countries represented in the European Works Council – Austria, the Czech Republic, Germany, Hungary, the Netherlands, Poland, Slovakia and the UK – but will not take precedence over national legislation.

**Work-life balance.** Measures to facilitate a healthy work-life balance are now more essential to an attractive working environment than ever before. Our focus here is on supporting those employees who have to care for young children or dependents in need of nursing care. We do this by enabling employees to return to work before their parenting leave is over, by offering flexible working hours and the option of working from home and by providing assistance with the search for proper childcare, recreational programmes for children during school holidays and support for those with elderly dependents. The Hertie Foundation's *berufundfamilie* (Job and Family) audit has been an important source of inspiration here. At the end of 2010, approx. 52 % of our employees in Germany were employed in companies certified to this audit.

#### Diversity management

RWE takes a broad-based approach to diversity. Our focus is on cultural, gender and age diversity. The more globalised our business becomes, the more important it is for us to integrate employees from different ethnic and cultural backgrounds, especially in the UK and the Netherlands. The Group's own International Network was founded in 2010 to attract talented recruits from all corners of the world and to enable them to integrate and feel at home at RWE.

RWE in Germany still has some catching up to do on the advancement of women. While women now account for 30 to 40 % of the RWE workforce in the Netherlands, Eastern Europe and the UK, where a high percentage of the jobs on offer at RWE are in sales and communications, the equivalent figure at some of our German companies is below 20 %. One reason for this until just recently was the difficulty of attracting women to technical professions and engineering. In recent years, however, our intake of women has risen steadily among both school-leavers seeking

traineeships and graduates. We are therefore well placed to raise the number of women in management positions at RWE, where they currently account for just under 11 % of the total, even if the percentages in lower and middle management are significantly higher than in senior management. Our mentoring programme in which some 56 women managers have taken part since its inception in 2007 was set up to help smooth the way for them.

In the UK, RWE npower was once again showcased as a top employer for women when it was listed for the fourth year running in the independently assessed Where Women Want to Work 2010 Guide. In the Netherlands, Essent has been part of the government initiative Talents to the Top since 2008, when it committed itself to raising the share of women in management positions from 14 % to 25 % by 2013. It is

making good progress: at the end of 2010, 23 % of its managers were women. 2010 also saw RWE Polska, where 27 % of all managers are women, launch an initiative called Women with Energy, whose aim is to enable female representatives of companies and institutions in the Polish energy sector to network more effectively.

Our integration management introduced in 2006 as part of a larger agreement with the Works Council supports the reintegration of people whose health has been impaired. In addition, the integration agreement with the Works Council signed in 2004 promotes the professional integration of people with disabilities, who in 2010 accounted for 5.6 % of the total workforce at RWE in Germany. RWE has thus once again exceeded Germany's statutory quota of 5 % for the employment of people with disabilities.

#### Key Figures – Demographic Change

		2010	2009	2008	2007
Workforce*		70,856	70,726	65,908	63,439
Staff costs	€ million	4,873	4,610	4,415	3,964
Share of women in the company	in %	26.2	26.1	25.6	25.2
Share of women in executive positions	in %	10.8	9.0	8.9	8.9
Fluctuation rate	in %	8.3	8.7	8.8	9.1
Percentage of employees with disabilities (RWE in Germany)	in %	5.6	5.4	5.2	5.0
Days of training per employee	days	4.7	4.8	4.6	4.2
Percentage of trainees (RWE in Germany)	in %	7.1	7.1	7.2	6.5

\* FTE = Full-time equivalent: converted to full-time positions

## 3.8 Occupational Health and Safety



### Training in occupational safety in Hamm

Occupational safety is a key management task at RWE. Regular safety inspections are routine at our power station construction sites in Germany, the UK and the Netherlands. At Hamm in Germany, for example, employees of RWE and its subcontractors building the boiler house of our new power station have to work 100 metres above the ground. Among the inspectors are senior employees of RWE Technology, the company responsible for these projects.

**We want our own and our subcontractors' employees to return home just as healthy as they were when they came to work. We are therefore expanding our occupational health care management and are forging ahead with implementation of our "Sicher vorRWEg" (The energy to lead safely) programme to promote safety at work.**

RWE has set itself the goal of becoming a "zero accidents" company. Our aim is to become the safest company in our industry. To achieve this we encourage safety awareness and make our managers aware of their function as role models. Our health and safety management aims to keep our workforce as healthy and productive as possible. This is all the more important now that we are all having to work longer.

### Progress

The number of accidents throughout the RWE Group leading to the loss of at least one person day fell to 3.5 per one million hours worked (LTI<sub>F</sub>) in 2010, the ninth such fall in succession. In March 2010 we began using the Work Ability Index (WAI) to enable our employees to assess their fitness for current and future workloads. In Germany 67 % of all employees had access to this method by the end of 2010.

### Objectives in Occupational Health and Safety

#### We are committed

... to ensuring that all our own and our subcontractors' employees return home just as healthy at the end of the day as they were when they arrived for work.

... to maintaining our employees' productivity.

#### KPI

Number of accidents leading to the loss of at least one person day per million working hours (LTI<sub>F</sub>: X/1,000,000 h)

Access to the Work Ability Index (WAI) in %

#### Target

LTI<sub>F</sub>: max. 2.5 (in 2013)

Most employees of companies based in Germany have access to some means of measuring their personal WAI.



## Facts 2010

**70,856** employees

**100** % employees covered by the internal occupational safety management system

### “Zero accidents”

Since 2002 the accident rate at RWE has fallen steadily by 19 % per year on average. We want to lower it further by constantly sensitising our employees and managers to safety-related issues. To our great regret, there were two fatalities in 2010: one employee died in a road accident in the Czech Republic and one of our subcontractor’s employees lost his life on a construction site in Germany.

**Occupational safety among our partners.** The safety of our subcontractors’ employees is just as important to us as the safety of our own workforce. The Partner Firm Management System introduced in 2010 ensures that workers arriving at our building sites and power stations are immediately briefed on the RWE Group’s health and safety principles. This briefing, provided in their native language at special electronic terminals set up for this purpose, is followed by a quick test to ensure that the information has been understood. We also hold one-day workshops to familiarise our partners’ managers with occupational safety as practiced at RWE.

**Accident follow-up.** Serious or fatal accidents can give rise to long-term psychological problems for the persons affected. For several years now RWE’s accident follow-up programme has ensured that prompt and professional counselling is available to all who need it. We have also become the first European utility to engage the support of an institute that specialises in post-traumatic stress disorder.

### Occupational health care management

The Work Ability Index (WAI) introduced as part of our occupational health care management helps employees assess their ability to cope with the workload assigned to them. Since March 2010 any employees in Germany who wish to have been able to complete the WAI questionnaire, in consultation with the works physician. Participation is purely voluntary and employees are protected by medical confidentiality. More than 2,500 employees took advantage of this new tool in 2010. The results obtained together with our own analyses of absences will be used to develop additional measures to safeguard employability.

**Stress management.** RWE is committed to helping its employees manage work-related stress. Our “Gelassen voRWEg gehen” programme launched throughout Germany in September 2010 provides a whole raft of measures for employees and managers alike, including courses in effective stress management.

### Key Figures – Occupational Health and Safety

		2010	2009	2008	2007
Workplace and business travel accidents leading to the loss of at least one person day per million working hours (LTI <sub>r</sub> )	1/1 million h	3.5	4.3	5.3	6.1
Fatal workplace accidents		2	5	12	9



On the internet:

The “Sicher voRWEg” (The energy to lead safely) programme to promote safety at work



## 3.9 Environmental Protection



### Preserving biodiversity

Hydroelectric power stations generate electricity without giving off CO<sub>2</sub>. Weirs, however, can prove an insurmountable obstacle for migratory fish swimming upstream. When modernising our river power plant we always install fish ladders and bypass channels so that weirs remain passable for indigenous fish. In Freienohl on the river Ruhr in north-west Germany, for example, we enlarged an unused bypass channel to enable fish to avoid the power plant altogether.

**Full compliance with all environmental regulations is standard practice for RWE. The measures we have adopted voluntarily, such as our efforts to preserve biodiversity, are aimed at winning broad public support for our actions.**

All our activities are premised on full compliance with statutory and regulatory requirements. This is especially important to the operation of our opencast mines and power stations as well as our gas and oil production. Society, however, expects more of us than this: as a corporate citizen we are expected to make an active contribution to the avoidance or minimisation of environmental impacts. Biodiversity is becoming an increasingly important focus of attention here.

### Progress

The plants operated by the RWE Group functioned without any serious disruptions in 2010. All the conditions of our operating permits were met. The scope of our environmental management system has grown as a result of our integration of new companies and of Essent in particular. The system now covers 98 % of our operations.

Objectives in Environmental Protection			
We are committed	KPI	Target	
... to operating our plant safely and in compliance with licensing regulations at all times.	Compliance with licensing requirements in %	100% compliance	
... to the 100% implementation of our environmental management system to ensure that our plants and grids are operated in compliance with the legal requirements.	Group-wide environmental management coverage in %	100% coverage	

## Facts 2010

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52,214 MW own generating capacity  
 10,614 ha opencast mines  
 417,623 km transmission and distribution  
 grid electricity

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### Plant operations

The plants in the RWE Group were once again operated largely without disruption in 2010. Emissions did not exceed the statutory thresholds and there were no incidents or accidents with the potential to harm the environment.

**Nuclear power stations.** Safety is always our paramount concern for our nuclear power stations Biblis, Emsland and Gundremmingen in Germany. Our safety management is rigorously aligned with national and international regulations for the operation of nuclear facilities and is subject to constant controls by state regulatory authorities. Pursuant to Germany's Atomic Energy Act, all our nuclear power stations are inspected regularly by the authorities in the federal states in which they are based. A total of 23 Category 0 incidents on the International Nuclear Event Scale (INES) was reported at our nuclear facilities in 2010. Category 0 incidents are below-scale events without safety significance. As in previous years, there were no incidents rated higher than this in 2010. Following completion of the extensive refitting of blocks A and B of our Biblis facility, the availability of our nuclear plant in Germany rose to 87 % in 2010, compared to 64 % in the previous year.

The disposal of radioactive waste (low- and intermediate-level radioactive waste) and the interim storage of spent nuclear fuel (high-level radioactive waste) are overseen and controlled by the relevant regulatory

authorities. Radioactive by-products are taken to authorised interim storage facilities. Spent fuel rods generally spend several years in the power station's own spent fuel pool and are then stored in a castor storage container on the power station premises, pending the provision of an authorised final repository. The extent to which the events in Fukushima will give rise to new safety regulations was not yet clear at the time of going to press.

**Fossil-fuel power stations.** To lower their sulphur dioxide emissions, almost all our coal-fired power stations have been fitted with flue-gas desulphurisation (FGD) units. Only our Didcot A and Tilbury power stations in the UK have been allowed to continue operating without FGD pending their shutdown by 2015. The installation of an FGD unit at our Aberthaw power station in the UK has more than halved the specific SO<sub>2</sub> emissions from our hard-coal power stations since 2007. The specific SO<sub>2</sub> emissions of our lignite-fired power stations, which were fitted with FGD more than 20 years ago, remain at a consistently low level. Nitrous oxide (NO<sub>x</sub>) emissions are reduced either with the aid of selective catalytic reduction or by optimising the combustion process. Our NO<sub>x</sub> emissions have for many years been consistently low with a slightly downward trend. Our gas-fired power plant have much lower emissions than our coal-fired power stations.

Ash from our power stations accounts for the lion's share of the total waste produced by the RWE Group. 73 % of the ash produced by our lignite power stations was used to refill disused opencast mines, while 68 % of that from our hard coal plant was recycled in 2010. Flue-gas desulphurisation gives rise to large quantities of gypsum, which can be reprocessed for use in building materials. This conserves natural gypsum deposits and is therefore good for the environment. Approx. 70 % of our gypsum was recycled in this way in 2010.

### Water use

Thermal power stations need copious amounts of cooling water to condense the steam they produce. Depending on the site-specific conditions, this cooling water is taken mainly from rivers, from water pumped off opencast mines and, in the UK, from the open sea. Most cooling water is fed back into the source close to the point of abstraction so that local ecosystems can still draw on it. All that is taken away from these ecosystems is the water that evaporates inside the cooling towers. FGD units also need a certain amount of water. Our reported net water consumption is thus made up of this water plus our cooling water and the water needed for sanitation.

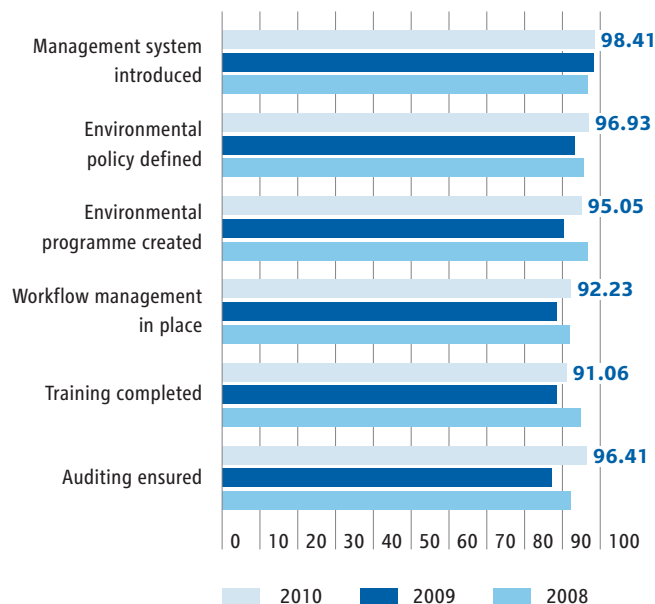
### Environmental management

Our expectations of our environmental management system are defined by a Group Directive which is binding on all the companies in the Group and is in turn based on the requirements of the international standard ISO 14001. Group-wide specifications ensure that every company maintains an environmental management system in keeping with its operations and its impact on the environment. The Department of Corporate Responsibility/Environmental Protection reports to the human resources director, who ultimately bears responsibility for environmental management. The various companies within the RWE Group have comparable structures in place. The Group Centre conducts annual audits to ensure that the guidelines are being complied with. Our environmental management system had been introduced for 98 % of our operations by 2010. The main task in the year under review was to adapt it to the needs of all the new or radically restructured companies in the Group. We were able to see this task through to completion in almost every case. All the companies in the Group have the option of having their management systems – including those for quality and occupational safety – certified. Auditing by an independent auditor is an important tool for safeguarding our management systems. Mátra in Hungary,

RWE Technology, envia Mitteldeutsche Energie AG and two other companies were certified to ISO 14001 for the first time during the period under review. This means that 38 % of the RWE Group, measured in full-time equivalents and including Essent, all of whose power stations are certified, has now been certified to ISO 14001.

#### Environmental management implementation in the RWE Group Audit results 2008-2010

Workforce coverage in %



### Biodiversity

2010 was the international year of biodiversity. We want to make a contribution to preserving the world's biodiversity and view this as a way of winning greater public acceptance for our own operations and projects. Since 2010, therefore, all international construction sites under the management of RWE Technology have had to meet the performance standards of the International Finance Corporation (IFC), one of which is the protection of species, plants and biotopes.

**Opencast mining.** Our opencast mines in Germany and Hungary are land-intensive and cover a vast area of 106 square kilometres. Our targeted recultivation measures with a time frame of several decades have nevertheless enhanced the biodiversity of these areas compared with how they were before mining began. Our recultivation projects are scientifically monitored by the Recultivation Research Centre, which has found that more and more endangered species are now settling in recultivated areas from which they had disappeared before mining began. The findings of this team of researchers are helping us optimise our recultivation work on an ongoing basis.

**Oil production.** More than 50 % of Germany's oil reserves are buried in the seabed of the Wadden Sea off the coast of Schleswig-Holstein. This is where RWE began operating its Mittelplate drilling platform in 1987. The platform is equipped with state-of-the-art safety systems. The safeguards installed work so well that there has not been a single instance of pollution or environmental damage in the UNESCO-protected Wadden Sea as a result of our drilling activi-

ties. Our responsible approach to safety as borne out by this track record was thus a key factor when the regulatory authorities decided in 2010 to extend our production licence until 2041.

**Grid operations.** Overhead power lines constitute a major hazard for large birds. RWE routinely uses helicopters to furnish its high-voltage lines with bird protection markings. These have now been installed in all those areas in which our high-voltage lines pose a risk for large birds. We have also installed nesting sites for storks and birds of prey with the aim of boosting their populations.

**Hydropower.** Hydroelectric power stations generate environment-friendly electricity, but can prevent migratory fish swimming upstream. When building new weirs such as that at Albrück-Dogern on the Upper Rhine in Germany or modernising such river power plant, RWE always installs fish ladders to ensure that the rivers remain passable for indigenous fish populations. Two more hydroelectric power stations were retrofitted with such ladders in 2010.

#### Key Figures – Environmental Protection

		2010	2009	2008	2007
Reportable nuclear incidents Category INES 0 <sup>1</sup>	number	23	33	24	32
Nuclear waste from power stations	metric tons	485	584	347	645
Spent nuclear fuels (heavy metal)	metric tons	146	114	87	85
SO <sub>2</sub> emissions from RWE power stations	metric tons	57,300	56,475	75,200	101,400
NO <sub>x</sub> emissions from RWE power stations	metric tons	115,200	113,700	130,400	135,000
Particulate matter emissions from RWE power stations	metric tons	3,789	4,101	5,509	6,048
Ash totals	thousand metric tons	7,740	7,429	6,406	6,875
- thereof usable	thousand metric tons	1,450 <sup>2</sup>	6,356	5,833	6,151
Gypsum totals	thousand metric tons	2,053	1,956	1,533	1,671
- thereof usable	thousand metric tons	1,433	1,654	1,527	1,670
Use of cooling water (net)	million cubic metres	323.9	299.9	309.7	329.2

<sup>1</sup> INES: International Nuclear Event Scale

<sup>2</sup> Owing to a change in the rules the use of ash to refill disused opencast mines no longer counts as recycling as of 2010.



On the internet:

Biodiversity and renewables

Protecting species whilst using biomass and wind

## 3.10 Community Engagement



### Team-building through voluntary work

What could be better than helping others and learning at the same time? That was the concept behind a TeamAktiv project by RWE Compagnus in July 2010 when 50 IT managers got together to give the “Kleine Farm” – a day-care centre in Essen – a facelift including painting the facade or fixing the goal wall. The participants from England, the Czech Republic and Germany later described it as a worthwhile experience and a great opportunity to get to know each other better outside the office.

**We engage with the community to gain understanding and acceptance of our actions and projects among all the groups affected. This is essential to our long-term success. We are committed to strengthening communities and promoting economic development in the regions in which we operate.**

A reliable electricity and gas supply can be provided only by building and operating power stations and transmission grids. Popular support for such industrial projects is dwindling steadily, however, and this can lead to long delays in the implementation of important infrastructure projects. It is therefore vital that we gain the confidence of the people affected and persuade them of the benefits of our actions.

### Progress

Our contacts and cooperative ventures at local and regional level continued to intensify throughout 2010. Our corporate volunteering programme RWE Compagnus has now been extended to almost every part of the Group, and we are present as a sponsor in all our sales regions. The impact of these activities on our reputation will be felt only in the medium or long term, although a reputational survey conducted in 2010 put RWE in first place ahead of our direct competitors.

Objectives in Community Engagement		
We are committed	KPI	Target
... to strengthening our regional reputation by making efficient use of resources.	Reputation Index	Best reputation in our peer group



## Facts 2010

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**1,888** RWE Companius projects  
**2.2** million euros funding from RWE Companius  
**56** million euros endowment for the RWE Stiftung

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### Acceptance of our actions

RWE has strong roots in the regions in which it operates, which after all is where our employees and our customers live. Being a good neighbour and engaging in direct dialogue with our stakeholders at local level are thus very important to us. Our community engagement is a way of demonstrating our commitment to the local community while at the same time improving our image as a corporate citizen.

### RWE Companius

The RWE Companius initiative was founded to promote the community engagement of employees throughout the RWE Group. Employees who do voluntary work can receive between €500 and €2,000 in funding for materials and other contributions in kind. The projects supported by RWE Companius range from those in which our employees use their DIY skills to repair and renovate local facilities to the transfer of knowledge and experience and involvement in nature conservation projects. Even people who are not on the RWE payroll can seek financial support from RWE Companius as long as at least one RWE employee agrees to liaise for them as project "godparent". RWE thus supports voluntary work even outside the Group. Membership of RWE Companius is open to all employees in the RWE Group.

The corporate volunteering programme was first launched in 2007 and in 2010 was thrown open to all RWE employees throughout the Group. Some 8,100 employees representing more than 11 % of the total

workforce have so far taken part in a project supported by RWE Companius. To these can be added some 12,800 external helpers. Our initiative has not only taken root within the Group but has also given rise to countless ambassadors and communicators in the regions in which we operate. Since RWE Companius was founded, more than 5,800 projects entailing nearly 54,000 hours of voluntary work have been seen through to completion. RWE supported some 1,800 projects with funds totalling €2.2 million in 2010.

As an innovative concept for promoting voluntary community engagement, RWE Companius was chosen to be a "Selected Landmark 2010" in the innovation contest "365 Landmarks in the Land of Ideas", a joint initiative by the German government and German business.

RWE employees in Poland are involved in more than a dozen voluntary initiatives including some that provide social services and support single mothers. When southern Poland was devastated by flooding in the spring of 2010, a team of 30 employees of RWE Polska volunteered to help with the clean-up operation.

### Donations and sponsorship

We support a wide range of regional activities with a special focus on social projects and projects that have to do with arts and culture, and science. Our aim is to prove our commitment to corporate responsibility while improving our image at local level too. Our operating companies decide for themselves which causes they wish to support or sponsor, and compliance with the Group Donations and Sponsorship Directive ensures that the system cannot be abused. All donations and sponsorship agreements are stored in a database operated by the Compliance Department of RWE AG, which conducts random checks to ensure that they meet all the requirements of the aforementioned directive.

Most of our support for the German city of Essen, where RWE has been headquartered for more than 100 years, is in arts and culture. The year 2010 when Essen was European Capital of Culture on behalf of the Ruhr was of course an exceptional year. As one of the main sponsors of "Ruhr.2010" RWE contributed €2.5 million to the endeavour. More than 500 RWE employees organised under the RWE Companius banner helped to make the project a success, including by providing hands-on support for mega-events such as the "Still-Life Ruhrschnellweg". Under a cooperation agreement with the Folkwang Museum in Essen signed in 2006, RWE also stages regular art exhibitions at the RWE Tower, the headquarters of RWE AG.

The Group companies sponsor cultural events as well. RWE Polska supports the International Film Festival in Warsaw, while RWE Transgas is a partner of ten years' standing of the International Film Festival Karlovy Vary in the Czech Republic. Sport generally and junior and amateur teams playing at regional level in particular are another main focus of our Group companies' sponsorship as this kind of sponsorship helps promote a sense of regional identity. RWE also supports knowledge transfer and academic research both through endowment-supported professorships and by sponsoring congresses. We spent €21.5 million on sponsorship and made charitable donations totalling €5.7 million in 2010. Our employees raised more than €500,000 for the victims of the 2010 earthquake in Haiti and RWE donated the same amount again.

### Foundations

The not-for-profit RWE Stiftung was founded with an endowment of €56 million in 2009 to continue the work of the RWE Jugendstiftung (RWE Youth Foundation). The foundation bundles our corporate citizenship activities and where possible links these to the

subject of energy. Most of the foundation's funding goes to projects in education, arts and culture, and the social sphere in Germany.

The foundation's main concern is with young people. It helps disadvantaged children and young people to become fully integrated members of society with professional skills and a social conscience. It also supports schools and other educational establishments as well as nurturing those with artistic talent. One good example of its work is the "Horizonte" programme initiated together with the Hertie Foundation under which the RWE Stiftung provides stipends for trainee teachers from ethnic communities. Five students received annual stipends of €11,000 each in 2010. Upon graduation they will enter Germany's classrooms and there enrich the country's education system. Our commitment to this form of engagement at the same time sends a signal that integration is possible at all levels of society.

The RWE Foundation in the UK teamed up with the Outward Bound Trust to develop a five-day outdoor adventure course in which 30 young people aged 12 or 13 take part every year. The course aims to deepen participants' awareness of climate change, test their strength and stamina, and develop important life skills such as leadership, teamwork and communication. In Poland, RWE Polska set up a foundation of its own in 2005. This supports programmes to educate children in the safe handling of electric equipment. It also runs a programme called Orliki RWE, which aims to level the playing field for young people from disadvantaged families who show promise in sport and so get them off to a good start. RWE Polska also provides stipends to support talented students at the AGH University of Science and Technology in Cracow.



### Regional value added

RWE generated revenues of €15.6 billion in 2010. More than half of this total went to the state and society in the form of salaries, social security contributions, taxes and other charges, many of which remained in the regions in which we operate. The contracting out we do in connection with the building and operation of our plant makes us an important stimulus for the regional economy. This is borne out by three of the regions for which up-to-date figures are now available: Of the revenues of €7 billion generated in our core sales region of Rhineland Westphalia in 2009, at least €4 billion was spent on wages, salaries and pensions, according to a recent study. Regional purchases of goods and services accounted for a further €2.4 billion, while another €770 million went to the state in the form of licence fees, dividends and trade tax. Between mid-2009 and mid-2010, RWE Power alone placed contracts worth almost €1 billion with 3,500 local subcontractors and in 2009 paid

€169 million in trade tax to the state of North Rhine-Westphalia. Our lignite mines in the Rhineland and lignite refining plant provide secure jobs for more than 40,000 people all over Germany and at least twice that number if upstream and downstream sectors are included.

Our subsidiary enviaM made a similar contribution in our sales region of Brandenburg, Saxony and Saxony-Anhalt, where revenues in the order of €1.3 billion secured some 15,000 jobs and generated tax revenues of some €320 million.

The combined cycle gas turbine (CCGT) power station at Staythorpe in the UK, all four units of which came on stream at the end of 2010, has created 80 new jobs and promises to be an important economic factor for the surrounding region. An estimated ten million pounds annually are expected to flow into the local economy alone from its operation.

### Key Figures – Community Engagement

		2010	2009	2008	2007
<b>Value added</b>	€ million	<b>15,980</b>	<b>15,629</b>	<b>13,112</b>	<b>12,834</b>
<b>Distribution</b>					
To employees	€ million	4,873	4,610	4,415	3,951
To government	€ million	4,321	3,499	2,484	2,424
To creditors	€ million	3,184	3,689	3,337	3,568
To minority interests	€ million	294	260	318	224
Net income	€ million	3,308	3,571	2,558	2,667
Of which to shareholders	€ million	1,867	1,867	2,401	1,772

## About this Report

**Goal.** This report “Our Responsibility” is aimed at analysts and investors, non-governmental organisations (NGOs), our employees, customers and suppliers, at policymakers, public authorities and at the people in those regions in which we do business. It describes the most important social, environmental and economic challenges facing our core business, the conflicting aims to which these can give rise, and the corporate responsibility (CR) strategy that we have developed in response.

**Procedure.** We developed our CR strategy on the basis of the challenges posed by our business, taking account of the general conditions prevailing at regional level. To make the report easier to understand, we have prefaced it with a portrait of the RWE Group. This report is the first to present our CR strategy implementation in separate chapters for each area for action. The report also serves as a progress report for the United Nations Global Compact. The Board of RWE AG has approved the publication of the report.

**Internet.** The printed report is supplemented by the additional information contained in our online CR report at [www.rwe.com/responsibility](http://www.rwe.com/responsibility). Links to this additional information are provided at the end of each chapter. The online report also features a comprehensive, interactive presentation of our key data, all of which can be downloaded in the form of an Excel file.

**Basic principles.** The report is based on our CR strategy and grew out of our ongoing dialogue with stakeholders. To help readers to compare our performance with that of other companies, the relevant data are provided in line with the current guidelines of the Global Reporting Initiative (GRI). We explain how we have implemented both these guidelines and the requirements of the GRI Sector Supplement Electric Utilities of October 2007 on pages 64/65.

**Data.** The period under review is fiscal 2010, which began on 1 January and ended on 31 December. The data provided in this report relate to all affiliated companies in the RWE Group, which means to all those companies in which we held a stake of more than 50 % during the period under review. Any deviations from this are clearly stated. The financial data were taken from the RWE Annual Report 2010.

**Certificate of audit.** The report was audited by the accountancy firm PricewaterhouseCoopers (PwC), which assessed it against the Accountability Standard AA 1000. The auditors’ report is shown on page 61.

**For reference.** This report is published in German and English. The editorial deadline for publication was 31 March 2011. This report is the first to be published following our switch to annual reporting. The next report will be published in the spring of 2012.

**Forward-looking statements.** This report contains forward-looking statements regarding the future development of the RWE Group and its companies as well as economic and political developments. These statements are assessments that we have made based on information available to us at the time this report was drawn up. In the event that the underlying assumptions do not materialise or additional risks arise, actual performance can deviate from the performance expected at present. Therefore, we cannot assume responsibility for the correctness of these statements.

# Independent Assurance Report

## to RWE AG, Essen

PricewaterhouseCoopers AG Wirtschaftsprüfungsgesellschaft have performed a moderate assurance<sup>1</sup> engagement on the German version of the Sustainability Report and issued an independent assurance report, authoritative in German language, which has been translated by RWE AG as follows:

We have been engaged to perform a moderate assurance engagement on the adherence to the AA1000 AccountAbility Principles and on specified sustainability performance information of the Sustainability Report "Unsere Verantwortung. Bericht 2010: VORWEG GEHEN HEISST HERAUSFORDERUNGEN ANNEHMEN (the "Sustainability Report") of RWE AG, Essen.

## Management's Responsibility

RWE AG management is responsible for:

- The adherence to the principles Inclusivity, Materiality and Responsiveness set forth in AA1000 AccountAbility Principles Standard (2008) (the "AA1000 AccountAbility Principles") and
- The preparation of sustainability performance information in the Sustainability Report in accordance with the criteria stated in the Sustainability Reporting Guidelines Vol. 3 (pp. 7-17) of the Global Reporting Initiative (GRI) Clarity, Accuracy, Timeliness, Comparability and Reliability.

This responsibility includes the design, implementation and maintenance of systems and processes to ensure adherence to the AA1000 AccountAbility Principles and to prepare the Sustainability Report using assumptions and estimates which are reasonable in the circumstances.

## Assurance Provider's Responsibility

Our responsibility is to express a conclusion based on our work performed as to whether any matters have come to our attention that cause us to believe that, in all material respects,

- the systems and processes implemented by RWE AG are not suitable to adhere to the AA1000 AccountAbility Principles Inclusivity, Materiality and Responsiveness or
- the sustainability performance information of the Sustainability Report has not been prepared in accordance with the abovementioned criteria of the Sustainability Reporting Guidelines Vol. 3 of the GRI.

We also have been engaged to report on recommendations for the further development of sustainability management and sustainability reporting.

We conducted our independent assurance engagement in accordance with AA1000 Assurance Standard (AA1000AS) 2008 and also in accordance with International Standard on Assurance Engagements (ISAE) 3000.

Those standards require that we comply with ethical requirements and plan and conduct the engagement, under consideration of materiality, to express our conclusions with moderate assurance<sup>1</sup>, the level of assurance requested by RWE AG. We are independent in the meaning of Section 3.2 of AA1000AS (2008). Based on skills and experiences within non-financial assurance, sustainability management, social and environmental issues we possess the required competencies to perform this assurance engagement. An independent assurance engagement performed to obtain moderate assurance<sup>1</sup> is less substantial in scope than an independent assurance engagement performed to obtain high assurance<sup>2</sup>, with the result that a corresponding lower level of assurance is obtained. The selection of the issues to be examined is a matter for the dutiful judgement of the independent auditors performing the engagement. We conducted examination procedures at the level of the headquarter – RWE AG, Essen, and particularly at the

following subsidiaries: RWE Power AG, Essen, RWE Deutschland AG, Essen, Süwag Gruppe, Frankfurt, Essent, 's-Hertogenbosch (Netherlands), Mátrai Erőmű ZRt., Visonta (Hungary) und RWE Polska S.A., Warschau (Poland).

With respect to the adherence to the AA1000 AccountAbility Principles we performed amongst others the following procedures:

- understanding and testing on a sample basis the processes used to adhere to and evaluate adherence to the AccountAbility Principles;
- enquiring of management, including senior management at executive and functional levels, and of relevant management responsible for the day to day management of sustainability, about the effectiveness of processes used to adhere to the AA1000 AccountAbility Principles;
- procedures as to whether the processes have been implemented;
- observing and inspecting management practices, process testing and evidence gathering across the organisation on a sample basis, and
- collecting and evaluating documentary evidence and management representations that support adherence to the principles.

With respect to the specified sustainability performance information of the Sustainability Report we performed amongst others the following procedures:

- understanding the management of specified performance information and information collection processes;
- reviewing the design of systems and processes for managing specified information;
- enquiring on a sample basis of individuals with overall responsibility for information measurement and collection (from source to aggregation) and reporting about the information collection processes;

- carrying out analytical procedures (e.g. trend analysis);
- observing and inspecting on a sample basis management practices, process testing and evidence gathering (from source to aggregation);
- limited testing of detail on a sample basis (e.g. re-performance of calculations);
- collecting and evaluating documentary evidence and management representations to support the assurance work undertaken.

### Key Findings and Conclusions

In relation to the AA1000 AccountAbility foundation principle of **inclusivity**:

- The supraregional stakeholder dialogue is organised and managed on group level by the Corporate Responsibility / Environmental Protection Unit and the respective functional units.
- The regional stakeholder dialogue is organised and managed by the operating units. According to the internal CR rules the central CR management coordinates if Group-wide circumstances are in existence.
- In cases of comparable issues experiences of stakeholder dialogue design at subsidiary level are transferred increasingly.
- The responsible functional units organise and manage the dialogue with their allocated stakeholder groups, the communication between these units and the central CR management is taking place.

In relation to the AA1000 AccountAbility principle of **materiality**:

- The CR areas have been established in the RWE Group since 2006. They were verified within the framework of the materiality analysis in 2010. From this follows that the importance of the existing CR areas changed.

- Within the stakeholder dialogues the stakeholder requests and expectations are gathered and evaluated; within the so called "Issue Radar" process they are systematically included in the CR reporting, the CR management and CR projects.
- The Issue Radar process and the materiality analysis exist separately.

In relation to the AA1000 AccountAbility principle of **responsiveness**:

- The supraregional stakeholder dialogue is coordinated on group level by the Corporate Responsibility / Environmental Protection Unit in consultation with the functional units. The subsidiaries coordinate the dialogues for which they are responsible.
- Random sampling based on interviews and evidence documentation account for well-balanced and internally discussed responses.
- The communication with stakeholders is balanced and takes place via different communication channels.
- Stakeholder handling is not documented consistently.

Based on our moderate assurance engagement, nothing has come to our attention that causes us to believe that, in all material respects, the systems and processes implemented by RWE AG are not suitable to adhere to the AA1000 AccountAbility Principles of Inclusivity, Materiality and Responsiveness.

Furthermore, nothing has come to our attention that causes us to believe that, in all material respects, the sustainability performance information of the Sustainability Report has not been prepared in accordance with the abovementioned criteria of the Sustainability Reporting Guidelines Vol. 3 of the GRI.

## Emphasis of Matter – Recommendations and Observations

Without qualifying our conclusions above, we recommend for the further development of sustainability management and sustainability reporting the following:

- Development of stakeholder management:
  - Connect the Issue Radar process with the materiality analysis concerning a consistent approach
  - Document systematically the stakeholder dialogues for monitoring them
  - Continue the know how-transfer regarding the stakeholder handling between the subsidiaries
- Extension of the CR governance function:
  - Define responsibilities regarding the CR report group wide
  - Harmonise the publication deadlines of the various CR reports in the RWE group
  - Assure data consistency within the various data systems particularly with accounting and controlling systems and the systems of the subsidiaries
  - Continue and complete the process documentation
  - Assure a respective support due to the implementation of an IT tool.

Frankfurt am Main, 06 April 2011

**PricewaterhouseCoopers**  
**Aktiengesellschaft**  
**Wirtschaftsprüfungsgesellschaft**

signed  
 Michael Werner

signed ppa.  
 Juliane von Clausbruch



<sup>1</sup> "Moderate assurance" as specified by AA1000AS (2008) is equivalent to "limited assurance" as specified by ISAE 3000.

<sup>2</sup> "High assurance" as specified by AA1000AS (2008) is equivalent to "reasonable assurance" as specified by ISAE 3000.

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AR = Annual Report 2010  
 PR = Personnel Report 2010  
 C2 = Inside front cover  
 \* = Status: partially reported

All core indicators are presented. Some of the numbers have been skipped because the additional GRI indicators are not recorded in the index.

A detailed GRI Index including information on the indicators of GRI Sectors Supplements Electric Utilities is available on the Internet. We rate our performance when it comes to meeting the GRI-G3 guidelines as A+.



## UN Global Compact Progress Report 2010

RWE supports the United Nations Global Compact and wants to help with the worldwide implementation of its ten principles, which have been adopted word for word in the RWE Code of Conduct. The following chart identifies the guidelines, programmes and

management systems which RWE has introduced to support their implementation within our sphere of influence. Also highlighted are the measures that have been taken during the period under review and the specific results obtained.

Principle	System	Measures	Results
<b>Principle 1:</b> Support of human rights	Social Charter for all European companies in the RWE Group covering 99.7 % of employees (p. 48)  Principles of RWE's HR policies for employees in Egypt and Libya (0.3 % employees)  Supply chain management (p. 40)	Assessment and review of suppliers (pp. 18/19, 40 ff.)	Compliance with principles 1–5 assured through national legislation in Europe, cooperation with the unions and RWE's own principles which apply to employees throughout the Group.  Above-average pay and social benefits
<b>Principle 2:</b> Elimination of human rights violations		Reference to Global Compact adopted in the Procurement Directive (p. 41)	
<b>Principle 3:</b> Ensuring freedom of association		Institutionalised dialogue with employees in Egypt and Libya	
<b>Principle 4:</b> Abolition of all forms of forced labour			
<b>Principle 5:</b> Abolition of child labour			
<b>Principle 6:</b> Elimination of discrimination	Diversity management (pp. 48/49)	Mentoring programme for women in management Senior Women's Network (p. 49)	Percentage of women in management increased to 10.8 % (p. 49)  People with severe disabilities account for 5.6 % of the workforce in Germany (p. 49)
<b>Principle 7:</b> Precautionary environmental protection	Environmental management (pp. 14, 54)  CO <sub>2</sub> strategy (pp. 20/21)	Climate protection, energy efficiency and environmental protection as part of the CR programme (pp. 18 ff., 28/29, 52 ff.)	Low specific pollutant emissions from power stations, high recycling rates for gypsum and ash (pp. 53/54)
<b>Principle 8:</b> Initiatives to promote greater environmental responsibility		Projects to promote the efficient use of energy, development of new technologies, service packages (pp. 30/31)	€150 million spent on an energy efficiency campaign (p. 30)  Energy efficiency competition with entries from 18,000 schoolchildren (p. 30)
<b>Principle 9:</b> Development and diffusion of environmentally friendly technologies	CO <sub>2</sub> strategy (pp. 20/21)  Innovation management (p. 15)	Improvements in power station efficiency (p. 29)  Expansion of renewables (pp. 22 ff.)  Coal Innovation Centre (p. 33)  Clean Coal development drive (pp. 33/34)	Modernisation of power stations (pp. 21/22)  Carbon capture and storage (p. 33)  CO <sub>2</sub> use (p. 33/34)  Expansion of renewables stepped up (p. 24)
<b>Principle 10:</b> Anti-corruption measures	RWE Code of Conduct (p. 14)	Database to enhance transparency installed (p. 14)  Internal newsletter on topical compliance issues (p. 15)	No serious and/or systematic cases of non-compliance uncovered (p. 15)

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