



# INTO A NEW DECADE



# Sustainability Report

## 2010

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In this report, CO<sub>2</sub>-free energy production refers to hydro, nuclear, wind, solar and wave power, which do not generate emissions in the production phase, and the use of biomass energy and the thermal energy generated by heat pumps from ground, water system or waste heat.

+ Acronyms and abbreviations used in the report are explained at [www.fortum.com/sustainability](http://www.fortum.com/sustainability)





## Expedition to a solar economy



At Fortum we believe in inexhaustible, renewable and emissions-free solar energy for future electricity and heat production. In addition to direct solar electricity and heat, solar-based energy forms – like bio, hydro, wave and wind energy as well as geothermal – are part of the solar economy. Solar energy technologies are developing briskly and the use of solar energy in small-scale solutions is already cost-efficient in countries that have plenty of sunshine.

Fortum has several solar power demonstration and research projects under way to tap into the enormous potential of solar energy.

The largest onshore solar power plant in the Nordic countries is located in Glava, Sweden. We are researching the impacts of solar electricity production on the grid. The 87-kW solar power plant built in 2009 has now been expanded to 108 kW, and

in 2010 it generated about 88 MWh of electricity for the grid.

In partnership with the Tampere University of Technology, we are developing high-efficiency solar cells that can achieve an efficiency of more than 40% by concentrating sunlight. The solar cells commonly used today have an efficiency of 15–20%.

In a project headed by Aalto University, we are developing new kinds of roof materials for solar thermal collectors and solar electricity panels. Lowering costs through technology advancements is key to harnessing the potential of solar power for large-scale energy production in the future.

As a result of the collaborative effort between Fortum and the City of Espoo, Finland's first solar power plant used for recharging electric vehicles was commissioned in 2010 (read more on p. 17).







The theme of Fortum's Sustainability Report 2010 is next generation energy. Fortum believes that the future energy system will be based on carbon dioxide-free electricity production and energy efficiency. The sun symbol reflects the projects that are advancing the energy system towards production based on inexhaustible solar energy.



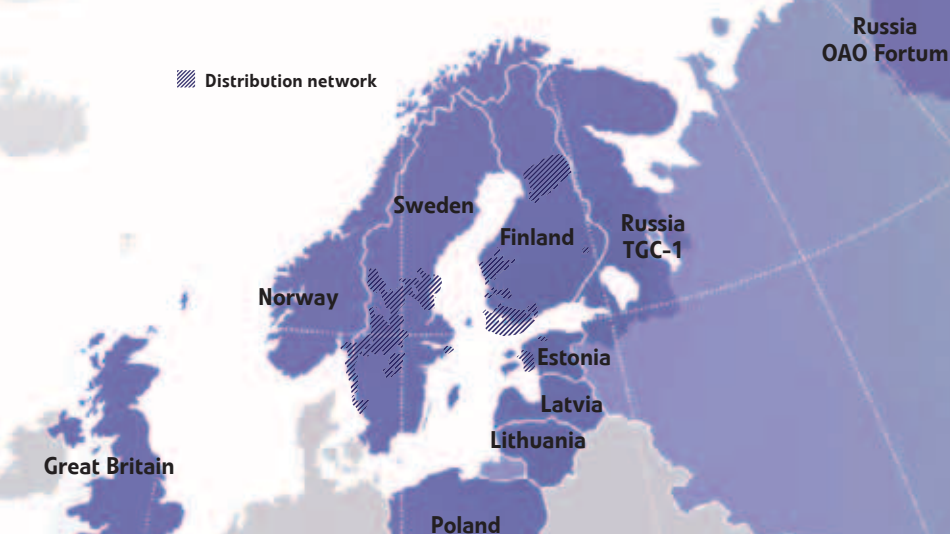
# NEXT GENERATION ENERGY

Fortum's purpose is to create energy that improves life for present and future generations. We provide sustainable solutions that fulfil the needs for low emissions, resource efficiency and energy security. Innovations developed by Fortum as well as the security of supply of low-carbon power and heat enable social development and increase well-being. Fortum's approach to sustainability also includes being a good corporate citizen and taking care of our own personnel and the society around us.

Fortum's operations are focused on the Nordic countries, Russia and the Baltic Rim area. The rapidly growing and liberalising European and Asian energy markets also offer opportunities for future growth. In 2010 Fortum's sales were EUR 6.3 billion and comparable operating profit was EUR 1.8 billion. The Group has about 10,500 employees.

# Fortum in brief

Fortum's operations are focused on the Nordic countries, Russia and the Baltic Rim area. The rapidly growing and liberalising European and Asian energy markets also offer opportunities for future growth.



## Great Britain

Power generation capacity	140 MW
Heat generation capacity	250 MW
Employees	63
ISO 14001 certification	90%
OHSAS 18001 certification	90%
ISO 9001 certification	90%
CO <sub>2</sub> emissions	0.7 Mt

## Sweden

Power generation capacity	5,885 MW
Heat generation capacity	4,576 MW
Distribution customers	893,000
Share of electricity customers	12%
Employees	2,257
ISO 14001 certification	100%
OHSAS 18001 certification	37%
ISO 9001 certification	39%
CO <sub>2</sub> emissions	1.3 Mt

## Finland

Power generation capacity	5,181 MW
Heat generation capacity	3,745 MW
Distribution customers	620,000
Share of electricity customers	15%
Employees	2,609
ISO 14001 certification	100%
OHSAS 18001 certification	61%
ISO 9001 certification	61%
CO <sub>2</sub> emissions	7.7 Mt

## Estonia

Power generation capacity	50 MW
Heat generation capacity	951 MW
Distribution customers	24,000
Employees	350
ISO 14001 certification	51%
OHSAS 18001 certification	36%
ISO 9001 certification	51%
CO <sub>2</sub> emissions	0.3 Mt

## Norway

Power generation capacity	167 MW
Heat generation capacity	100,000
Share of electricity customers	3%
Employees	137
ISO 14001 certification	88%
OHSAS 18001 certification	0%
ISO 9001 certification	88%
CO <sub>2</sub> emissions	0.02 Mt

## Lithuania

Heat generation capacity	60 MW
Employees	73
ISO 14001 certification	100%
OHSAS 18001 certification	100%
ISO 9001 certification	100%
CO <sub>2</sub> emissions	0.01 Mt

## Russia

Power generation capacity	2,785 MW
Heat generation capacity	13,796 MW
Employees	4,289
ISO 14001 certification	coming in 2011
OHSAS 18001 certification	coming in 2011
ISO 9001 certification	coming in 2013
CO <sub>2</sub> emissions	14.6 Mt

## Latvia

Power generation capacity	4 MW
Heat generation capacity	192 MW
Employees	90
ISO 14001 certification	coming in 2011
OHSAS 18001 certification	coming in 2011
ISO 9001 certification	coming in 2011
CO <sub>2</sub> emissions	0.1 Mt

## Poland

Power generation capacity	69 MW
Heat generation capacity	757 MW
Employees	633
ISO 14001 certification	100%
OHSAS 18001 certification	100%
ISO 9001 certification	100%
CO <sub>2</sub> emissions	0.6 Mt

Employees by country, 31 December 2010.

Certification coverage is based on each country's sales from certified operations.





The ISO 14001 standard is an international environmental management system used in the certification of a company's operations.

The OHSAS 18001 standard is an international occupational health and safety management system used in the certification of a company's operations.

The ISO 9001 standard is an international quality management system used in the certification of a company's operations.



# Group business structure

					
Divisions	Power	Heat	Russia	Electricity Solutions and Distribution (ESD)	
<b>Business</b>	The Power Division consists of Fortum's power generation, physical operation and trading as well as expert services for power producers.	The Heat Division consists of combined heat and power generation (CHP), district heating and cooling activities and business-to-business heating solutions.	The Russia Division consists of power and heat generation and sales in Russia. It includes OAO Fortum and Fortum's slightly over 25% holding in TGC-1.	The division is responsible for Fortum's electricity sales and distribution activities. It consists of two business areas: Distribution and Electricity Sales.	
<b>Reporting segment</b>	<b>Power</b>	<b>Heat</b>	<b>Russia</b>	<b>Distribution</b>	<b>Electricity Sales</b>
<b>Sales</b>	EUR 2,702 million	EUR 1,770 million	EUR 804 million	EUR 963 million	EUR 1,798 million
<b>Comparable operating profit</b>	EUR 1,298 million	EUR 275 million	EUR 8 million	EUR 307 million	EUR 11 million
<b>Share of Fortum's sales</b>	33%	22%	10%	12%	22%
<b>Net assets</b>	EUR 5,806 million	EUR 4,182 million	EUR 2,817 million	EUR 3,683 million	EUR 210 million
<b>Employees, 31 Dec. 2010 <sup>(1)</sup></b>	1,819	2,394	4,294	962	525
<b>Market position</b>	Third largest power producer in the Nordic countries; among the 15 largest in Europe and Russia	Leading heat supplier in the Nordic countries; growing operations in Poland and the Baltics	Leading operator in Western Siberia and the Urals area	Leading operator in electricity distribution in the Nordic countries	Second largest electricity sales company in the Nordic countries
<b>Geographical area of operations</b>	<b>Finland, Sweden, Great Britain.</b> In Finland and Sweden 260 hydro-power plants, one nuclear power plant, and co-ownerships in nuclear power plants, two condensing power plants, and co-ownerships in wind power plants. A CHP plant in the Great Britain. Expert services worldwide.	<b>Finland, Sweden, Norway, Poland, Lithuania, Latvia, Estonia</b> 23 CHP plants and several hundred heat plants and centres in the Nordic and Baltic countries and in Poland.	<b>Russia</b> OAO Fortum has 8 CHP plants and 18 heat plants in the Urals and West Siberia region.	<b>Finland, Sweden, Norway, Estonia</b> 1.6 million electricity distribution customers in the Nordic countries and Estonia.	<b>Finland, Sweden, Norway</b> 1.2 million private and business customers in the Nordic countries.
<b>Business drivers</b>	<ul style="list-style-type: none"> <li>Nordic power price, stability through hedging</li> <li>About 90% of the production is hydro and nuclear power: hydro-logical situation, nuclear power availability, and prices of fuels and emissions allowances important</li> </ul>	<ul style="list-style-type: none"> <li>Steady growth through investments</li> <li>Fuel flexibility and efficiency play a key role</li> <li>Recent investments into new CHP production have started to bring earnings</li> </ul>	<ul style="list-style-type: none"> <li>Liberalisation of the power market</li> <li>Investment programme: earnings growth through new capacity and new volumes</li> <li>Efficiency upgrades</li> <li>Gas and electricity price ratio</li> <li>Development of heat business</li> </ul>	<ul style="list-style-type: none"> <li>Regulated, steady return</li> <li>Very capital-intensive</li> <li>Growth through investments</li> <li>Long-term optimised levels of investment and maintenance</li> <li>Cost-efficiency and quality of service</li> </ul>	<ul style="list-style-type: none"> <li>Margin between Nordic wholesale procurement cost and retail sales price levels</li> <li>Efficient hedging of the margin</li> <li>Leading seller of eco-labelled and CO<sub>2</sub>-free electricity in Finland, Sweden and Norway</li> </ul>
<b>Strategy drivers</b>	<ul style="list-style-type: none"> <li>Flexible, market-driven production portfolio</li> <li>Focus on CO<sub>2</sub>-free nuclear and hydro power</li> <li>Solid position on the Nordic power market and proven track-record from liberalised power markets central to capturing opportunities in the integrating European market</li> </ul>	<ul style="list-style-type: none"> <li>Need for increased resource-efficiency will increase CHP's competitiveness</li> <li>EU directive to drive new CHP-investments</li> <li>Potential for increased usage of local biofuels and waste</li> <li>Organic growth opportunities in emerging markets</li> <li>Utilisation of CHP-competence in fuels and efficient production</li> </ul>	<ul style="list-style-type: none"> <li>High power demand growth</li> <li>Boosting efficiency of existing operations and bringing the ongoing investment programme to completion</li> </ul>	<ul style="list-style-type: none"> <li>Stable regulated earnings</li> <li>Technical development utilised for a more efficient, reliable and smarter network enabling sustainable and energy-efficient solutions for customers</li> </ul>	<ul style="list-style-type: none"> <li>Cost-efficiency through efficient business processes</li> <li>Growth in customer base through new offerings and innovative solutions</li> <li>Economies of scale</li> </ul>
<b>Further information on the web</b>	<a href="http://www.fortum.com/power">www.fortum.com/power</a>	<a href="http://www.fortum.com/heat">www.fortum.com/heat</a>	<a href="http://www.fortum.com/russia">www.fortum.com/russia</a>	<a href="http://www.fortum.com/ESD">www.fortum.com/ESD</a>	

1) Personnel by division.

# Report content

Fortum reports on its sustainability activities annually in the Annual Report, in interim reports, on its web site at [www.fortum.com/sustainability](http://www.fortum.com/sustainability), and in a separate Sustainability Report. The 2009 report was published on the web site in April 2010.

This is Fortum's first printed report that complies with the Global Reporting Initiative (GRI) G3 guidelines. In its reporting, Fortum has also observed the guidelines of the Electric Utility Sector Supplement. Fortum's reporting is not yet comprehensive; the aim is to expand it in upcoming years.

## Reporting self-assessment

Fortum has done a self-assessment on the comprehensiveness of reporting, as called for in the GRI guidelines, and a comparison of the report content against the GRI guidelines can be read at [www.fortum.com/sustainability](http://www.fortum.com/sustainability). Fortum has assessed itself at Application Level B+. The Application Level has been checked by a third party, PricewaterhouseCoopers Oy.

## Global Compact reporting

Fortum joined the United Nations Global Compact initiative in June 2010. The year 2011 is the first year that Fortum is reporting on the realisation of the Global Compact's ten principles in its operations. Global Compact approves the use of the indicators in GRI G3 guidelines in Communication on Progress (COP) reporting. The GRI comparison table at [www.fortum.com/sustainability](http://www.fortum.com/sustainability) pre-

sents the indicators Fortum has used in measuring the realisation of the Global Compact principles.

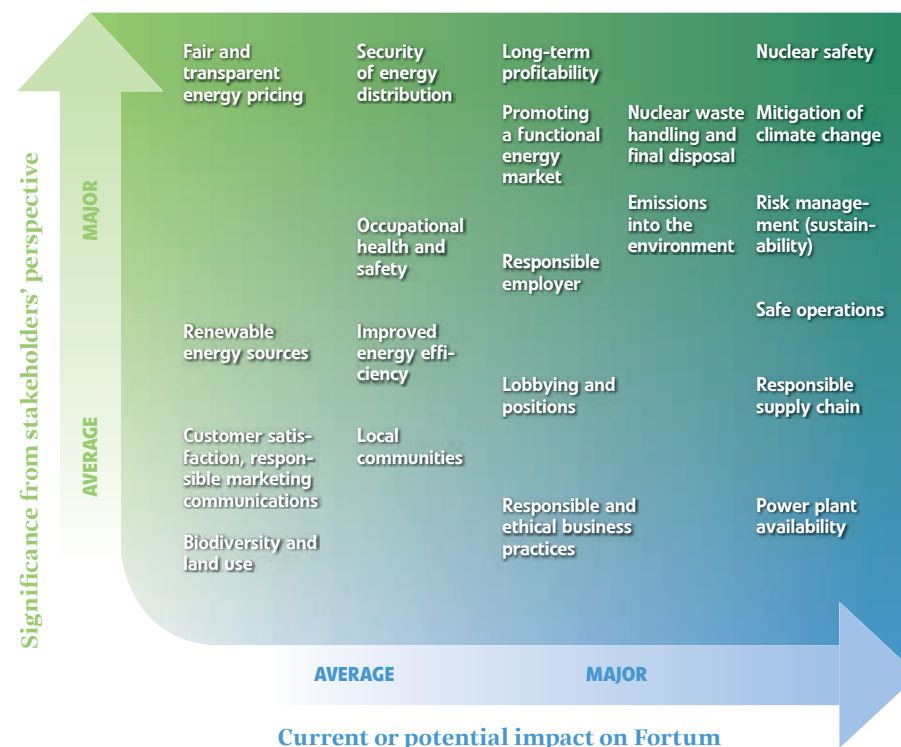
## Assurance report

Fortum's sustainability report is published in Finnish, Swedish and English, and can be read online at [www.fortum.com/sustainability](http://www.fortum.com/sustainability). The report in Finnish has been assured by a third party, PricewaterhouseCoopers Oy, and congruence between the Finnish and the Swedish and English versions of the report has been verified. The assurance report is published on pages 66–67. The financial and social figures based on Fortum's financial statement 2010 are audited by Deloitte & Touche Oy. The information in the sustainability report is not updated after assurance; any amendments to the content will be reported the following year. This report reflects the results of Fortum's activities in 2010, including some information from January–February 2011. Fortum's next sustainability report will be published in March 2012.

## Assessment of Materiality

In spring 2010 Fortum carried out an assessment of materiality of the most significant sustainability issues in accordance with GRI G3 guidelines. The process is described in the section 'Dialogue with stakeholders.' Based on the assessment, Fortum's reporting focuses on sustainability issues significant to Fortum and its stakeholders.

## ASSESSMENT OF SUSTAINABILITY ASPECTS





## Report structure

In 2010 Fortum updated its strategy, mission and approach to sustainability. Fortum's strategy and mission are based on a comprehensive analysis of the global operating environment and megatrends (read more on p. 14).

The beginning of the report presents the countries in which Fortum operates and the key indicators in terms of production capacity, customers, personnel, certified management systems and carbon dioxide emissions. The Group's business structure by division is also presented.

The sections describing the sustainability approach and management present the updated strategy, mission, renewed sustainability approach with Group-level targets, and the sustainability management, organisation and governance principles. In this report, governance principles and risk management are presented from the perspective of sustainability. Fortum's Corporate Governance Principles, Corporate Governance Statement and a more comprehensive description of risk management are presented on pages 51–56 and 147–163 of the Annual Report 2010.

Reconciling the growing energy need and sustainability is a big challenge. The section 'Changes in Fortum's operating environment' takes a comprehensive look at key factors impacting Fortum's operating environment: energy and climate policy, market regulation, environmental regulation and sustainable use of natural resources.

Sustainability performance of operations and the main results are reviewed in the sections of economic, environmental and social responsibility. One of the key factors influencing Fortum's business performance is the wholesale price of electricity, which is determined on the Nordic electricity markets. For this reason, the section 'Pursuing profitable, responsible growth' presents the operations of the Nordic and Russian power markets in addition to the direct and indirect economic impacts.

Fortum's responsibility and impacts on the environment are described through the whole energy production value chain. Fortum's long-term aspiration is to be a carbon dioxide-free power and heat company. To achieve this aspiration, a roadmap was compiled in 2010 and is described in the section 'Roadmap to a CO<sub>2</sub>-free future.'

The social responsibility section 'Responsibility for personnel and society' presents the achievements in HR management and occupational safety as well as stakeholders' views of Fortum's significant sustainability issues and collaboration with different stakeholders. Supply chain management is also presented in this section. Case examples of stakeholder collaboration in different countries of operation are presented throughout the report.

## Scope and boundary of the report

Reporting related to the operations and management covers all functions under Fortum's control, including subsidiar-

ies in all countries of operation. Possible deviations have been reported in conjunction with information applying different limitations. The reporting of management practices doesn't fully cover Fortum's minority ownerships, and thus the defining of the scope of reporting isn't fully compliant with the GRI Boundary Protocol. Direct and indirect greenhouse gas emissions have been reported in accordance with the Greenhouse Gas Protocol.

Information from previous years is presented on the basis of the organisation and functions of each year; the impacts of ownership changes in production facilities, for example, have not been updated afterwards in the previous key indicators. The operations of the Russian subsidiary OAO Fortum are included in the figures starting 1 April 2008, unless otherwise noted in conjunction with the figures.

In 2010 Fortum divested about 30 small heat production plants. The key figures of the divested plants are not included in the reporting. The acquisition of the Nokia heat plant was finalised in early 2010. Plants acquired during the year are included in the reporting starting from the date of possession. The same applies to the new additional capacity built and the new plants commissioned during the year in Poland and Estonia.

In 2010 Kirkniemi's capacity was leased for the entire year; Meri-Pori's capacity was leased from the beginning of the year until the end of June. The

production and emissions of the leased capacity are not included in Fortum's specific emissions figures. The information in question has been included in the absolute figures.

The environmental information of the report covers the plants for which Fortum is the legal holder of the environmental permit. Normally, Fortum is also the majority shareholder of such plants, but the company can be the holder of a plant's environmental permit also when it is a minority shareholder. In such cases, the plant information is reported in its entirety, but only the share of production and emissions corresponding to Fortum's share of ownership is calculated in the specific emissions figures.

In terms of environmental figures, the main focus in Fortum's reporting is on energy production plant emissions and other environmental impacts, which are significant in the sector. In Fortum's case, the significance of the environmental impacts of office properties is minor in relation to the totality. For this reason, the environmental section includes only a limited review of the environmental impacts of offices, travel and other support functions.

➤ Read more about Fortum's governance principles at [www.fortum.com/governance](http://www.fortum.com/governance)

➤ Read more about environmental impacts at [www.fortum.com/sustainability](http://www.fortum.com/sustainability)

# CEO's Statement

For Fortum, 2010 was a time for developing the strategy, the operational business and the corporate culture. The company's financial situation remained stable. Industrial production and electricity consumption in Fortum's most important market areas clearly increased. At the end of the year Nordic water reservoirs were at a historically low level, which is reflected in the increased use of fossil fuels.

## Sustainability at the core of the strategy

The foundation of Fortum's updated strategy is the company's strong know-how in CO<sub>2</sub>-free nuclear and hydro power production, in natural resource-efficient combined heat and power production (CHP), and in operating in competitive energy markets. Sustainability is at the core of our strategy. In line with the strategy, our future growth is based mainly on targets aligned with sustainable development: CO<sub>2</sub>-free production, energy efficiency and efficient use of resources. Our know-how also gives us a strong position as a developer of sustainable solutions.

## Revised sustainability approach and targets

In conjunction with the strategy work, we revised Fortum's approach to sustainability. We want to address economic, environmental and social responsibility in a balanced way in our operations. One of our targets is to bring environmental, occupational health- and safety-related issues in Russia closer to the level of our European operations. Fortum's carbon dioxide, sulphur dioxide and particle emissions have increased with the Russian operations. We are working with determination to reduce emissions and other environmental impacts from our operations and to improve energy efficiency.

Along with environmental responsibility, we are highlighting the economic and social impacts of operations.

In this report we are for the first time reporting the euro-amount of added value that is generated by Fortum's operations and distributed by Fortum in the different countries of operation. For example, in 2010 Fortum generated and distributed about EUR 5.2 billion of added value in the form of investments, purchases, wages and salaries paid, and taxes. The distributed added value supports the basic functions of society and builds local well-being.

In January 2011 Fortum's Management Team approved the new Group level sustainability targets. In addition to the specific CO<sub>2</sub> emissions target for electricity generation in the EU (<80 g/kWh), our target-setting for specific CO<sub>2</sub> emissions for the next five years now covers Fortum's total energy production (electricity and heat) in all countries (<200 g/kWh). Also, we set a target for total efficiency of combustion (>70%).

## 86% of our electricity production in Europe CO<sub>2</sub>-free

Mitigating climate change is an important part of Fortum's strategy. Our long-term aspiration is to be a CO<sub>2</sub>-free power and heat company; 86% of our electricity production in Europe was CO<sub>2</sub>-free in 2010. The specific CO<sub>2</sub> emissions of European electricity producers were, on average, about 350 g/kWh in 2009. Fortum's specific CO<sub>2</sub> emissions from electricity

production were 84 g/kWh in Europe and 189 g/kWh for all of Fortum, including the Russian operations. In terms of our specific CO<sub>2</sub> emissions we are among the best companies in Europe. We can be proud of this!

Our extensive investment programme under way in Russia is based mainly on natural gas, which will increase our CO<sub>2</sub> emissions in the near future. In Russia, in addition to improving energy efficiency, the key measure for reducing carbon dioxide, sulphur dioxide and particle emissions is to use a better grade of coal. A new type of coal was taken into test use in the second half of 2010.

## Cutting emissions with energy efficiency

Fortum's know-how in combined heat and power (CHP) production ranks at the top. In 2010 some 30% of the total electricity and some 70% of total heat was produced at CHP plants. During the year we commissioned CHP plants in Poland and Estonia, plants that are partially biofuel-fired. We also made investment decisions for a biomass- and waste-fuelled plant in Lithuania and a new waste-fired unit in Sweden. In December we inaugurated the first new unit of our Russian investment programme at the Tyumen CHP-1 power plant in West Siberia. I believe that local fuels and the use of waste in energy production will become increasingly important.



In Russia Fortum is engaged in extensive collaboration with the Chelyabinsk Region Administration to improve energy efficiency. The automation and upgrade of the Chelyabinsk district heating system will reduce energy losses in the area by as much as 30%.

### All-time best safety level in European operations

Fortum's goal is to provide a safe workplace for our own personnel and for the service providers working at our sites. Fortum's lost workday injury frequency (LWIF) in 2010 was 2.4, and in Europe we achieved our all-time best safety level of 2.2.

Despite the good progress, we had one accident resulting in a fatality in Russia, for which I want to express my deepest regrets. The accident has been investigated in accordance with Fortum's guidelines and the corrective measures have been implemented. Our clear goal is to prevent accidents resulting in a fatality.

### Strong commitment to performance

Fortum aims for performance excellence and continuous improvement in its operations. In the second half of 2010 we launched a multi-year Leading Performance and Growth initiative in an effort to support the strategy implementation and develop the corporate culture.

We want to be the benchmark company for all our stakeholders and

to develop Fortum to the benefit of our shareholders, customers, partners and our personnel. The interest in our company has increased, which is reflected, e.g., in the significant increase in the number of our shareholders. I am also very pleased with the positive development in our public image and customer satisfaction. For this I want to thank our competent personnel. They have worked diligently to advance Fortum's growth and performance. And, of course, we must also thank our reliable collaboration partners and our extensive customer base for the past year. I believe that this new decade is filled with opportunities for Fortum.

**Tapio Kuula**  
President and CEO



# Sustainability at the core of the strategy

In line with Fortum's mission, Fortum's purpose is to create energy that improves life for present and future generations. The company provides sustainable solutions that help to reduce emissions, boost the efficient use of resources and secure the supply of energy. Sustainability targets aligned with the strategy were revised in 2010.

Fortum's updated strategy was published in September 2010. The mission and strategy are based on a comprehensive operating environment analysis, which is presented in more detail on pages 13–17 in this report and on pages 16–17 in the Annual Report 2010.

Fortum's strategy aims for continuous development of existing operations and market-driven growth in nuclear and hydro power and in combined heat and power (CHP) production. Along with technology know-how, the company's solid competence in electricity markets

## FORTUM'S SUSTAINABILITY TARGETS

	Target period	Target setting	Goal	Status at year-end 2010
Climate targets	Over the next five years	Specific CO <sub>2</sub> emissions from power generation in the EU per kilowatt-hour as a five-year average	<80 g/kWh	69 g/kWh
		Specific CO <sub>2</sub> emissions from total energy production (electricity and heat) per kilowatt-hour as a five-year average (new target)	<200 g/kWh	157 g/kWh
Other environmental targets	Over the next five years	Energy efficiency: Overall efficiency of fuel use as a five-year average (produced energy divided by primary energy of fuel) (new target)	>70%	69%
	By year-end 2010	ISO 14001 environmental certification for all operations in EU	100%	98%
	By year-end 2012	ISO 14001 environmental certification for operations in Russia	100%	Process started
Occupational safety target	Year 2011	Lost workday injury frequency (LWIF) for own personnel	<1	2.4
Overarching target	Annually	Fortum included in the Dow Jones Sustainability Indexes World and Europe (new target)	Included in World & Europe Index	Included in World Index



and long track record in operating in competitive energy markets play a key role in the pursuit for business development opportunities in current home markets and in the liberalising and rapidly growing European and Asian energy markets.

In line with its strategy, Fortum aspires to excel in sustainability. At Fortum, sustainability means balanced management of the economic, social and environmental responsibility in the company's operations. The renewed sustainability approach was taken into use in the latter half of 2010 and the old agenda, published in 2008, was closed.

### Sustainable solutions a strategic cornerstone

Sustainable solutions are the centrepiece of Fortum's strategy. In the area of economic responsibility, competitiveness, performance excellence and market-driven production create long-term value and enable profitable growth.

In the area of environmental responsibility, the company's know-how in CO<sub>2</sub>-free nuclear and hydro power production and in energy-efficient combined heat and power production is emphasised. Research and development activities create requisites for environmentally benign energy solutions.

Climate change mitigation and the reduction of carbon dioxide emissions are important goals that affect the energy sector and the development of electricity and heat production. In addition

to new technical innovations, also low-emissions and efficient traditional production technologies will be needed for a long time.

In the area of social responsibility, Fortum's innovations and the secure supply of low-carbon power and heat support the development of society and increase well-being. Fortum's sustainability approach also includes being a good corporate citizen and taking care of its own personnel and the surrounding community. Fortum promotes well-being and safety in the work environment, respect for individuals and mutual trust, and responsible operations in society.

### Sustainability targets and key indicators

Fortum's sustainability approach defines Group-level targets guiding operations and the key indicators used to monitor them. The approach also defines division-level indicators, which are also monitored and reported at the Group-level.

The new key indicators defined in the sustainability approach are the target for specific CO<sub>2</sub> emissions from total energy production and the target for overall efficiency of fuel use. The new targets came into effect in January 2011. The sustainability results for 2010 are presented in the respective economic, environmental and social responsibility sections and in the key figures table on page 68.

Fortum's sustainability approach also includes the comprehensive environment, health and safety action plan



drafted in 2009 for OAO Fortum's operations in Russia (read more on pp. 34–35 and 59).

The Group-level key indicator for injury frequency is for the company's own employees, but division-level indicators have been created also for subcontractor injury frequency.

Fortum's target is to further develop key indicators used to measure sustainability performance related to e.g. the

amount of new CO<sub>2</sub>-free capacity, energy efficiency investments and the efficiency of R&D activities. In the area of social responsibility, the target is to define additional indicators related to personnel well-being and supply chain management.

# Sustainability an integral part of everyday management

The management of the divisions and Group functions, and ultimately the President and CEO and the Board of Directors, are accountable for sustainability issues. At the Group level, the Corporate Relations and Sustainability function, assisted by the Sustainability and Public Affairs steering group, is responsible for coordinating, developing and reporting on sustainability.

## Governance

Corporate governance at Fortum is based on laws, the company's Articles of Association and the Finnish Corporate Governance Code, which was updated in October 2010. Fortum complies with the Finnish Corporate Governance Code 2010 in its entirety. Fortum complies with the rules of NASDAQ OMX Helsinki Ltd, and the rules and regulations of the Finnish Financial Supervisory Authority. The Corporate Governance Statement is issued annually and is presented on pages 147–163 of the Annual Report 2010.

In 2010 Fortum's Board of Directors comprised seven members, three of whom were women. All members of the Board of Directors are non-executives and, with the exception of Ilona Ervasti-Vaintola (dependent on the company), independent of the company and its significant shareholders. The Board of Directors has not appointed any of its

members specifically conversant with sustainability, and compensation for the Board members is not tied to the sustainability performance.

The performance bonus criteria for senior management are decided by the Board of Directors. The performance bonus criteria may also include indicators related to the sustainability targets. The remuneration of the Board and the top management is presented on pages 156–159 of the Annual Report 2010.

The Board of Directors' working order and main tasks are presented on page 151 of the Annual Report 2010. When necessary, the Board addresses sustainability-related issues raised by Fortum's Management Team or the Sustainability and Public Affairs steering group.

The Board of Directors regularly assesses its activities and annually conducts a self-assessment in order to

further develop its work. Fortum's Board of Directors convened 11 times in 2010.

The attendance of the Board members in the Board meetings is presented on page 150 of the Annual Report 2010.

The Board of Directors has two committees – the Audit and Risk Committee and the Nomination and Remuneration Committee – each of which has at least three members. The committees report to the Board of Directors. Both committees convened four times in 2010. The committees' working orders and main tasks are presented on page 152 of the Annual Report 2010. Like the Board of Directors, also the Audit and Risk Committee carries out an annual self-assessment of its performance.

Fortum has a Supervisory Board responsible for overseeing that shareholders' interests are safeguarded. The members of the Supervisory Board, its Chairman and Deputy Chairman are

elected at the Annual General Meeting for a one-year term of office. In February 2011 there were ten members of which four were women. The Supervisory Board meetings are also attended by three employee representatives who are not members of the Supervisory Board. In 2010, the Supervisory Board met six times. A proposal has been made to dissolve the Supervisory Board; the issue will be addressed at Fortum's Annual General Meeting on 31 March 2011.

In February 2011 the Fortum Management Team consisted of nine members, two of whom were women. The Chairman is Fortum's President and CEO. The Fortum Management Team meets on a monthly basis. The Fortum Management Team sets the strategic targets, prepares the Group's annual business plans, monitors financial performance, plans and decides on investments and business arrangements within defined parameters, and reviews the key day-to-day operations and the implementation of operative decisions.

The Supervisory Board, the Board of Directors and the Fortum Management Team are separate governing bodies; an individual cannot be a member of more than one of these.

## Sustainability organisation

The Corporate Relations and Sustainability (CR&S) function is responsible for coordinating and developing sustainability at the Group level. Its Executive Vice President reports to the CEO and is

a member of the Fortum Management Team. The Executive Vice President of Corporate Relations and Sustainability also serves as Chairman of the Sustainability and Public Affairs steering group. The steering group comprises representatives from all divisions and Group functions. Among other things, the steering group tasks include managing consistent, systematic and efficient implementation of Fortum's sustainability approach throughout the organisation.

The CR&S function is responsible for the operations of the Group's sustainability networks. Regularly operating networks include the Climate network, which convened four times in 2010, and the environment, health and safety (EHS) network, which met five times. The Climate network's primary task was to define Fortum's new targets for specific CO<sub>2</sub> emissions from energy production and the overall efficiency of fuel use.

The CR&S function issues a sustainability statement (environmental, occupational health, safety and social impacts) about all significant investments and business acquisitions as part of Fortum's evaluation and ratification process for investments.

### Clearly defined reporting

The Fortum Management Team decides on company-level strategy and Group-level target setting, including sustainability targets, to guide annual planning.

The divisions define detailed targets and develop action plans supporting

the achievement of the targets, and they ensure that sustainability goals are included in the business goals.

Group-level sustainability indicators are reported quarterly and the detailed safety and environmental indicators monthly. The Fortum Management Team regularly monitors achievement of the objectives in its monthly meetings and in quarterly performance reviews.

### Risk assessment

Fortum's Board of Directors approves the Group's risk policy, which defines risk management goals, principles and areas of responsibility, and Fortum's risk management process. Risk management and control processes are described on pages 51–56 and 153–155 of the Annual Report 2010.

The assessment of risks related to sustainability is also included in the assessment of business risks. The CR&S function assesses the risks related to Group operations and its own operations as part of the annual planning. The divisions assess the risks identified by the CR&S function in their own annual planning and prepare for their control.

+ Read more about corporate governance at [www.fortum.com/investors](http://www.fortum.com/investors)

+ Read more about Board and senior management remuneration at [www.fortum.com/governance](http://www.fortum.com/governance)

## Fortum endorses:

- The United Nations (UN) Universal Declaration of Human Rights
- The UN Convention on the Rights of the Child
- The core conventions of the International Labour Organization (ILO)
- Fortum has endorsed the UN Global Compact initiative and is a member as of June 2010.

## Sustainability at Fortum is directed by:

- Strategy and values
- Sustainability policy
- Sustainability approach and its targets
- Code of Conduct
- Supplier Code of Conduct



# 91%

Emissions trading as well as binding environmental and climate targets are an effective way to curb the environmental impacts of energy production.

*OF FORTUM'S  
CO<sub>2</sub> EMISSIONS  
IN THE EU  
ARE INCLUDED IN  
THE EMISSIONS  
TRADING SCHEME*



**MEGATREND:  
SHIFTS IN REGULATION**





# Changes in Fortum's operating environment

Reconciling growing energy needs with sustainability is a big challenge. Climate change and the scarcity of natural resources affect the development of the entire energy sector. Fortum actively monitors its operating environment and sustainability requirements. This way, measures can be planned and targeted efficiently.



Energy is a critical commodity for modern society and its development. Global megatrends, such as globalisation, population growth, scarcity of natural resources, climate change, environmental problems, technology advances and consumer needs, are changing the energy system and will lead to an increasing demand for sustainable energy solutions.

The overall consumption of energy is growing and the relative share of electricity in energy consumption is increasing along with efficiency demands in the

use of resources. The growing demand, particularly in the Asian markets, and the old production capacity in industrialised countries are fuelling the need for energy investments globally.

Building new capacity requires a significant increase in private capital because of the limited availability of public-sector funding for energy investments. At the same time, liberalisation of the energy markets is continuing and market-driven regulation is increasing. The way Fortum sees it, all of the company's decisions and solutions must be



### NEW CONSUMER ASPIRATIONS

Urbanisation, re-localisation of industries and the rise in living standards, particularly in the big growth centres of Asia, are changing consumer habits and increasing energy consumption. The growing environmental awareness of consumers in Europe is motivating energy companies to make their operations and service offering more eco-friendly.



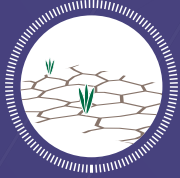
### GLOBALISATION

With globalisation the world's economies are becoming more dependent on each other and business cycles rarely occur on just a local level. The general development of the global economy has an impact on the energy sector through e.g. financial markets, fuel price development, localisation of industries and electricity demand.



### POPULATION GROWTH

Fast population growth in developing nations is increasing the energy demand and requiring sizeable new investments. Meanwhile, decelerating population growth and changes in the dependency ratio in developed countries are putting pressure on public sector spending and funding. The energy sector's aging production capacity requires extensive replacement investments. In developing and developed economies alike, the main responsibility for energy investments is on the private sector.



### INCREASING ENVIRONMENTAL PROBLEMS

Climate change and local environmental problems are challenges for which also the energy sector must find solutions. It is crucial to maximise efficiency in the use of the available natural resources and energy sources and to develop and implement new energy-saving and low-emitting technology.



### TECHNOLOGY ADVANCES

Advances in technology – particularly in information technology – have been very fast in recent decades and have fundamentally changed business globally. Technology development is also in a key position in the pursuit for solutions to climate change and a sufficient supply of energy. Distributed production and smart grids are examples of the opportunities offered by technology advances.



### NEW ECONOMIC POWERS

The focus of the global economy is shifting from the western hemisphere to Asia, driven by China and India. China has already taken its place as the world's second largest economy, and it is expected to surpass the United States by 2020. Emerging economies play a central role in the pursuit for a global solution to climate change.



### SHIFTS IN REGULATION

The liberalisation of the electricity markets and market integration are examples of the changes countries are making in an effort to boost efficiency in energy production and market functioning. These changes also attract investments in new and replacement capacity. Emissions trading and binding environmental and climate targets are an effective way to curb the adverse effects.



### GROWING RELATIVE ROLE OF ELECTRICITY

Diminishing natural resources, growing environmental problems and the rising prices of fuels are increasing electricity's relative share of total energy consumption. With electricity replacing other energy use, the total energy need and emissions are decreasing.



### RESOURCE SCARCITY AND ENERGY SHORTAGE

Growth in the global population and the rapid growth in energy demand in emerging economies impose huge challenges on the sufficiency of natural resources and energy supply. It is estimated that the global population is currently consuming 25% more of the earth's resources than is sustainable. With the current development, deficit deepens even further.

# Global megatrends





financially sound on their own merits; a sustainable business model cannot be based on public subsidies in the long term.

### **Towards an emissions-free energy future**

Reconciling the world's growing energy needs with the mitigation of climate change is a big challenge. Climate change mitigation and the reduction of carbon dioxide emissions as well as the scarcity of natural resources affect the development of the entire energy sector. If the current trend in the world's energy production and consumption continues, by 2030 consumption will have increased by more than 1.5 fold and carbon dioxide emissions by even more. Most of the growth in demand will be satisfied with fossil fuels. Limiting the earth's temperature rise to 2°C compared to the pre-industrial time requires that emissions are reduced by as much as 80–90% by 2050.

The significance of emissions-free and low-emissions energy sources as well as the efficiency of energy use will be highlighted in the future. The electricity sector has drafted its own visions and plans for emissions-free energy production at the global, European and national levels. Fortum's vision of the future of energy production is described on pages 40–43.

Fortum's business is primarily based on carbon dioxide-free nuclear and hydro power production and on the strong

know-how in energy-efficient combined heat and power (CHP) production. Our research and development activities focus strongly on developing future energy solutions and businesses. Fortum has an excellent platform for offering sustainable solutions that help to reduce emissions, boost efficiency in the use of resources and secure the supply of energy. Fortum's strengths also include know-how in electricity sales in the competitive energy markets.

### **Aiming for a global price on CO<sub>2</sub>**

In Fortum's opinion, a global price system and market for carbon dioxide emissions is the most effective way to steer energy production in a more sustainable direction. It is likely that a binding, international climate agreement will not be in place before 2012 and that different countries will proceed with their own climate policies and climate targets. The Climate Conference in Cancun, Mexico, in November–December 2010 made advancements in some issues, and the conference confirmed continuation of the negotiations under the UN. Major issues, like the amount of emissions reductions and scheduling, are open, and sights are now set on the next conference, which will be held in South Africa at the end of 2011.

### **Binding climate targets in the EU**

Of Fortum's market areas, the European Union is making determined advances in the implementation of its own climate

policy. The EU has set binding targets for emissions reductions and has drafted its legislation to 2020. The EU's goal is to reduce greenhouse gas emissions by 20% from 1990 to 2020.

The new European Commission started its operations in February 2010. The Commission now has a directorate-general for both energy and climate action. In November the Commission presented the EU's new energy strategy, the goal of which is to ensure that the EU achieves the ambitious energy, climate and economic targets by 2020. The new strategy outlines the EU's energy policy for the next nine years and emphasises the importance of a well functioning internal market for securing a competitive, sustainable and reliable energy supply for European companies and citizens. The strategy includes initiatives related to the energy infrastructure, energy efficiency, nuclear power and smart grids. The Commission has also started preparing a plan for transitioning to a low-carbon economy by 2050.

Fortum supports the EU's energy strategy and agrees that an efficiently functioning, integrated electricity market is necessary in order to achieve the emissions reduction targets and to significantly improve energy efficiency. It is also a requisite for the necessary investments in electricity production and transmission capacity.

Emissions trading is the key mechanism steering climate policy in the EU. The emissions trading rules in the next

trading period, 2013–2020, will be much different from the current rules. The amount of free emissions allowances will decrease considerably and the emission trading scheme will be based on harmonised EU-wide rules. Emissions allowances for electricity production will have to be acquired through auctions or from the markets. Only certain countries, like Poland and the Baltic countries, will have special derogations allowing them free emissions allowances for electricity production during the 2013–2020 period. Emissions allowances for heat production will be allocated according to a benchmark based on natural gas.

### **Market-driven renewable energy**

Promoting the use of renewable energy sources is a central component in the EU's energy and climate policy. The member countries submitted their national renewable energy action plans for achieving the 2020 targets. The Commission has announced that it will amend the renewable energy directive in 2011. The support systems for renewable energy also will be assessed in this context.

Market-based mechanisms and harmonised support systems, like certificate systems, are the most cost-efficient way to promote the use of renewable energy forms. A common Nordic certificate system would achieve an estimated cost savings of as much as EUR 950 million annually, and the benefit from a European-wide system would be as much

as EUR 17 billion annually compared to national support systems.

Of the Nordic countries, Sweden decided in 2010 to extend the use of the electricity certificate system until 2035. Norway is planning to join the common system in 2012. Finland's support system differs from those in other Nordic countries. In Finland legislation on feed-in tariffs was adopted in 2010; accordingly, energy produced with wind power, wood-based biomass and biogas will be subsidised with feed-in tariffs starting in 2011. A renewable energy support system based on feed-in tariffs is also being used in Poland and the Baltic countries.

### Russia utilises Kyoto mechanisms

In Russia economic value for emissions is created so far only through Joint Implementation (JI) projects. JI is one of the mechanisms defined in the Kyoto Protocol to reduce emissions. The first JI projects were approved in Russia in July 2010, resulting in a total of 30 million emission reduction units (ERU). The second round of tendering for JI projects was held at the end of 2010, and 18 projects and about 28 million ERUs were approved. Fortum's Tyumen CHP-1 project and the TGC-1 Nevsky hydropower project were approved as JI projects in the latter tendering process.

### Energy efficiency is key

The goal of the EU energy policy is to significantly improve energy efficiency. The plan is to update the Commission's

draft of the 2009 energy-efficiency action plan at the beginning of 2011. The proposed measures include binding national targets and energy-efficiency certificates, i.e. the so-called white certificates scheme. The certificates are an incentive for energy-efficiency measures and will be traded. The central elements of the action plan also include promoting combined heat and power (CHP) production, energy-efficient grids and smart energy metering.

An energy-efficiency law enacted at the end of 2009 in Russia includes regulations related to e.g. energy-efficient construction, building-specific consumption meters, energy labels for home appliances, and energy service company (ESCO) operations. The law requires companies to have an energy-efficiency programme if they want government subsidies for their investments.

### Emphasis on natural resources and biodiversity

Along with mitigating climate change, the efficient use of the limited natural resources and securing natural biodiversity are becoming key areas of sustainability. The UN declared 2010 as the International Year of Biodiversity. In the meeting on the Convention on Biological Diversity a strategic plan for global options to halt the loss of biodiversity by 2020 was approved.

The European Union is developing regulations for the sustainable use of bioenergy. In the future biomass sustain-

ability criteria may also apply to solid wood-based fuels and other biomass used in power and heat production. Sustainability criteria will be very significant in energy production if the criteria define some bioenergy as non-renewable energy sources.

Fortum's direct impacts on biodiversity are mainly local and are related to the use of land and water areas, e.g. for hydropower production and the transmission of electricity. Indirect impacts are created through the procurement of biomass, peat and other fuels.

### Tighter emissions requirements for fuel-fired power plants

Environmental regulation is very comprehensive in Europe and requirements demand continuous operational improvements. In July 2010 the EU approved the Industrial Emissions Directive (IED). The directive substantially tightens environmental protection requirements, particularly the emissions limits on sulphur dioxide, nitrogen oxides and particles in all production plants from 2016 onwards. The directive also requires the use of Best Available Technology (BAT) and more precise monitoring and reporting of emissions. In the future, environmental limit values will be based on BAT emissions levels.

The directive allows some flexibility for old plants and for plants with limited operations; this imposes limits on the amount of time the plants can operate, but it gives them less strict emissions

limits. This enables old plants to be operated toward the end of their useful life without expensive investments.

The directive tightens the emissions requirements for all Fortum's thermal plants. A more precise cost impact of the directive will become clear after the plant-specific permit conditions have been defined. The cost impact also depends on how flexibilities are applied in national legislation and at the plant level.

### Renewing hydropower legislation

Sustainable use of water resources and the aquatic environment is regulated through EU and national legislation.

Implementation of the EU Water Framework Directive in member states continued. The directive affects Fortum's hydropower in Sweden and Finland. According to the directive, all European waters must achieve a good ecological and chemical status by 2015. The EU member states reported the river basin management plans and action programmes to the Commission in March 2010. The measures must be initiated by December 2012.

The majority of the rivers and regulated lakes in the impact area of Fortum's hydro power plants in Finland achieve the environmental target of the directive. The rivers in the impact area of Fortum's hydro power plants in Sweden have a rated status of less than good; improvement might require measures.

National implementation of the EU Floods Directive is under way, and it too could impact hydropower production in Sweden and Finland.

Fortum has strong know-how in hydropower production and in mitigating its environmental impacts. Fortum has implemented voluntary actions both in Sweden and Finland to e.g. increase recreational and multipurpose use of water systems (read more on pp. 44–46).

### EU regulations for nuclear waste management

The European Union has drafted a proposal for a Nuclear Waste Directive, the first of its kind in the EU. The proposal requires member states to have a plan for the technical and economic implementation of nuclear waste management. The purpose is to set minimum criteria for the planning and implementation of nuclear waste management in member states. The Directive proposal emphasises obligations for all costs and for the technical implementation for those responsible for the the nuclear waste management. Additionally, the aim is to increase transparency in nuclear waste management.

Finnish and Swedish legislation already define nuclear waste obligations, and every producer is responsible for its own waste. The Loviisa nuclear power plant and Fortum's co-owned nuclear power plants have the world's top class solutions for the final disposal of nuclear waste (read more on p. 47).



## Recharging electric vehicles with solar power



Finland's first solar power plant to recharge electric vehicles was taken into use at the City of Espoo's Varikko car depot in summer 2010. The output of the solar power plant is 55 kW, and it has been connected to Fortum's grid. Any surplus solar power can be fed to the network. By the end of the year, the plant had produced 27 MWh of electricity. The estimated annual production is 45–50 MWh, which is enough to cover the annual electricity consumption of 10–15 electric vehicles. In January 2011 Varikko won the Helsinki Region Climate Award.

An electric car is very energy efficient: on average its efficiency is about three times better than a car with a combustion engine; in urban motoring it can be as much as four times better. That is why an electric car can save about 60–70% of the energy used by a gasoline- or diesel-fuelled car.

When comparing carbon dioxide emissions, the difference is even more significant. Because of the relatively low-emissions electricity production in the Nordic countries, the carbon dioxide emissions associated with an electric vehicle are on average

about 90% less than those of a car with a combustion engine, even when taking into consideration the emissions generated in electricity production. If the electricity used for recharging is produced with nuclear power or renewable energy, like solar, wind or hydro power, the electric car's CO<sub>2</sub> emissions are zero. The solar power plant at Espoo's Varikko reduces carbon dioxide emissions by about 30 tonnes a year when the Varikko solar electricity is used for recharging electric vehicles.

Developing distributed energy production, such as solar electricity and the supporting systems, is one of Fortum's key areas of research and development. The significance of electricity production that is based on renewable energy sources and produced close to consumers will increase in the future.

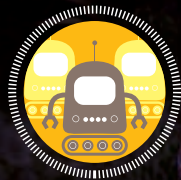
The City of Espoo and Fortum will continue developing electric motoring through the Eco Urban Living project; Valmet Automotive and Nokia are also project participants. Similar projects are under way also in Stockholm.



# 900,000

Technology has advanced very quickly and has changed business operations globally. Smart grids are an example of the opportunities afforded by technological innovations.

*SMART METERS  
HAVE BEEN  
INSTALLED  
FOR FORTUM'S  
CUSTOMERS*



**MEGATREND:  
TECHNOLOGY  
DEVELOPMENT**





# Pursuing profitable, responsible growth

Responsible business operations consistent with Fortum's strategy, mission and values are key factors for Fortum's success. Fortum's goal is to achieve excellent financial performance in strategically selected core areas through strong competence and responsible ways of operating.

For Fortum, economic responsibility means generating steady and long-term economic well-being and added value for shareholders, customers, employees, suppliers of services and goods, and other important stakeholders in the company's operating and market areas.

The majority of Fortum's key financial figures are published as part of the financial statements that are prepared and presented in compliance with International Financial Reporting Standards (IFRS). In addition, Fortum discloses in its Sustainability Report some figures

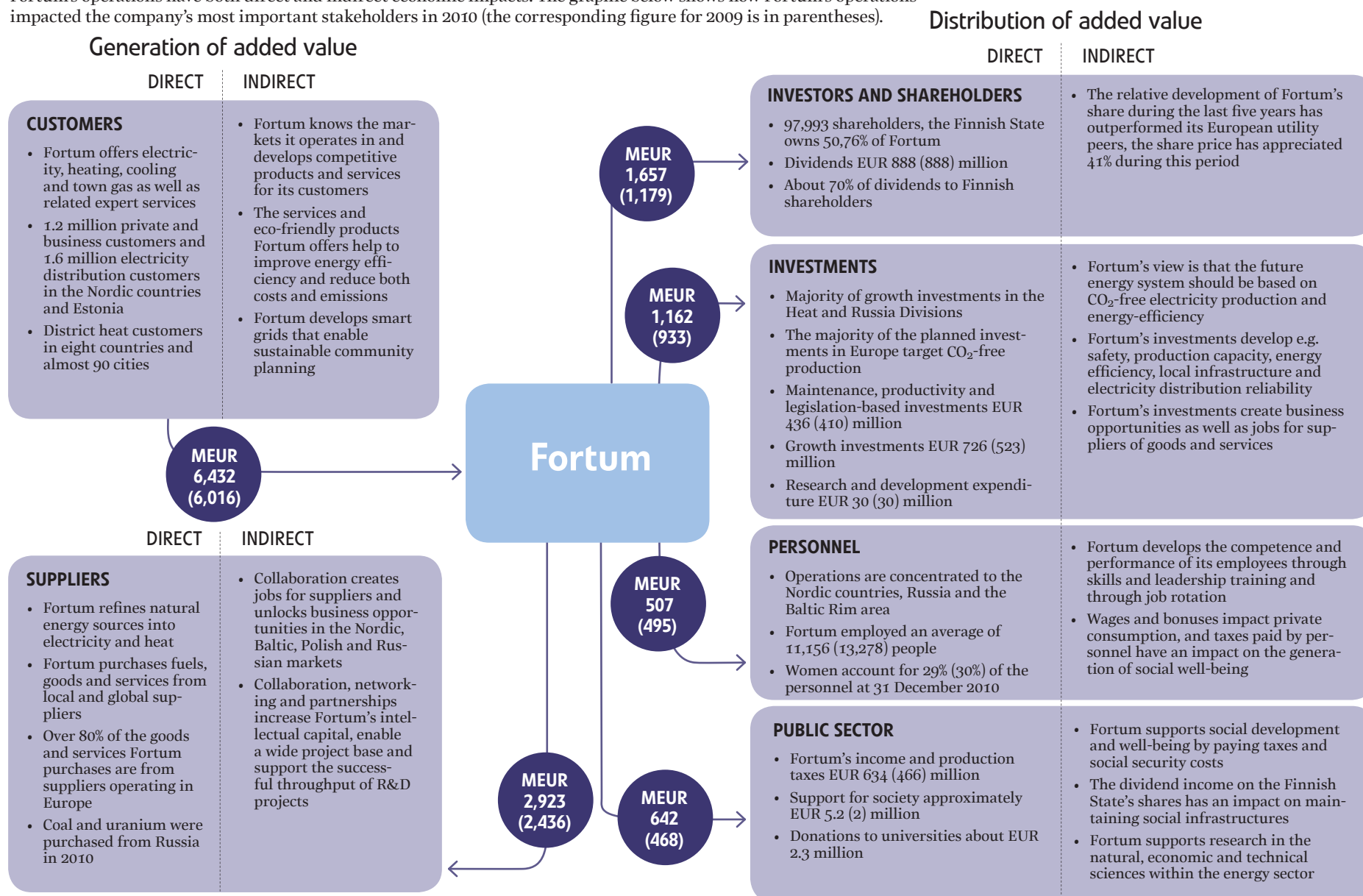
that are collected as part of the financial statement process but are not included in the actual Financial Statements.

The key figures by which Fortum measures its financial success include return on capital employed (target: 12%), return on shareholders' equity (target: 14%) and capital structure (target: net debt/EBITDA around 3). In addition to those mentioned above, Fortum also uses the applicable Global Reporting Initiative (GRI) indicators for reporting economic responsibility.



## FORTUM'S ECONOMIC IMPACTS

Fortum's operations have both direct and indirect economic impacts. The graphic below shows how Fortum's operations impacted the company's most important stakeholders in 2010 (the corresponding figure for 2009 is in parentheses).



The figures are derived from the consolidated cash flow statement and the income statement.

Income from customers (EUR 6,432 million) includes income from products and services to customers, financial income, and sales proceeds from fixed assets and shares.

Compensation to investors and shareholders (EUR 1,657 million) includes dividends paid to shareholders, interest expenses, and other financing costs.



Fortum's economic impacts and produced well-being, measured in euros, to different stakeholder groups in 2009–2010 is presented on page 20.

The difference between added value generated and distributed to stakeholders was EUR 703 million (2009: EUR 1,438 million) for the development of own operations<sup>1</sup>.

### Nordic electricity market

Electricity market activities include the generation, transmission, distribution and sales of electricity. Electricity production and sales are competitive businesses; electricity transmission and distribution are regulated.

The Nordic countries were in the vanguard in opening their national electricity markets to competition and were the first to establish a regional, multinational electricity wholesale market. Hundreds of electricity sellers and buyers meet in the markets every day and the competition is at the Nordic level. The number of players in the Nordic electricity markets is big and there is very little consolidation. The competition in the electricity wholesale markets will increase when targeted EU-wide electricity wholesale markets are operating by 2015.

Nordic electricity producers primarily sell the electricity they produce to the Nordic electricity exchange (Nord Pool Spot); about three quarters of the electricity produced in the Nordic countries is traded on this exchange. Producers sell the rest either directly to big industrial customers and electricity retailers, or they use the electricity themselves. The balance of supply and demand, the price of fuel and emissions allowances and the hydrological situation affect the whole-

sale price of electricity in the Nordic countries.

Electricity transmission and distribution companies operate regionally because it is not cost-efficient to build multiple electricity networks in the same area. Authorities monitor electricity transmission and distribution, its costs and the business practices of the companies. The transmission and distribution companies must treat all electricity producers and buyers equally, regardless of the producer or buyer of the electricity they are transmitting.

Electricity retailers buy their electricity mainly from the exchange and sell it to households and companies. In addition to the wholesale price of electricity, retail prices are also affected by taxes and other fees by authorities (including subsidies for renewable energy) and the seller's profit margin. Taxes and fees by authorities vary significantly from one country to another, and as a result also the price paid by consumers for the electricity varies by country.

The electricity retail markets still play by national game rules. Households can buy electricity only from electricity sellers operating in their own country. According to EU regulations, households in all EU countries can freely choose their electricity seller on national retail markets. The Nordic countries, however, have agreed to develop retail market operations together, and the goal is for a common Nordic electricity retail market by the middle of this decade.

Fortum sells all of the electricity it produces in the Nordic countries to the Nordic electricity exchange (Nord Pool Spot). Thus the most important factors in terms of Fortum's profit are the whole-

sale price of electricity and the volume of the electricity production. The wholesale price of the electricity is determined on the Nordic wholesale markets.

### Russia's wholesale electricity market

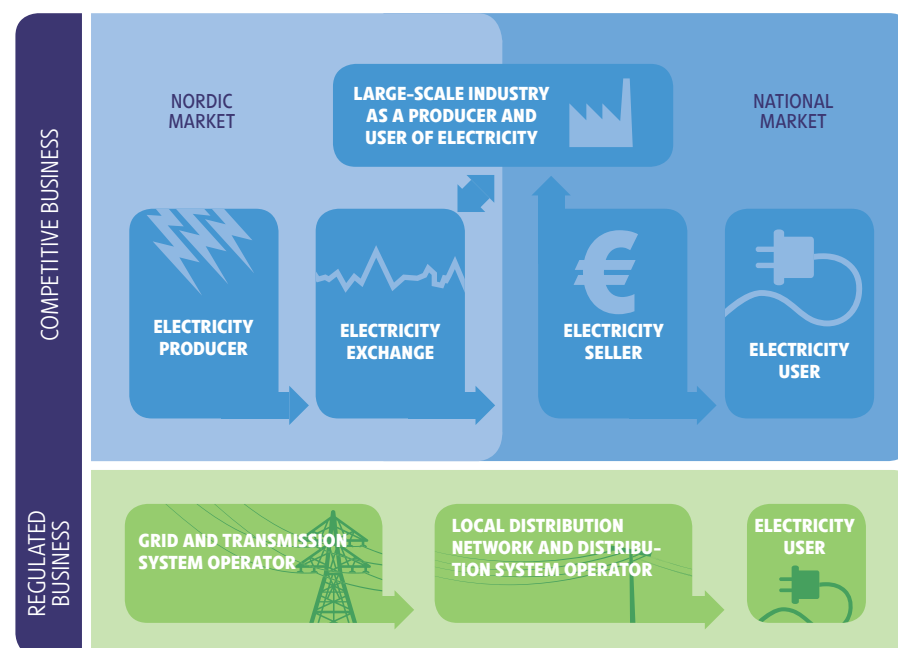
Russian electricity market reform progressed according to the Russian government's plans in 2010, despite the deep economic recession of 2009. The share of wholesale electricity sold at competitive prices has been gradually replacing the tariff-based share since 2007. At the beginning of 2010, 60% of the electricity was sold at competitive prices. This share increased to 80% in July and further to 100% at the beginning of 2011. The share doesn't include electricity sold for household consumption.

In addition to the electricity wholesale market, Russia also has an electricity capacity market, in which an electricity producer receives earnings for the production capacity it offers for market use. By having a separate electricity capacity market, the aim is mainly to encourage new investments in electricity production.

The new long-term capacity market rules were approved in autumn 2010 and will be applied starting at the beginning of 2011. The so-called old capacity, built before 2007, will compete in competitive capacity selection. The first competitive capacity selection in accordance with the new rules of the long-term capacity market was held in December 2010.

The new capacity, built after 2007 under government capacity supply agree-

### NORDIC ELECTRICITY MARKETS



<sup>1</sup>) Investments are not recognised in the calculation of distributed added value (indicator EC1) in accordance with GRI.

ments, will receive guaranteed payments for a period of 10 years. The price guarantees are defined in order to ensure a sufficient return on investments.

Upon completion, the new capacity built under the capacity supply agreements will be a key driver for Fortum's solid earnings growth in Russia as it will bring income from new volumes sold and receive considerably higher capacity payments than the old capacity. The payments for new capacity will be approximately 3–4 times higher than the average price for the old capacity.

Even though the Russian power sector will be fully liberalised in 2011, sales to households will remain regulated. Households account for about 10% of the wholesale markets. The Russian government is currently discussing liberalisation of also the household markets.

Even after their liberalisation, Russian electricity markets function under different regulations than EU electricity markets. Consequently, the integration of EU and Russian electricity markets doesn't seem likely for a long time, but electricity is actively traded between them.

### Fortum's share and shareholders

Fortum Corporation's shares are listed on the NASDAQ OMX Helsinki exchange. At the end of 2010 Fortum had 97,993 shareholders. The Finnish State owned 50.76% of Fortum's shares. Of the shares, 30.2% were in foreign ownership (2009: 31.0%).

The relative development of Fortum's share has outperformed its European utility peers during the last five years. During this period, Fortum's share price has appreciated approximately 41%. In

the same period, the OMX Helsinki Cap index increased by 10% and the Dow Jones European Utility index decreased by about 9%.

### Dividend policy

Fortum Corporation's dividend policy is to pay a dividend that corresponds to an average payout ratio of 50 to 60%. The dividend paid in 2009 was 1.00 euro per share, which was 67.6% of the earnings per share. Based on the number of registered shares as of 30 March 2010, a total of approximately EUR 888 million was paid in dividends. The Board of Directors has proposed a dividend of 1.00 euro per share for 2010, i.e. a total of EUR 888 million based on the number of registered shares as of 1 February 2011.

The dividend to be paid on the 2010 financial results will be decided at Fortum's Annual General Meeting on 31 March 2011.

➤ Read more about Fortum's share at [www.fortum.com/investors](http://www.fortum.com/investors)

### Information for investors

Fortum provides information to investors fairly and publishes investor information in Finnish, Swedish and English on the company's web site at [www.fortum.com/investors](http://www.fortum.com/investors).

Summaries of investor and company information in Polish, French, German and Russian are also available on the web site.

### SHARE KEY FIGURES 2008–2010

EUR	2010	2009	2008
Earnings per share	1.46	1.48	1.74
Cash flow per share	1.62	2.55	2.26
Equity per share	9.24	9.04	8.96
Dividend per share	1.00 <sup>1)</sup>	1.00	1.00
Payout ratio, %	68.5 <sup>1)</sup>	67.6	57.5
Dividend yield, %	4.4 <sup>1)</sup>	5.3	6.6

1) Board of Directors' proposal for the Annual General Meeting on 31 March 2011

### SHAREHOLDERS, 31 DECEMBER 2010

Shareholder	No. of shares	Holding, %
Finnish State	450,932,988	50.76
Ilmarinen Mutual Pension Insurance Company	13,956,250	1.57
Varma Mutual Pension Insurance Company	8,894,843	1.00
The Social Insurance Institution of Finland, KELA	7,195,896	0.81
The Town of Kurikka	6,203,500	0.70
The State Pension Fund Finland	5,278,500	0.59
OP-Delta Fund	3,200,000	0.36
Etera Mutual Pension Insurance Company	2,364,259	0.27
Svenska Handelsbanken, Finland	2,072,815	0.23
Mutual Insurance Company Pension Fennia	2,000,000	0.23
Mandatum Life Insurance Company Limited	1,958,845	0.22
Tapiola Mutual Pension Insurance Company	1,700,000	0.19
Nominee registrations and direct foreign ownership	268,620,580	30.24
Other shareholders in total	113,988,569	12.83
<b>Total number of shares</b>	<b>888,367,045</b>	<b>100.00</b>

By shareholder category	% of total amount of shares
<b>Finnish shareholders</b>	
Corporations	1.34
Financial and insurance institutions	2.63
General government	56.80
Non-profit organisations	1.60
Households	7.39
<b>Non-Finnish shareholders</b>	<b>30.24</b>
<b>Total</b>	<b>100.00</b>

### Award-winning investor communications

Fortum ranked number one in the Nordic companies category in the Hallvarsson & Halvarsson Webranking 2010 survey on investor communications on the web. Fortum ranked fifth in the European companies category. Also in 2009 Fortum ranked first in the Nordic companies category. Fortum was especially recognised for investor communications, for the open and transparent communication in management compensation, and for public relations.

In January 2011 Fortum's investor pages were selected the best in Finland

among the large cap companies in the competition arranged by The Finnish Foundation for Share Promotion, The Finnish Society of Financial Analysts, and Talouselämä newspaper. The competition assessed how easily information in Finnish could be found from the company's web site, in a useful format, quickly and logically.

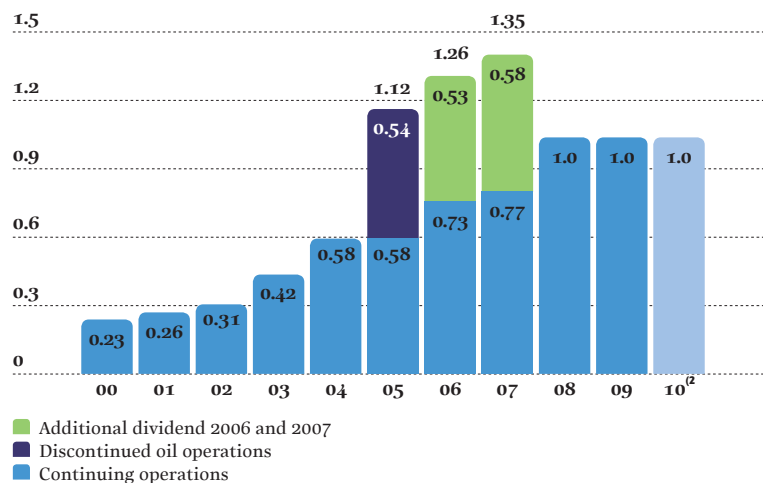
In 2010 Fortum reported its financial performance through a financial statements bulletin, three interim reports and a printed Annual Report. In 2010 Fortum organised close to 400 meetings with private and institutional investors and maintained a continuous dialogue

with securities analysts at investment banks and brokerages. During the year IR representatives and senior management held about 15 presentations at investor conferences in Scandinavia, Great Britain and North America. A Capital Markets Day for institutional investors and analysts was held in September 2010. In its investor communications, Fortum complies with a silent period of 30 days prior to the publication of its financial results.

### Personnel and personnel expenses

Fortum employed an average of 11,156 (2009: 13,278) people in 2010. The number

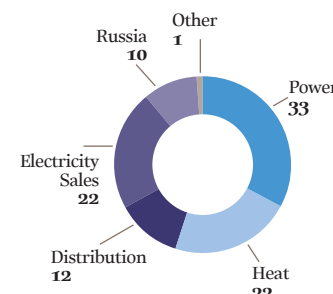
### FORTUM HAS GENERATED ABOUT EUR 5.6 BILLION IN DIVIDENDS TO THE FINNISH STATE IN THE 2000s<sup>(1)</sup>, dividend/share (euros)



1) Including Neste Oil Corporation shares as dividend EUR 1.9 billion. In addition, EUR 1.2 billion proceeds to the Finnish State from selling Fortum's shares.

2) Board of Directors' proposal to the AGM on 31 March 2011.

### SALES BY SEGMENT, %



### PERSONNEL KEY FIGURES, 2009–2010

	2010	2009
Employees at year-end	10,585	11,613
Average number of employees	11,156	13,278
Employee costs, EUR million <sup>1)</sup>	507	495

1) Numbers are based on the income statement.



## Combined heat and power production in Częstochowa

Fortum's Częstochowa CHP plant utilising the latest technology was commissioned in Poland in 2010. Plant Operations Engineer Rafał Kaczmarzyk (pictured) explains the basics of CHP plant production.

### What does demand-based energy production mean at the CHP plant?

Every day a plan is compiled for the heat energy needs. The plan is based on weather forecasts and previous consumption data. When we know the thermal load, we can determine the electricity production because they are in direct correlation with one another. A CHP operating plan based on consumption forecasts is always prepared one day in advance. Fortum's combined system has been designed to best meet the heat consumption of the city of Częstochowa.

Improving the energy efficiency of the fuels used in energy production has a direct impact on the amount of emissions. At Częstochowa we have reduced CO<sub>2</sub> emissions significantly with new technology solutions that make it possible to burn multiple different fuels simultaneously. We are also using forest and agricultural biomasses for fuel.



of employees was highest in Russia, on average 4,551. At the end of the year Fortum had a total of 10,585 employees (2009: 11,613). Compared to 2009, the number of employees decreased by about 9%.

According to Fortum's income statement, personnel expenses in 2010 were EUR 507 million (2009: 495 million). Personnel expenses were EUR 212 million in Finland, EUR 181 million in Sweden and EUR 69 million in Russia.

Changes in personnel and personnel expenses are listed by country of operation on page 53.

### Taxes paid

The goal of Fortum's tax policy is to ensure optimal and sustainable tax solutions for business operations.

The tax benefits Fortum produces for society include income taxes and taxes related to the business operations – such as property and fuel taxes. Fortum also

has pass-through taxes, such as the value added tax, and withholding taxes, which Fortum is obligated to collect and report on behalf of the government.

The tax benefits Fortum produces are divided between Fortum's operating countries, which have different tax rates and tax regulations. Thus taxation and the timing of tax payments vary by operating country. Fortum Group's effective tax rate is comprised of all the different tax regulations and tax rates, including timing differences. The effective tax rate doesn't reflect taxes paid.

Fortum's total tax impact depends on the profitability of operations, the scale of the local operations and the investments being implemented. In 2010 Fortum paid income and production taxes totalling EUR 634 million (2009: 466), of which EUR 210 million (2009: 109) was paid in Finland and EUR 383 million (2009: 299) in Sweden.

### Pensions

Fortum's pension arrangements conform to the local regulations and practices in each country where Fortum companies operate. Pension arrangements primarily cover retirement, disability, unemployment and survivors' pensions as well as some early retirement coverage. The arrangements are generally funded through payments to insurance companies or to Fortum's pension funds Finland and Sweden. Pension liabilities in pension funds are fully funded as the pension fund collects contributions from Fortum to cover the yearly rise in pension obligations. Contributions and premiums paid for pensions are recorded in Fortum's consolidated financial statements according to applicable requirements.

In Finland the most significant pension arrangement is the Finnish Statutory Employment Scheme (TyEL)

in which benefits are directly linked to employees' earnings. These pensions are funded through insurance companies (mostly Varma Mutual Pension Insurance Company) and include benefits for old age, disability, unemployment and survivors' pensions. Some employees have additional pension coverage arranged through Fortum's Finnish pension fund (closed in 1991) or through insurance companies. Benefits arranged in insurance companies concern some employees from acquired companies as well as certain members of Fortum's management.

In Sweden Fortum has several pension arrangements such as the general ITP-pension plan as well as other plans that are eligible for employees within companies formerly owned by municipalities. These plans are mostly financed through Fortum's Swedish pension fund. Benefits covered through pension arrangements include retirement pensions, additional retirement pensions, survivors' pensions as well as disability pensions. Determination of pension benefits varies from plan to plan. In some cases the benefit is determined in advance based on final salary, and in others it is dependent on the return on the assets covering the pension liabilities.

Pension arrangements in Russia include payments made to the Russian Federation's state pension fund. In addition the Russian companies participate in a non-state power industry pension fund as well as in certain arrangements, defined by collective agreements, which are unfunded. The benefits provided under these arrangements include, in addition to pension payments, one-time benefits paid in case of employee's death

### DISTRIBUTION OF ADDED VALUE FROM FORTUM'S OPERATIONS, BY COUNTRY OF OPERATION, 2009–2010, EUR million

	Capital expenditure <sup>(1)</sup>		Employee costs <sup>(2)</sup>		Taxes <sup>(3)</sup>		Total	
	2010	2009	2010	2009	2010	2009	2010	2009
Finland	190	255	212	209	210	109	612	573
Sweden	300	264	181	171	383	299	864	734
Russia	599	215	69	70	20	44	688	329
Estonia	53	47	8	7	3	1	64	55
Poland	45	65	10	11	4	3	59	79
Norway	15	12	11	11	1	1	27	24
Other countries	20	4	16	16	13	9	49	29
<b>Total</b>	<b>1,222</b>	<b>862</b>	<b>507</b>	<b>495</b>	<b>634</b>	<b>466</b>	<b>2,363</b>	<b>1,823</b>

1) Gross investments

2) Based on the income statement

3) Includes paid income taxes and production taxes

### MATERIALS AND SERVICES PURCHASED, 2009–2010, EUR million<sup>1)</sup>

	2010	2009
Nordic countries	1,982	1,508
Russia	546	372
Poland	113	89
Estonia	58	43
Other countries	147	15
<b>Total</b>	<b>2,846</b>	<b>2,027</b>

1) Figures are based on the income statement.

or disability as well as lump sum payments for anniversary and financial support to honoured workers and pensioners.

In other countries the pension arrangements are consistent with the local legislation and practice. Most are defined contribution plans. For more information on Fortum's pension arrangements, see pages 157–158 of the Annual Report 2010.

### Purchases from suppliers of services and goods

Fortum buys fuels, goods and services from international and local suppliers. In 2010 Fortum had about 16,000 goods suppliers, nearly 80% of which were from Finland and Sweden. Of the fuels, Fortum acquired coal and uranium from Russia.

Fortum's annual purchasing volume in 2010 was over EUR 2.8 billion. Fuels accounted for about EUR 960 million of the purchases.

### Investments in new capacity

Fortum is currently investing substantially in new energy production capacity both in Europe and Russia. The investments in Europe target mainly CO<sub>2</sub>-free production. The investments will add 793 MW of electricity production capacity and 290 MW of heat production capacity by 2015. The investment programme to be finalised in Russia is based mainly on the use of natural gas. The investments in Russia will add 2,360 MW of electricity production capacity and 740 MW of heat production capacity. Fortum is also investing in improving the energy efficiency of the production plants and district heating systems.

#### FORTUM'S EUROPEAN INVESTMENT PLAN AS OF 2010

Plant	Production/Fuel type	Planned additional capacity (MW)		Commercial operation begins
		Heat	Electricity	
Power Division <sup>(1)</sup>				
Forsmark 1, Sweden	Nuclear		25	Year completed 2011
Forsmark 2, Sweden	Nuclear		25	2012
Forsmark 3, Sweden	Nuclear		35	Year completed 2013
Oskarshamn 2, Sweden	Nuclear		80	2013
Olkiluoto 3, Finland	Nuclear		400	2013
Hydropower upgrades, Finland and Sweden	Hydropower		100	→ 2015
Heat Division				
Częstochowa CHP, Poland	Biofuel/coal	120	64	2010
Pärnu CHP, Estonia	Biofuel/peat	50	24	2010
Klaipėda CHP, Lithuania	Waste	60	20	2012
Brista CHP, Sweden	Waste	60	20	2013
Total new capacity		290	793	

1) Capacity increases reported under Power Division, represent Fortum's share of increase.

#### ACQUISITIONS 2010

Plant	Production/Fuel type	Capacity (MW)		Final
		Heat	Electricity	
EC Zarbze, Poland	Coal	226	35	2011
ZEC Bytom, Poland	Coal	177	55	2011
Nokian Lämpövoima, Finland	Gas	85	70	2010
<b>Total new capacity</b>		<b>488</b>	<b>160</b>	

#### INVESTMENT PROGRAMME IN RUSSIA

Plant	Production/Fuel type	Planned additional capacity (MW)		Commercial operation begins <sup>1)</sup>
		Heat	Electricity	
Tyumen CHP-1	Gas	570	230; 2x225	2011, 2014
Tobolsk CHP	Gas		200	2011
Chelyabinsk CHP-3	Gas	170	226	2011
Nyagan GRES	Gas		3x418	2012–2013
<b>Total new capacity</b>		<b>740</b>	<b>2,360</b>	

1) Capacity payments begin



## Smart consumption metering – the way of the future

In Finland Fortum is replacing its grid customers' electricity meters with new, remotely-read smart meters by the end of 2013. Real-time consumption readings give customers new information about their electricity use and help them to use energy more efficiently. Similar projects are also being launched in Norway and Estonia. Smart meters were installed in Sweden in 2006–2009.

With smart meters, electricity bills are based on actual electricity consumption. Thus, customers will no longer receive estimated or balancing bills. Locating outage areas is easier and repairing malfunctions is faster. Additionally, smart meters enable load control of the grid to prevent spikes. Smart meters are integral to the smart grid of the future.

CAPITAL EXPENDITURE, BY COUNTRY 2009–2010 <sup>(1)</sup>

EUR million	Finland		Sweden		Estonia		Poland		Norway		Other countries, total		Total	
	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	2009
<b>Power</b>														
Hydropower	10	4	42	49									52	53
Nuclear power	39	35											39	35
Fossil-based electricity	5	3											5	3
Renewable-based electricity	0	1											0	1
Other	1	4											1	4
<b>Power total</b>	<b>55</b>	<b>47</b>	<b>42</b>	<b>49</b>									<b>97</b>	<b>96</b>
<b>Heat</b>														
Fossil-based heat	16	53	24	17	1	7	38	59					79	136
Fossil-based electricity	5	37											5	37
Renewable-based electricity, of which	14	21	57	24	41	31					18	1	130	77
Waste	1		35								18		54	
Biofuels	13		15		41								69	
Other	0		7										7	
District heat	19	14	36	56	9	6	7	6	5	3	1	3	77	88
Other	0	0	12	20	0		0				1	0	13	20
<b>Total Heat</b>	<b>54</b>	<b>125</b>	<b>129</b>	<b>117</b>	<b>51</b>	<b>44</b>	<b>45</b>	<b>65</b>	<b>5</b>	<b>3</b>	<b>20</b>	<b>4</b>	<b>304</b>	<b>358</b>
<b>Distribution</b>	<b>73</b>	<b>79</b>	<b>128</b>	<b>98</b>	<b>2</b>	<b>2</b>			<b>10</b>	<b>9</b>			<b>213</b>	<b>188</b>
<b>Electricity Sales</b>	<b>0</b>	<b>1</b>											<b>0</b>	<b>1</b>
<b>Other</b>	<b>8</b>	<b>3</b>	<b>1</b>	<b>0</b>		<b>1</b>							<b>9</b>	<b>4</b>
<b>Total, excluding Russia segment</b>	<b>190</b>	<b>255</b>	<b>300</b>	<b>264</b>	<b>53</b>	<b>47</b>	<b>45</b>	<b>65</b>	<b>15</b>	<b>12</b>	<b>20</b>	<b>4</b>	<b>623</b>	<b>647</b>
<b>Russia</b>														
Fossil-based electricity													544	199
Fossil-based heat													21	16
Other													34	0
<b>Total Russia</b>													<b>599</b>	<b>215</b>
<b>Total, including Russia segment</b>													<b>1,222</b>	<b>862</b>

1) Includes capital expenditure to both intangible assets and to property, plant and equipment.



## Energy from the sea



Fortum is researching wave energy as a future form of energy production.

We are planning to build a full-scale demonstration wave power plant in Smögen, on the west coast of Sweden, in collaboration with Seabased Industry. If realised, the plant will have around 420 production units and would be the world's largest in terms of capacity (10 MW). According to the preliminary plan, construction of the plant will commence in 2012 and end in 2014.

Fortum is also participating in the Finnish Waveroller development project to convert the energy of waves near the shoreline into electricity. The project aims to build a 300-kW demonstration plant in Peniche, Portugal, in 2011. The plant would feed electricity to the grid.



In 2010 Fortum's investments totalled EUR 1.2 billion, 214 million of which was for CO<sub>2</sub>-free production. The biggest investments were made in Russia, EUR 599 million, and in Sweden, EUR 300 million. Investments in renewable energy forms were EUR 182 million. The emissions-free production investments commissioned and completed in 2010 are described on page 36 of the report. In 2010 Fortum invested a total of EUR 91 million (2009: EUR 61 million) in the environment and safety. The investments were mainly new CHP investments. Costs related to the environment, health and safety were EUR 60 million (2009: EUR 46 million). The figures are illustrative because the calculation principles for environment, health and safety expenses and investments are not completely uniform throughout Fortum.

A sustainability assessment is carried out for all Fortum's investment projects and takes into consideration the environmental, occupational health, safety and social impacts of the project. Projects requiring approval by the Fortum Management Team are subject to an assessment and approval by Group-level sustainability experts.

### Research and development activities

Fortum's R&D goal is performance excellence in existing operations, strengthening the requisites for growth, and development of a CO<sub>2</sub>-free energy

system in the long-term (read more in the Annual Report 2010, p. 26).

Nuclear power-related R&D has a significant role in Fortum's research and development activities. In 2010 important milestones were achieved e.g. regarding higher burn-up of nuclear fuel and reactor pressure vessel licensing for the Loviisa power plant.

Other important R&D themes were CHP development and the related carbon capture and storage (CCS). Fortum continued development work on pyrolysis technology in collaboration with Metsä, UPM and VTT Technical Research Centre of Finland. Additionally, new fuel tests were conducted using e.g. crushed olive stones as fuel at the Värtan power plant in Stockholm.

During the year, Fortum actively developed solutions for sustainable urban living in various projects. Fortum, ABB and the KTH Royal Institute of Technology received 13.4 million Swedish krona in funding from the Swedish Energy Agency and Vinnova for a pre-study on the design and installation of a smart and flexible large-scale electricity grid in the Stockholm Royal Seaport residential area. In September 2010, Fortum and Aalto University agreed on wide-ranging research cooperation.

Fortum's total R&D expenditure in 2010 was EUR 30 million, or 0.5% of sales (2009: EUR 30 million and 0.5%), and 0.8% of total expenses (2009: 0.9%).

### Emissions trading and Kyoto mechanisms

Emissions trading and the Kyoto mechanisms (CDM and JI) are important climate measures at Fortum. In 2010 Fortum had a total of 129 plants in six member states within the EU's emissions trading scheme. About 91% of the CO<sub>2</sub> emissions in the EU area were included in the emissions trading system. In 2010 Fortum was granted 5.6 million tonnes in free emissions allowances. The company's emissions in the EU emissions trading scheme were 9.7 million tonnes. In terms of emissions allowances, Fortum thus was short.

EU emissions trading has created a market price for carbon dioxide emissions; CO<sub>2</sub> emissions have become a factor impacting the variable costs of fossil-based energy production. The majority of the emissions allowance price has been passed through to the electricity price in the Nordic electricity markets. 86% of Fortum's electricity production in the EU in 2010 was CO<sub>2</sub>-free (2009: 91%). In the emissions trading scheme, CO<sub>2</sub>-free energy production brings Fortum significant competitive advantages.

In addition to the management of emissions allowances related to its own production, Fortum also trades carbon dioxide emissions allowances in European marketplaces such as Nasdaq OMX Commodities Europe and ECX.

Fortum increased its activities in the use of emissions trading-related

## Nyagan power plant – a unique project in Russia's energy industry

Fortum is building a new power plant utilising combined cycle gas turbine (CCGT) technology in Nyagan, Khanty-Mansi. The electricity production capacity of the plant exceeds 1,200 MW. The first 418-MW unit is planned to be commissioned in 2012.

Upon its completion, the power plant will significantly improve energy supply in the area. In late 2010 Fortum and the Khanty-Mansi Autonomous District signed a memorandum of understanding on social and economic collaboration.

The agreement strengthens collaboration in the region's energy production, energy efficiency and energy conservation. Additionally, the aim is to improve the investment climate and create a favourable environment for development of the energy sector by means of introducing modern energy-efficiency and energy-saving technologies for the efficient use of natural resources in the Khanty-Mansi Autonomous Region.

Khanty-Mansi has an extensive oil refining industry. Fortum is also exploring the possibility of using the associated gas from oil drilling for energy production. Normally, the gas is released into the air or flared. If this flare gas can be used in energy production, the environmental benefits would be significant.



## Our charity programme in Russia focuses on children and young people

Fortum's charity programme in Russia helps orphans, the disabled and children from low-income families. Additionally, we support children's sporting activities.

In 2010 we gave about 30,000 euros for our Russian charity programme. In the Chelyabinsk area the programme supports a charity foundation, an association for blind children, a day care for sight-impaired children, a children's sports academy, and a children's dance school.

Ice hockey is one of the most popular sports in Chelyabinsk, and more than 800 boys play it at the sports academy. We donated about 23,000 euros to local junior ice hockey teams, making it possible for Traktor Chelyabinsk teams to practice and participate in Russia's ice hockey championships. In addition we support the Traktor Chelyabinsk hockey team.

Kyoto mechanisms in 2010. The new unit at Fortum's Tyumen CHP-1 plant was approved in the end of the year as a Joint Implementation (JI) project in the tender process arranged by the Russian government. The TGC-1 Nevsky hydropower plant refurbishment project also received approval. The projects will bring a total of 1.7 million emission reduction units (ERU) by the end of 2012. The transfer of emission reduction units from Russia and the utilisation of them in the EU emission trading scheme requires approval by Finnish authorities. Fortum also increased its share in the World Bank's Prototype Carbon fund (PCF) by acquiring the fund shares of two Japanese companies.

### Fortum in sustainability indexes

Expert assessments of sustainability and good rankings in significant sustainability indexes are important to Fortum because they support the development and continuous improvement in the responsibility of our operations. Additionally, the assessments and indexes provide investors with impartial information about the level of the company's operations in the three sub-areas of sustainability: economic, environmental and social responsibility.

Fortum has been listed for the eighth consecutive year in the Dow Jones Sustainability World Index (DJSI World). The 2010/2011 assessment for DJSI World included about 1,400 companies from 57 different sectors. From the electricity sector, 15 of the 105 companies assessed were included in the index. Fortum is the only Nordic energy company in the index.

Fortum was awarded SAM Bronze Class in the Sustainability Yearbook 2010 published by the SAM Group. In the Carbon Disclosure project's Carbon Performance Index, which measures performance in climate issues, Fortum received a B on a scale of A-D and 82 points out of 100 in the overall rating, and is included in the Nordic Carbon

Leadership Index. Fortum was also ranked the Best in Class company fulfilling the Socially Responsible Investments (SRI) funds' criteria of the Norwegian banking group Storebrand. In the 2009 overall assessment of energy company performance in corporate responsibility, Fortum ranked best.



CARBON DISCLOSURE PROJECT

### Support for society

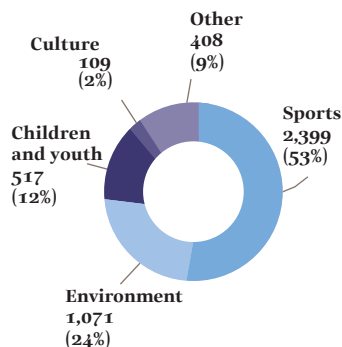
Fortum supports organisations and communities working for the common good in the countries where it operates. The goal is for sponsorships to be mutually beneficial. Collaboration in research and development projects with Nordic universities in particular is significant.

In 2010 Fortum's support for these kinds of projects totalled about EUR 5.2 million, of which the share of grants awarded by the Fortum Foundation was about 650,000 euros. In addition to this, Fortum donated about EUR 2.3 million to universities in Finland. The single largest donation was awarded to Aalto University (EUR 3 million), half of which was distributed in 2010.

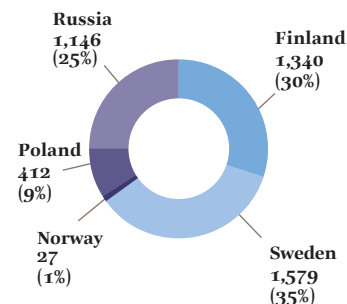
The distribution of the support between different targets and by country is illustrated in the graphs below. The breakdowns do not include support to universities nor the scholarships, grants or other financial support awarded by Fortum Foundation. The purpose of the Fortum Foundation is to support research, education and development in natural, technical and economical sciences within the energy area.

The amount to be donated to non-profit targets is decided by Fortum's Board of Directors. Donations are not awarded for any kind of political activities, religious organisations, authorities, municipalities or local administrations.

#### FORTUM'S SUPPORT FOR SOCIETY IN 2010 BY TARGET, 1,000 euros



#### FORTUM'S SUPPORT FOR SOCIETY IN 2010 BY COUNTRY, 1,000 euros



## Football professionals helping junior teams

Fortum Tutor is a national programme launched in partnership with the Football Association of Finland to develop the skills of coaches of junior football teams. The goal is to make sure that children have an inspiring and competent coach. About 70 football coaching experts have been selected as tutors; each of them meets with 12 coaches a few times during the season. The coaches receive the concrete support they need and help in developing their coaching skills.

The goal of Fortum Tutor is to give the coaches the tools and skills they need for

inspiration to continue coaching over the long term and to develop their skills.

The programme started in 2009 and will have an impact on more than 10,000 children and their families around Finland. Fortum funds the programme, while the responsibility for the content belongs to the Football Association of Finland. The primary target group is the coaches of children younger than 12. Children under 12 are at the most susceptible age in terms of learning the fundamentals of the sport, and therefore need an inspiring coach to support them.



# 86%

Diminishing natural resources, growing environmental problems and the rising price of fuel are increasing electricity's relative share of total energy consumption. With electricity replacing other energy use, the total energy need and emissions are decreasing.

OF FORTUM'S  
ELECTRICITY  
PRODUCTION  
IN EUROPE IS  
CO<sub>2</sub>-FREE



MEGATREND:  
GROWING RELATIVE  
ROLE OF ELECTRICITY








# Fortum's responsibility for the environment

Environmental impacts related to the production and distribution of energy are created in the different phases of the production chain: fuel procurement, refining, storage and transportation, energy production processes and distribution, and waste handling. Major environmental issues in the energy sector are climate change, acidification and the effects on water systems and biodiversity. Responsible management of environmental issues and environmentally-benign energy products and solutions are Fortum's strengths.



Fortum's electricity and heat production is based on a diverse range of energy sources. In 2010 the shares of different energy sources were: natural gas 40%, hydropower 18%, nuclear power 18%, coal 10%, biofuels 6% and other sources 8%.

In 2010 66% of Fortum's electricity production was carbon dioxide-free. The corresponding figure in Europe was 86%. OAO Fortum's production in Russia is based entirely on fossil fuels (natural gas 95% and coal 5%).

In 2010 renewable energy sources accounted for 35% of Fortum's electricity production and 18% of its heat production.

Carbon dioxide emissions from energy production are reviewed in more detail on pages 36–43.

Energy production and transmission impact the environment at all phases – from the building of the infrastructure to the end use of the energy product. The environmental impacts of the different production forms are described in the illustration on the next page.



# Impacts of energy production and use

## In fuel handling

### CLIMATE

Natural gas pipelines leak some methane, which is a greenhouse gas. Transports by ship and roadway and the pumping of natural gas use fossil fuels, which generate greenhouse gases.

### HEALTH AND SAFETY

Coal handling may cause adverse effects on the local environment and workers.

### WATER SYSTEMS

Transporting fuels via waterways involves risks like oil spills.

## In the production phase

### CLIMATE

Carbon dioxide emissions from fossil fuels and peat change the climate. Hydro, nuclear, wind and solar power production do not cause direct carbon dioxide emissions. The use of bioenergy is CO<sub>2</sub>-neutral.

### HEALTH AND SAFETY

Flue-gas emissions may have an impact on air quality and health. The fuel used in nuclear power plants is radioactive. Nuclear power plant radiation has no impact on human health or nature, in normal use.

### WATER SYSTEMS

Cooling waters increase the temperature of water systems locally, while heat pumps cool water systems used as a heat source. Small amounts of impurities escape from production plants into water systems. Hydropower regulation has an impact on water flows and surface levels and may impact fishing and recreational use.

### OTHER ENVIRONMENT

Flue-gases contain some impurities (SO<sub>2</sub> and NO<sub>x</sub>) that cause acidification and eutrophication, and small amounts of heavy metals. Production and maintenance creates e.g. ash, gypsum, scrap metal and waste oils. Production plants have impacts on the visual landscape and land use.

## At the energy source

### CLIMATE

The use of biomass reduces carbon sinks unless renewal is managed. Fossil fuels are used in mining operations and in the collection of biomass and generate greenhouse gases.

### HEALTH AND SAFETY

Mining operations are associated with health and safety risks for workers and local residents.

### WATER SYSTEMS

Hydropower production could impact biodiversity and the fishing and recreational use of water systems. Impurities from fuel mines and peat bogs could be released into water systems.

### OTHER ENVIRONMENT

Fossil fuels and uranium are exhaustible natural resources, but also the supply of renewable energy, like biomass and hydropower, is limited. Mining operations and the draining of peat bogs has a local impact on soil, ground water and the landscape. Acquiring biomass could weaken biodiversity and the visual landscape. The use of waste for energy saves natural resources and reduces the load on landfills.



## In electricity and heat distribution

### HEALTH AND SAFETY

Uninterrupted energy distribution safeguards a functioning society. The electric and magnetic fields in the immediate vicinity of power lines and transformers could impact health.

### ENVIRONMENT

Building and maintenance of above-ground power lines impact nature, land use and the visual landscape.

## In the use of electricity and heat

### CLIMATE

As electricity and district heat replace less efficient energy forms, the impact on the climate is reduced.

### ENVIRONMENT AND HEALTH

Electricity is a requisite for a functioning and safe society. Used instead of small-scale heat production, district heat reduces local environmental impacts, like the health-harmful particle emissions.

## In the handling of waste and by-products

### CLIMATE

Fossil fuels used in transportation generate greenhouse gases. Landfills release methane emissions.

### HEALTH AND SAFETY

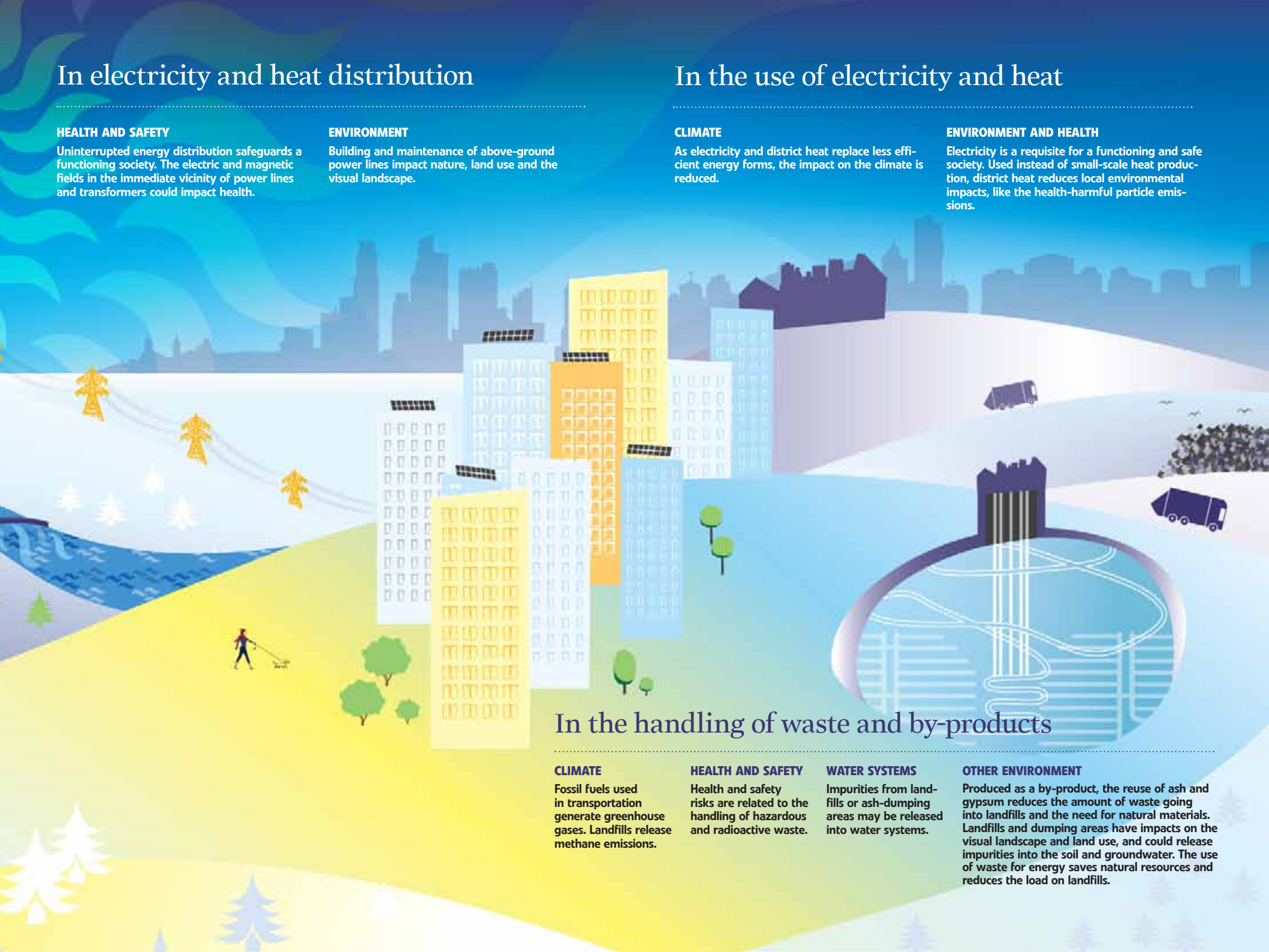
Health and safety risks are related to the handling of hazardous and radioactive waste.

### WATER SYSTEMS

Impurities from landfills or ash-dumping areas may be released into water systems.

### OTHER ENVIRONMENT

Produced as a by-product, the reuse of ash and gypsum reduces the amount of waste going into landfills and the need for natural materials. Landfills and dumping areas have impacts on the visual landscape and land use, and could release impurities into the soil and groundwater. The use of waste for energy saves natural resources and reduces the load on landfills.



### Certified environmental management

Fortum's environmental management is based on the company's sustainability approach, sustainability policy, environmental principles, biodiversity guidelines, commitment to the UN Global Compact, and the ISO 14001 standard for environmental management systems.

### Fortum's environmental targets and performance

Fortum's Group-level environmental targets are related to carbon dioxide emissions, energy efficiency (since 2011) and environmental management system certification. Fortum's Group-level targets are presented on page 8. In addition, the divisions have defined their own

environmental goals related to their respective business.

The achievement of the environmental targets is monitored through monthly, quarterly and annual reporting. The key performance indicators are specific carbon dioxide emissions, the advancement of ISO 14001 certification, leaks of more than 100 litres into the environment, significant permit violations and environmental non-compliances.

There are no numerical Group-level goals set for environmental non-compliances; the divisions set their own goals, which are reviewed in the Group's environment, health and safety (EHS) network. Environmental non-compliances and permit violations are presented in the table below.

#### ENVIRONMENTAL TARGETS AND RESULTS 2010

Indicator	Goal	Result 2010	Remarks
Specific CO <sub>2</sub> emissions from power generation in the EU, five-year average (g/kWh)	<80 g/kWh by 2020	69 g/kWh	Exceptionally cold winter increased coal use.
Specific CO <sub>2</sub> emissions from heat production in the EU (g/kWh)	A reduction of at least 10% in each country from 2006 to 2020	5% reduction from 2006	Total energy production target replaces this target as of 2011.
Climate target in Russia	Reduction in emissions and improvement in energy efficiency	Total and specific emissions have increased in 2008-2010. Energy efficiency measures initiated.	Growth in use of coal increased emissions. Total energy production target replaces this target as of 2011.
Degree of ISO 14001 certification (%)	100% in the EU area by the end of 2010. 100% of OAO Fortum's operations by the end of 2012.	98% in the EU area	Certification in 2010 for Power Division's Lakeside operations. Recertification of Power Division's Nordic operations and Heat Division's operations in Finland, Poland and Scandinavia. Target for Heat Division operations in Latvia, Tartu and Pärnu by the end of 2011.



## Clean Baltic Sea – for everyone

The goal of John Nurminen Foundation's Clean Baltic Sea project is to reduce eutrophication of the Baltic Sea by decreasing municipal wastewater-based phosphorous discharges into the sea by 2,500 tonnes a year. Additionally, the project aims to improve tanker safety and to reduce the risk for oil spills.

In 2008 Fortum entered into a four-year agreement to support the Clean Baltic Sea project. For Fortum it is important that the Foundation is working on significant projects that quickly reduce environmental impacts and aim for tangible and measurable results.

The first targets of the eutrophication project were St. Petersburg's wastewater treatment plants. The project goal was an annual reduction of 1,000 tonnes of phosphorous; the goal was achieved by the end of 2010. Now the efforts will be focused on Poland, the origin of a third of the phosphorous load ending up in the Baltic Sea. The aim is to reduce the amount of phosphorous coming from wastewater treatment plants by 1,000 tonnes a year. The project is being implemented in collaboration with the Swedish Baltic Sea 2020 Foundation and Polish cities.

#### ENVIRONMENTAL NON-COMPLIANCES BY DIVISION 2010

Division	Significant environmental non-compliances and permit violations	Fires	Leaks >100 litres
Power <sup>1)</sup>	5	6	1
Heat	2	9	8
ESD	0	0	4
Russia	14	1	0
Corporate	0	1	0
<b>Fortum total</b>	<b>21</b>	<b>17</b>	<b>13</b>

1) Additionally, two INES-1 incidents at the Loviisa power plant

The most significant permit violation in 2010 was the Chelyabinsk CHP-1 plant's exceeding of waste water discharge limits (12 incidents) for which OAO Fortum was fined 16,400 euros.

In hydropower production, the regulation permit conditions included in the water permits stipulate the water levels and flows in detail. Deviations from these permit conditions could not be avoided in 2010. A total of four significant non-compliances occurred at Fortum's plants in Sweden: in Vässinkoski, Brunnsht, Sävenfors and Brättne. The permit deviations were mainly due to equipment failures or exceptional natural conditions.

Two INES level-1 incidents<sup>1</sup> occurred in 2010 at the Loviisa nuclear power plant: A small amount of radioactive liquid got into the plant's air ventilation duct and, in conjunction with fuel transport in the plant area, material exposed to radiation was found outside the safety zone. The incidents did not have impacts on safety or on the environment.

### EHS action plan in Russia

Fortum's target in Russia is to bring environmental-, occupational health- and safety-related management system and performance closer to the level of the plants in Europe. A comprehensive EHS action plan for 2009–2015 guides

the development of operations and the target-setting. The implementation of the plan is monitored by a separate steering group. An assessment of EHS activities was conducted in Russia by a third party in spring 2010. The results of the assessment were consistent with the previously identified development potentials (e.g. boosting risk assessment efficiency).

In 2010 in Russia a process aiming for ISO 14001 certification was launched, an environmental impact assessment was conducted, training needs were defined, training for supervisors was arranged and a detailed review of the waste generated by the operations was carried out. Targets for 2011 include e.g. performing a preliminary audit and implementation of improvement measures so that certification would be possible at the end of the year.

Other environmental targets for 2011 include reduction of identified environmental impacts and non-compliances, implementation of a new waste management model, reduction of particle and SO<sub>2</sub> emissions and development of reporting.

In 2010 the Argayash and Chelyabinsk coal-fired plants started using a better grade of coal (higher thermal value, lower ash content). The change is expected to reduce the particle and sulphur dioxide emissions of the plants.

<sup>1</sup>) INES, International Nuclear Event Scale, is a classification scale used by the International Atomic Energy Agency for nuclear plant incidents and nuclear accidents; level 0 means no safety significance and level 7, the highest level, is a major accident.

➤ Read more about the environmental impacts of production forms at [www.fortum.com/sustainability](http://www.fortum.com/sustainability)



## A pioneer in future urban living



Energy use in buildings accounts for about 40% of the energy consumption in the Nordic countries. Residential heating is the single biggest source of greenhouse gas emissions from households. The real-time monitoring of household electricity consumption through smart meters and feeding of electricity generated with the solar panels on the building into the grid are part of the energy-efficient urban living envisioned by Fortum.

At the foundation of this vision is a smart grid that connects electricity producers and consumers to each other. It is important that energy efficiency is taken into consideration already in the initial phase of construction and that solutions are designed for residents to decrease their own carbon footprint.

Fortum is developing solutions for sustainable urban living at several sites. In the

Royal Seaport district in Stockholm, Sweden, the goal is to be entirely free of fossil fuels by 2030. Another goal is that by 2025 the buildings in the area generate more electricity than they consume.

In Finland Fortum is collaborating with Skanska in constructing As. Oy Espoo Adjutantti, a residential building in the Mäkkylä area of Espoo. The new technology related to smart grids will provide Adjutantti residents with better opportunities to monitor their energy consumption and make it more efficient.

In Espoo, Fortum is participating in the Eco Urban Living project developing an ecological living environment in which tighter environmental standards are integrated into urban planning. Electric motoring is a central component of the project.



# Carbon dioxide emissions

## Long-term aspiration: CO<sub>2</sub>-free power and heat company<sup>1)</sup>

Mitigating climate change is an important part of Fortum's strategy. The most important measure in curbing climate change is increasing CO<sub>2</sub>-free energy production. Fortum's long-term aspiration is to be a CO<sub>2</sub>-free power and heat company. To achieve this, Fortum is continuously developing its energy production. In 2010 Fortum drafted a Roadmap to a CO<sub>2</sub>-free future (read more on pp. 40–43).

Fortum's emissions have increased in the past three years, and both total and specific emissions will continue to grow in the near future. This is primarily due to the implementation of the extensive investment programme based mainly on natural gas in Russia.

## Measures to reduce CO<sub>2</sub> emissions

Reducing emissions is achieved by increasing the use of energy sources with low or zero emissions and by improving energy efficiency. In line with its strategy, Fortum is focusing on nuclear and hydro power and on energy-efficient combined heat and power (CHP) production.

Emissions trading and the use of Kyoto mechanisms are also important climate actions at Fortum (read more on pp. 27–28).

Capacity upgrade programmes are under way at Fortum's co-owned Oskarshamn (Fortum's share 43%) and Forsmark (23%) nuclear power plants in Sweden. Fortum's share of the planned additional capacity is about 290 MW. The

capacity upgrade and modernisation projects proceeded in 2010, but commissioning the additional capacity has been delayed. Fortum is helping to resolve the problems related with the commissioning by utilising the know-how gained in the modernisation of Finnish nuclear power plant units. In the upcoming years Fortum's nuclear power capacity in Finland will grow by about 400 MW with the commissioning of the Olkiluoto 3 plant.

Hydropower refurbishment projects were completed at Montta, Finland, and at Långströmmen, Frykfors and Höljes, Sweden. The annual additional energy from these plants is about 20 GWh. Fortum's hydropower refurbishment programme will increase electricity production capacity by 10–20 MW per year by 2015.

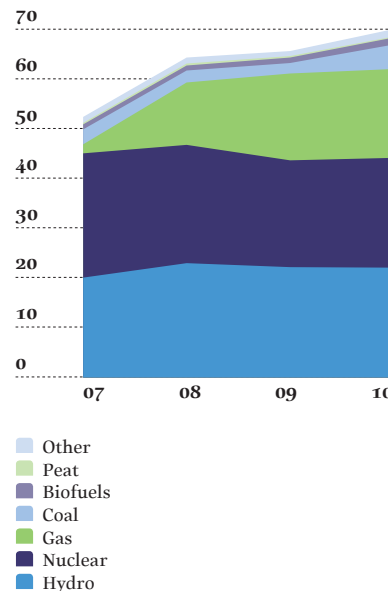
CHP plants that utilise partly biofuel for energy production were commissioned in Częstochowa, Poland, and in Pärnu, Estonia. A biomass-fuelled heating plant was commissioned in Hanko, Finland.

Fortum made investment decisions on a biomass- and waste-fired CHP plant in Klaipėda, Lithuania, and a new waste-fired unit in Brista, Sweden. The Klaipėda plant is the first waste-fired plant in the Baltic Rim area. The target at the Värtan plant in Sweden is to increase the share of renewable energy sources from 45% today to 70% by 2015. According to the preliminary plans, the plant will commission a unit using bio-oil, among other fuels.

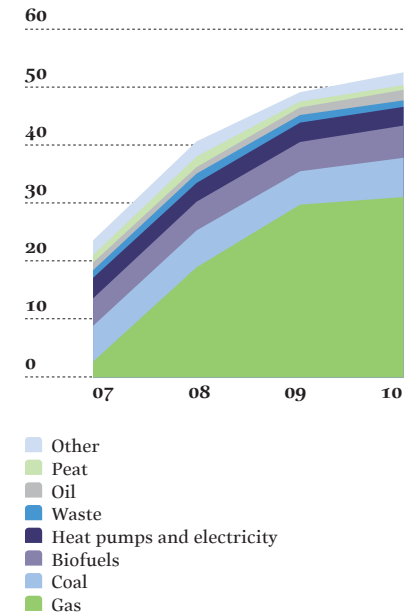
➤ Read more about CO<sub>2</sub> emissions reduction at [www.fortum.com/sustainability](http://www.fortum.com/sustainability)

<sup>1)</sup> In this report, CO<sub>2</sub>-free energy production refers to hydro, nuclear, wind, solar and wave power, which do not generate emissions in the production phase, and the use of biomass energy and the thermal energy generated by heat pumps from ground, water system or waste heat.

**ELECTRICITY GENERATION BY ENERGY SOURCE 2007–2010, TWh**



**HEAT PRODUCTION BY ENERGY SOURCE 2007–2010, TWh**



In August 2010 Fortum announced its acquisition of a 40% share in one of Europe's biggest wind power projects, in Blaiken in North Sweden. The onshore wind farm's capacity is 250 MW and the plan is to build the farm in phases by 2015. In Finland Fortum has five onshore wind power projects under planning: Bergö (15 MW), Kuolavaara-Keulakkopää (54 MW), Kalajoki (60 MW), Joukhais-

selkä (60 MW) and Ii (24 MW). Additionally, plans for a wind power test farm are under way in Loviisa, Finland.

Fortum and Seabased Industry received a favourable decision from the Swedish Energy Agency for investment support for a full-scale wave energy project on the western coast of Sweden. The support requires EU approval. After completion, the 10-MW production plant

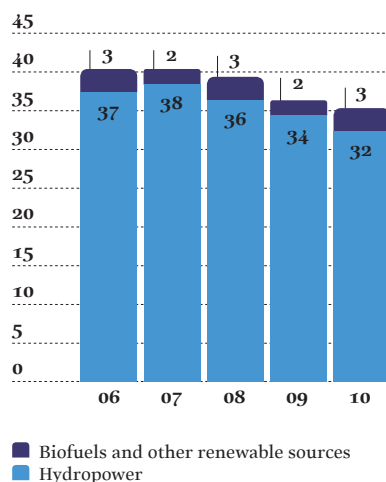
will be the world's biggest wave energy power plant.

Along with the emissions reduction measures implemented at production plants, Fortum has worked to reduce the carbon dioxide emissions, or carbon footprint, of its business travel and business properties since 2007.

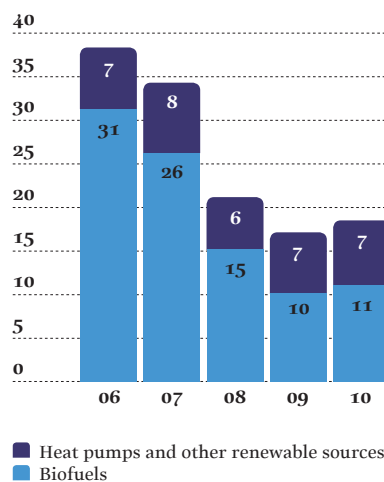
### Cutting emissions by improving energy efficiency

Energy efficiency is a key factor in energy production – from both an economic and environmental perspective. The aim in combustion-based production is to utilise the fuel as efficiently as possible. CHP production is energy efficient and achieves an overall efficiency of up to 90%. CHP accounted for about 30% of

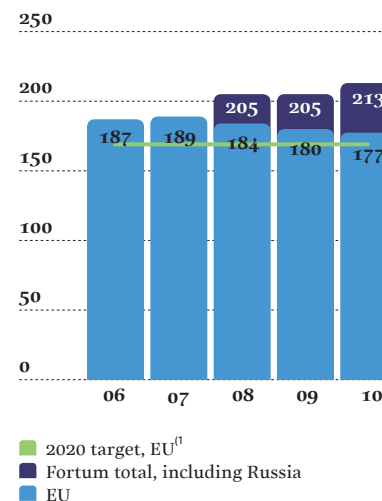
#### SHARE OF RENEWABLE SOURCES IN ELECTRICITY GENERATION 2006–2010, %



#### SHARE OF RENEWABLE SOURCES IN HEAT PRODUCTION 2006–2010, %

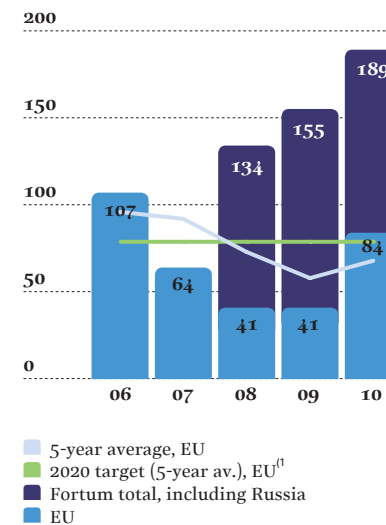


#### SPECIFIC EMISSIONS OF HEAT PRODUCTION 2006–2010, gCO<sub>2</sub>/kWh



1) Target was replaced with specific emissions of total production target as of 2011.

#### SPECIFIC EMISSIONS OF ELECTRICITY GENERATION 2006–2010, gCO<sub>2</sub>/kWh



1) Target adjusted at beginning of 2011 to cover next five years.



## New biomass-fuelled heating plant produces eco-friendly district heat

Fortum's power plant in Joensuu has produced electricity and heat for the region for 25 years. The new 30 MW biomass-fuelled heating plant, commissioned in the second half of 2009, was built adjacent to the power plant to produce district heating. It replaces the oil-based production of smaller heat plants in the area.

The heating plant significantly reduces the CO<sub>2</sub> and particle emissions and their environmental impacts. The reduction in CO<sub>2</sub> emissions is about 21,000 tonnes per year.

The heating plant uses forest chips and forest industry by-products acquired locally.

Acquiring the fuel also provides significant employment opportunities in area. The renewed fuel receiving system and storage area enable the use of diverse forest-based biofuel.

Fortum's total electricity production in 2010 and about 70% of heat production.

Fortum's primary energy consumption in 2010 was 166 TWh, of which indirect energy consumption was 7 TWh. Indirect energy includes the electricity, heat and steam acquired from elsewhere for own use or for production. More information about the energy use and calculation methods is available on Fortum's web site.

The implementation of the energy analyses, training and technology measures related to Fortum's 2008–2016 energy-efficiency programme continued in 2010. The goal of the programme is to improve energy efficiency in power plants in Sweden, Finland, and Great Britain by 600 GWh per year. The main focus is on improving power plant efficiency and on capacity upgrades of CO<sub>2</sub>-free production. About 30 projects will be implemented every year. Among the energy-efficiency improvement projects implemented in 2010 were hydropower refurbishment projects, the Ecotuning project at the Kauttua power plant, and a project to boost efficiency of the Inkoo and Meri-Pori power plants' own use of energy.

Fortum is participating in the European electricity sector's Energy Wisdom programme and reports about its projects that improve energy efficiency and reduce greenhouse gases to the programme. Read more: [www.eurelectric.org](http://www.eurelectric.org).

In 2010 Fortum and the Chelyabinsk Region Administration signed a Memorandum of Understanding on extensive cooperation in the area of energy efficiency. The largest operation in the programme is the automation and upgrade of the Chelyabinsk district

heating system, which will reduce energy losses in the area by over 30% as well as significantly decrease fuel consumption and emissions. Fortum also intends to implement several technological improvements to increase the efficiency of heat and electricity production at its plants in the Chelyabinsk area.

In December 2010 Fortum and the Federal State Organisation Russian Energy Agency also signed a Memorandum of Understanding in the field of energy efficiency and innovations. According to the agreement, the parties will aim to strengthen their cooperation in combined power and heat production, the development of environmental issues

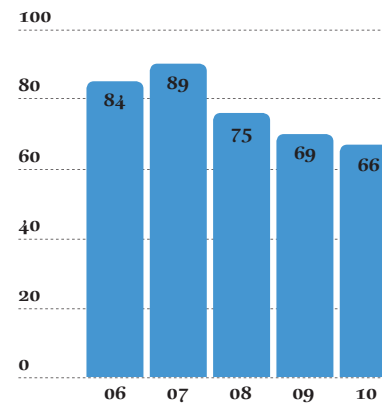
and the advancement of energy-efficient technologies.

In addition to improving the energy efficiency of energy production, Fortum aims to also improve the efficiency of electricity distribution by reducing distribution losses. Losses from grids in 2010 amounted to about 1.5 TWh. Close to 90% of the electricity acquired to compensate for the losses was CO<sub>2</sub>-free.

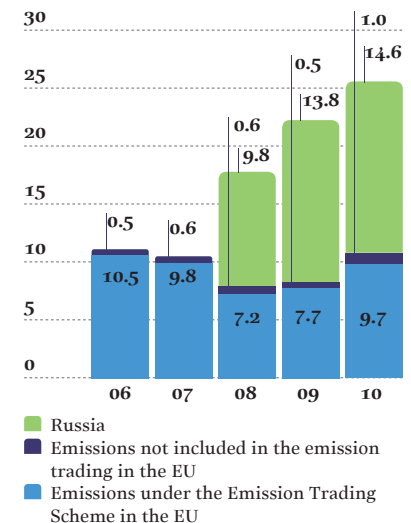
### Climate-benign products and services

Fortum is building a low-carbon society by offering products and services that can help mitigate climate change also in other sectors of society.

SHARE OF CO<sub>2</sub>-FREE ELECTRICITY PRODUCTION 2006–2010, %



CARBON DIOXIDE EMISSIONS 2006–2010, Mt CO<sub>2</sub>

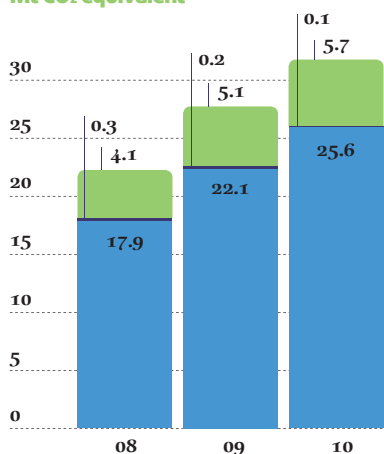




In 2010 all electricity sold to residential customers in Finland was CO<sub>2</sub>-free and was generated entirely by hydropower. For an additional fee, customers could also choose electricity produced entirely by wind power. The origin of electricity produced by hydropower and wind power is certified with the "Ekoenergia" eco-label by the Finnish Association for Nature Conservation or with a European guarantee of origin. In Sweden all Fortum's customers with a Fortum



#### DIRECT AND INDIRECT GREENHOUSE GAS EMISSIONS 2008–2010, Mt CO<sub>2</sub> equivalent



- Scope 3 (other indirect emissions)
- Scope 2 (indirect emissions from purchased electricity and heat)
- Scope 1 (direct emissions)

Enkel agreement automatically received Bra Miljöval eco-labelled electricity. Other residential customers received 100% CO<sub>2</sub>-free electricity. In Sweden, customers could choose electricity produced by hydropower or wind power for an additional fee. Also Fortum's electricity products for business customers are CO<sub>2</sub>-free.

#### Greenhouse gas emissions

Fortum reports greenhouse gases related to its operations in accordance with the principles of the Greenhouse Gas protocol recommended by the Global Reporting Initiative (GRI). The reporting covers direct and indirect CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions, categorised by scope 1, scope 2, and scope 3 emissions.

Of Fortum's greenhouse gas emissions, 82% are direct CO<sub>2</sub> emissions (scope 1), which are generated when burning fossil fuels to produce electricity and heat. Additionally, the direct emissions include the CO<sub>2</sub> emissions of company cars. The share of indirect emissions from electricity, heat and steam purchased from outside sources (scope 2) is 0.3% of all greenhouse gas emissions. Indirect emissions from the production and transportation of fuels, from employee air travel and from the use of our products (scope 3), account for 18% of greenhouse gas emissions.

The share of carbon dioxide of CO<sub>2</sub> equivalent emissions is 88% and the share of other greenhouse gases (CH<sub>4</sub> and N<sub>2</sub>O) is about 12 per cent.

➤ Read more about energy consumption at [www.fortum.com/sustainability](http://www.fortum.com/sustainability)



## Stockholm – European Green Capital 2010



The European Commission is every year granting the European Green Capital award to a city that is most successful in climate issues. The first city to be granted the award was Stockholm in 2010.

Fortum's work in the production of district heat, district cooling and electricity has had a significant impact on Stockholm's success – and the project is ongoing. Currently 80% of the buildings in the city use Fortum's district heat.

The CO<sub>2</sub> emissions of Stockholm area heat production have decreased by more than 60% since the 1980s, thanks to the switch from individual house heating to district heating. Also the production of combined heat and power has been increased. In the same time period, the production of electricity and heat has more than doubled. Today nearly 80% of the fuel used is renewable or recycled material.

Fortum is also helping to make transportation more eco-friendly. We are collaborating with the City of Stockholm in the Plug-in project, which is researching the use of electric vehicles, the recharging of batteries and the infrastructure required by electric vehicles.

# Roadmap to a CO<sub>2</sub>-free future

Fortum's long-term aspiration is to be a carbon dioxide-free power and heat company. In 2010 Fortum drafted a Roadmap to a CO<sub>2</sub>-free future. The Roadmap describes Fortum's vision of the future energy system as well as Fortum's actions and development work to achieve its aspiration.

Climate change mitigation is one of the energy sector's biggest challenges globally. The energy sector's share of global CO<sub>2</sub> emissions is 60–70%, and emissions will have to be reduced by 30–40% by 2030 in order to limit the rise in the earth's temperature to 2°C compared to the pre-industrial level. By the middle of the century, an emissions reduction of as much as 80–90% will be necessary.

The efficient use and production of energy, CO<sub>2</sub>-free energy production forms, and carbon capture and storage (CCS) are the energy sector's key solutions for mitigating climate change. Of these, according to the IEA, the biggest emissions reduction will be achieved by 2050 with energy efficiency.

## Commitment to mitigating climate change

Energy has a central role in building a low-carbon future, and the energy sector has taken a proactive approach in addressing climate change mitigation and has formulated visions, shared goals and road maps to a low-carbon future. In 2009 Fortum and 60 other European electricity companies signed a declaration in which the sector aims for a carbon-neutral power supply by the middle of the century. Fortum's long-term aspiration is to be a CO<sub>2</sub>-free power and heat company.

## Emissions development within the next decade

Fortum's CO<sub>2</sub> emissions were 25.3 million tonnes in 2010. Close to 60% of these originated from Russia, where energy production is based on fossil fuels, natural gas (95%) and coal (5%). Russia's legislative and political operating environment related to the climate issue differs significantly from that of Europe. Fortum aims to actively develop the operating environment related to better energy efficiency in Russia, thereby making it possible to reduce emissions.

However, new capacity based on the decided investment programmes in Russia will increase Fortum's annual emissions by about six million tonnes. Improvements in energy efficiency can reduce annual emissions by hundreds of thousands of tonnes. The commissioning of new capacity will increase Fortum's specific CO<sub>2</sub> emissions in Russia in the medium term. The current investment programme extends to 2014. Consequently, specific CO<sub>2</sub> emissions of Fortum's overall energy production are likely to grow during this period.

Fortum's ongoing investment programme in Europe focuses on nuclear and hydro power and on combined heat and power (CHP) production. The new production capacity in Europe is mainly CO<sub>2</sub>-free.

## Emissions targets and emissions trading advance emissions reductions

Fortum has had separate targets for carbon dioxide emissions from electricity and heat production since 2007, and the emissions are reported quarterly. Target-setting was renewed in 2010 so that it now covers all of Fortum's operating countries and 100% of direct emissions. The target has been defined as specific emissions from total energy production. A target was also set for energy efficiency. The company's goals for the next five years, as five-year averages, are:

- *Specific CO<sub>2</sub> emissions from power generation in the EU area: <80 g/kWh*
- *Specific CO<sub>2</sub> emissions from total energy production <200 g/kWh*
- *Energy efficiency: total efficiency of combustion: energy production divided by the primary energy of fuel input >70%*

In the EU area 90–95% of Fortum's emissions are included in the EU's emissions trading scheme (ETS). It is a cap-and-trade scheme with a lowering cap for emissions, so the ETS achieves emissions reductions and the price of EU emissions allowances encourages investments in low-carbon and emissions-free energy production. As a general rule, there are no free emissions allowances for electricity production in the

2013–2020 period. There are derogations only for plants in Poland and the Baltic countries. The amount of free emissions allowances for heat production will also significantly decrease. Fortum's free emissions allowances for the 2013–2020 period will be 30–40% of the corresponding amount for the 2008–2012 period.

## Long-term aspiration for a CO<sub>2</sub>-free energy system

Fortum believes that the future energy system will be based on CO<sub>2</sub>-free electricity production and energy efficiency. The energy system will gradually shift from today's traditional power plant technologies based on limited energy sources and fuel combustion to production forms based on inexhaustible and emissions-free solar energy.

In addition to direct solar electricity and heat, the solar economy also includes inexhaustible, renewable and emissions-free solar-based energy forms, such as hydro, wave and wind energy as well as geothermal heat and carbon neutral bioenergy. Solar energy technology is advancing quickly, and the use of solar energy for small-scale solutions is already cost-efficient in many countries that have plenty of sunshine. In the solar economy, electricity is produced in places where the conditions are the most favourable in terms of the primary energy source,

and it is stored and transferred even long distances. The development of smart grids is a prerequisite.

However, changes are slow in the capital-intensive energy industry, and the transition towards the solar economy will happen in phases. Significant interim solutions along the development path towards the pure solar economy include traditional emissions-free production forms, like nuclear energy and high-efficiency technologies, like gas- and multifuel-based CHP. In addition enhanced energy efficiency plays a key role. Traditional power plant technologies are likely to be needed still for a long time, and they can lead to significant improvements in energy efficiency and emissions reductions. Carbon capture and storage (CCS) is also a necessary interim solution.

Fortum's strategy is consistent with its vision of the future energy system, and Fortum's business development is based on CO<sub>2</sub>-free nuclear and hydro power and on energy-efficient CHP production. The ongoing investment programme in Europe focuses on these technologies, and significant growth is expected in these strategic areas. Fortum is increasing the use of local fuels, like waste-derived fuels and forest biomass, in CHP production.

Research and development activities are focusing on advanced CHP and nuclear power technologies and on the most promis-

ing solar-economy energy solutions (e.g. solar and wave power). Fortum is developing new biofuels (e.g. pyrolysis oil) for use at CHP and heating plants.

Implementing the company's strategy will gradually lead to the long-term aspiration of being a CO<sub>2</sub>-free company. However, progress will take time because investment cycles are long. The fundamentals of the energy system will not change significantly during the next 10–20 years, even though new innovations will most likely be adopted. Along with technology development, changes in energy markets and energy policy are central. Social and political acceptance, which ensures a stable, consistent and market-driven investment environment, is an absolute requirement for the new investments needed to achieve climate targets.

### **Enabler of a low-carbon society**

In addition to changes in energy production, mitigating climate change requires significant emissions reductions in other industry sectors. Fortum wants to build a low-carbon society in collaboration with other sectors of society. Fortum believes that electricity will have a significant role in tomorrow's society and that it will replace the use of traditional fuels.

Fortum is developing solutions to reduce the climate impacts of energy use in housing, transportation and electricity

distribution. Tomorrow's eco-cities will be based on smart grid solutions, eco-efficient construction, electric transportation and sustainable heating solutions. Already today smart meters are helping consumers monitor electricity consumption and conserve electricity.

New types of energy-efficiency services, smart grids, distributed energy systems and large-scale infrastructure for recharging electric vehicles are the cornerstones of the sustainable energy system Fortum is building. Fortum is taking an active role in realising sustainable cities and in developing the necessary technologies. Fortum offers its customers eco-efficient heating and cooling solutions and climate-benign electricity and heat products.

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*The next spread "Towards an emissions-free future" describes Fortum's vision of the future energy system and Fortum's actions and development work to achieve its aspiration.*

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## TRADITIONAL ENERGY PRODUCTION: EXHAUSTIBLE FUELS AND PRODUCTION THAT BURDENS THE ENVIRONMENT

The traditional energy system is based primarily on limited energy sources and the combustion of fuels and applies traditional power plant technologies. Production is adjusted with load-following and peak-load power plants based on electricity demand. Fuels are often transported long distances from the site of sourcing to the energy production plants. The produced energy is transmitted relatively short distances from the production plant to the point of usage. The energy production efficiency – energy produced divided by the primary energy of fuel input – of condensing power plants is only about 40%, but the efficiency of combined heat and power production (CHP) can be as high as 90%. The carbon dioxide emissions caused by production depend on the carbon content of each fuel source.

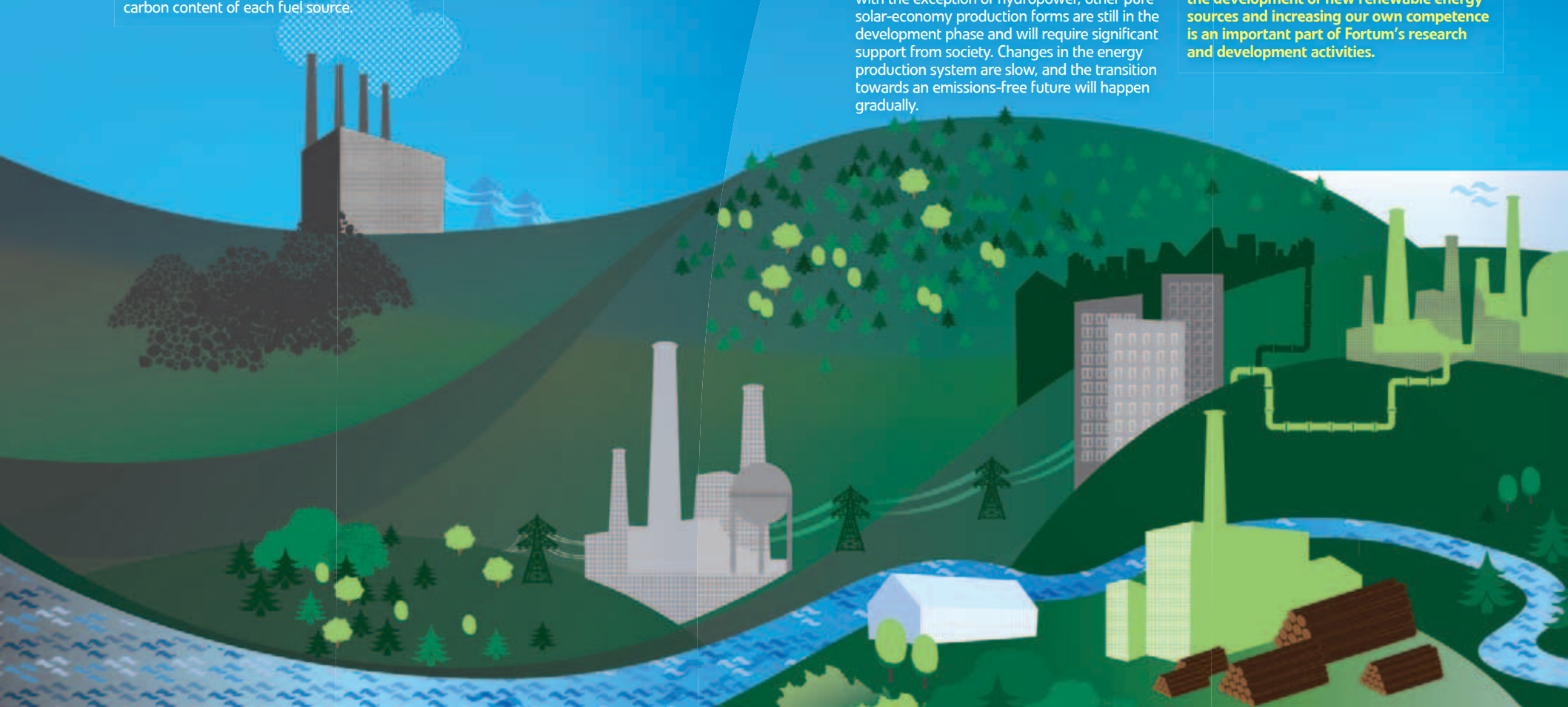
**Fortum uses a diverse range of energy sources in its production. In 2010 the shares of different energy sources were: natural gas 40%, hydropower 18%, nuclear power 18%, coal 10%, biofuels 6%, oil 2%, waste fuels 1%, peat 1%, and heat pumps, wind power and other sources totalling 4%. In 2010 electricity produced at CHP plants accounted for some 30% of the total electricity production and CHP heat accounted for some 70% of total heat production. Fortum's total efficiency of combustion was 68% in 2010.**

# Towards an

## TRANSITION PHASE: ENERGY-EFFICIENT, LOW-EMISSION PRODUCTION FORMS

The technology used today already boosts the efficient use of resources and reduces emissions. In this transition phase, the emphasis is on the traditional emissions-free production forms, like hydro and nuclear energy, and the high-efficiency technologies, like gas and multi-fuel CHP, which increase efficiency and decrease emissions. Carbon capture and storage (CCS) is also a central technology in the transition phase. Energy efficiency – both in production and in energy use – is emphasised. The role of new, renewable energy forms in production will still be minor in the near future: with the exception of hydropower, other pure solar-economy production forms are still in the development phase and will require significant support from society. Changes in the energy production system are slow, and the transition towards an emissions-free future will happen gradually.

**Fortum's strategy is based on strong know-how in nuclear and hydro power and in CHP production. More than 80% of Fortum's electricity production in Europe is already based on nuclear and hydro power. Fortum is among the world's leading experts in CHP production and the fourth biggest heat producer. The company uses a wide range of fuels, such as waste, will become more significant in the years ahead. Fortum is developing multi-fuel CHP solutions that enable the use of a variety of fuels. Tracking the development of new renewable energy sources and increasing our own competence is an important part of Fortum's research and development activities.**



# emissions-free future

## SOLAR ECONOMY: INEXHAUSTIBLE AND EMISSIONS-FREE, SOLAR-BASED PRODUCTION FORMS

The future energy system – the solar economy – is based on a completely emissions-free and inexhaustible energy source. In the solar economy, energy from the sun is utilised either directly as solar electricity or heat, or indirectly as hydro, wave, wind and bioenergy, and geothermal heat. The future energy system has an important role in securing the availability of natural resources for future generations. According to the IEA, the significance of electricity in tomorrow's society will grow, and it will replace the use of traditional fuels. In the solar economy, the electricity load adapts to production. Realisation of the future energy system requires the development of smart grids.

Fortum's mission is to create energy that improves life for present and future generations. Fortum is researching technologies that might be future breakthroughs in energy production and is participating in several projects to develop solar-economy technology. Fortum believes that tomorrow's eco-cities will be based on smart grid solutions, eco-efficient construction, electric transportation and sustainable heating solutions, and is participating in the development of them.





# Emissions to air and water

## Emissions to air

Energy production's most significant environmental impact is created in the combustion of fuels in power and heating plants. Greenhouse gases, such as carbon dioxide and methane, generated in the combustion process contribute to climate change. Particles and heavy metals are harmful to nature and also pose a health risk. Sulphur dioxide and nitrogen oxides have an impact on acidification.

In 2010 Fortum's energy production emitted 36,700 tonnes of nitrogen oxides (NO<sub>x</sub>), 20,700 tonnes of sulphur dioxide (SO<sub>2</sub>) and 16,800 tonnes of particle emissions.

Sulphur dioxide, nitrogen oxides and particle emissions from Fortum's European production plants have decreased significantly in recent decades as a result of advancements in flue-gas cleaning

technology and combustion process control. About 55% of the flue-gas emissions (SO<sub>2</sub> and NO<sub>x</sub>) and about 90% of the particle emissions originated from the Russian operations. The most significant source of particle emissions, 9,400 tonnes in 2010, is the Argayash plant in Russia. The EHS action plan has estimated the potential for reducing particle emissions at the plant to be as high as 80%. The fastest improvement measure is to switch to a better grade of coal, the use of which started in 2010. The change received Fortum's Innovation Award in January 2011.

## Waste waters and emissions to water systems

Energy production impacts on water systems are mainly caused by thermal load, the release of solids, and nitrogen,

phosphorus and heavy-metal emissions. In 2010 Fortum used a total of 2,746 million cubic meters (m<sup>3</sup>) of water, of which the majority, 2,436 million m<sup>3</sup>, was used as cooling water. The thermal load on the water systems was 82 petajoules (PJ), of which the Loviisa nuclear power plant accounted for 54 PJ. The thermal load on water systems is reduced by utilising thermal energy whenever possible. This also reduces the need for cooling water.

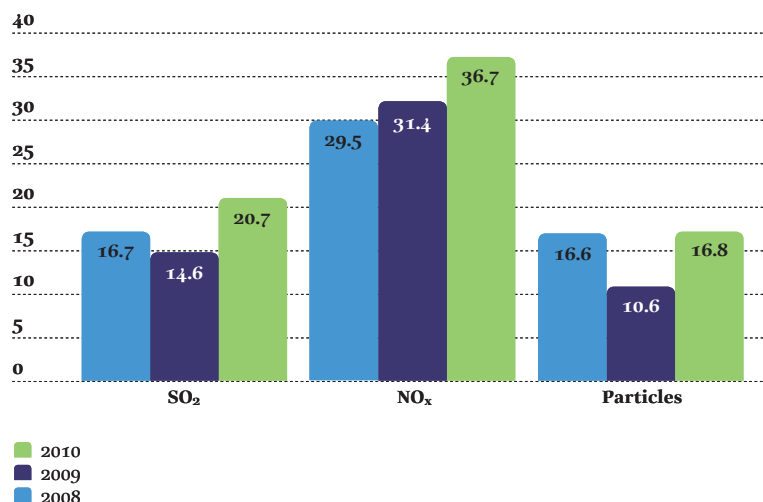
In Russia the wet method is used to pump ash from coal-fired power plants into ash basins. Waste waters from the basins are directed into water systems. The water consumption is quite large and the impurity concentration permit levels set for the Chelyabinsk CHP-1 plant were exceeded 12 times during the year. To correct the situation, a closed water circulation system was installed in 2010

to recirculate the water (which is used to transport the ash) back to the power plant. The impacts of the change on waste water emissions will be monitored in 2011, and a decision on any additional improvements needed will be made based on the outcome.

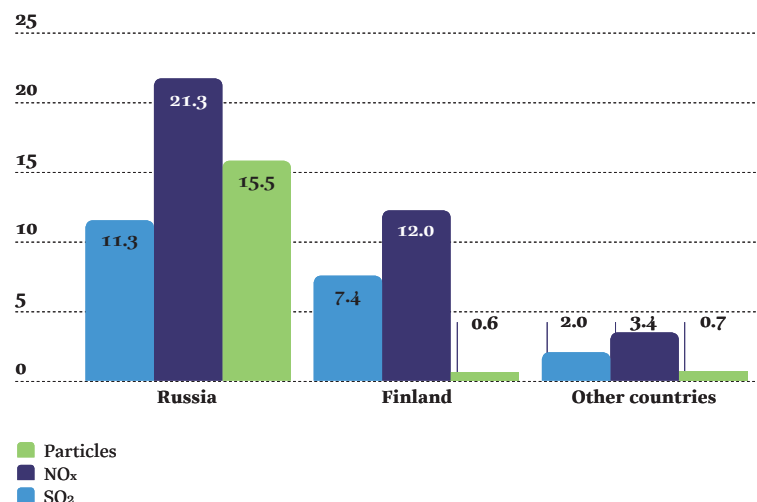
Emissions to water totalled about 449 tonnes: 440 tonnes of solids, 2.1 tonnes of oil, 5.8 tonnes of nitrogen, and 1.2 tonnes of phosphorus. Of the solids emissions, 70% were at the Meri-Pori plant; the reason for the exceptionally large emissions was an accumulation of solid material in the delay basin.

➤ Read more about the power plants' emissions at [www.fortum.com/sustainability](http://www.fortum.com/sustainability)

SO<sub>2</sub>, NO<sub>x</sub> AND PARTICLE EMISSIONS 2008–2010, 1,000 tonnes



SO<sub>2</sub>, NO<sub>x</sub> AND PARTICLE EMISSIONS BY COUNTRY 2010, 1,000 tonnes





# Impacts on nature

## Environmental impacts of hydropower

Renewable and emissions-free hydropower has an important role in reducing the total environmental impacts of Fortum's electricity production. Hydropower is also necessary as regulating power for the electricity production system. On the other hand, hydropower affects the aquatic environment and other use of water systems. The construction of hydropower and its production transform the natural conditions of water systems through the fluctuations in flow and water levels.

Permit conditions for power plants and lake regulation define the limits for water level and flow variations. The permits also define obligations to prevent and compensate for other environmental impacts. In addition, in Sweden and Finland Fortum has voluntarily worked with authorities and local interest groups to agree on and implement additional restrictions and other projects to improve the environment and the use of the water systems (read more on p. 46).

An example of the voluntary measures in Finland are the target values for water levels set for the regulated lakes of the Oulujoki river system, values that are more stringent than required in the permit, and the Oulujoki multiple use agreement. Oulujoki is being restored based on the needs of other users of the river system, like fishermen and residents along the shores. In 2010 the Iso Kauvansaari flow water habitat in Vaalankurkku was restored, and planning of the fish passes along the Oulujoki river continued. The fish pass project continued the stocking tests of juvenile salmon, studied the downstream migration of the juvenile salmon and started a

three-year fish restoration project in the Utosjoki river. The restoration plan for the Nimisjärvi dam was completed at the turn of the year.

In Sweden Fortum has set voluntary target values for water levels, the so-called soft limits, in several water systems. These water systems have been selected on the basis of social and environmental values, such as fishing and recreational use (read more on p. 46).

## Impacts on biodiversity

Fortum's impacts on biodiversity are often local and related to the use of land and water areas, for example to hydropower production and electricity distribution. Indirect impacts arise e.g. from the acquisition of biomass, peat and other fuels.

Fortum's biodiversity guidelines set the principles for taking biodiversity into consideration. In addition to legislative requirements, Fortum protects biodiversity through a variety of voluntary measures.

Fortum's Environmental Fund supports projects that reduce the adverse environmental impacts from hydropower production and support biodiversity in built-up water systems.



## 100 years of fish farming

Hydropower is a renewable and efficient energy source. However, hydropower production impacts water flow and the ecosystems of flora and fauna dependent on the aquatic environment. By supporting biodiversity and by improving the habitats for fish in particular, the environmental impacts of hydropower can be reduced.

Fortum's fish farm near the Ljusnan hydropower plant raises salmon and trout. Sigvard Uppman (pictured) is the one in charge of the farm's operations.

### Why do we have a fish farm in Ljusne Strömmar?

Hydropower on the Ljusnan river has changed the conditions in fish habitats. The naturally flowing water has become a

reservoir and fish can no longer spawn and reproduce as they used to. Our new facility is in a good location and we don't have to transport the fish. They get from here to the sea on their own.

### What are the year's most important events in fish farming?

The male and female fish needed for breeding are captured in July–August. The fish can remain in the pools until they are ready to spawn. In October we strip the eggs from the female fish and fertilise them with the milt from the male fish. About 500,000–700,000 baby fish are hatched annually. In April–May we release about 200,000 young salmon and trout, or about 25 tonnes of fish, into the water system.

## EMISSIONS TO WATER 2008–2010

	Solids (t)	Oil (t)	Nitrogen (t)	Phosphor (t)	Heavy metals (kg)	Chemical oxygen demand (t)	Biological oxygen demand (t)	Thermal load (PJ)
2010	440	2.1	5.8	1.2	340	368	4.7	82
2009	205	10.5	7.5	0.9	Not available	120	4.9	73
2008	227	3.8	5.5	0.4	Not available	108	4.7	67



## Environmental fund promotes biodiversity

Fortum's Environmental Fund supports projects that reduce the adverse environmental impacts of hydropower production and support biodiversity in built-up water systems.

A unique, natural diversion channel was built in Eldbäcken, Sweden, to bypass a power plant. A diverse habitat for fish and fresh-water pearl mussels will be created in the channel. The project will be implemented together with Swedish universities during 2009–2013.

In 2010–2012 meadows and flood plain forests are being restored along the lower portion of the Dala river in Sweden.

The habitat for the trout population in Sweden's Bulsjö river was improved by running more water in the river. The project was implemented in 2004–2010 in collaboration with local fishermen, authorities and Tranås Energi.

In Finland a project is under way to study migratory fish routes, smolt migration to the sea and success in fish restocking. The project is headed by the Finnish Game and Fisheries Research Institute in 2010–2013.

Enhancing the habitat for the salmon population and the endangered fresh-water pearl mussel in the Mustionjoki river in Finland was studied in 2009–2010.

Funds for Fortum's Environmental Fund come from the sales of "Ekoenergia" eco-labelled electricity in Finland and Bra Miljöval-labelled electricity in Sweden. At the end of 2010 the fund had a total of EUR 1.6 million. The Fund's targets of research are chosen in collaboration with national nature conservation organisations.

## Wastes and by-products

### Wastes, by-products and recycling

The waste generated by energy production mainly consists of various kinds of ash, bottom slag and gypsum created as a by-product of the desulphurisation process. About 803,000 tonnes of ash and 37,600 tonnes of gypsum were generated in 2010. About 36% of the ash was generated at Finnish plants, 32% in Russia and 26% in Sweden. In Europe waste and by-products are utilised and recycled as efficiently as possible. In Russia ash is stored in basins because, beyond building embankments for ash basins, it doesn't have other usages, and the wet ash-handling makes utilisation more difficult. In 2010 the ash recycling rate at Fortum was 59% and gypsum 92%.

All of the gypsum goes to the gypsum board industry. Fly ash was used in the construction material industry, as made-up ground and in backfilling mines. New solutions for the use of ash were developed in collaboration with different parties. In 2010 a product development project was launched in which fly ash from the Meri-Pori power plant is further refined into ultrafine fly ash (UFFA), which can replace cement. This also reduces CO<sub>2</sub> emissions. In 2010 ash from biomass-fuelled plants started to be used as forestry fertiliser in Finland. In Poland two agreements were made with the construction industry for utilisation of the ash from the Czystochowa power plant commissioned in 2010.

Meri-Pori's fly ash received the E-label in 2010, meaning it can be used as filler in asphalt. The REACH<sup>(1)</sup> registration process for coal ash and mixed material ash and for gypsum was carried out in Finland at the end of November 2010.

Remaining waste that can't be utilised is deposited in landfills or intermediate storage. In 2010 about 328,000 tonnes of ash and 3,000 tonnes of gypsum were piled. The new Waste Tax Act that came into force in Finland in 2010 raises costs, thus increasing the pressure for utilisation. In Fortum's view, the utilisation of by-products should be promoted in every way e.g. as made-up ground or in road construction.

Waste created in conjunction with the construction and retirement of power plants and distribution networks is handled in accordance with each country's legislation. Waste volumes vary by year based on e.g. activities like power plant construction. About 1,250 tonnes of waste was generated in grid maintenance and construction; 63% of the waste was recycled and 37% ended up in landfills.

In 2010 Fortum's operations generated a total of 25,600 tonnes of waste (excluding gypsum and ash deposited in landfills), 11,700 tonnes of which was hazardous waste.

### Final disposal of nuclear waste

In 2010 Fortum used 25 tonnes of uranium as fuel at the Loviisa nuclear power plant; this created a corresponding amount of high-level radioactive nuclear waste. In addition, about 250 cubic meters of low- and intermediate-level radioactive waste was created in production.

According to Finnish legislation, the final disposal of nuclear waste created in Finland must remain in Finland and the power plant company is responsible for the nuclear waste management. The Loviisa nuclear power plant and Fortum's

co-owned nuclear power plants have the world's top class solutions for the final disposal of nuclear waste in Finland and Sweden. Low- and intermediate-level nuclear waste is disposed of in the repository built at Håstholmen in Loviisa. The expansion of the final disposal repository was launched in 2010. Additionally, a project was started to complement the handling systems for liquid waste. The aim is to complete the project by 2014.

The final disposal of spent nuclear fuel from Fortum's and TVO's nuclear power plants is handled by Posiva Oy, established and owned by the companies. According to plans, highly radioactive spent fuel will be placed in Posiva Oy's final disposal repository at Olkiluoto in Eurajoki. The 'Onkalo' research cave is currently under construction. In 2010 the excavation work progressed to the final disposal depth of 420 meters. The

repository and the related encapsulation plant are expected to be ready for use in 2020.

In accordance with the updated Nuclear Energy Act, Fortum submitted a proposal to the Ministry of Employment and the Economy at the end of June on the nuclear power liabilities of the Loviisa nuclear power plant. The amount of liability is based on a technical plan drafted every three years. As a result of the technical plan updated in 2010, the amount of legal liability increased, because the upcoming costs related to the intermediate storage and final disposal of spent nuclear fuel are expected to rise. The legal liability at the end of 2010 was EUR 944 million.

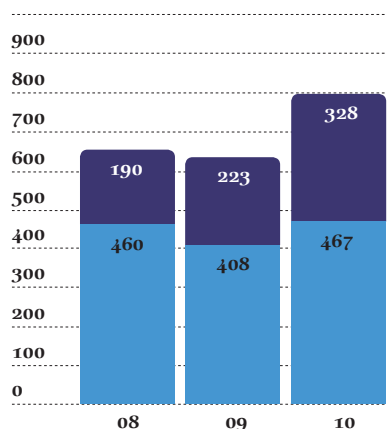
In Sweden Fortum participates in a final disposal project for nuclear waste through its holdings in Forsmarks Kraftgrupp AB (FKA) and OKG AB. The Swedish legislation for nuclear waste management liability is similar to Finnish legislation. Swedish Nuclear Fuel and Waste Management Company (SKB) was established in Sweden to implement the final disposal of the spent nuclear

fuel from the nuclear power plants currently operating in Sweden. In 2010 SKB prepared to submit a permit application to authorities for the construction of a final disposal repository. SKB has been engaged in researching a technically reliable and economically feasible final disposal concept for more than 30 years.

In Sweden provisions for nuclear waste management costs are made by paying fees into a fund based on the amount of electricity production. Fortum has given the Swedish Nuclear Waste Fund guarantees on behalf of FKA and OKG to cover its share of ownership. By decision of the Swedish Government, the total amount of guarantees decreased in June 2010 to EUR 287 million.

The nuclear power-related provisions, legal liability and Fortum's share of the Finnish Nuclear Waste Fund are presented in the table below. Nuclear waste management liabilities are reviewed in more detail on pages 118–119 and 125 of Fortum's Annual Report 2010.

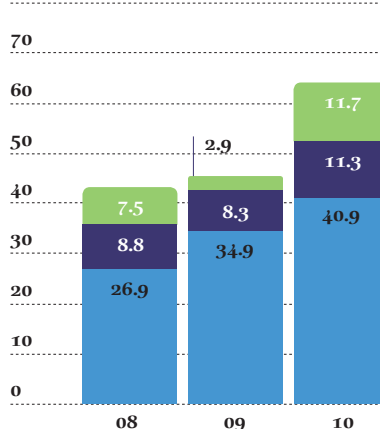
#### ASH HANDLING 2008–2010, 1,000 tonnes



■ To landfill  
■ Recycled

Reported based on the amounts leaving the plant.

#### WASTE HANDLING 2008–2010, 1,000 tonnes



■ Hazardous waste  
■ To landfill  
■ Recycled

Includes gypsum by-product.  
Reported based on the amounts leaving the plant.

#### NUCLEAR POWER-RELATED ASSETS AND LIABILITIES 2009–2010

EUR million	2010	2009
<b>Balance sheet items</b>		
Nuclear power-related provisions	625	570
Share of State nuclear waste management fund	625	570
<b>Legal liability and share of State nuclear waste fund</b>		
Nuclear waste management liability in accordance with Finland's Nuclear Energy Act	944	913
Fund target	886	830
Fortum's share of State nuclear waste management fund	843	786

1) REACH: EU's Registration, Evaluation, Authorisation and Restriction of Chemicals



## Switching to traps to protect Saimaa ringed seal

The Saimaa ringed seal is one of the world's most endangered seals. Fortum and the Finnish Association for Nature Conservation are long-time partners in working to protect the Saimaa ringed seals.

Every year 20–30 Saimaa ringed seals die in fishing nets. Replacing fishing nets with fish traps is the fastest and most efficient way to protect the seals. Fortum organises fish trap swap events for different fishing co-operative members in the Saimaa basin. In return for a fisherman's voluntary commitment, we give them a high-quality fish trap. Close to 400 fishermen have traded in their fishing nets for a fish trap during the swap events organised by us in 2008–2010. The swap events will continue in 2011.

The University of Eastern Finland is researching the issues that are important for the protection of Saimaa ringed seal. Fortum has supported this research programme since 2007. So far, five GPS devices have been donated to the Saimaa ringed seal research team; the devices provide information on the movement of the seals.



## Environmental risks

### Environmental risk assessment

Environmental risks and impacts are analysed regularly and measures are defined for them in conjunction with annual planning. Risk assessments are also made on a project-specific basis. Units with ISO 14001 certification manage their environmental risks and their preparedness to operate in exceptional and emergency situations in compliance with the requirements of the standard. The sustainability assessment procedure is applied to all significant corporate acquisitions and to company investments.

Fortum has evaluated the liabilities relating to past operations and has made the necessary provisions. In 2010 the provisions for any future remedial costs concerning environmental damage amounted to a total of EUR 12 million.

### Environmental, health and safety (EHS) expenditures

Fortum's EHS expenditures are costs caused by measures that directly or indirectly reduce the environmental impacts of Fortum's operations or improve operational safety, regardless of whether the measures are mandatory based on legislation or permit conditions or whether they are voluntary.

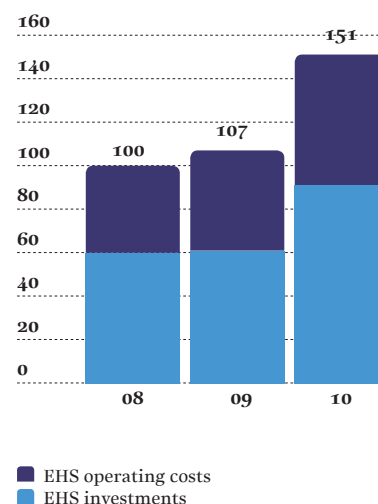
EHS investments refer to investments that reduce the environmental impacts of Fortum's operations or improve operational safety.

In 2010 Fortum's investments in environment and safety were a total of EUR 91 million (2009: EUR 61 million). The investments were mainly related to new CHP investments. Operating costs related to environment, health and

safety were EUR 60 million (2009: EUR 46 million). Included in the costs are e.g. the use and maintenance of environmental protection equipment and systems, emissions and environmental monitoring, decontamination of polluted soil, maintaining and developing biodiversity, development of management systems for EHS issues, research and development

work related to improving the management of environmental impacts, and the necessary environmental impact assessment reports and permit applications. The figures are illustrative because the calculation principles for EHS expenses and investments are not completely uniform throughout Fortum.

EHS EXPENSES 2008–2010,  
EUR million



## Fortum is a strong nuclear power expert

"Fortum has been producing electricity with nuclear power at Loviisa for over 30 years. The plant has operated reliably and safely, and its operations haven't caused any harm or danger to the local residents or surroundings. The Loviisa power plant not only has a good safety level, it also has a high level of availability on an international scale; in 2010 the availability was 91.1%. Radioactive releases have been just a fraction of the limits set by authorities. The only noticeable environmental impact is the effect of warm cooling waters on the local waterways. The impacts on the waterways are local and they don't have an impact on the condition of the Gulf of Finland," says Power Plant Manager Satu Kataja (pictured).

The annual outages are executed safely and with high quality to ensure safe and trouble-free operations. In 2010 the annual outage of Unit 1 at the plant lasted 25 days and Unit 2 was down for 40 days; it was the shortest outage time for Unit 2 for the 8-year maintenance. About 8,700 maintenance and modification tasks were performed during the maintenance to improve the plant's availability, efficiency and reliability. The modernisation work on Unit 2 achieved an electricity capacity upgrade of about 2 MW and now more electricity is produced with the same energy. The increase corresponds to the annual energy consumption of about 900 single-family homes heated with direct electricity. The capacity upgrade avoids about 13,000 tonnes of carbon dioxide emissions annually if the same amount of electricity were produced with coal.

"Fortum is the biggest private employer in the Loviisa region. The nuclear power plant has 500 employees and more than 100 permanent

contractors. We work in close collaboration with the local community. It is important for Fortum to engage in genuine interaction with the local people and players," says Satu. "The energy attitudes surveys that are conducted annually indicate that Loviisa residents trust Finnish nuclear power know-how and widely approve the use of the current plants and the construction of new nuclear power capacity in Loviisa", Satu summarises.

### How is the plant kept safe?

The Loviisa nuclear power plant has been designed so that it won't endanger people or the environment in normal operating circumstances or in design-basis accident situations. This must be the outcome, even if the personnel were to make a mistake or mechanical failures were to occur. Nuclear safety is based primarily on passive, successive barriers to prevent nuclear fuel from spreading. The nuclear fuel in the reactor is contained within gas-tight fuel rods. The second barrier is formed by the reactor's primary circuit, and the third by the gas-tight containment building. In addition to this, the power plants are equipped with multiple active safety systems, such as emergency cooling systems, and multiple redundant systems to secure the supply of electricity. Also authorities make regular inspections to make sure that the design principles are realised and that the technical condition and use of the systems are appropriate.

In addition to functioning safety systems, special attention is also given to the competence and safety knowledge of the personnel. In 2010 Loviisa power plant employees spent a total of almost 4,000 days in training, equalling 7.5 training days per person. At Fortum, the safety and quality policy for

nuclear power operations steers the development of nuclear safety.

Safety is a priority in decision-making and in the planning and execution of work. In addition to comprehensive guidelines and internal quality control, in 2010 Fortum established an independent unit to supervise the development of nuclear safety and quality control in Fortum's nuclear power operations.

"Fortum uses several indicators to develop safety. One such indicator is the total radiation dose of personnel. Compared to the four-year sliding dose average, the collective dose has decreased by two per cent. Also the other indicators related to personnel, environment and nuclear safety are important", notes Satu.

### How to know the risks?

Comprehensive safety management includes the systematic, long-term work to improve radiation, plant and occupational safety. The work to enhance safety is continuous: we make different levels of risk analyses, examining issues at deeper and deeper levels, and studying probability and potential outcomes. We assess whether the risk levels are acceptable or if measures are required.

Among other things, probabilistic risk analysis (PRA) is used to evaluate the safety of Fortum's Loviisa power plant. The analysis is used as the basis for making plant modifications that reduce the risk of an accident.

Most of the work done at the nuclear power plant is similar to that of other industries and involves the same occupational safety factors. The injury frequency rate at the Loviisa power plant (own personnel and contractors) is low.



In 2010 three absence-related injuries occurred to our own personnel at the plant.

### What if something happens?

The probability of a serious nuclear accident is very small and not expected to happen at the plant. Nevertheless, a detailed rescue plan has been designed for such incidents, and preparations for external threats have also been made at the plant.

In the event of a nuclear accident, there would be time to seek protection, and the accident would be communicated through the alarm systems, radio and other media. Drills are held regularly to prepare for accident situations. In 2010 an extensive, collaborative drill on actions and management in an accident situation was held with various authorities at Loviisa.





As a result of globalisation, the world's economies are becoming increasingly dependent on one another. The internationalisation of operations and the international use of labour resources are imperative for the more equitable distribution of well-being. Socially sustainable globalisation requires long-term development of labour resources and assurance of a safe work environment.

**FORTUM'S GOAL**

**<1 INJURY RESULTING  
IN AN ABSENCE <sup>1)</sup>**



**MEGATREND:  
GLOBALISATION**

<sup>1)</sup> per million hours worked





# Responsibility for personnel and society

Fortum's goal is to be a preferred employer that engages competent employees at all levels. Taking care of employees is a priority for Fortum. Fortum believes that good leadership is fundamental to employee well-being, commitment and performance and to ensuring the achievement of the company's strategic goals.



## Human resources management

Fortum's human resources management and daily work are guided by the company's human resources policy, which is based on the company's shared values and Code of Conduct and applied throughout the Group. The implementation of the policy is monitored through employee surveys, annual performance and development reviews, and through the use of other feedback channels. The different sub-areas of the HR policy have been further defined with Group-wide and unit- and country-specific guide-

lines. The Head of Fortum's HR function is a member of the Group's Management Team.

## Human resources management goals

The focus areas of Fortum's HR management for 2010–2012 were defined in 2010. The goal is to develop and harmonise HR processes in all countries of operation, develop competence and resource planning, improve employer image, and talent and successor planning.

### Employment and personnel

In 2010 an average of 11,156 employees (2009: 13,278) worked at Fortum. The biggest number of employees was in Russia, on average 4,551 employees. Fortum's personnel statistics by operating country are presented on the following page. Sub-contractor employees worked at Fortum sites for a total of 1,080,000 days during the year. The figure is based on the job-costs estimates and the average hourly rates. The figure has been calculated on the basis of an 8-hour work day.

The number of permanent employees

on 31 December 2010 was 10,307 (2009: 11,332), i.e. 97.4% (2009: 97.6%) of total personnel. The percentage of fixed-term employees was 2.6% (2009: 2.4%). During the year 1,052 new employees joined Fortum. The number of terminated employment relationships was 1,954. Divestments reduced the number of personnel by a total of 344 (2009: 1,204). There were 62 employees on international assignment.

In situations of organisational restructuring, Fortum negotiates with personnel representatives in compliance

with each country's local legislation and contractual procedures. In situations involving personnel reductions, Fortum aims primarily to support the re-employment of personnel. This is done e.g. by working with local authorities and by offering other services supporting re-employment (e.g. relocating and out-placement support).

The average age of Fortum's permanent employees in 2010 was 44 years (2009: 46); the share of employees over 50 years was 36% (2009: 38%).

### Key behaviours support performance and growth management

In 2010 Fortum launched the Leading Performance and Growth initiative, which aims to support the implementation of the strategy and to develop the corporate culture. The initiative focuses on four key behaviours: to challenge each other, to co-create, to coach and to celebrate together. These key behaviours help to create an open work environment where all employees understand the importance of their own job and the responsibility they have for their own and the work community's performance.

During the first phase all Fortum employees are participating in events in which the key behaviours are discussed; the aim of the discussions is to ensure an understanding of the updated strategy and how the goals are related to one's own work. In 2010 there were 32 events held for supervisors; the events will continue at the team level in 2011. Fortum employees also had the opportunity to discuss the key behaviours and strategy with senior management at the Fortum Dialogue events. Additionally, an

employee forum about key behaviours and strategy was opened on the intranet.

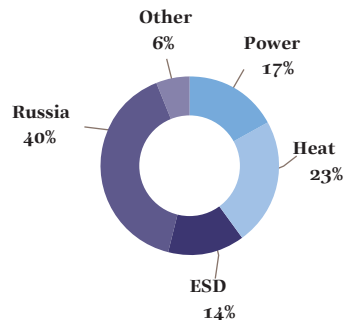
The implementation of the strategy and the new key behaviours will be monitored with the Sensor survey; the survey aims to measure progress in the achievement of the goals of the Leading Performance and Growth programme and the adoption of the key behaviours at the team level. The results of the semi-annual survey support the teams in developing their operations. Sensor was first conducted in January 2011.

The Fortum-wide employee survey, Fortum Sound, focuses on measuring employee engagement. It was last conducted in 2009. Fortum's engagement index was 60%, compared to the global reference norm of 66%. Based on the results, five areas of development were selected: management trust, confidence in the future, social responsibility, collaboration across unit boundaries, and a sense of being appreciated. The survey response rate was 81%. In 2010 employee satisfaction in the ESD and Power divisions was studied through small-scale Pulse surveys, the results of which were reviewed by the respective management teams of the divisions. The next Group-wide Fortum Sound survey will be conducted in 2012.

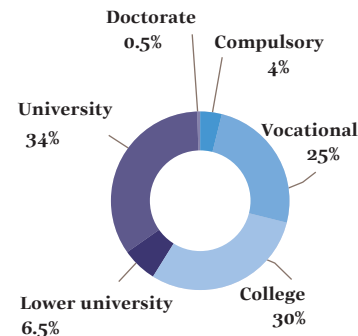
### Competent personnel a prerequisite for success

Fortum's success is based on the continuous development of operations and personnel. Personnel development is supported through annual performance and development reviews, personnel training, and internal job rotation. In line with its HR policy, Fortum aims to create attractive career and

#### EMPLOYEES, 31 DEC 2010, 10,585 employees



#### LEVEL OF EDUCATION, 31 DEC 2010, permanent employees



development opportunities for individuals to continuously grow their professional skills and know-how.

Employees go through annual performance and development reviews that aim to commit and motivate the personnel, engage them in the strategy, business goals and operating plans, and improve operational planning, workplace atmosphere and flow of information. In Russia the process covers all individuals at the management level and some at the expert level.

Personal or team goals are set in the performance and development reviews;

the achievement of these goals affects the amount of the employee's incentive bonus. Permanent employees at Fortum are included in the incentive programme, except for some Polish and Russian employee groups and those who are included in some other similar type of incentive system (e.g. power plant productivity programmes).

The leadership skills of supervisors are being developed with the supervisory induction programme adopted in 2010. Completion of the programme is mandatory for all individuals transitioning to a supervisory position from either

inside or outside the company. The programme is in use in the Nordic countries and will be implemented in other countries in 2011. All new employees will participate in the standard induction programme, Fortum Passport. The programme includes a feedback survey conducted four months after the start of employment. It is used to monitor the implementation of the programme and to develop its content.

Additionally, Fortum offers its personnel several internal leadership training programmes to support the various development needs of personnel. The

Fortum Manager training programme is designed for all supervisors in need of basic skills related to daily management. Basic skills used in different areas of supervisory work and Fortum's practices are also reviewed in the Master training programme. The Fortum Expert programme is tailored to the experts' needs in managerial, communication and collaboration skills.

Fortum uses the People Day process to identify strategically important know-how and to plan development. In the second half of 2010 Fortum started creating the new talent concept. The goal is

#### PERSONNEL BY DIVISION, 31 DECEMBER

	2010	2009	2008
Power	1,819	1,916	3,520
Heat	2,394	2,552	2,318
ESD	1,487	1,699	1,971
Russia	4,294	4,855	7,262
Other operations	591	591	508
<b>Total</b>	<b>10,585</b>	<b>11,613</b>	<b>15,579</b>

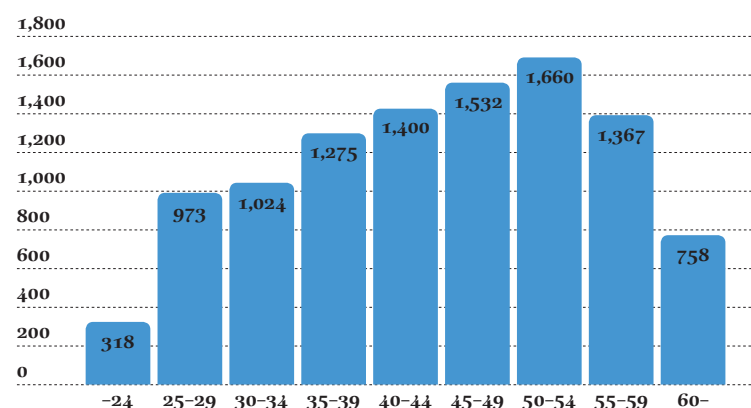
#### FORTUM'S PERSONNEL STATISTICS FROM 2010, BY COUNTRY OF OPERATION

	Finland	Sweden	Russia	Estonia	Poland	Norway	Other
Personnel at year-end	2,609	2,257	4,289	350	633	137	310
Personnel, average	2,743	2,361	4,551	360	669	140	332
Number of new employment relationships <sup>1)</sup>	430	297	253	31	8	4	29
Number of employment relationships ended <sup>2)</sup>	521	466	725	38	129	10	65
Personnel expenses, 1,000 euros	212,021	181,190	69,213	7,433	10,326	11,021	15,569
Per person, 1,000 euros	77.3	76.8	15.2	20.6	15.4	78.8	46.9

<sup>1)</sup> Includes summer workers

<sup>2)</sup> Includes operations sold, outsourced operations and summer workers

#### PERSONNEL AGE DISTRIBUTION, 31 DEC 2010, permanent employees





to respond to the company's current and future competence needs and to develop and retain employee competence.

### Equality a cornerstone of well-being

In line with its Code of Conduct and HR policy, Fortum respects the equal rights of employees. Fortum believes that diversity is a competitive advantage for the company and a way to attract talent to the company. The equal and fair treatment of employees is also a cornerstone of well-being and working capacity.

Fortum promotes equal treatment and opportunities in recruiting, remuneration, development and career advancement opportunities, regardless of the employee's race, religion, political views, gender, age, nationality, sexual orientation, marital status or possible disabilities. Any form of harassment is forbidden and is addressed immediately. Fortum has in use in Finland and Sweden separate guidelines for workplace harassment and discrimination. In 2010 there were no cases of discrimination reported.

In 2010 women accounted for 29% (2009: 30%) of Fortum's total personnel. Women accounted for 27% (2009: 30%, includes Russia) of management teams at the Group and division level.

In line with its HR policy, Fortum offers all its employees a competitive incentive system. Salaries and wages are based on laws and agreements, and are compliant with established practices in each country. Salary level is based on personal work performance, competence grade, and on defined competence requirements. In Finland pay equality for men and women in white- and upper-

white-collar positions has been monitored as a part of the equality plan since 2005. Comparisons in the 'workers' personnel group have not been possible due to the small group sizes. In 2009 the salary differences between male and female white-collar employees was just under 7 percentage points, on average, and the dispersion was 3–11 percentage points. The differences are partly explained by age and seniority differences. Similar differences in salaries were not observed in the upper-white-collar employee

group for either gender. Similar studies have not been made in other countries.

### Employer image

In 2010 Fortum stepped up its investments to improve its employer image and in student collaboration, and in the uniform, Group-wide Onboarding process. Employer image development is monitored with employer image surveys and induction programme feedback surveys. Fortum improved its ranking in Universum's 2010 survey

of employer image. Among technology students, Fortum ranked sixth in popularity as an employer in Finland (2009: 9) and 34th in Sweden (2009: 44).

### Collaboration between management and personnel representatives

Fortum respects its employees' freedom of association and collective bargaining, but it doesn't monitor the degree of unionisation of its employees. In all countries where it operates, Fortum

## Good experiences with first Trainee programme

The first Fortum Forerunner Trainee programme got under way at the beginning of 2009 with 13 new graduates from six countries. The next 18-month programme started at the beginning of 2011.

The university graduates selected for the Trainee programme have a degree in technology or economics, they are internationally oriented and interested in developing themselves and the energy sector. A permanent employment contract is signed with all programme participants; upon conclusion of the Trainee programme, the individual continues working within the division they have already become familiar with.

The participants in the first programme were from Finland,

Sweden, Poland, Russia, Latvia and Lithuania. Anders Karlsson (pictured) from Sweden worked part of the time at the head office in Finland. "I worked with process development as part of a team consisting of workers from different countries. This was definitely the most challenging work – but also the most fun – that I've done so far."

Working as a process developer, Anders got to head his own projects towards the end of the Trainee programme. "The projects have been beneficial opportunities for hands-on learning, and the project management training within the Trainee programme has supported the practical work", he says.



applies local collective bargaining agreements in compliance with the scope of each respective agreement.

In Finland Fortum's employee representation system is site- and company-specific, and representatives are selected by personnel group. The system is fundamentally identical in Sweden.

Group collaboration meetings in Finland are held at least twice a year in conjunction with the Group's financial statement and interim reports. Collaboration between personnel representatives and Group management also in Sweden takes place in the Council (Sverigerådet) that convenes twice a year. The collabora-

tion forms are based on the agreement made between the company and personnel representatives.

As a rule, the Fortum European Council convenes once a year, and in May 2010 it had participants from Finland, Sweden, Poland, Estonia and Great Britain.

Issues on the Council's agenda include the Group's financial statements, strategy and amendments, future outlook for Group production, employment, productivity and cost structure, and other fundamental changes taking place in the operations, as well as general issues related to the company's practices.

## FORTUM'S VALUES

### ACCOUNTABILITY

- We know the needs of our customers and other stakeholders.
- We take responsibility for our actions and strive for the best performance.

### CREATIVITY

- We take initiative and encourage one another to find innovative solutions.
- We continuously develop ourselves and are open for change.

### RESPECT

- We appreciate and support each other.
- We share knowledge, cooperate and discuss openly.

### HONESTY

- We act with high ethics and integrity.
- We are reliable and deliver what we promise.



## A forerunner through creativity and innovation

The winners of Fortum's Innovation Award 2010 were announced in February 2011. The purpose of the award is to inspire all employees to actively initiate ideas and innovations that increase the efficiency of current operations, create growth, promote sustainability, and secure long-term business and technology opportunities.

The first prize (50,000 euros/person) was awarded to the Power Division's Pauli Dernjatin, Kati Savolainen and Antti Heinolainen: "Method and burner for the combustion of lean gas in a power plant boiler."

The winning team's initiative is an exceptional solution for the combustion of gas, created during the gasification of biofuels and waste, in a power plant boiler. The invention could have an impact on Fortum's CHP solutions-based growth. It also improves flexibility in the use of fuels.

The invention is protected by the recently submitted European patent application, through which Fortum can use the innovation in its own plants and licence it to other players in the sector.

The shared second prize (10,000 euros) was awarded to the Heat Division's Ara Lehtinen: "Improvements in district heating operating models."

Another shared second prize (10,000 euros/person) was awarded to the Russia Division's Kirill Maximov, Ivan Mescheryakov, Denis Pokrovskiy, Mikhail Popov and Natalia Alekseeva: "The use of eco-friendly coal in OAO Fortum's Argayash CHP plant."

Third prize (5,000 euros) was awarded to the Power Division's Markku Lahti: "Two-dimensional modelling of underwater habitat."

# Occupational health and safety

Fortum's target is to ensure a safe work place for employees and service providers. Fortum continuously invests in the well-being and safety of its employees and contractors at its sites.

Fortum's occupational health care is organised in all countries of operation in accordance with local laws and regulations. In 2010 Fortum introduced a uniform model for reporting occupational health care indicators, and it will be gradually adopted in all countries of operation. The occupational health care indicators presented in this report are still primarily for Finland and partly for Sweden. Comparison figures from 2009 are not available in all cases.

In Finland Fortum's occupational health care is focused on identifying work-related hazards and risks, preventing them and communicating about them. Occupational health care in Sweden focuses on preventive care, but, consistent with Swedish practices, does not cover the medical treatment of illnesses. The organising of occupational health care consistent with the Fortum model is just in the development phase in Russia, Poland and the Baltic countries. Today,

however, employees in Russia are within the sphere of a medical expenses insurance plan and can use private medical services. Also each production plant in Russia has a healthcare station with nursing-level first-aid services.

In 2010 an average of 2,700 employees were within the sphere of Fortum's occupational health care; about 75% of them used the company's own occupational health care services and about 25% used contracted health clinics. The total costs of Fortum's own occupational health care in Finland were about EUR 1.1 million. In Finland the occupational health care costs per person, calculated from the share paid by Fortum, were 501 euros and in Sweden 99 euros.

Fortum employees in Finland have the option to join the Enerkem insurance fund. The fund offers benefits in accordance with the Finnish Health Insurance Act and additional benefits in accordance with its own regulations. Over 90% of

Fortum's Finnish employees participate in the fund. Other countries do not have a similar practice in place.

## Focus on prevention and occupational well-being

Fortum's occupational health care service emphasises the significance of preventive activities in advancing the well-being of the work community. Work well-being and work safety are regularly addressed also in occupational safety committees, which operate in line with local legislative requirements and represent all personnel groups.

In 2010 preventive activities accounted for 36% of the patient visits in Finland. Prevention was the focus of the all occupational health care activities in Sweden.

Sleep and stress management are a key theme in promoting workplace well-being in Sweden in 2011. In Finland Fortum will launch a three-year, work well-being programme with Varma Mutual Pension Insurance Company. The programme content and focus areas will be confirmed in early 2011.

## ForCARE well-being programme

The ForCARE occupational well-being programme launched in 2010 also focuses on well-being at work. Its goal is to promote working capacity, occupational safety and workplace well-being. The ForCARE programme provides a uniform model for early intervention and absenteeism practices. The goal of the intervention model and the communica-

tion about working capacity is to reduce sickness-related absences by developing the work and the work environment and to promote working capacity.

## Research promotes working capacity in control rooms

In 2010 Fortum launched the Core research project in collaboration with Aalto University. The goal of the research project is to ensure an inspiring work environment that promotes the working capacity of control room employees and, at the same time, increases the useful life of production plants. The research project aims to create a new Fortum control room concept and guidelines for the designing of control rooms. The Core research project is part of the ForCARE programme.

## Sickness absences

Data on sickness absences was collected only for Finland and Sweden in 2010. The ForCARE programme will expand the systematic collection of sickness absence data to all countries of operation in 2011. The programme will expand to Russia in 2012. There was a total of 9,281 days of sickness absences in Finland and Sweden in 2010 (2009: 10,597). Fortum's goal is to decrease sickness absences in the long term by monitoring, investigating and eliminating the causes of sickness-related absences.

Work injury reporting covers all Fortum employees as well as contractors working at Fortum's sites. Occupational safety issues are discussed in more detail



on pages 57–59. In 2010 there were 13 cases of occupational diseases under review; one was determined as being entitled to compensation. The others were still under review at the end of the year. Suspected occupational diseases are related mainly to noise and possible exposure to asbestos.

### Preventive occupational health care adds to work years

In 2010 a total of 93 (2009: 86) Fortum employees in Finland and Sweden transitioned to age-related retirement. In Finland 19 employees started receiving a disability pension.

Fortum encourages employees to remain in the working world. In 2010 Fortum had 758 employees over the age of 60.

### Safety management

Fortum's safety management is based on laws and regulations, as well as on Fortum's safety principles and Group-level requirements and safety guidelines, which are supplemented with division- and site-specific instructions. Line management is responsible for safety management.

In addition to ISO 14001, the goal is to have OHSAS 18001 certification of all operational management systems. At the end of 2010 27% of Fortum's operations were OHSAS 18001 certified. Certification covered the Power Division's Nordic operations as well as German and Great Britain operations, excluding the operation and maintenance activities of Sulom Voe. In the Heat Division, operations in Finland, Poland and Lithuania, and some in Estonia, were certified. The goal is to get certification for the Heat Divi-

sion's Latvian and Swedish operations and the Russia Division's operations in Russia in 2011. The ESD Division doesn't have OHSAS 18001 certification. A country-specific list of certification coverage is presented on page 2.

Fortum is developing safety management and target-setting based on a principle of continuous improvement. Development of the safety management system in 2011 is focused on a clear reduction of serious accidents, realisation of the Group-level minimum requirements drafted at the end of 2010, and on the precise implementation of the agreed development programmes and actions.

Safety issues are part of Fortum's incentive system. The goal in 2011 is to standardise the way safety issues are factored into the incentive system.

### Safety targets and results

Fortum has defined one Group-level safety target: a lost workday injury frequency of less than one (LWIF <1) per million working hours for own personnel. In addition, all divisions have shared targets for contractor LWIF, number of safety observation tours made by managers, safety reporting, fires, leaks, and implementation of corrective measures. Just like environmental targets, also the realisation of safety targets is monitored in monthly, quarterly and annual reporting. Leaks and fires during 2010 are presented on page 34.

### All-time best safety level in European operations

In reporting injuries, Fortum complies with the principles of the United States Occupational Safety & Health



## A comprehensive approach to improving employee well-being

In early 2010 Fortum set out to develop a comprehensive model to support individual employees and the work community in different working situations. As a result of this goal-oriented work, the ForCARE well-being model was created.

"ForCARE is the common denominator of all the support Fortum provides for working capacity and well-being of its employees. In addition to occupational safety, the model also includes occupational health and well-being," says Fortum's Chief Occupational Health Physician, Lotta Autio (pictured).

ForCARE ensures the same practices and ways of operating and equal treatment for all Fortum personnel, regardless of organisation or location.

At the individual level, ForCARE's goal is to promote and maintain the personnel's working and functioning capacity during all phases of their career and to make work well-being an integral part of super-

visory work. Supervisor awareness about the importance of well-being in terms of business operations has increased; they are coaching their own subordinates and teams so that the ForCARE well-being model becomes familiar to everyone.

### Work well-being is everybody's business

ForCARE was adopted in Finland in autumn 2010 and the model will be rolled out to all of Fortum's countries of operation over the next two years. It will be customised according to each country's legislation in collaboration with local occupational health organisations, the HR department and management.

"At Fortum we believe that it pays to promote well-being. It benefits everyone: employees, the employer and society as a whole. We want work well-being to be something that is part of the daily routine," says Lotta Autio.

## KEY SAFETY FIGURES 2008–2010

	2010	2009	2008 <sup>2</sup>
Lost workday injury frequency (LWIF) <sup>1</sup> , Fortum personnel	2.4	2.4 <sup>2</sup>	4.3
Lost workday injuries, Fortum personnel	45	37	63
Lost workday injury frequency (LWIF) <sup>1</sup> , contractors	5.0	6.5 <sup>2</sup>	8.2
Lost workday injuries, contractors	43	51	47
Total recordable injury frequency (TRIF) <sup>1</sup> , Fortum personnel	4.6 <sup>2</sup>	6.0 <sup>2</sup>	9.4
Fatalities, Fortum personnel	1	0	0
Fatalities, contractors	0	2	1
Number of safety observation tours	8,790 <sup>2</sup>	8,480 <sup>2</sup>	8,730
Number of improvement proposals and near miss-reports	4,440 <sup>2</sup>	4,080 <sup>2</sup>	4,320

1) Per million working hours

2) Excludes Russia Division

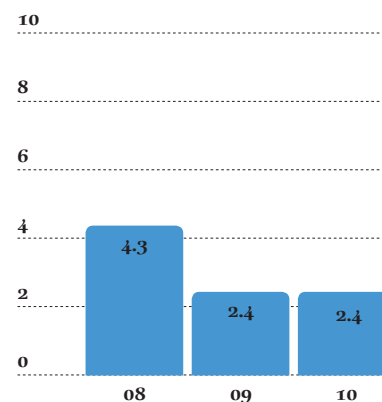
Administration (OSHA) and the ILO's Practise on Recording and Notification of Occupational Accidents and Diseases (1995) to the extent that they conform with the legislation in Fortum's countries of operation. The lost workday injury frequency per million working hours for Fortum's own personnel was 2.4. Thus the target of LWIF <1 was not achieved. However, the all-time best result was achieved in European operations: the injury frequency decreased from 2.4 to 2.2, and the accidents resulting in an absence dropped from 29 to 24. As part of the environment, health and safety (EHS) action plan, transparency in reporting was a focus in Russia. This was reflected in the increase in the injury frequency from 0.8 to 2.6. Fortum personnel had a total of 769 days of absence caused by

work injuries, 544 of these days were in the Russia Division. There was a clear drop in the figure for own personnel Total Recordable Injury Frequency (TRIF), which includes minor injuries not requiring an absence: from 6.0 to 4.6.

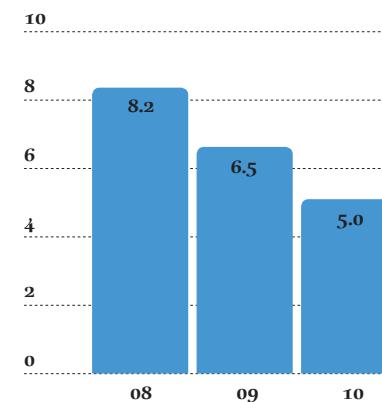
Fortum's target is to avoid accidents resulting in a fatality. There was one accident resulting in the fatality of a Fortum employee in Russia in 2010. The accident was investigated in accordance with Fortum's guidelines. Corrective measures included improvements in training and induction and in pre-work risk analyses. Also work station safety was enhanced by replacing railings and work platforms.

Fortum's safety management encompasses own personnel as well as contractors working at Fortum's sites.

#### LOST WORKDAY INJURY FREQUENCY (LWIF) 2008–2010, FORTUM PERSONNEL



#### LOST WORKDAY INJURY FREQUENCY (LWIF) 2008–2010, CONTRACTORS



A clear improvement was achieved in contractor safety; the LWIF for contractors decreased from 6.5 to 5.0.

With the exception of the ESD Division, the proactive indicator targets (safety reports and initiatives and safety observation tours) were achieved.

### Significant improvements in safety of investment projects

One of the 2010 development programmes focused on the safe implementation of major investments. The programme was very successful: a total of just one injury resulting in an absence occurred in the Częstochowa and Pärnu power plant projects implemented in 2010. The Częstochowa project won the "Safest construction site" award given by local authorities as well as Fortum's internal Safety Award.

Fortum's safety efforts in 2010 were also recognised in a competition organised by Latvian authorities. Fortum was awarded for the use of safety observation tours in proactive safety management.

Other development programmes in 2010 included the management safety training, improving the safety management system for the Heat Division's small heat plants in Finland, and the safety programmes implemented by the Power Division. The new "365 Safe Days" safety culture programme covering the entire Power division was launched at the end of 2010 and will be implemented in 2011.

### Russian EHS action plan

Fortum's target is to bring health- and safety-related performance and management in Russia closer to the level of the plants in Europe. A comprehensive EHS action plan drafted for 2009–2015 is

guiding the development of operations and the target-setting, and its implementation is monitored by a separate steering group (read more on p. 35).

The EHS action plan progressed in 2010 as planned. Safety management and practices were improved by arranging Fortum safety training, in which some 2,000 individuals took part, by adopting the safety observation tours, by using the Fortum model to investigate nonconformities and accidents, and by regularly reviewing EHS issues in the Management Team.

Contractor safety was improved by placing Fortum's safety experts at construction sites, by improving instructions, and by including safety requirements in contractor agreements.

Elimination of the asbestos risk is one of the goals of the EHS action plan. About 600 tonnes of asbestos was removed during the year. New asbestos guidelines were adopted and technical enhancements were made to improve the safety of asbestos work.

In the power plant environment, good protective properties are required also in workwear. Consequently, all of OAO Fortum adopted workwear that is consistent with Fortum's requirements.



## Safety is priority in Pärnu and Częstochowa power plant projects

In 2010 we completed big power plant projects in Pärnu, Estonia, and Częstochowa, Poland. Occupational safety was an important – and successfully accomplished – goal in both projects. There was only one injury resulting in absence during the projects.

Safety was a factor in both projects, even as early as in the partner selection phase. We arranged safety training and all employees, including the contractors', participated in it. Only those who passed the safety exam received an access card to the construction site – and even then only with the proper protective gear.

Safety deviations were addressed straight on, right from the start. Supervisors made

observation tours and the operations were supported by inspection rounds by Fortum's safety experts. The projects had a full-time EHS manager, who supported the contractors' site supervisors by overseeing and directing the implementation of safety instructions for the duration of the projects.

The Częstochowa project received Fortum's annual Safety Award as well as an award from Polish authorities. The high level of occupational safety sparked pride among the people participating in the project: a safe way of working reflects good professional skills.



# Supply chain management

Fortum's supply chain management is based on the Supplier Code of Conduct for services and goods suppliers and a questionnaire-based screening of suppliers. When needed, Fortum conducts a more extensive screening that can include audits by Fortum or its independent representative at the services and goods supplier's site.

Fortum's Supplier Code of Conduct defines the basic sustainability requirements Fortum has set for suppliers of services and goods. The Supplier Code of Conduct is based on the ten principles of the UN Global Compact and it is divided into four sections: business practices, human rights, labour standards and the environment.

In procurement management Fortum applies the so-called 50,000-euro rule. It calls for supplier screening (written questionnaire and verification of credit) and the attachment of the Supplier Code of Conduct to any procurement agreements exceeding 50,000 euros. By the end of 2010 the guideline had been taken into use in all operating countries.

If the supplier screening turns up any issues for which Fortum wants more detailed clarification, the supplier is sent an extended supplier questionnaire. Both questionnaires are based on the

Supplier Code of Conduct and contain the following sub-areas:

- *General information about the business, including the scope of the Code of Conduct, compliance with laws, anti-corruption policies*
- *Labour standards, including terms of employment, freedom of association, child labour, forced labour, non-discrimination*
- *Occupational health and safety, including training, protective equipment and gear, risk assessments, monitoring systems, instructions for subcontractors*
- *Environment, including management systems, impact assessments, monitoring systems*
- *Quality, including management systems, subcontractor quality control*

In 2010 over 80% of the services and goods procured by Fortum were purchased from goods suppliers operating in

Europe. In 2011 Fortum aims to develop risk-focused monitoring methods for suppliers of services and goods and to start auditing services and goods suppliers also from a perspective of sustainability.

The auditing will be a part of the procurement function's normal work practices and will be implemented primarily by Fortum's own professionals and, if needed, by an independent third party.

## NGOs interested in origin of raw materials

Fortum's goal is to thoroughly respond to questions from NGOs and to have an open dialogue on issues raised by different interest groups. In late 2010 Finnwatch published a study of the origin of the coal used in Finland and the ethical monitoring systems used by energy companies. In the study, Finnwatch noted that Fortum has the most comprehensive

ethical guidelines of the energy companies in the comparison and is the only company developing an ethical monitoring system of suppliers.

In Sweden Fortum Värme participates in the WWF Global Forest and Trade Network (GFTN) through GFTN Sweden. Fortum Värme's long-term goal is for all wood material used in Swedish power plants to come from reliably certified forests.

Fortum's goal is to increase the share of certified wood material in all countries of operation, e.g. in conjunction with the renewal of agreements.

Fortum Värme also participates in the Roundtable on Sustainable Palm Oil (RSPO). As a collaborative body of palm oil producers and consumers as well as NGOs, the organisation has developed sustainable palm oil criteria. Its goal is for the sustainable production and use of palm oil. In 2010 Fortum Värme's energy production used about 19,000 cubic meters of fractions that are residues of palm oil production. All residual products of palm oil used for energy production in Fortum Värme come from RSPO member companies.

Fuel for the Loviisa nuclear power plant is acquired from Russia. Fortum has long-term experience in collaboration with fuel suppliers, and Fortum knows the conditions and level of operations at the mines, concentration plants and fuel plants.



## Responsible wood fuel procurement

Fortum Värme is a participant in the WWF Global Forest & Trade Network (GFTN) through GFTN Sweden. The GFTN is WWF's initiative to eliminate illegal logging and drive improvements in forest management. Network members are committed to promoting responsible forestry and credible certification. For more information on the GFTN see [www.gftn.panda.org](http://www.gftn.panda.org).

As a renewable natural resource, wood has a significant role in our aspirations towards CO<sub>2</sub>-free emissions. In Sweden the majority of the wood used by Fortum Värme comes from the Baltic countries and Russia and some originates from Sweden and Finland.

Fortum Värme has annual targets to increase the amount of wood fuel acquired from certified forests. In practice the work means setting higher standards for goods suppliers and traceability along the entire supply chain, all the way back to the forest. Success requires that buyers, suppliers and subcontractors have an adequate knowledge and understanding of what sustainable forest management means. They also must have administrative systems to enable the successful monitoring of wood origin.

Fortum Värme uses more than 400,000 cubic meters of wood chips and 300,000 tonnes of pellets at its plants every year.

## Dialogue with stakeholders

Fortum interacts with millions of people through its businesses. They assess Fortum's activities and performance in sustainability. As a responsible company, Fortum engages in a dialogue with the stakeholders and strives to find a balance regarding the different expectations.

### Stakeholder analysis

In spring 2010 Fortum conducted a comprehensive stakeholder analysis in which Fortum's most important stakeholders were defined within internal workshops and the most important areas of sustainability for our stakeholders were mapped. Additionally, an independent party was commissioned to survey key stakeholders about their expectations of Fortum's sustainability activities in Finland, Sweden and Poland. According to the analysis, Fortum's most important sustainability areas are:

- Climate change mitigation
- Reliable energy distribution
- Nuclear safety and the handling and final disposal of nuclear waste
- Renewable energy sources and sustainable energy solutions
- Energy-efficiency solutions for customers
- Fair and transparent energy pricing
- Customer satisfaction
- Long-term profitability
- Responsibility for local communities
- Emissions into the environment
- Responsible business practices

[+ Read more about stakeholder expectations at \[www.fortum.com/sustainability\]\(http://www.fortum.com/sustainability\)](http://www.fortum.com/sustainability)

### Collaboration with lobbyists and organisations

As an energy-sector expert, Fortum feels obligated to express its views on energy policy issues and to offer its energy-sector expertise also to decision-makers and various organisations. Fortum engages in an active dialogue about key issues in the energy sector and publishes position papers on significant topics relevant to its operating environment.

At the EU level and in countries where it operates, Fortum is involved in 68 lobbying associations and organisations; the main ones being: Eurelectric, Euroheat & Power, FORATOM, Finnish Energy Industries ET, Svensk Energi, Svensk Fjärrvärme, International Energy Agency (IEA) and World Business Council for Sustainable Development. In 2010 lobbying efforts focused on the construction of additional nuclear power in Finland, Fortum's carbon capture and storage (CCS) project, renewable energy, the EU's new energy policy initiatives, and active lobbying work in Brussels.

Fortum participates in the Northern Dimension Business Council, which supports collaboration between the leading companies in the EU and Russia, and facilitates a dialogue with political decision-makers in the EU and Russia. In June 2010 Fortum participated in the St. Petersburg International Economic Forum and, in September in the first Russian-European Business Forum, organised by the Association of European Businesses. Fortum also participated in the European Economic Congress in Katowice, Poland.

### Nuclear power discussion in Finland and Sweden

Nuclear power became a topic of public discourse in 2010 in Finland and Sweden. It was a topical subject in Finland

because of the processing of the applications for a new nuclear power plant. In May 2010 the Finnish Government gave Fortum a negative decision-in-principle on a third nuclear power unit in Loviisa. The company proposed that the new nuclear power unit be realised as a combined heat and power plant, and the heat utilised in district heating for the Helsinki metropolitan area. According to a study commissioned by Fortum, the district heat option would reduce Finland's carbon dioxide emissions by 6–7% per year. Fortum is participating in Teollisuuden Voima's Olkiluoto 4 nuclear power plant project, which received a favourable decision-in-principle.

In Sweden the dialogue targeted the availability of nuclear power plants, and new nuclear power legislation was approved that allows old reactors being decommissioned to be replaced with new ones. A capacity upgrade programme is currently under way at Fortum's co-owned Oskarshamn and Forsmark power plants. Fortum's share of the planned additional capacity is about 290 MW.

### Excellent electricity distribution reliability

Fortum's electricity distribution reliability is 99.9%, but Fortum is continuously working to improve its level of reliability. Fortum uses international indicators (SAIDI and CAIDI) to measure electricity distribution reliability. In 2010 the system average interruption duration indicator (SAIDI) per customer was 104 minutes, 19 minutes of which was planned outages. The customer average interruption duration indicator (CAIDI) was 62 minutes. Fortum's indicators in Sweden and Finland are at the average level. The indicators of different companies are not fully comparable because they depend on the grid area and the

extent of the overhead and underground lines in use.

The average useful life of an electricity network is 50 years. When building a new grid, customer needs and sustainable community planning are taken into consideration. In grid construction Fortum favours underground cables rather than overhead lines. Grid reliability is improved also by replacing overhead lines with underground cables and by moving power lines away from forested areas.

Grid automation also improves the reliability of electricity distribution. In 2010 Fortum installed about 200 remote-controlled disconnectors that allow the operations centre to quickly locate and isolate malfunctions and thus reduce the number of customers affected by an outage and the average length of outages. The new smart meters will help Fortum to locate malfunctions faster than ever. And the two-way communication capabilities of the meters will enable the operations centre to pinpoint malfunctions by usage site.

➤ Read Fortum's position papers at [www.fortum.com/publicaffairs](http://www.fortum.com/publicaffairs)

➤ Additional information about Fortum's activities in energy-sector organisations at [www.fortum.com/sustainability](http://www.fortum.com/sustainability)



## Customer councils develop products and services

Fortum's customer councils in Lohja, Espoo, Järvenpää and Salo, Finland, meet several times every year. About one hundred people take part, and we collect feedback from them about our services. In the customer councils, we address current issues related to electricity use, and we brainstorm and test new products and services.

Through the years we have worked with our customer councils to develop the pricing model for our electricity agreements and the environmental attributes of our agreements.

In 2010 we mapped customer wishes regarding customer communications. Based on the results, we have developed our online communications for customers alongside the traditional correspondence with customers.

In 2011 we will use the councils to help map customer expectations on future energy services. We are working with the council participants to find ways to boost the efficient use of energy through services related to energy use and monitoring.

We are planning to expand our customer council activities to new municipalities.



### Energy price a topic of discussion

In 2010 energy pricing became a topic of discussion particularly amongst customers. Fortum has participated in the discussion by describing the Nordic electricity market's operations and the electricity price formation in the markets (read more on p. 21). Additionally, customer service employees received training in communicating the factors that affect electricity price.

In Sweden the Swedish Competition Authority announced in November 2010 that it had discontinued its investigation

of Fortum's pricing of district heat in Stockholm. The authority noted, among other things, that the real price of district heat in Stockholm had decreased by 1.5% during 2005–2010.

In Finland the Finnish Energy Industries did a district-heat price comparison that included also Fortum. In the unweighted national price comparison, Fortum's district heat prices in its main district heating areas of Espoo and Joensuu were cheaper than the average price for district heat in Finland. According to the comparison, energy-efficient district

heat produced in combined heat and electricity plants is clearly more economical than separate heat production.

In summer 2010 Fortum engaged in an active dialogue with local communities in Russia about energy pricing and the tariff structure.

### Listening to customers

Fortum sells electricity to private customers only in the Nordic countries; it has distribution customers in the Nordic countries and Estonia. Fortum meets with customers at customer events and publishes a customer magazine. In Finland Fortum also organises customer councils, eight of which were held in 2010 (read more on p. 62).

Private customers can direct questions related to energy and energy conservation to Fortum's energy guides. In Sweden about 150 energy guides have been trained to help customers in energy conservation and in sustainable energy solutions. Additionally, customers can use an online energy simulator to try out ways to use energy more efficiently in their own home. In Finland questions can be submitted through Fortum's web site.

Customers in Finland, Sweden and Norway also have access to an ombudsman, whose main priority is to look after the interests of consumers at Fortum and to develop the company's operations in a more customer-friendly direction.

### Collaboration with NGOs

Fortum collaborates with environmental organisations regarding the eco-labelling of electricity products and participates in projects related to environmental conservation and maintaining biodiversity. Some of the funding for the projects comes from the sales of eco-labelled Eko-energi and Bra Miljöval electricity (read more on p. 46).

In the second half of 2010 the origin of coal became a topic of public discourse after Finnwatch published a study of Finnish energy companies. Read more about the results of the study on page 60.

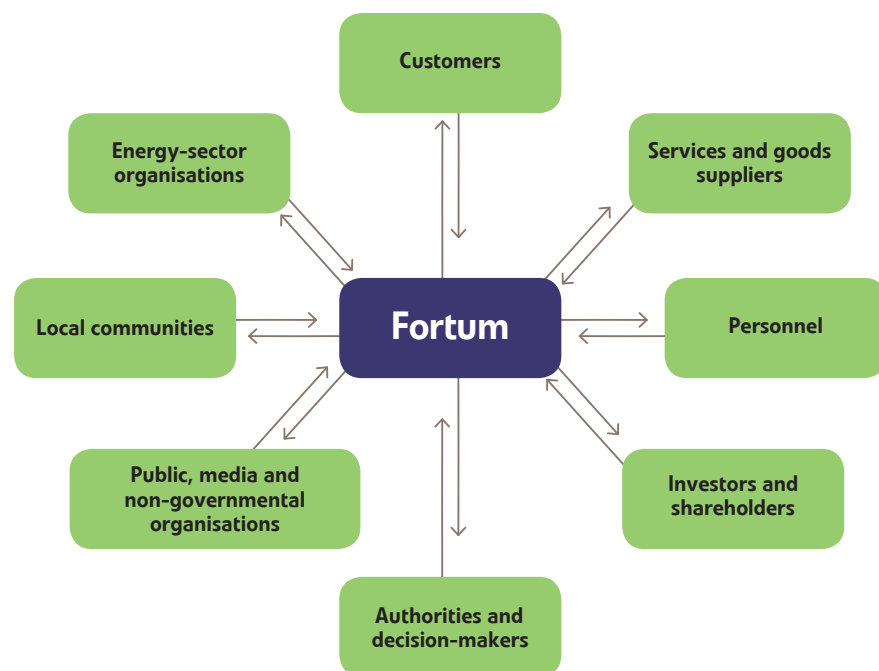
### Engaging with the community, in person and on the web

Fortum participated in many public events in 2010. In Sweden Fortum was part of the Almedalen event in July. The annual event brings together more than 10,000 participants interested in current issues related to the environment, climate and energy. Fortum presented its sustainable energy solutions at the event and sought political support for investments in CO<sub>2</sub>-free production.

At the Suomi Areena event in Pori, Finland, Fortum showcased, among other things, electricity production and a smart grid, solutions for eco-living, and wave power technology under development.

Sustainable urban living was discussed at Stockholm's Energy Symposium 2010.

### KEY STAKEHOLDERS





## 'Shut it Down' dialogue with stakeholders in social media

Fortum's Värtan combined heat and power (CHP) plant is prominently located in Stockholm. Even though the plant is one of the most efficient and cleanest coal utilising production plants in Europe, the plant's use of coal is fuelling a discussion among non-governmental organisations and customers.

In autumn 2009 a group of environmental activists became interested specifically in the Värtan plant. Activists operating under a movement called 'Shut it Down' created a Facebook page and initiated a demonstration against the use of coal at Fortum's Värtan plant. In addition to meeting with the group, Fortum Värme's Environmental Manager engaged them in a dialogue on Facebook.

Through the Facebook dialogue that lasted until spring 2010, Fortum was able to communicate more extensively about district heat production and about its plans to phase out the use of fossil fuel.

Fortum is testing a variety of biofuels and the aim is to replace half of the coal with biofuels.

We believe that a dialogue with our stakeholders is necessary and beneficial to everyone. By keeping an open and candid dialogue going on Facebook, we successfully reached our stakeholders and our critics.

In Poland Fortum took part in the European Sustainable Transport Week project by arranging a family event showcasing e.g. electric motoring. Fortum supported the energy conservation efforts of its Wrocław customers through a campaign about energy efficiency and environmental awareness. Fortum is a member of the Wrocław for the Climate project, which aims to make Wrocław a model city of eco-friendliness in Europe by developing transportation, energy solutions, water conservation and waste management.

In Finland and Sweden Fortum monitors the discourse in social media. Social media is also utilised in various campaigns. In 2010 Fortum introduced a social media guide that contains guidelines for employee activities in social media.

### Communicating with different stakeholders through media

Media representatives are an important stakeholder group for Fortum; at the same time, media provides a channel for dialoguing with other stakeholders. The aim is to respond to media requests as quickly as possible and to organise regular press conferences and one-on-one meetings with senior management and experts as well as press visits to power plants. In 2010 Fortum published 67 stock exchange releases and Group releases. In addition to these, local releases were published in Fortum's countries of operation.

Fortum's communications function is guided by the company's communications principles, the most important of which are impartial, correctly timed and open communication. Fortum's communications activities are governed by obligations of listed companies and insider guidelines.

### Projects with local communities

Fortum actively collaborates with local communities in the municipalities where it has power plants. Open-house days at power plants have been held for local residents, and the company has worked with local municipalities on lighting projects. Fortum collaborates with the cities of Espoo and Stockholm to promote future energy-efficient living and electric motoring (read more on pp. 17 and 35). Fortum also partnered with Stockholm in 2010 during its year as European Green Capital. In 2010 Fortum started collaborating with the town of Kurikka in Finland to promote the adoption of electric vehicles and to boost energy efficiency.

In Russia Fortum and the Chelyabinsk Region Administration have agreed on energy-efficiency collaboration. Additionally, in December 2010 Fortum and the Khanty-Mansi Autonomous Region Yugra signed an agreement on social and economic collaboration (read more on pp. 27 and 38). Both agreements strengthen the collaboration between the parties in energy production in the area and in energy efficiency.



## Voting for a brighter future

Urban sites in need of lighting can be voted on by residents. The winning sites receive energy-efficient and eco-friendly lighting.

Fortum is responsible for the construction costs in the projects. The cities are responsible for maintaining and servicing the infrastructure. The lighting projects have demonstrated that safe and comfortable urban environments can be created also energy efficiently. The new energy-efficient, long-lasting light bulbs help cities save money because they consume less energy and require servicing less often.

In Finland voting has been held in Joensuu and Loviisa; in Sweden there have been several lighting projects carried out in Stockholm. In 2011 one lighting project will be completed in Loviisa, and a vote will be held for a new site to illuminate in Espoo.

## Surveys provide information about stakeholder expectations

Fortum regularly surveys the expectations of stakeholders, both at the Group and division level, and uses the feedback to develop operations. Fortum also carries out sector-specific comparison studies to better understand the key sustainability expectations targeting the energy sector and the different players' responses to them.

Fortum monitors the satisfaction and loyalty of private and business customers through regular EPSI customer satisfaction surveys in Finland and Sweden. In the 2010 EPSI survey, Fortum received the best rating in Finland in the quality of service and in Sweden in meeting customer expectations. Fortum's poorest rating in Finland was in customer loyalty, and in Sweden in the price-quality ratio.

Starting in 2011, customer surveys will be replaced, at least partially, by the new, annual One Fortum survey, which standardises Fortum's collection of data about different stakeholder expectations of Fortum. The One Fortum survey will also explore stakeholder opinions about sustainability. The survey will be conducted in Finland, Sweden, Norway, Poland, and the Baltic countries, and for the Power Division also in Germany and Great Britain.

In Finland Fortum has partnered with Teollisuuden Voima since 1983 in the research of public opinions on energy policy issues through the annual Finnish

Energy Attitudes study. Fortum's special municipality in the study is Loviisa; the survey is used to map the views residents have on nuclear power and Fortum's activities locally.

Some of the survey results are published by the Finnish Energy Industries at [www.energy.fi](http://www.energy.fi)

In Finland and Sweden Fortum also monitors the development of the company's overall recognition and corporate image compared to its competitors in the monthly Brand tracking study. Fortum uses PR Barometer to annually map journalists' opinions of Fortum and satisfaction with its communications activities.



## Fortum helped to repair flood damage in Poland

The Veiksel river in Poland flooded in May 2010, taking out entire villages. The cities of Juliszew and Sady were badly flooded, but with Fortum's help the damage was reduced.

The flood waters sat several meters high in homes and buildings, almost completely saturating concrete walls. We wanted to help people save their homes, so we brought in 30 industrial hot-air blowers.

The effectiveness of the blowers surprised everyone. One blower was able to remove 20 litres of water from the walls in 24 hours. One house was completely dried in less than a month and, because all 30 blowers were running 24/7, it was possible to dry out almost all of the homes during the summer.

The city residents were grateful for the assistance, and we gained good feedback about a smart way to operate in the area. Without the blowers, it would have been much more difficult to save the homes.



# Independent Assurance Report

Translation from the Finnish original

## To the Management of Fortum Corporation

We have been engaged by the Management of Fortum Corporation to perform a limited assurance engagement on the information on economic, social and environmental responsibility disclosed in Fortum Corporation's Sustainability Report 2010 for the reporting period of January 1, 2010 to December 31, 2010 (hereinafter "Sustainability information").

## Management's responsibility

The Management of Fortum Corporation is responsible for preparing the Sustainability information according to the reporting criteria as set out in Fortum Corporation's internal sustainability reporting guidelines, the Global Reporting Initiative's Sustainability Reporting Guidelines version G3, as well as AA1000 AccountAbility Principles Standard 2008 issued by AccountAbility.

## Practitioner's responsibility

It is our responsibility to present a conclusion on the Sustainability information based on our work performed. This assurance report has been prepared in accordance with the terms of our engagement. We do not accept, nor assume responsibility to anyone else, except to Fortum Corporation for our work, for this report, or for the conclusions that we have reached.

We have conducted the assurance engagement in accordance with the

International Standard on Assurance Engagements (ISAE) 3000 "Assurance engagements other than audits or reviews of historical financial information". The ISAE 3000 -standard requires compliance with ethical principles as well as planning and performing the assurance engagement to obtain limited assurance on whether any matters have come to our attention that would cause us to believe that the Sustainability information has not been prepared, in all material respects, in accordance with the reporting criteria.

In addition, we have conducted our work in accordance with the AA1000 Assurance Standard 2008. For conducting a Type 2 assurance engagement as agreed with Fortum Corporation the AA1000 Assurance Standard 2008 requires planning and performing of the assurance engagement to obtain limited assurance on whether any matters have come to our attention that would cause us to believe that Fortum Corporation does not adhere, in all material respects, to the AA1000 AccountAbility Principles (inclusivity, materiality and responsiveness) and that the Sustainability information would not be reliable, in all material respects, based on the reporting criteria.

We have not been engaged to provide assurance neither on the information on economic and social responsibility insofar as it has been in the scope of work performed by Deloitte & Touche Oy, nor

on amounts or other disclosures relating to the prior reporting periods presented in the Sustainability information.

In a limited assurance engagement the evidence-gathering procedures are more limited than in a reasonable assurance engagement, and therefore less assurance is obtained than in a reasonable assurance engagement. An assurance engagement involves performing procedures to obtain evidence about the amounts and other disclosures in the Sustainability information. The procedures selected depend on the practitioner's judgment, including an assessment of the risks of material misstatement of the Sustainability information. Our work consisted of, amongst others, the following procedures:

- Conducting interviews with senior management of Fortum Corporation to gain an understanding of Fortum's targets for sustainability as part of the business strategy and operations.
- Conducting interviews with key personnel from various organizational levels of Fortum Corporation to gain an understanding of stakeholder expectations towards Fortum Corporation, Fortum's responses to those expectations as well as stakeholder engagement.
- Assessing Fortum Corporation's materiality determination process and evaluating the results of this process.
- Performing a media analysis and an internet search for references to Fortum Corporation during the reporting period.

- Visiting Fortum Corporation's Head Office as well as one production unit in Sweden and one production unit in Finland.
- Conducting interviews with employees responsible for the collection and reporting of sustainability information at group and division, as well as site level at the production units where our visits took place.
- Inspecting relevant documents and systems for gathering, analyzing and aggregating the Sustainability information as well as performing tests on a sample basis.
- Assessing the data consolidation process of the Sustainability information at Fortum Group level.
- Assessing how Fortum Group employees apply Fortum Corporation's reporting guidelines and procedures.

## Conclusion

Based on our limited assurance engagement nothing has come to our attention that would cause us to believe that Fortum Corporation would not adhere, in all material respects, to the AA1000 AccountAbility Principles.

Furthermore nothing has come to our attention that would cause us to believe that Fortum Corporation's Sustainability information has not been prepared, in all material respects, in accordance with the Reporting criteria, or that the Sustainability information would not be reliable, in all material respects, based on the reporting criteria.

Our assurance report should be read in conjunction with the inherent limitations of accuracy and completeness for corporate social responsibility information. This independent assurance report should not be used on its own as a basis for interpreting Fortum Corporation's performance in relation to its principles of sustainability.

### Observations and recommendations

Based on our limited assurance engagement we provide the following observations and recommendations in relation to adherence to the AA1000 Accountability Principles. These observations and recommendations do not affect the conclusions presented earlier.

- **Regarding Inclusivity:** Fortum Corporation has an extensive stakeholder engagement process in place and has identified a broad range of relevant stakeholders. We recommend that Fortum Corporation further develops the systematic management of the stakeholder engagement process and that the process is coordinated centrally.
- **Regarding Materiality:** Fortum Corporation has processes in place to determine the materiality of sustainability issues. We recommend that the processes and criteria applied to assess materiality of sustainability issues are further systematized and documented.
- **Regarding Responsiveness:** Fortum Corporation is committed to being responsive to its stakeholders, which is evident from the ongoing and wide-ranging communication on sustainability issues in media, forums as well as other forms, such as the Sustainability Report. However, we recommend that Fortum Corporation spells out more clearly its actions as a result of specific issues raised by its stakeholders.

### Practitioner's independence and qualifications

PricewaterhouseCoopers' own Global Independence Policy is applicable to PricewaterhouseCoopers Oy, its partners and professional staff, including

all members of the assurance engagement team.

Our multi-disciplinary team of sustainability and assurance specialists possesses the requisite skills and experience within financial and non-financial assurance, sustainability strategy and management, social and environmental issues as well as knowledge of the energy industry to undertake this assurance engagement.

Helsinki, March 8th, 2011

PricewaterhouseCoopers Oy

Sirpa Juutinen  
Partner  
Sustainability & Climate Change

Maj-Lis Steiner  
Director, Authorised Public Accountant  
Sustainability & Climate Change



AA1000  
Licensed Assurance Provider  
000-29

# Key Figures

## ECONOMIC RESPONSIBILITY KEY FIGURES

	2010	2009	2008
Sales, EUR million	6,296	5,435	5,636
Operating profit, EUR million	1,708	1,782	1,963
Comparable operating profit, EUR million	1,833	1,888	1,845
Income from customers, EUR million <sup>(1)</sup>	6,432	6,016	6,424
Investments in growth, maintenance, productivity and investments due to legislation, EUR million <sup>(1)</sup>	1,162	933	2,261
Purchases from suppliers, EUR million <sup>(1)</sup>	2,923	2,436	2,787
Employee compensation, EUR million <sup>(1)</sup>	507	495	587
Income and production taxes, EUR million <sup>(1)</sup>	634	466	581
Dividends, EUR million	888 <sup>(2)</sup>	888	888
Earnings per share, EUR	1.46	1.48	1.74
Return on capital employed	11.6%	12.1%	15.0%
Emissions subject to EU's ETS, million tonnes CO <sub>2</sub>	9.7	7.7	7.2
Free emissions allowances in EU's ETS, million pcs	5.6	5.5	5.9
Environmental and safety investments, EUR million	91	61	60
Support for society, EUR million	5.2	2	Not available

1) Based on the cash flow statement.

2) Board of Directors' proposal to the AGM on 31 March 2011.

## SOCIAL RESPONSIBILITY KEY FIGURES

	2010	2009	2008
Average number of employees	11,156	13,278	14,077
Number of employees, 31 December	10,585	11,613	15,579
of whom permanently employed	10,307	11,332	15,064
Average duration of employment, years	13	14	15
Female employees	29%	30%	29%
Females in management <sup>(1)</sup>	27%	30%	33%
Lost workday injury frequency (LWIF), Fortum personnel <sup>(2)</sup>	2.4	2.4	4.3
Lost workday injury frequency (LWIF), contractors <sup>(2)</sup>	5.0	6.5	8.2
Fatalities	1	2	1
OHSAS 18001 -certified operations (% of sales)	27%	Not available	Not available

1) Covers Division and Group Management Teams.

2) Injuries resulting in an absence of at least one day per million working hours.

Of the lost workday injury frequency figures, the Russia Division is included only in 2010.

## ENVIRONMENTAL RESPONSIBILITY KEY FIGURES

	2010	2009	2008
Carbon dioxide emissions, million tonnes CO <sub>2</sub>	25.3	21.8	17.6
Sulphur dioxide emissions, tonnes SO <sub>2</sub>	20,700	14,600	16,700
Nitrogen oxide emissions, tonnes NO <sub>x</sub>	36,700	31,400	29,500
Particle emissions, tonnes	16,800	10,600	16,600
ISO 14001 -certified operations (% of sales)	86%	87%	89%
Specific CO <sub>2</sub> emissions of power generation, g/kWh	189	155	134
5-year average in the EU, g/kWh	69	59	74
Specific CO <sub>2</sub> emissions of heat production, g/kWh	213	205	205
Specific CO <sub>2</sub> emissions of total production, g/kWh	196	172	157
Total efficiency of combustion	68%	67%	69%
Share of CO <sub>2</sub> -free energy in power generation	66%	69%	75%
Share of renewable energy in power generation	35%	36%	38%
Share of renewable energy in heat production	18%	17%	19%
Energy consumption, primary energy, TWh	166	152	126
of which indirect energy consumption, TWh	7	3	5
Utilisation rate of gypsum	92%	91%	89%
Utilisation rate of ash	59%	65%	71%
Environmental non-compliances	21	17	16
Water consumption, million m <sup>3</sup>	2,746	2,458	3,492
of which cooling water, million m <sup>3</sup>	2,436	2,390	3,402
Thermal load on waterways, PJ	82	73	67



# Sustainability information

## Contact information

Ulla Rehell  
Vice President, Sustainability  
tel. +358 (0)10 45 29251  
fax +358 (0)10 45 24781  
e-mail: ulla.rehell@fortum.com

Pirjetta Soikkeli  
Vice President, Internal and  
Sustainability Communications  
tel. +358 (0)10 45 32240  
fax +358 (0)10 45 24781  
e-mail: pirjetta.soikkeli@fortum.com

sustainability@fortum.com.

## Feedback

We welcome all feedback on the report at

## Information online



Sustainability  
information

Glossary with the  
abbreviations and  
terminology used in  
the report

The Fortum corporate website was ranked as number one of the stock-listed Nordic companies in the Hallvarsson&Halvarsson Webranking 2010 survey. Among the European companies Fortum was ranked fifth.

## SUSTAINABILITY REPORT 2010

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The theme of this report is next generation energy. We believe that future energy systems will be based on carbon dioxide-free electricity production and energy efficiency. At present, we already offer sustainable solutions, which help to reduce emissions, make more efficient use of resources and secure energy availability.

You can also read about how we act as a good corporate citizen as well as how we take care of our employees and surrounding communities. We enter the new decade with a renewed strategy that has sustainability at its core.