

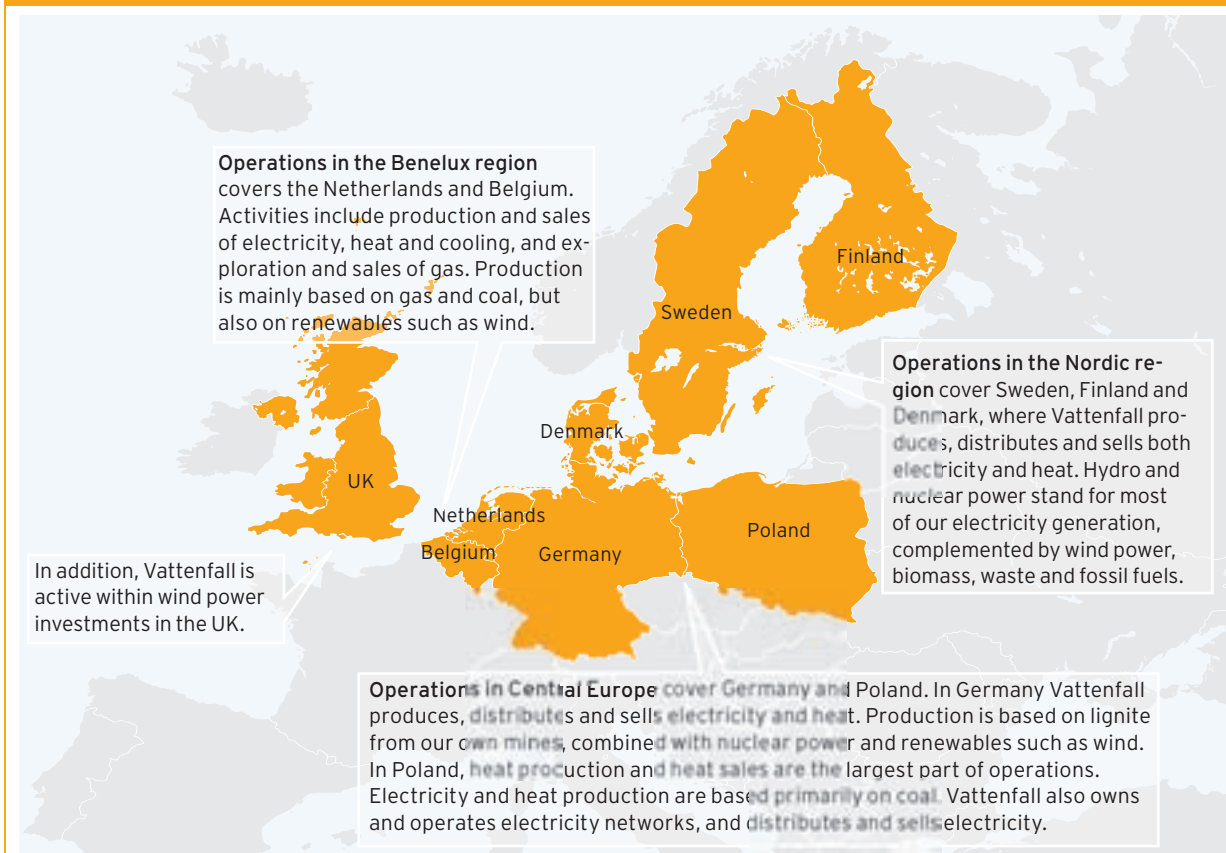
CORPORATE SOCIAL RESPONSIBILITY REPORT 2009



VATTENFALL AT A GLANCE

Vattenfall is Europe's fifth largest generator of electricity and largest producer of heat. Consolidated sales in 2009 amounted to SEK 205,407 million. Vattenfall's main products are electricity, heat and gas. In electricity, Vattenfall works in all parts of the value chain: generation, transmission, distribution and sales. In heat, Vattenfall is active in production, distribution and sales. Vattenfall is also engaged in production and sales of gas, energy trading, and lignite mining. The Group has approximately 40,000 employees, and the Parent Company, Vattenfall AB, is 100%-owned by the Swedish state. Operations in 2009 were conducted in Sweden, Denmark, Finland, Germany, Poland, the UK, the Netherlands and Belgium.

Vattenfall operations per region

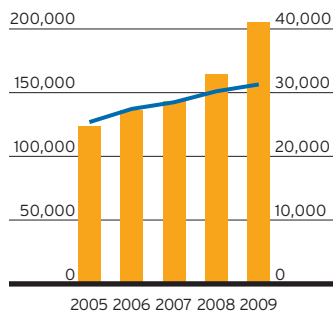


Vattenfall's operations are organised into four Business Groups (Pan Europe, Nordic, Central Europe and Benelux). From 1 January 2009, the Business Units responsible for Nuclear, Wind and Engineering across our geographical locations were combined in one cross-regional Business Group – Business Group Pan Europe. The remaining generation, heat, distribution and sales activities are managed in the regional Business Groups. Vattenfall also conducts energy and commodity trading in all its markets.

Sales and operating profit

Sales, SEK million
250,000

Operating profit, SEK million
50,000

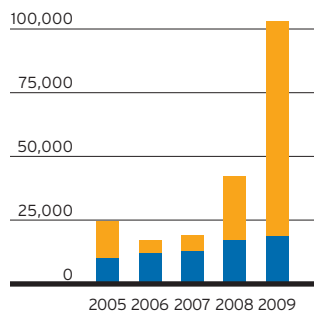


■ Net sales
■ Operating profit¹

1) Excl. items affecting comparability.

Investments

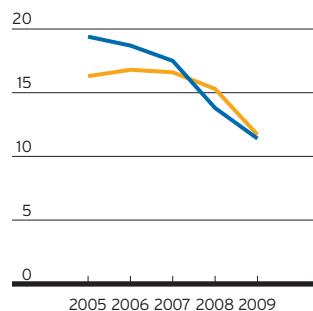
SEK million
125,000



■ Maintenance investments
■ Growth investments

Profitability, %

%
25

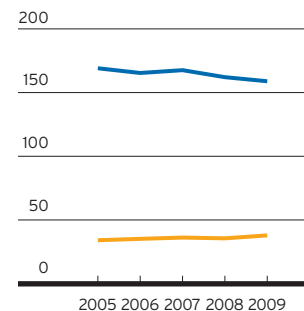


■ Return on equity¹
■ Return on net assets¹

1) Excl. items affecting comparability.

Vattenfall's total electricity and heat production

TWh
250



■ Heat
■ Electricity

Short term variations are due to variations in weather related factors, economic fluctuations etc.

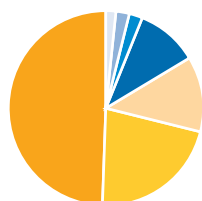
Electricity generation, %



■ Other^{1,2}
■ Hydro power 21
■ Nuclear power 26
■ Fossil fuels 51

1) Wind power, biomass and waste.

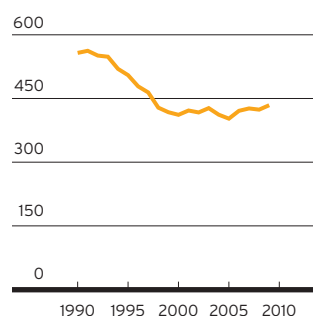
Heat production, %



■ Waste non-biogenic 1.8
■ Peat 2.1
■ Other incl oil 2.4
■ Biomass & biogenic waste 10.2
■ Lignite 12.6
■ Gas 21.5
■ Hardcoal 49.4

Average CO₂ emission per generated unit heat and electricity

gCO₂/kWh
750



Key data

	2009	2008	Change, %	2009 (MEUR) ¹	2008 (MEUR) ¹
Net sales, SEK million	▲ 205,407	164,549	24.8	19,840	15,894
Net profit, SEK million	▼ 13,448	17,763	-24.3	1,299	1,716
Return on equity, %	▼ 9.5	13.6			
Investments, SEK million	▲ 102,989	42,296	143.5	9,948	4,085
Number of employees (full-year equivalents)					
BG Nordic	▼ 5,544	5,625	-1.3		
BG Central Europe	▲ 21,713	21,345	1.7		
BG Benelux	▶ 6,009	-			
BG Pan Europe	▲ 5,667	5,112	10.9		
Other (incl Supply & Trading)	▲ 1,093	916	19.3		
Total	▲ 40,026	32,998	21.3		
Electricity generation, TWh	▼ 159	162	2.0		
Heat production, TWh	▲ 38	36	5.6		
CO₂ emissions, million tonnes²					
BG Nordic	▲ 6.9	6.0	15%		
BG Central Europe	▼ 74	76.5	-4%		
BG Benelux	9.2				
BG Pan Europe	0				
Total	90				

1) Exchange rate SEK 10.35=EUR 1

2) Not consolidated according to Greenhouse Gas Protocol

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WHAT WE WANT



WHAT WE DO



**WHAT WE HAVE
ACHIEVED**

CEO'S COMMENTS

In 2009 Vattenfall celebrated its 100th anniversary. Our development – through electrification, industrialisation, and internationalisation – has always gone hand-in-hand with the development of the society around us. Our journey alongside our stakeholders continues – towards the development of a more sustainable society.

Sustainability is a relative concept – almost no human activity can be expanded forever. The important thing is that societies choose the most sustainable options that can reasonably be developed and implemented. For us, this is not an abstract concept but a daily mission – to work with society to understand, prioritise, develop, and implement more sustainable solutions.

Vattenfall must continue to contribute in the ways it always has – by building knowledge and resources that support the development sought by society. Today we are building our knowledge base with respect to a broad mix of solutions– including wind and wave power, modern nuclear power, biomass, carbon capture and storage, smart electricity grids, electrification of transport, and customer efficiency solutions. Our role is to aid these technologies on their way from the lab to the market, and our future role as a provider of electricity and heat will be shaped by the technologies that our customers and society find most attractive.

Our role is also to invest our resources in the future: building a more sustainable world will require enormous investments in tomorrow's energy solutions. During my ten years at Vattenfall, the company has undergone major expansion. This gives us a powerful resource base from which to invest. In 2009 we invested almost 20 times as much capital as we did each year during the 1990s. This includes major new investments in wind power that will double the amount of electricity we generate from wind in the next two years. A priority for the coming five years is our investment in Carbon Capture and Storage (CCS), which we plan to begin demonstrating on a large scale by 2015. We are also looking at options to significantly increase our use of biomass. The acquisition of Nuon in 2009 further strengthens our knowledge base, our human resources, and our ability to create resources for future investment.

These investments are part of a long-term vision – to build a climate-neutral company by 2050. This vision is key to our strategic direction, which we call Making Electricity Clean. This strategy is based on a view of the future that we share with many of our stakeholders: a future where clean, efficient electricity is an important pillar of sustainable development.

In the global climate negotiations, our political leaders have struggled to reconcile a common long-term vision for the climate with the short-term priorities of economic development and political pressure. We must accept a similar challenge: to couple our long-term strategic direction to short-term actions that deliver what our various stakeholders require, namely, reliable, affordable electricity and responsible management of the social and environmental impact of our operations today.

We will not always succeed on every front. 2009 was a difficult year for our nuclear operations, with reactors experiencing unplanned downtime in both Germany and Sweden. Such problems can undermine society's confidence in Vattenfall's operations, and we are working hard to rectify them. They can also push our indicators in the wrong direction: our emissions of greenhouse gases per unit of produced energy increased in 2009 (to 434 gCO₂/kWh heat and electricity from 426), despite our increased investment in production from low-emitting sources. The increase in specific emissions is partly due to the lower availability of nuclear power (and, for weather-related reasons, hydro power). Investment in low CO₂ emitting generation, meanwhile, increased from SEK 7.8 billion in 2008 to SEK 14.7 billion in 2009.

The key to success is our human power. A sustainable future requires that societies around the world collaborate in ways they never have before. Likewise, our success as a company will depend on our ability to work together with our stakeholders. Vattenfall embraces international guidelines and standards that are trying to improve how companies relate to their stakeholders – most importantly the UN Global Compact, of which we have been a member since July 2008.

Sustainable solutions require a long-term approach, but we share our stakeholders' demands for near-term results even as we build the knowledge and resources needed for tomorrow. Living up to these high expectations will require focus, balance, and an ongoing dialogue with our stakeholders. It is a challenge not just for Vattenfall's CEO, but for everyone in the company.



Lars G Josefsson
President and CEO

IMPORTANT EVENTS 2009



Lars G. Josefsson and Øystein Løseth

Joining forces with Nuon

In February, Vattenfall announced that it would acquire Dutch energy group N.V. Nuon Energy (Nuon). The transaction was completed on 1 July through an initial purchase of 49% of Nuon's shares (the remaining 51% will be purchased over the coming five years under fixed terms). The companies have jointly developed plans for the integration, which will focus on continued value creation and realising the ambitions surrounding renewable energy projects, gas sourcing and security of supply. Offering value added products and services that can improve energy efficiency will be key to maintaining high customer satisfaction. Nuon forms the third regional business group within Vattenfall – Business Group Benelux – but will retain its brand during a migration period and will be fully migrated by mid-2013 at the latest.

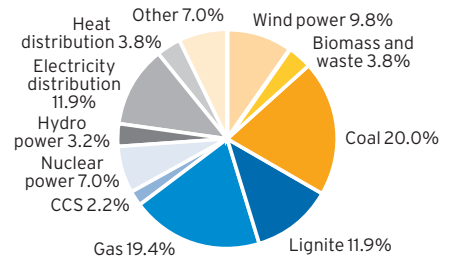
Moving forward with e-mobility

In June, Vattenfall and Volvo Car Corporation launched a joint venture in Sweden to introduce plug-in hybrid cars on the market. The ground-breaking technology will considerably lower the environmental impact of vehicle traffic, and Vattenfall customers will be able to charge their cars with energy of their choice. The development of the cars is being carried out and financed jointly by the two companies. Volvo will manufacture the cars, and Vattenfall will develop charging systems and supply the cars with electricity.

In Germany, Vattenfall and BMW Group have launched a pilot project called “MINI E Berlin powered by Vattenfall”. Fifty electric-powered BMW MINIs are being tested in 2009 and 2010 throughout Berlin, in combination with 50 charging posts installed by Vattenfall providing certified electricity generated by renewable sources. The project is the largest of its kind in Germany.



Investment programme 2010–2014



Annual review of investment plan is completed

Investment planning is done on a rolling 5-year basis. The programme approved for the next period (2010–2014) is more heavily weighted towards fossil fuels, mainly due to investments in natural gas inherited via the acquisition of Nuon and a more intensive investment phase for existing coal projects in Germany. Investments in wind power have decreased during this period, as poorer economic conditions led Vattenfall to prioritise offshore wind ahead of less profitable onshore wind options. Involvement in offshore wind will increase from 2010–2014, but investments will largely begin after this period. Of the total investments in generation, approximately two-thirds represent previously allocated commitments and one-third are reviewed each year. Of this third, 52% of investments are in low-emitting generation technologies and Carbon Capture and Storage (CCS).

Please see page 77 and Annual Report page 8 for further information on Vattenfall's investment programme.

Nuclear plants temporarily off line

2009 was a challenging year for Vattenfall's nuclear operations, with separate events leading to reactor outages for parts of the year in both Germany and Sweden. Read about these events and how Vattenfall is responding on pages 34–38.

Final repository proposed for Sweden's spent nuclear fuel

In June, Svensk Kärnbränslehantering AB (SKB – the Swedish Nuclear Fuel and Waste Management Co.) proposed Forsmark as the location for a final repository for Sweden's spent nuclear fuel. In the repository, all spent nuclear fuel from Sweden's nuclear power plants will be placed for final storage at an underground depth of nearly 500 metres. In addition to the planned nuclear fuel repository, the system for disposal of spent nuclear fuel also comprises the interim storage facility (CLAB) in Oskarshamn, and an encapsulation facility for which SKB has sought permission to build next to CLAB. The proposed location is the outcome of nearly 20 years of work in which SKB has conducted general investigations over wide areas of Sweden, feasibility studies in eight municipalities and then local surveys at Forsmark and Oskarshamn from 2002 to 2007.

European Commission supporting CCS demonstration plant

In December, the European Commission announced that Vattenfall's planned demonstration CCS (Carbon Capture and Storage) power plant at Jämschwalde in Brandenburg is to receive up to EUR 180 million in funding (total investment cost EUR 1.5 billion). The money is to come from the European Energy Programme for Recovery (EEPR), the European economic programme for energy that was adopted in June 2009. A total of six innovative CCS projects are receiving funding from this source. Read more about Vattenfall's CCS work on pages 12–17.

Wind to double electricity generation from 2 to 4 TWh 2009–2011

Vattenfall is currently building eight wind farms in six countries, with total capacity of more than 600 MW. These wind farms will double our electricity generation from wind from 2 to 4 TWh in 2011.

Several large wind farms are now under construction: The Thanet wind farm in Great Britain will, on completion, be the world's largest offshore wind farm, and the Stor-Rotliden wind farm will be Vattenfall's largest wind farm in Sweden. The Danish wind farm Nørrekær Enge was inaugurated in December 2009, after 77 smaller, older turbines were replaced by 12 2.3 MW turbines. In connection with this, annual generation was increased to about 88 million kWh, equivalent to the electricity use of approximately 23,000 households. The twelfth and final turbine at the Alpha Ventus wind farm testing field in Germany has also been completed. Located 45 kilometres north of the island of Borkum, Alpha Ventus will meet the electricity needs of 50,000 households.

During 2009 an application was prepared and submitted for the third round of a UK initiative to launch more wind generation capacity (25 GW of additional capacity by 2020). In January 2010 Vattenfall was awarded the rights to develop a major offshore wind farm off the east coast of England in the North Sea. If the rights are fully utilised, the wind farm will meet the equivalent electricity needs of more than four million homes annually.



Successor to CEO Lars G. Josefsson appointed

In November, Vattenfall announced that Øystein Løseth would succeed Lars G. Josefsson as CEO. Vattenfall's board had been developing a succession plan since summer 2009, in advance of Josefsson's planned retirement in 2010 at the age of 60. Løseth is currently CEO of Nuon and First Senior Executive Vice President of the Vattenfall Group. Løseth has worked in parallel with Josefsson during the spring and will take over as CEO on 12 April.

Ongoing legal proceedings based on Energy Charter Treaty

In March 2009, Vattenfall initiated legal proceedings against Germany under the terms of the Energy Charter Treaty. This multilateral treaty is intended to protect international investments in energy assets, and has been ratified by both Sweden and Germany. Vattenfall's position is that delays in the administrative process and unexpected changes in the operational conditions of the combined heat and power plant in Moorburg were in violation of German obligations under the treaty. The Moorburg plant is to be coal-fired and has proven controversial with environmental groups and some local stakeholders. While a number of the points of conflict have been resolved after some delay, disagreement remains about the plant's permission to access water from the Elbe River for cooling purposes. Vattenfall is seeking compensation for financial losses caused by the delay in granting permits and by restrictions on usage of cooling water.



COP 15 IN COPENHAGEN: WHAT DOES IT MEAN FOR VATTENFALL?

The United Nations climate conference in Copenhagen in December was a highly anticipated milestone in the global effort to combat climate change. Hopes for a definitive agreement were not met, and in the aftermath of a chaotic fortnight, uncertainty reigned. What happened at COP 15, and what does it mean for the climate and for Vattenfall?

COP 15 was actually three events in one. Formally, it was a conference of official negotiators working under the United Nations Framework Convention on Climate Change (UNFCCC). These negotiators were joined by tens of thousands of stakeholders from civil society and business, some there to observe proceedings, others to organise seminars, others to protest and campaign. In between these two forces was a political gathering, attended by 130 heads of state, whose decisions would determine what positions the negotiators could take.

The hope was that politicians would empower negotiators to take major steps forward within the formal UNFCCC conference. But this did not happen. The huge stakeholder participation contributed to a chaotic atmosphere. Formal negotiations became bogged down in arguments over protocol and blame-casting. Finally, in the conference's final hours, the heads of a few major economies attempted to complete a political agreement behind closed doors.

The resulting agreement, called the Copenhagen Accord, was not adopted by the formal conference, but only "noted" in the minutes of the meeting. It has been widely criticised as insubstantial. It did not include any common goals or binding targets for emission reductions, and lacked detail on important issues such as technology development and financing. Using the Business Leaders' Climate Scorecard, which Vattenfall and the 3C¹ Initiative developed, the Accord rates "Not Good Enough" in every dimension.

It is clear, however, that the world is headed towards a low-carbon global economy. All the detailed political homework remains to be done, and Vattenfall and the energy industry will have to live with significant political uncertainty as these major points are worked out. We still face uncertainty on emissions pricing, technology roadmaps, and how the actions of other countries might affect the ambitions of the European Union. But the climate issue is now anchored at the highest level of politics, as an economic, social, and environmental priority. Thus we must continue our push towards Making Electricity Clean, and ongoing uncertainty means we must do so with discipline and focus to allocate our resources effectively.

1) 3C – Business Leader's Initiative on climate change, www.combatclimatechange.org

VATTENFALL'S VISION AND STRATEGY FOR SUSTAINABILITY

Access to energy is a precondition for the function and development of society. However, all energy generation has an impact on the environment. Vattenfall supports sustainable development in society by managing the balance between secure energy supply and environmental and social consequences in a responsible way.

Vattenfall is committed to meeting society's need for energy in a responsible and sustainable manner. The guiding principle is that meeting the needs of the present must never compromise the ability of future generations to meet theirs. The criteria for acceptable impact from energy generation and supply must be set in dialogue with society, within a framework defined by regulation and market mechanisms.

What is expected of Vattenfall?

Vattenfall is engaged in a continuous and open dialogue with its stakeholders regarding their expectations and needs in relation to Vattenfall's activities. Many stakeholders have very high expectations of Vattenfall, and they often represent varying interests and conflicting needs. Therefore, Vattenfall must strive to include stakeholder expectations in decision-making and activities, to balance varying interests, and to communicate how this is carried out. For more information on stakeholder expectations, see page 8.

Making Electricity Clean

Societal, regulatory, and market forces are driving a transition to a more sustainable energy system, and thus our business strategy and our approach to sustainability must be integrated. Vattenfall's approach to sustainability is embedded in our business strategy and strategic direction: Making Electricity Clean. This strategy is based on the belief that aligning our core business activities with the conditions and requirements of tomorrow's marketplace will create a significant competitive advantage.

What can Vattenfall contribute?

Within the framework set by society, Vattenfall operates and invests in energy solutions that support sustainable development – economically, environmentally and socially.

Sustainable decisions must be made from a long-term perspective.

Vattenfall's business strategy is to be a leader in this transition, through investment in renewable energy, nuclear power, and Carbon Capture and Storage (CCS). The company is committed to climate-neutral generation by 2050 at the latest, and to halving its emissions from generation of electricity and production of heat by 2030. Making Electricity Clean also entails promoting the use of electricity in society as a way to improve resource efficiency and reduce emissions. Vattenfall is also emphasising research and development of energy solutions that are not yet commercially available. This work provides knowledge and expertise for the benefit of the company as well as society.

In support of our strategic direction of Making Electricity Clean, Vattenfall has five strategic ambitions: Number One for the Customer, Number One for the Environment, Profitable Growth, Benchmark of the Industry and Employer of Choice. These ambitions interact with and are dependent on each other. If Vattenfall is able to offer energy solutions that meet customers' needs as well as high environmental standards, then Vattenfall will also win the trust of its customers and the general public. By having the public's trust, the company can more easily attract the right competence. With the right competence, good leadership and committed employees, Vattenfall can become the Benchmark for the Industry. If Vattenfall is the Benchmark for the Industry, with focus on operational efficiency and value creation, the company can grow profitably. A strong financial position will then support the new investments required to deliver the energy solutions of tomorrow. Striking the right balance and fostering the synergies between these ambitions is at the core of Vattenfall's strategy.

STRATEGIC AMBITIONS

Vattenfall's five strategic ambitions

Number One for the Customer

Increase customer orientation and win market share while boosting cost effectiveness

- Make sure Vattenfall has the right products, services and prices
- Increase awareness about and strengthen the Vattenfall brand
- Continue growing the customer base and market share
- Increase cost effectiveness
- Increase customer orientation in all of Vattenfall's business areas

Activities during the year

- Further development of co-operation with the cities of Berlin and Hamburg in Germany
- Automation of the electricity grid and widening of the underground cable network for improved security of supply
- Installation of automatic meter reading systems for electricity consumption for all customers in Sweden and Finland and for industrial customers in Poland
- Working with upgrading the new, more efficient billing system was conducted in Sweden and Finland. A similar billing system is being implemented in Germany
- Advice to customers on energy efficiency improvement. Vattenfall also allows its customers to choose electricity with a declaration of origin, e.g., wind power, hydro power or nuclear power

Number One for the Environment

Develop the generation portfolio towards Clean Electricity (renewable energy, nuclear power and coal/gas with CCS)

- Significantly increase investments in low CO₂-emitting energy generation, i.e., renewable energy, nuclear power and coal/gas with CCS
- Accelerate business development activities to enable low-emitting technologies
- Actively advocate global and market-oriented climate policies to promote investment in low-emitting technologies
- Increase efficiency of existing electricity and heat production as well as in network activities
- Integrate environmental aspects in all business activities

- Investments in wind power in the UK, Sweden and Germany (including the Thanet, Edinbane, Stor-Rotliden and Alpha Ventus wind farms)
- Continued construction of a new hydro power plant (Abelvattnet) in Sweden
- Continued work on increasing the use of biomass (for example, the Amagerverket and Fynsverket plants in Denmark and the Siekierki combined heat and power plant in Poland)
- Several development projects were carried out in 2009 focusing on low CO₂-emitting electricity generation and use, for example, CCS technology at Schwarze Pumpe in Germany, e-mobility (co-operation with Volvo and BMW on rechargeable hybrids and electric cars), gasification of biomass and ocean energy

Profitable Growth

Drive growth through organic expansion and business development combined with acquisitions in priority markets

- Organic expansion will be of central importance for future growth
- Business development will be used as a complement to organic and acquisition-driven expansion
- Acquisition-driven expansion is important in the long term. However, in the near and medium terms, the focus will be on consolidation of existing market positions

- Acquisition of 49% interest in Dutch energy group N.V. Nuon Energy on 1 July 2009
- Acquisition of the outstanding interests in Vattenfall Heat Poland S.A. and GZE S.A. in Poland
- Continued investments to raise the level of safety and increase the availability and useful life of nuclear power plants
- Continued investments in wind power, biomass and efficient coal-fired plans (such as the Thanet and Alpha Ventus wind farms, the Amagerverket and Fynsverket plants in Denmark, the Boxberg and Moorburg power plants in Germany, and the Siekierki and Zeran combined heat and power plants in Poland)

Benchmark for the Industry

Strive for operational efficiency through productivity improvements and better utilisation of Group synergies

- Adopt long-term benchmarking goals for the business areas by benchmarking operations against peer companies
- Continuously work on improving processes and ensure internal bench-learning and the utilisation of best practices in order to achieve long-term goals

- Continuation of OPEX, the Group's productivity improvement programme. The goal for the OPEX programme is an 11% productivity improvement from 2006 to 2010, corresponding to a cost reduction of SEK 5 billion
- Continued investments in nuclear power to raise the level of safety and increase availability and useful life of plants

Employer of Choice

Attract, retain and develop people and competencies for the future

- Focus on talent management
- Develop leadership talents
- Develop employer branding
- Work in accordance with Vattenfall's culture and values
- Continue focus on health and safety
- Establish a performance culture

- Continued work on strengthening leadership and management competencies
- Continued work on strengthening employee commitment, motivation and performance

1) In 2010 N.V. Nuon Energy's operations will be integrated in the business planning process. Consequently, the targets for Vattenfall's operations in 2010 currently do not include N.V. Nuon Energy's operations.

2) These indicators have been chosen as complements to the business planning targets since they are important measures of Vattenfall's performance from a CSR perspective.

Goal achievement 2009	Business plan target 2010 ¹	Long-term target	GRI indicators to watch (PPIs) ²
<p>72 In the annual customer survey, Vattenfall received a Customer Satisfaction Index score of 72 (of a maximum 100), compared with the goal of 66. This represents an improvement compared with a year ago (64)</p>	<p>73 Customer Satisfaction Index score of 73 for retail customers</p>	<p>75 Customer Satisfaction Index score of 75 for retail customers</p>	<p>Customer satisfaction (PR 5)</p>
<p>0.3 During the year, Vattenfall's CO₂ emissions per kWh decreased by 0.3%. The business plan target for 2009–2011 is to reduce CO₂ emissions by 2% (corresponding to 2 million tonnes) in the Group's own operations</p>	<p>1.3 Reduce CO₂ emissions by 1.3%³, corresponding to 1.2 million tonnes, from own operations in 2010</p>	<p>-50 Halving of CO₂ emissions per produced unit of electricity and heat in own operations by 2030, compared with 1990 levels</p>	<p>CO₂-emissions (EN 16) and other emissions (EN 20)</p>
<p>19.2 Normalised annual generation⁴ increased by 19.2 TWh, compared with the goal of 5.8 TWh. The increase is mainly attributable to the acquisition of N.V. Nuon Energy, and to a lesser degree to other acquisitions</p>	<p>4.9 Increase in normalised annual generation of electricity by 4.9 TWh from 2009 to 2010</p>	<p>Top 3 The long-term target was redefined during the year: Vattenfall will be among the top 3 producers of clean electricity (renewables, nuclear power and coal/gas with CCS) in EU27 + Norway and Switzerland, expressed in produced TWh per year. This new target reflects Vattenfall's strategy better than the previous target, which was a 10% market share of the European energy market</p>	<p>Financial targets (EC1)</p>
<p>3.4 The outcome for 2009 was 3.4%, compared with the goal of 5.1%. The OPEX programme is progressing according to plan in most areas. The deviation from the goal for 2009 is primarily due to unplanned cost increases for operations and maintenance</p>	<p>11.0 Productivity improvement of 11% from 2006 to 2010, corresponding to a cost reduction of SEK 5 billion</p>	<p>↗ Vattenfall will belong to the upper quartile in the industry</p>	<p>Stakeholder engagement/ external communication (EU 18)</p>
<p>74 In 2009 Vattenfall received a Commitment score of 74, compared with target of 72. The improvement from 70 in 2008 is attributable to various activities at Vattenfall to build employee commitment</p>	<p>75 Commitment score of 75</p>	<p>81 Commitment score of 81</p>	<p>Employee commitment (HR 4, LA 7, LA 10) and diversity (LA 13)</p>

3) Normalised values with respect to, among other things, weather and market conditions.

4) Planned generation as well as sales of electricity and heat with normal weather values and plant status.

WHAT IS IMPORTANT TO VATTENFALL'S STAKEHOLDERS?

Stakeholder dialogues are a natural part of Vattenfall's everyday business. This interaction is an ongoing process in almost every aspect of Vattenfall's operations. Balancing the varied and sometimes conflicting priorities of different stakeholders is a core part of Vattenfall's corporate social responsibility.

Everyday engagement

Issues that are important to Vattenfall's stakeholders are identified and managed in the everyday business activities and communication. Aspects of our work, such as mining and new plant construction, require that we meet with local residents as a part of the trust-building process and to make sure stakeholder concerns are taken into account. Representatives from Vattenfall meet frequently with representatives from governments and non-governmental organisations (NGOs) to address concerns and share views on energy and sustainability issues. Customers and interested citizens maintain contact through our customer service operations as well as via e-mail and interactive features on our various national websites. Our Annual General Meetings are open to the public and are webcast on the Internet. We interact with members of the financial community on an ongoing basis, and we organise annual Capital Market Days.

Materiality analysis

In addition to this everyday work, stakeholders are invited to participate in specific surveys to identify and prioritise sustainability issues in relation to Vattenfall. In summer 2009, one such survey was distributed to stakeholders in the Nordic region, Poland, Brussels, and among select international organisations. The survey was not distributed in the Netherlands and Germany, where there were concerns that it would interfere with ongoing stakeholder dialogues. In these countries, Vattenfall's specialists in external relations and public affairs completed the same surveys on behalf of their stakeholders, based on the information they obtain and conversations they have on an ongoing basis.

The stakeholders were representatives of many different interest groups such as customers, NGOs, capital providers, and governments. Stakeholders were asked to rate how important it is for Vattenfall to emphasize responsibility and sustainability with regard to 31 issues. These issues were chosen based on feedback from stakeholders, the recommendations of the Global Reporting Initiative (GRI) and an industry benchmarking. We received 40 responses (of 75 surveyed), which were spread relatively evenly across stakeholder groups.

In all, 112 managers within Vattenfall also responded to the survey. The graph opposite shows how each issue scored with both internal stakeholders (placement along the horizontal axis) and external stakeholders (placement vertically). The responses showed relatively strong alignment between the priorities of Vattenfall managers and those of the company's stakeholders.

The results of this survey influenced the choice of topics for the narrative section of this report, though they were not the only factor. Topics covered last year, newsworthiness, and other editorial considerations also came into play, so that the five articles that follow do not exactly mirror the top five priorities of stakeholders. For example, of the two prioritised nuclear issues, safety was deemed to be the most current; the choice of research and development as a topic addresses stakeholder priorities regarding greenhouse gases and renewable energy as well as the numerous comments and questions we receive from stakeholders about our research and development (R&D).

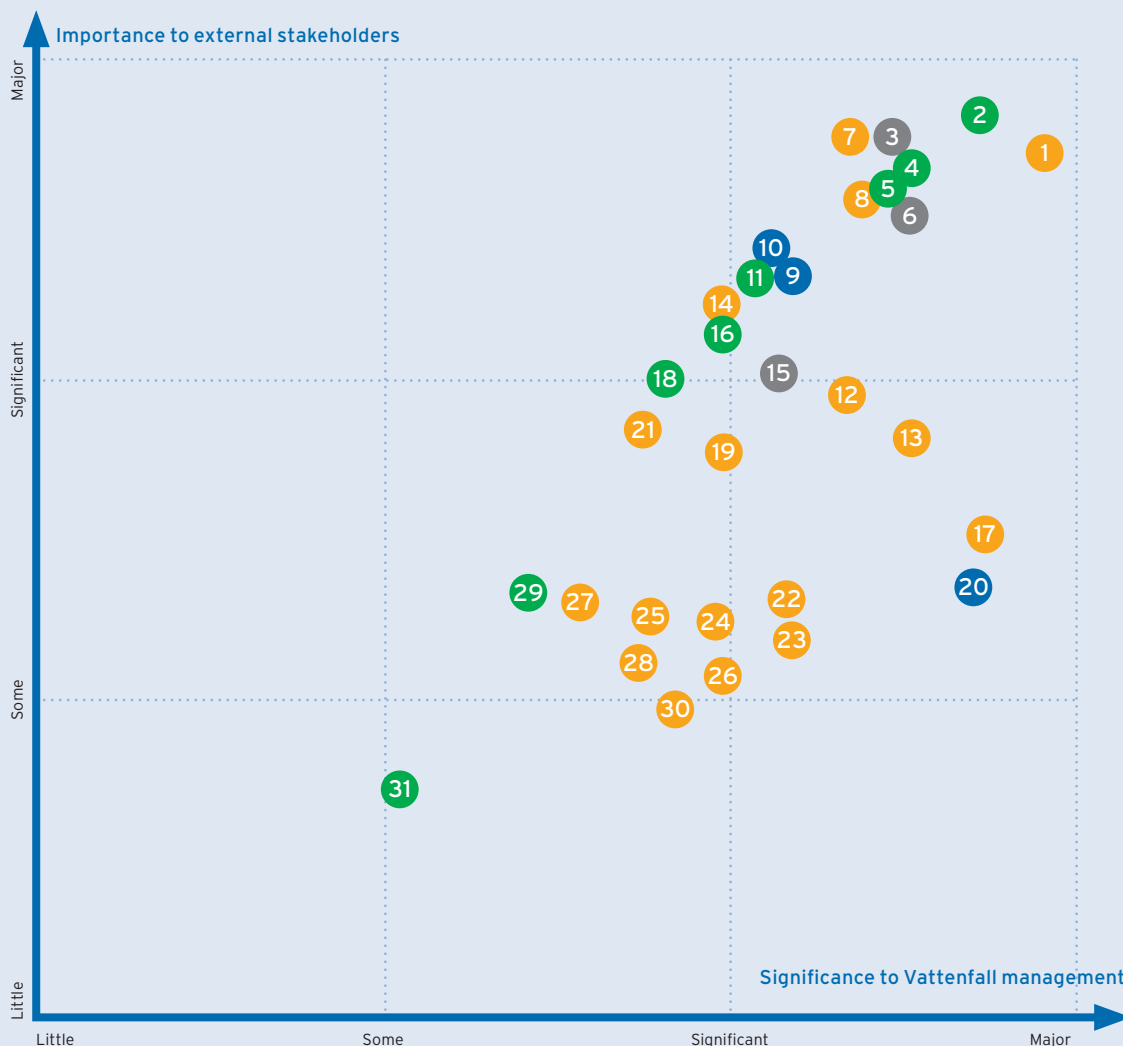
Differences between stakeholder groups

Not captured by the graph, but especially important to our work on responsibility and sustainability issues, are the differences between stakeholder groups. The most crucial differences were between different markets in which Vattenfall operates. Pricing of energy, for example, was a lower priority for Swedish and Group-wide stakeholders than it was for stakeholders in Poland, Germany, and the Netherlands. Climate change is not yet as high on the agenda in Poland as it is in our other markets, while nuclear safety and waste were understandably lower priorities in Poland and the Netherlands, which do not rely on nuclear power in the same way. Foreseeable differences also emerge between types of stakeholders, with environmental NGOs prioritising environmental issues, capital providers looking at issues with the greatest economic impact, etc.

While these different views may not be surprising, it is important to recognise that they create the conditions for Vattenfall's work: balancing the varied – and sometimes conflicting – priorities set by our stakeholders.

MATERIALITY ANALYSIS

The graph below shows how a range of external and internal stakeholders rated the importance of sustainable and responsible behaviour by Vattenfall regarding 31 different issues. These results are based in part on a survey of 40 external stakeholders (representing different regional and organisational viewpoints) and 112 Vattenfall managers. Responses from external stakeholders were weighed together and thus the chart does not capture the different and often conflicting priorities of different groups. This weighting was one of several factors guiding the choice of topics in this report.



Environment

- 2 Greenhouse Gas Emissions and Climate Change
- 4 Renewable Energy
- 5 Nuclear Waste
- 11 Other Emissions, Pollution and Waste
- 16 Land Use and Ecosystem Impact
- 18 Material (incl. Water) Used in Production
- 29 Transport
- 31 Electro Magnetic Fields

Economic

- 9 Energy Efficiency in Operations
- 10 Market Presence
- 20 Economic Performance

Social

- 1 Nuclear Safety
- 7 Community Relations
- 8 Pricing of Energy and Services
- 12 Corruption, Bribery and Anti-Competitive Behaviour
- 13 Customer Service
- 14 Customer Energy Efficiency
- 17 Security of Supply
- 19 Occupational Health and Safety
- 21 Job Security and Job Creation
- 22 Workforce Training and Benefits
- 23 Public Affairs and Lobbying
- 24 Labour/Management Relations

- 25 Marketing Communication
- 26 Human Rights Issues
- 27 Supply Chain Management
- 28 Gender Equality
- 30 Diversity and Non-Discrimination

Others

- 3 Openness and Transparency
- 6 Stakeholder Engagement and Dialogue
- 15 Corporate Governance

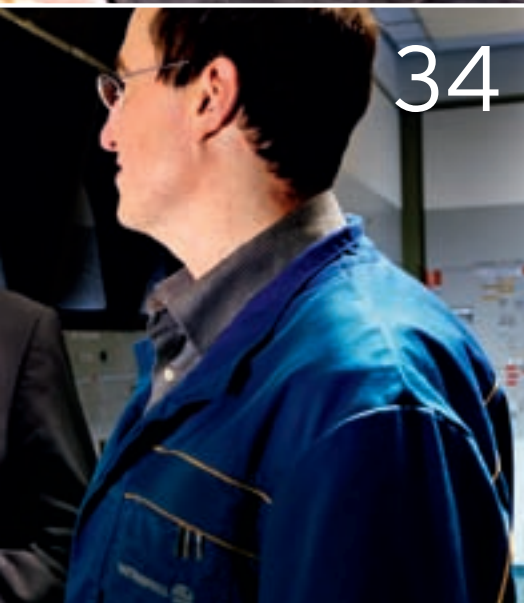




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22




34

WHAT WE DO

Vattenfall's stakeholders want to know what we are doing in practice to address important issues in a sustainable and responsible fashion. In the following five articles we pose questions that reflect some of the feedback we have received from stakeholders, and attempt to answer these by providing examples of how Vattenfall works with technology, the market and society to develop sustainable solutions.

"Can you make carbon capture and storage a reality?"	12
"Can you use more biomass?"	18
"What research and development are you conducting to support sustainability?"	22
"What are you doing to help customers save?"	28
"Are your nuclear operations safe?"	34



“CAN YOU MAKE CARBON CAPTURE AND ST

The Schwarze Pumpe pilot plant

In February 2009, the official test programme at the 30 megawatt (MW) pilot plant for CO₂ capture in Schwarze Pumpe, Germany, started. This marked an important milestone on the road from laboratory-style engineering to future large-scale commercialisation and deployment of Carbon Capture and Storage (CCS).

During the first year of tests more than 1,900 tonnes of CO₂ were captured at a capture rate of above 90%. A capture rate of at least 95% lies within reach, and 98% will be possible in the future. More than 5,000 people visited the plant in 2009.

During the coming four years the technology will be further tested and optimised. Different kinds of fuels – lignite, hard coal, and biomass – will be used, and several new components from suppliers will be tested.

ORAGE A REALITY?

Vattenfall believes Carbon Capture and Storage (CCS) will become a reality and that the technology will be commercially viable by 2020. The components involved in CCS already work and are in operation in various applications around the world. However, the capture, transportation and storage techniques have yet to be integrated in a way that delivers large-scale CO₂ abatement in commercial electricity generation. Vattenfall will now integrate these technologies at large demonstration plants and is working with stakeholders to develop the social, legal, and economic conditions for commercial deployment within 10 years.

Coal still constitutes the basis of electricity generation in most European countries, and given these countries' energy policies it is likely to remain an important energy source for some time.

At the same time, Europe's goals regarding climate change require a drastic reduction of CO₂ emissions. Since fossil fuel dependency and reductions of CO₂ have to be handled in parallel, Vattenfall sees CCS as an important solution. CCS is not a substitute for renewable energy sources; we will need all tools that have potential to reduce emissions.

The road to 2020

In recent years scepticism has emerged regarding the feasibility of CCS: because no power plants that generate and sell electricity have yet put CCS into practice, there are doubts as to whether the technology can really help meet the challenge of reducing emissions, and do so in time.

We believe that it can – Vattenfall expects that commercial, full-scale CCS plants can be operational by 2020. Making that expectation a reality will require the fulfilment of three objectives:

1. Demonstrating that already developed components of CCS technology can work together at a large scale
2. Improving the effectiveness of the technology until it can compete commercially given a realistic price for carbon emissions
3. Establishing societal, legal, and economic conditions that support large-scale implementation

Vattenfall has a direct role in realising the first two objectives, and we are on pace to have a working, competitive technology ready in 2020. We support the third objective by working with stakeholders in governments, communities, and industry to build the necessary societal acceptance and legal and regulatory frameworks.

CCS works: moving from testing to demonstration

After one year of trial operation, Vattenfall's pilot plant in Schwarze Pumpe, Germany, has delivered technological results that exceed expectations. The CO₂ capture rate is more than 90%, and the process is currently being optimised.

Experience from the test-runs proves that from a technical perspective, CCS can be used effectively in the context of large-scale power generation. Pilot plants, such as Vattenfall's in Schwarze Pumpe and Buggenum, allow the testing of early-stage technologies in real-world conditions. Nonetheless, their purpose is still only validation of technology. Demonstration plants are required to take a technology "live".

For Vattenfall, the next stage of technological development is building large-scale demonstration and later commercial plants. Work is being pursued at facilities both in Jämschalde, Germany, and Magnum in Eemshaven, the Netherlands. (See "The road to commercial plants in operation," below). The planned demonstration plant at the Nordjyllandsværket plant in Denmark has been postponed due to financial restrictions, and the focus is now on the commercial scale plant at this site.

Parallel with the demonstration of the technical and economic feasibility of CCS, we must work with other stake-



Through the acquisition of Nuon on 1 July 2009, Vattenfall gained further knowledge about CCS. A pre-combustion pilot plant is currently being constructed in Buggenum, the Netherlands. The plant will be in operation in 2010.

holders to create conditions that will allow the technology to take hold. This entails three interrelated challenges: building acceptance for the technology among local communities and

The road to commercial plants in operation

Phase 1: Pilot plants and investigation of storage

The Schwarze Pumpe pilot plant in Germany was inaugurated on 9 September 2008. It is the first pilot plant in the world to use the oxyfuel combustion method.

The 3–5 years test programme in Schwarze Pumpe began in 2008 and continues to provide important input to the engineering of the demonstration plant in Jämschalde, which will also use oxyfuel technology. The pilot will also test a new method of treating, cleaning and compressing the captured CO₂.

After one year of trial operation, the plant has delivered technological results that exceed expectations. The CO₂ capture rate is more than 90%. This rate can be further increased by optimising the CO₂ capture process. More than 1,900 tonnes of CO₂ have been captured.

In Buggenum, the Netherlands, construction of a pilot plant began in 2009. This pilot will test pre-combustion capture of CO₂ in combination with integrated gasification combined cycle technology. Nuon has focused on pre-combustion technology, which complements Vattenfall's earlier work with the two other technologies (oxyfuel and post-



Vattenfall's CCS pilot plant in Schwarze Pumpe

society as a whole; developing legal frameworks that facilitate investment and manage risk; and establishing the economic incentives needed to bring the technology to market.

Acceptance is a must to realise the potential

Opinions about CCS are divided. On one hand, the technology holds potential for drastic cuts of CO₂ emissions globally, and particularly in countries with limited access to other low-emitting energy sources. On the other hand, concerns about its development remain, both from those who see CCS as a continuation of fossil fuel use and from local communities residing near potential underground storage sites.

Vattenfall respects the concerns people have regarding CCS; to most people it is a more or less unknown concept with high scientific, technical and political complexity. Occasional protests against our plans have been held both in Germany and Denmark. Vattenfall listens to stakeholders' concerns and welcomes the opportunity to exchange views on safety and the role of CCS in curbing climate change.

The development of infrastructure for transport and long-term storage of captured CO₂ in deep underground geologic formations is particularly important. The saline aquifers and depleted gas fields, where the CO₂ will be stored, are

conveniently located in many regions. Access to storage is a precondition for any CCS installation; in any case, it will require both local acceptance and regulatory frameworks for managing the storage.

Legal framework must develop

Several legal and regulatory issues must be resolved to allow large-scale investment in CCS. Many of these are related to transportation and storage, such as the permitting of pipelines and sites; the creation of rules for site monitoring and safety regulation; and the rules governing liability for accidents or leakage.

Work is proceeding in all of these areas. A legal framework was outlined in the EU's CCS directive in summer 2008. All member states are now obliged to implement this directive into national law before June 2011 and thus create a planning basis for companies. It is, however, clearly linked to the issue of public awareness and local acceptance.

Uncertainty in all these areas continues to create problems for scaling up investment. Until 2009 we have invested EUR 70 million in our CCS Pilot Plant at Schwarze Pumpe and the cost of a demonstration plant is estimated to be EUR 1.5 billion. Further investment will require that these legal and regulatory issues are handled in concert with all stakeholders.

combustion). The pilot plant in Buggenum will also support further development and implementation of this approach on the demonstration and commercial scales, particularly at the planned facility at the Magnum plant.

The more capture technologies that reach commercial maturity, the more options Vattenfall and others will have for their plants going forward.

So far, no CO₂ from the pilots has been injected into any storage formation. Instead, some of it has been further cleaned and sold as industrial gas. Vattenfall's ambition is to work together with Gaz de France to use future captured CO₂ from the Schwarze Pumpe pilot plant for enhanced gas recovery at the almost depleted Altmark gas field. Vattenfall is also working in the EU-cofounded research project (CO₂SINK) on saline aquifer storage in Ketzin. Both of these projects are awaiting ratification of the new CCS legislation in Germany.

Two potential saline aquifer storage structures, Birkholz and Neutrebbin, east of Berlin, are being investigated. Possible transport pipeline routes connecting the plants and storage sites are also being evaluated. The investigations will include detailed mapping of the structures and deep test wells to assess the suitability of the geology for future storage. The Altmark gas field looks very promising as a future large-scale CO₂ storage site as well, and we are continuing to investigate the possibility for CO₂ storage in Vedsted, Denmark, with an eye toward a commercial capture plant at Nordjyllandsværket. Dialogue with local stakeholders is continuing. In the Netherlands,



nearly depleted gas fields are being investigated as potential storage sites.

Once geological storage has been shown to be available, investment in capture plants can be made.

Making CCS economically viable

The nature of CCS technology is that of an “add-on” technology; while several different technical options exist for capture, the basic idea is to add a new function to electricity generation. This means that CCS has an inherent cost – the cost of the extra “function” of CO₂ capture, transport and storage. Vattenfall’s job is to get those costs as low as possible; but electricity generation with CCS will always cost a bit more than without.

This added cost must be met by an enduring price for carbon emissions. In the long-run, Vattenfall expects that the carbon price set by the European Emissions Trading Scheme will be high enough to make CCS not just sensible but necessary for all fossil-fuelled power plants. Nonetheless, the EU’s carbon price is set in interplay with numerous political factors, many of them global, and the sooner these are stabilised, the sooner investment in CCS can be scaled up.

However, even expectations of a high carbon price may not suffice to get the technology off the ground. Like all new technologies, CCS will grow and improve significantly in the first years of implementation. This means that the first plants to be built will quickly become outdated technologically, and potentially they will fail economically despite a high CO₂ price. This has created a “first-mover disadvan-

tage” in the industry and threatens to leave CCS stalled at the pilot or demonstration level. Fortunately, the EU has realised that incentives are needed to encourage technology that contributes to fulfilling climate goals, reducing the risk for companies who are “first movers”. Vattenfall’s Jämschalde demonstration plant was one of six projects to receive financial support (EUR 180 million) in a first round of EU funding. Additional public funding is expected in the coming years.

Illustration of CCS demonstration plant in Jämschalde



Phase 2: Demonstration plants

The technologies tested at Vattenfall’s pilot plants will have to be demonstrated on a larger scale before they can be commercialised. Vattenfall is developing demonstration options in Jämschalde, Germany, and at the Magnum plant in the Netherlands.

Vattenfall estimates the investment cost of the demonstration plant in Jämschalde at EUR 1.5 billion. In December 2009 it was announced that the EU would support this investment with EUR 180 million in funding from the European Energy Programme for Recovery (EPR), which was adopted in June 2009. A total of six innovative CCS projects will receive funding from this source.

The electrical power capacity of the demonstration plant will be approximately 385 MW. The plant will begin operating in 2015.

At Magnum, three natural gas combined-cycle plants will be built initially, with a second phase adding coal gasification, co-combustion of biomass and pre-combustion capture of CO₂ for a flexible fuel set-up.



Phase 3: Commercial plants in operation

The goal is to develop commercial concepts for carbon capture and storage at coal-fired power plants by 2020. Among these will be a full-scale CCS operation at the Nordjyllandsværket plant in Denmark – this will replace the planned demonstration project, which has been postponed due to financial restrictions. Instead, we plan to wait a couple years with this plant and take advantage of the envisaged rapid development of capture technologies that will result from the work at our demonstration plants and other CCS sites around the world.



Vattenfall's CCS pilot plant in Schwarze Pumpe

COMMON QUESTIONS REGARDING CARBON CAPTURE AND STORAGE (CCS) AND COAL

Can't we stop using coal?

Fossil fuels are a vital source of energy globally and in several markets in which Vattenfall operates. Globally, fossil fuels account for 68% of electricity generation¹. Coal is used to produce a large share of the electricity generated in Germany (48%), Denmark (50%) and Poland (94%), and is also widely used in the UK (33%), the Netherlands (27%) and Finland (15%). While alternatives are growing and will continue to do so, coal-based electricity generation will play a role for decades to come.²

When can CCS be ready?

Vattenfall strongly believes that CCS has the potential to be commercial and to substantially reduce carbon dioxide (CO₂) emissions starting in 2020. Other measures, such as increased energy efficiency and increased use of renewables like wind power, are also very important, but won't suffice alone. However, it is crucial that all options and technologies are used to tackle the climate change issue. Read more of how we are supporting sustainability through research and development on pages 22–27.

Does CCS reduce efforts to develop renewable technologies?

No, CCS is a powerful complement and is not curbing our efforts to develop other solutions. CCS will be used not only in energy generation; it will be also used in other high-emitting activities like steel, cement, or paper production, where the required emission reductions cannot be handled by renewable energy alone.

CCS should be developed in parallel with other energy sources and solutions, not as a substitute.

Does CCS waste energy?

CCS plants use more energy for their internal processes than conventional power plants. These processes use energy that otherwise could have been used to generate additional electricity. However, some of the losses in electricity generation could be used for heat production. Therefore, Vattenfall strongly believes that commercial CCS plants will achieve improved competitiveness. The payoff for this increased energy consumption is a more than 90% decrease in CO₂ emissions.

1) IEA, World Energy Statistics 2009

2) European Association for Coal and Lignite

What methods are used to capture CO₂?

In fossil-fired power plants, CO₂ represents only a small portion of the flue gas. Depending on the type of fuel and power plant process, the CO₂ content in the flue gas varies between 3% and 15% of total flue gas volume. The different methods available for capturing CO₂ aim at producing a concentrated stream of CO₂ that can be readily transported to a suitable storage site. There are three principal ways to capture CO₂ produced in large power plants:

- Oxyfuel combustion, where fuel is combusted in oxygen instead of air
- Post-combustion, where CO₂ is removed from the flue gas after combustion
- Pre-combustion, where carbon is removed from the fuel before combustion

Is it safe to store CO₂ underground?

We know that the three parts of the CCS chain, capture, transport and storage, work and that they can be performed safely – for storage this means during injection and after sealing the storage facility. Minor pipeline leaks can be easily detected through sharp temperature drops near the fissure. Larger ruptures can be quickly terminated through automatic shut-offs and safety devices. Storage will take place in the same kinds of formations that have held oil and natural gas for millions of years. Naturally occurring accumulations of CO₂ can be found in many places around the world. Properly investigated deep geological structures can be used for safe, long term storage of CO₂. Stringent regulations regarding monitoring and safety will be put in place in accordance with the EU Directive on geological storage of carbon dioxide and the subsequent member state legislation.



Read more: CCS website

For more information about Vattenfall's Carbon Capture and Storage (CCS) project, visit the CCS website, where you can read all about CCS technology, and Vattenfall's pilot and demonstration plants. The website explains the project's objectives and targets and is continuously updated with the latest news on the project.
www.vattenfall.com/ccs

“CAN YOU USE
MORE BIOMASS?”





“Our challenge is to find biomass at a competitive price that meets the demands for quality, volume and time of delivery, as well as Vattenfall’s Code of Conduct for suppliers. Transport costs for biomass can be high, for that reason we are always looking for local sources. This is also favourable from an emissions perspective” – Göran Lundbäck, biomass purchaser at the wood chip plant in Munksund.

Lundbäck is responsible for purchasing of biomass for Vattenfall’s plants in Kalix, Överkalix, Haparanda and Munksund (Piteå), Sweden.

At Vattenfall we believe that we must do so given the EU targets for emission reduction and renewable energy generation. Biomass will play an important role, especially since using biomass instead of fossil fuels can reduce fossil-based CO₂ emissions from existing plants in the near-term. Yet the sustainability of biomass use depends on the type of biomass and how it is produced, handled and used. We avoid using biomass that could lead to adverse environmental and social impacts.

The role of biomass in sustainable society

Biomass is a renewable energy source that is also regarded as being CO₂ neutral over the long term, since the trees, grass and crops from which it comes capture and store carbon as part of photosynthesis. As long as the biomass is continually regrown, the process will remain CO₂ neutral in the long term. With so much of Europe’s heat and electricity generation being based on fossil fuels, substituting them with biomass offers a way to reduce climate impact relatively quickly.

Biomass is expected to play an important role in meeting the EU target of 20% renewable energy by 2020 as well as in the fulfillment of Vattenfall’s plans to reach tough targets on reducing fossil-based CO₂ emissions, both immediately and until 2030. At the EU level, estimations indicate that biomass could account for half of the target of 20% renewables by 2020. This means that use of biomass would double compared with today, from 5% to 10% of total energy use (heat, electricity and transport). Vattenfall has identified opportunities to replace fossil fuels with biomass in existing power plants and thereby reduce climate impact. Current Vattenfall projects to increase biomass will lead to an increase of 5% in 2010, and by 2030 biomass is expected to account for 10% of total electricity (and heat) generation. The challenge is finding a way to use biomass both sustainably and profitably. A price on CO₂ emissions and additional subsidies are important for the economic prospects of biomass.

Biomass use today

Vattenfall operates 40 heat and combined heat and power plants that run fully or partly on biomass and together use more than three million tonnes of biomass every year.

Biomass encompasses a variety of fuels that differ in terms of sustainability, quality and energy content. Our objective is to first carefully choose fuel, then to achieve low total emissions through efficient production, prepara-

The Amager plant is situated near Copenhagen, on the northernmost point of Amager. One unit, with a capacity of 68 MW electricity and 250 MJ/s heat, has been rebuilt from coal only and can now run on oil, coal or biomass. The goal is to use 100% biomass. The biomass used is mostly straw from the surrounding area that is processed into pellets in a factory set up by Vattenfall.



tion, transportation and combustion of the fuels chosen.

The largest part of Vattenfall's biomass use consists of recovered waste such as demolition wood, industrial and municipal biogenic waste, manure, sludge and straw. We also use significant amounts of residues from forestry and agriculture. Most of this waste and residues would be left to decompose naturally, emitting greenhouse gases in the process. Therefore, recovering energy from these residues is an added benefit to society and does not cause additional emissions of greenhouse gases over time. We also use energy crops such as salix (willow) in regions suitable for growing these crops.

Considering the sustainability impacts

When using biomass we must look beyond the immediate impact of our own energy production. Biomass production entails risks of negative impacts, such as deforestation and loss of carbon stock in the soil, which would negate the purpose of using biomass to reduce climate impact. Other risks include loss of biodiversity and increased competition for land used for food production, possibly affecting food prices.

Vattenfall avoids – and must continue to avoid – biomass sources that pose these risks. We are working actively with others on the development of criteria, standards and certifications that can help ensure sustainable production of biomass fuels. Vattenfall is a very large buyer and user of biomass fuels, and we work hard to ensure responsible performance across the biomass fuel chain. Vattenfall applies its Code of Conduct for suppliers in biomass purchases (based on the UN Global Compact principles, see page 42).

The broader implications of increased use

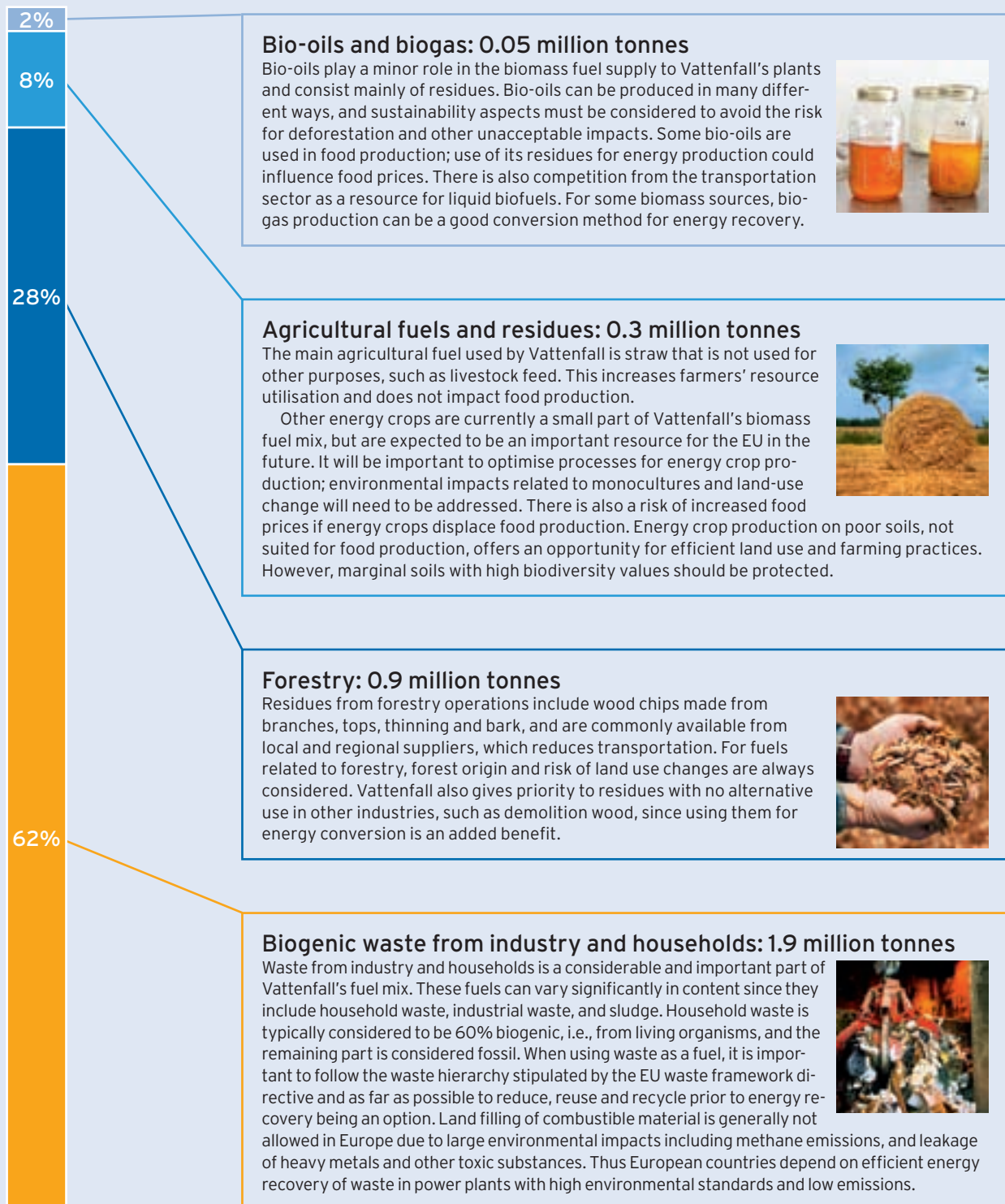
At Vattenfall we see biomass as an important tool in meeting our emission reduction targets and increasing the use of renewable energy. We are not alone – in fact, a changing picture for biomass use throughout Europe is foreseen.

Significantly increased use of biomass in the EU during the coming decade will put pressure on fuel availability. Substituting approximately 25% of Vattenfall's total coal consumption would require approximately 100% of the wood pellets currently traded on the world market. We therefore expect that imports of biomass to Europe will increase, and that a global market for biomass will develop. This will create opportunities for many regions that produce biomass fuels; however, the development also requires that sustainability aspects along the whole supply chain are carefully managed.

As biomass production becomes more global, sustainability criteria for biomass sourcing will become even more important. Most of the sustainability risks occur in countries outside the EU, where there is less rigid legislation on environmental protection, sustainable forest management and other important sustainability aspects. Therefore, increased import of these fuels makes sustainability criteria for biomass essential. Vattenfall believes that wisely designed sustainability criteria will enable an increased use of biomass to reach the targets on fossil CO₂ emission reduction and increased use of renewable energy, while safeguarding that this development does not cause adverse effects elsewhere.

CAREFUL CONSIDERATION WHEN CHOOSING BIOMASS

There is growing demand in the world for different biomass fuels: international trade is increasing and new actors are entering the market. This development, together with the large variety of fuels, presents new challenges and makes it important to understand and take responsibility for the sustainability aspects of each fuel. Below you will find an overview of the biomass we use today and our standpoint about the fuels from a sustainability perspective:





“WHAT RESEARCH AND DEVELOPMENT ARE TO SUPPORT SUSTAINABILITY?”

Ocean energy is a renewable energy source in which electricity can be generated from thermal differences, tidal streams, waves or differences in salinity. Right now we are focusing on wave power, an unexploited renewable energy source that has several attractive features. There is a huge global theoretical potential for energy from the waves, and their potential output is less variable than certain other renewable resources. Research and development must improve the technology's performance, durability, reliability, and costs before it can be commercialised. The Pelamis technology pictured here will provide 9,000 homes with household electricity by 2014.

YOU CONDUCTING

Vattenfall's research and development (R&D) provides crucial support for our strategic direction: Making Electricity Clean. Our R&D work focuses on low-emitting energy generation like Carbon Capture and Storage (CCS), nuclear power and renewable energy sources. R&D is especially important in the early stages of development, where breakthroughs can make a big difference to the costs of these technologies. Ocean energy, CCS, e-mobility (transportation powered by electricity) and smart grids (networks of the future) are all technologies that fit this description, and progress on these technologies is a vital part of Vattenfall's strategy. Vattenfall's research and development efforts are part of a broader effort – by private companies, public and academic institutions, and entrepreneurs – to make tomorrow's low-emitting energy a reality.

Why and how Vattenfall engages in research and development

Not every technology requires the same type of investment. Established, mature technologies such as wind power and traditional fossil-fuelled power plants are no longer changing rapidly and therefore attract large-scale investment in deployment, rather than spending on R&D. Other technologies are at an earlier stage of development; their operational and economic performance benefit more from fundamental research and testing.

Different actors play different roles in the commercialisation of technologies. Researchers at universities and in public institutions typically have a lead role in the fundamental research and development that underpins most technology applications. Entrepreneurs and venture capitalists invest in various unproven technologies that have commercial promise and often introduce the first versions to the market. Larger companies, such as Vattenfall, tend to be important in disseminating technologies to the mass market.

Vattenfall has a vested interest in the progress of early stage technologies in the areas where we see the greatest potential and need for progress. In our research and development we compile, analyse and evaluate all new technologies and ideas that appear to identify and initiate work on future technologies.

Vattenfall as an energy company, system builder and operator has little or no competence in the manufacturing or production of technical equipment; instead, we define our needs for the manufacturing market. Consequently, we do not develop new energy equipment products. Our ambition is to be an excellent user of technology that is mainly devel-

oped by others, notably equipment manufacturers, in order to provide our customers with clean electricity. To achieve this, we are working together with numerous suppliers, large and small, from the laboratory stage or in demonstration or pilot projects. In these projects, we develop know-how and provide the operator's perspective on, for example, the usability and reliability of new systems.

The importance of commercialisation

When most people think of technology development, they think of inventors. But technologies come into use through a process of invention, testing, improvement, and dissemination. Technologies usually impact daily lives through commercialisation: taking a new technology and transforming it into a product or service that is bought and sold.

Most low-emitting energy technologies do not need to be invented – the basic concepts are already there to be commercialised. Vattenfall's challenge is to put these concepts to use in a way that both lowers environmental impact and wins customers in a profitable manner.

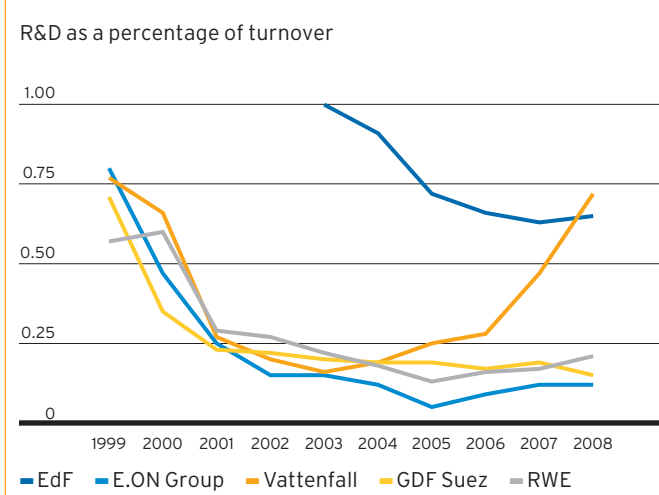
What does it mean for an energy technology to be commercial, and what demands does the customer put on us when we are introducing new technology? Among other factors, a commercial energy technology has to be:

- Reliable – consumers expect electricity and other energy services to be essentially 100% reliable
- Compatible – energy technologies must fit in to the transmission, distribution, and consumption infrastructure
- Competitive – electricity is a commodity, so it can only sell if it can meet the market price
- Large-scale – large scale is usually required to keep costs reasonable, and large-scale solutions may also be required to meet the climate challenge in time

Of course, technologies do not stop evolving once they are deployed. Most become more powerful as manufac-

Benchmarking our R&D spending

It is fair to ask whether Vattenfall's spending on research and development is enough, given Vattenfall's stated goal of carbon neutrality by 2050. It is hard to give a yes or no answer, but we can compare to what others are doing. The graph below benchmarks aspects of Vattenfall's R&D spending against some broadly comparable peer companies (figures derived from annual reports, definitions on R&D may vary).



turers learn and improve upon their processes, especially when large companies like Vattenfall are pushing for their deployment. Even mature technologies can benefit from continued R&D. Vattenfall has programmes that address ongoing improvements in wind power, biomass, and other more mature technologies.

Expectations on energy technology

Society's ability to meet the challenges of climate change and sustainable development is dependent on many things. Some believe changing behaviour is the key – that individuals and companies should make voluntary decisions to



Using less energy when using more electricity

Using less energy when using more electricity sounds like a contradiction, but electric-powered options are often more efficient than use of fossil fuelled options. For example, when replacing gas-powered cars and fuel oil-fired boilers with electric hybrid vehicles and heat pumps, only a fraction of the energy is needed. Thus Vattenfall believes that expanding the use of electricity is one way to help our customers and society decrease their overall energy consumption.

What are the most important areas for energy research and development?

"Finding cost efficient ways to reduce CO₂ emissions from the energy sector is the most important goal, and R&D is important in order to push forward CO₂ mitigation technologies. The main threat to the climate is the use of extensive fossil fuel resource and, thus, I see it as very important to put R&D into CCS technologies. If CCS is successfully deployed, it will help fossil fuel dependent economies to make credible agreements on the large emission reductions required. Yet we need all available technologies and measures to meet the climate threat and maintain security of energy supply. Other important R&D activities include finding highly efficient ways to produce electricity, heat and/or transportation fuel from biomass and to find smart ways to electrify the transportation sector."



Filip Johnsson

Where do you see potential breakthroughs?

"I think the electrification of the transportation sector has large potential and is not so widely discussed by the general public. Electrifying the vehicle fleet not only holds promise for decreasing carbon emissions, it can help facilitate integration of intermittent electricity generation such as wind power. Fluctuations in wind power can be compensated by smart charging strategies of electric and plug-in hybrid electric vehicles. Many types of energy efficiency

measures have been proven cost efficient and have a large potential, but for various reasons such approaches have been difficult to implement. Increased costs to emit CO₂ will hopefully help implementation of efficiency measures, but also a growing awareness among the general public and in industry is important too."

Filip Johnsson

Professor of Sustainable Energy Systems,
Chalmers University of Technology, Gothenburg, Sweden

reduce or eliminate activities that are viewed as unsustainable (read more on page 28, "What are you doing to help customers save?"). In a recent survey of climate change experts,¹ almost half of the respondents believed that behavioural change was more important than technology in addressing climate change over the next five years.

Yet there is also increasing discussion of how new technology can contribute to the long-term solution. In the political realm, governments around the world have emphasised development of new energy technologies as a solution to climate change. They are supporting development not only from an environmental point of view, but also as a source of jobs and economic growth. The European Union's climate targets call for a 20% increase in renewables, 20% increase in energy efficiency, and 20% reduction in carbon dioxide emissions by 2020. Meeting these targets will surely require commercialisation of multiple new energy technologies.

Vattenfall stakeholders surveyed in 2009 (see pages 8–9, "What is important to Vattenfall's stakeholders?") emphasised the importance of research and development, including technologies like renewable energy, carbon capture and storage, and energy infrastructure such as smart grids.

Among stakeholders surveyed in 2007 as part of the European Union's Strategic Energy Technology (SET) Initiative, just under half believed that new technologies would be required to meet climate goals; of these, more than nine out of ten believed that a broad portfolio of technologies was desirable.

Vattenfall's own studies of the options to reduce emissions have brought us to the same conclusion. Many important technologies are available today, and investment in these is a priority. However, some of the needed technologies have not yet been proven to work on the large scale that is necessary, while others appear promising but are much more expensive than consumers are accustomed to.

Many stakeholders feel that society is not doing enough to push innovation in energy technologies – the SET survey identified more than 30 technologies that a majority of stakeholders felt were under-resourced, including energy storage technologies, carbon capture and storage, and ocean energy.

Companies, including Vattenfall, can address this shortfall by supporting research and pushing development, thereby contributing to technological progress in a way that both supports society and boosts competitive advantage. Innovation is a complex phenomenon, but by targeting efforts and working with our suppliers and the research community, we hope to make the most promising technologies work in our favour.

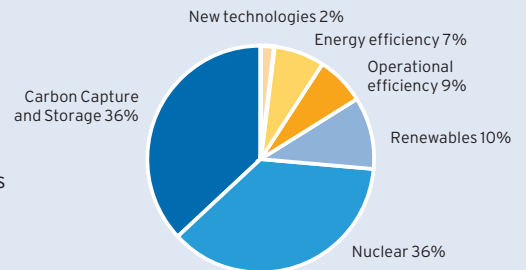
1) Globescan, Sustainability 2009

RESEARCH AND DEVELOPMENT ACTIVITIES – AN OVERVIEW

Vattenfall's strategy means that we must drastically reduce emissions from electricity generation. Vattenfall's main option is technological: bridging the gap between today's portfolio of power plants and tomorrow's through research and development.

Vattenfall's expenditures on research and development today do not mirror the investment plan for 2030 (page 80). One important difference, for example, is that wind power plays a much bigger role in tomorrow's generation portfolio than it does in today's R&D budget. This is not a misjudgement: because wind turbines are a mature, well-understood technology, their progress will be driven by investment and deployment, rather than research breakthroughs. Vattenfall's R&D is performed under six areas described below.

Total R&D expenditures 2009:
EUR 127.7 million



Pelamis wave energy converter

Renewables

Ocean energy

Vattenfall believes that ocean energy will be the next renewable technology to be commercialised – probably within 10 to 15 years. We are currently developing expertise in deploying, operating and maintaining wave power plants. We want to gain experience in performance, durability, reliability, and operating and maintenance costs. Based on an evaluation of more than 15 different wave energy technologies, we have chosen to actively support two of them: Pelamis and Wavebob. Today we are working predominantly with pilot tests, establishing sites and obtaining permits for wave power sites along the coasts outside Norway, Ireland and Great Britain, where conditions are especially favourable. This first phase is estimated to continue until 2011. After that we will develop and operate demonstration wave power farms. The demonstration units will be multiple wave energy converters, with an aggregate rating of 10 to 20 MW. Wave power is projected to account for roughly 8% of our electricity generation in 2030.

Wind power

Vattenfall owns approximately 700 wind turbines in nine European countries. We are building eight additional wind farms in six countries at the moment. Our research is focused on analysing issues such as turbine placement, and operation and maintenance challenges, and then optimising the wind power plants in order to improve their technical and economic performance. We are also contributing to identification and resolution of energy system issues related to the increased deployment of wind power, such as how to balance the flow of electricity from wind power when entering the grid.

Biomass

We have about 40 biomass-fired heat and combined heat and power (CHP) plants, and are one of the world's largest buyers and users of biomass. Vattenfall's Biomass Programme supports the plans to replace large quantities of coal with renewable biomass fuels, which will also help us reduce our emissions of fossil carbon dioxide. Today, our R&D efforts aim to achieve large-scale biomass utilisation over the long-term. We use both biomass-dedicated boilers and co-combustion with coal in coal-fired plants. Improved methods for characterising fuels are being developed that will secure efficient operation even with unproven and less common fuels. Research is also looking at a number of technical challenges that arise with biomass combus-

tion, such as corrosion in boilers and NO_x emissions. In fact, from a technical perspective we are already able to increase the use of biomass fuels in several existing coal-fired plants (read more about biomass and sustainability on pages 18–21). Studies are also being directed towards finding relevant new fuels, new refining and conversion technologies, logistics chains, and partnerships.

Hydro power

For some years now Vattenfall has been making major investments in its hydro power plants. The normal life span for hydro power plant equipment is 40 to 50 years, and necessary reinvestments are often based on R&D work.

We are managing several R&D projects at the moment that aim to increase effectiveness and safety, and to improve the environmental performance of our hydro power plants. One example is the Vattenfall Oil Strategy, a long-term plan to replace the hydraulic- and lubricating oils in our power plants with a mixture of water and monopropylene glycol. This will reduce environmental impact in rivers in the event of an oil leak. A pilot project is currently under way at the Älvkarleby hydro power plant in Sweden. Another example is Vattenfall's work with dam safety, where instruments for measuring stability and leakage in dam structures have been developed through R&D conducted in co-operation with Vattenfall Power Consultant.



Tuggen hydro power station, Sweden

Operational efficiency

Thermal Technology

Research and development on thermal technology is focused on continuous improvement of our current power plants, mainly CHP, and on development of the next generation of production units.

Optimised operation and maintenance makes the heat and power plants more cost effective and improves the environmental performance of the resources we already have. The work covers combustion and technology solutions for reducing emissions. Material choices and corrosion, sintering and fouling issues, and the use of by-products are also important areas. Ash is an excellent raw material, and its utilisation can save natural resources. R&D efforts are focused on by-products that are not yet fully utilised. These include demonstration of slag from waste incineration in construction work and fly ash from biomass combustion in stabilisation of soils and dredged materials.

Smart Grids

Flexible and secure networks – so called smart grids – are a necessity when building the energy system of the future. Smart grids will facilitate efficient production and end-use of electricity. These grids will also help the integration of an increasing number of intermittent generation sources, such as wind power, ocean power, solar power, and small-scale household generation as well as the use of electrical vehicles. Currently Vattenfall's research is focused on network planning in support of a common European electricity market, minimisation of customer interruptions, and accommodation of distributed generation in future power systems.

Energy Efficiency

Sustainable Cities

Vattenfall's research and development on sustainable cities focuses on how Vattenfall, as an energy system-wide partner, can support urban areas in their climate ambitions to become a sustainable society. We work with city stakeholders, customers, universities and other external partners to better understand how new technologies fit in with sustainable urban planning and other technological systems. Important areas are district cooling, heat pumps, small scale CHP plants and energy efficiency measures like low-energy lighting and visualisation of energy usage.

Energy Systems Analysis

Vattenfall seeks to improve its knowledge of the current energy system and to find long-term technical, social, economical and environmental solutions to bridge policy decisions and market designs. The energy system analysis is strongly policy-oriented. Activities are also performed within the framework of the Alliance for Global Sustainability (AGS), a global programme for integrated research, education, and social contacts.



E-mobility

The work here is focused on demonstrating the greater role that electricity can have in the future, and the contribution electricity can make to a sustainable society. One example is the development of electric vehicles, where our R&D work is focused on easy and accessible charging. In the field of electricity for transportation, we are investigating not only technologies but also new business models and customer needs.

Nuclear energy

R&D activities in the field of nuclear energy comprise both nuclear power development and nuclear waste management. The development of nuclear power mainly refers to operational support and the promotion of the safe operation of our nuclear power plants. Nuclear waste management relates to earlier commitments to establish a final repository for spent nuclear fuel from Swedish plants. Research and development is carried out in co-operation with the rest of the nuclear power industry through the Swedish Nuclear Fuel and Waste Management Company (SKB).

Carbon Capture and Storage

We are implementing technology aimed at capturing and storing CO₂ from coal-fired power plants. The technical concept and technology have been in industrial use since 1996 – the challenge for Vattenfall and our partners is to scale it up, adapt it to suit the needs of power generation, and make it cost effective.

The idea is to capture carbon dioxide from the power plant's flue gases, compress it into liquid form, and permanently store it deep underground in suitable geological formations. Part of the CO₂ will dissolve in the reservoir water as well as becoming trapped in the microscopic pores of the reservoirs. Over time some carbon dioxide may also form new minerals. The overall trend is thus for the CO₂ to become increasingly immobilised over time. A wide range of corporate and external research deals with the detailed behaviour, quality and environmental aspects of the entire CCS value chain. Mapping and selection criteria for suitable CO₂ storage sites – particularly in deep saline aquifers – are key topics for R&D as well as CCS development for commercial deployment.

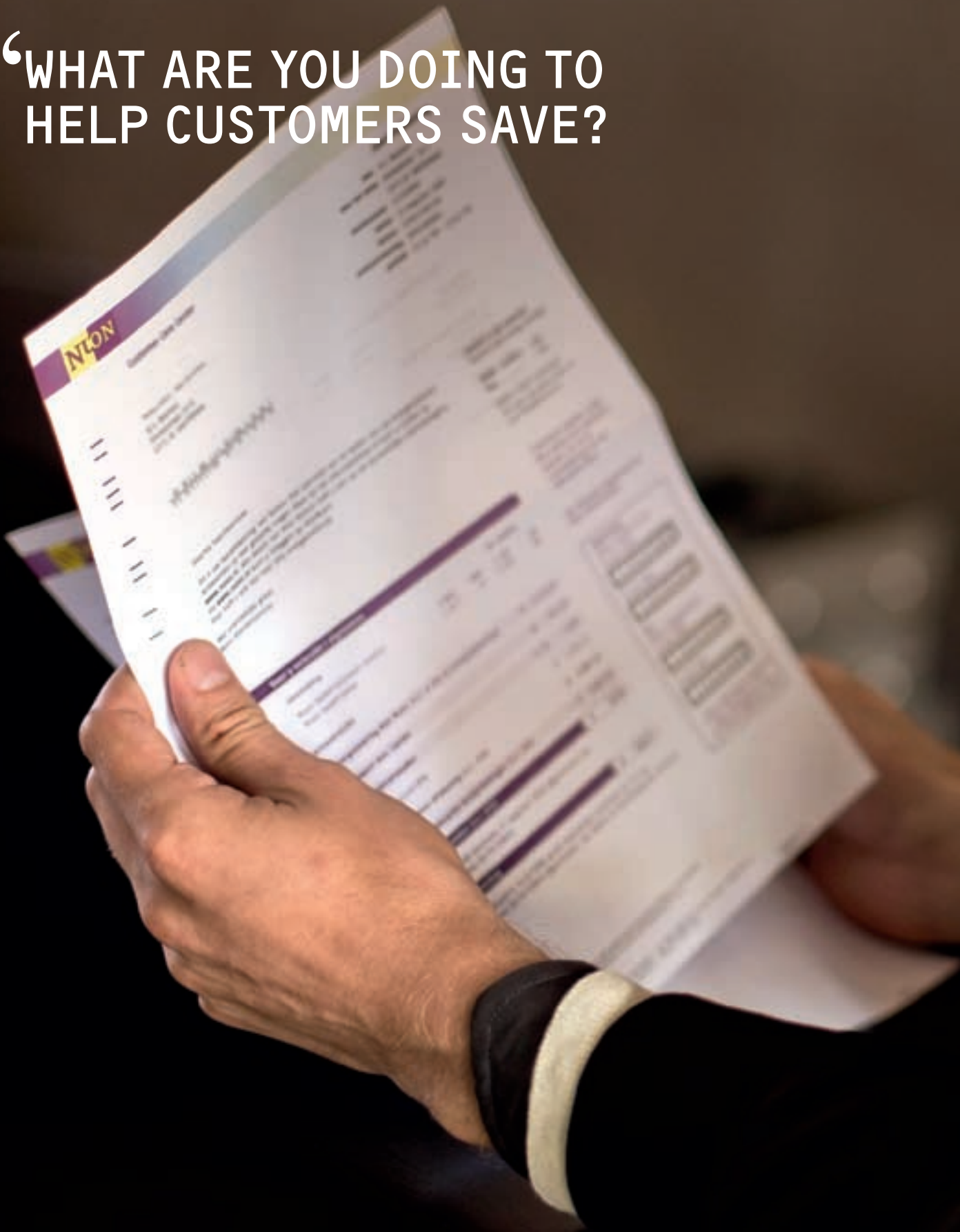


Schwarze Pumpe, Germany

New technologies

The main task is to identify and initiate work on future technologies that show potential and may be useful over the long term. We are currently conducting exploratory research on a range of technologies, including the top spool concept (more efficient turbine technology that can be compared to turbo charging of car engines), algae and biomass combinations, and new lighting technologies.

“WHAT ARE YOU DOING TO
HELP CUSTOMERS SAVE?”





“The economic situation has made me more aware of the costs of living. How can I save on my energy bill?” In many cases, people and businesses can use energy more efficiently – but most are not sure how. For instance, in the Netherlands 75% of the population feels that energy is wasted, yet only 37% think that they themselves could use energy more efficiently. This was learned from a survey by Nuon of more than 1,000 Dutch consumers.

As our customers try to manage costs, we can help them by highlighting their options and even delivering energy savings and energy efficient solutions. As an energy company, it is in our interest to promote the effective and responsible use of our products. Promoting energy savings is not only a matter of satisfying customers by lowering their energy bill – it is also crucial for lowering overall environmental impact.

Saving lowers both costs and environmental impact

The economic downturn of the last few years has made many of our customers cost-conscious. Difficult times can make energy costs a pressing matter for businesses and families. Today energy costs account for roughly 5.7% of European household budgets¹. The most effective way for many people to lower both their environmental impact and costs is to save energy. Saving starts with creating awareness of how much energy is used, and for what purposes. This insight often spurs innovative thinking about more efficient solutions.

Customers have a lot of influence over the amount of energy they consume. In the Netherlands, as an example, we estimate that a household with average energy use could reduce its consumption by 30% with no reduction in comfort or convenience. We have seen our customers' interest in energy savings grow, and the understanding of the role energy saving plays in reaching climate goals has increased – it is now widely seen as a must for both economic and environmental reasons.

Finding ways to save

Despite the economic benefits of energy saving actions, many are not taken, often due to a lack of awareness. As an energy company we have information and resources that can help bridge this gap.

Given the right information, energy users can access substantial savings. Efficient technical solutions – like low energy light bulbs, more insulation, or high-efficiency boilers and heat pumps can play a major role. Also, minor behavioural changes are important, like turning off electric appliances on standby. We estimate that households have achieved savings of up to EUR 500 per year by implementing such measures.

Vattenfall helps household customers realise these energy savings and become more efficient in multiple ways:

In the Nordic region, we have worked with our customers on energy efficiency for decades, and since 2007 our web site, “Live energy-smart”², has offered customers and the

1) Euractiv 2009

2) www.vattenfall.se

public tips and advice. Since the start in late 2007 a quarter of a million people have taken advantage of our guidance. The site contains information, checklists, calculation tools and applications, advice, blogs and web-TV. Vattenfall also offers process and energy efficiency services to its industrial customers in the Nordic region.

In Germany, household customers can access advice online or at customer centres in Berlin and Hamburg. A major focus is on energy-efficient home appliances: Vattenfall has Germany's largest database on energy efficiency of white goods, and we use this data to help customers make informed decisions. Commercial customers can choose from a variety of services – including on-site efficiency assessments, consumption visualisation, real-time reporting and alerts, and energy saving partnerships.

Similar consumption simulators are available via the Web to our customers in Poland, and a recent marketing cam-

paign resulted in the sale of 209,000 low-energy light bulbs. Vattenfall has also participated in the modernisation of street lighting systems in co-operation with municipalities and local government.

In the Netherlands, too, we offer energy saving services, from advice all the way to implementation projects, for both businesses and households. Currently, in Nuon's Sales operations, more employees are working on value-added services aimed at conserving energy (insulation, sales and installation of high-efficiency boilers, etc.) than on sales of energy.

Energy savings help offset the cost of combating climate change

Studies show that Europe can reduce greenhouse gas emissions by about one-third by 2030¹. While many of the necessary reductions have a substantial cost associated with them, efficiency and energy saving measures are economically beneficial. These measures represent about a third of the reduction potential identified and are therefore a natural starting point.

The realisation of the importance of energy savings has influenced energy policy across Europe. The European Union has set the target of a 20% reduction in energy consumption compared with projected trends by 2020. The German federal government has, among other initiatives, launched a programme to make new and renovated buildings 30% more energy efficient. The Dutch government is seeking to reduce overall energy demand by 2% per year between 2011 and 2020, and has targeted 2.4 million buildings for efficiency improvements. Sweden's integrated climate and energy policy also includes an action plan for energy efficiency, with special programmes for example directed at municipalities and energy-intensive industry, and the Polish government plans to introduce energy efficiency regulation.

It is very likely that adopting the necessary low-emitting energy technologies will result in costs to society over the coming years, and could potentially lead to a rise in energy prices. Alternatives such as wave power, offshore wind and fossil fuels using Carbon Capture Storage (CCS) technology cost more than today's dominant energy sources. How much the switch to low-emitting generation will affect consumer prices is yet uncertain.

A comprehensive and effective approach to saving energy throughout society – particularly through energy-saving building design and more efficient transportation and industrial solutions – can help offset the higher costs of tomorrow's energy sources. If the transition to a sustainable society is to succeed, capturing these energy savings is a must.

1) International Energy Agency, The World Energy Outlook 2009.

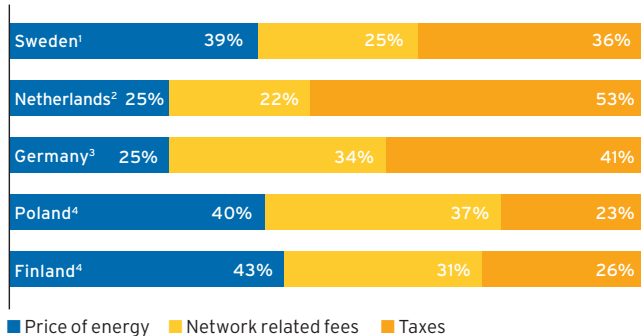
What makes up your electricity bill?

The price consumers pay for electricity consists of the actual electricity price, taxes and the network fee. The price is set in a market directed by supply and demand (NordPool, the Anglo-Dutch power exchange, the Amsterdam Power Exchange and the European Energy Exchange), and Vattenfall is only one supplier among many competitors in these markets.

The price of generated electricity is only part of the total electricity price. Cost of production varies with the price of fuels, such as coal and gas, and CO₂ prices. Vattenfall's work to improve efficiency in electricity generation is important to our ability to offer competitive prices.

Network fees are related to the cost of transmitting the electricity to the household. Taxes include Value Added Taxes (VAT), electricity taxes, concession fees and other charges (stipulated by the likes of the German Renewable Energy Sources Act).

Price of electricity vs. network-related fees and taxes



1) Household consumption 5,000 kWh/year, standard contract, average price 2008. Electricity certificates included in electricity price
 2) Household consumption, 3,558 kWh/year, average 2009
 3) Household consumption, average household, average price 2008
 4) Household consumption 5,000 kWh/year, average price 2008

Vattenfall's estimates of the potential energy savings in a typical Dutch home

Cavity fill insulation

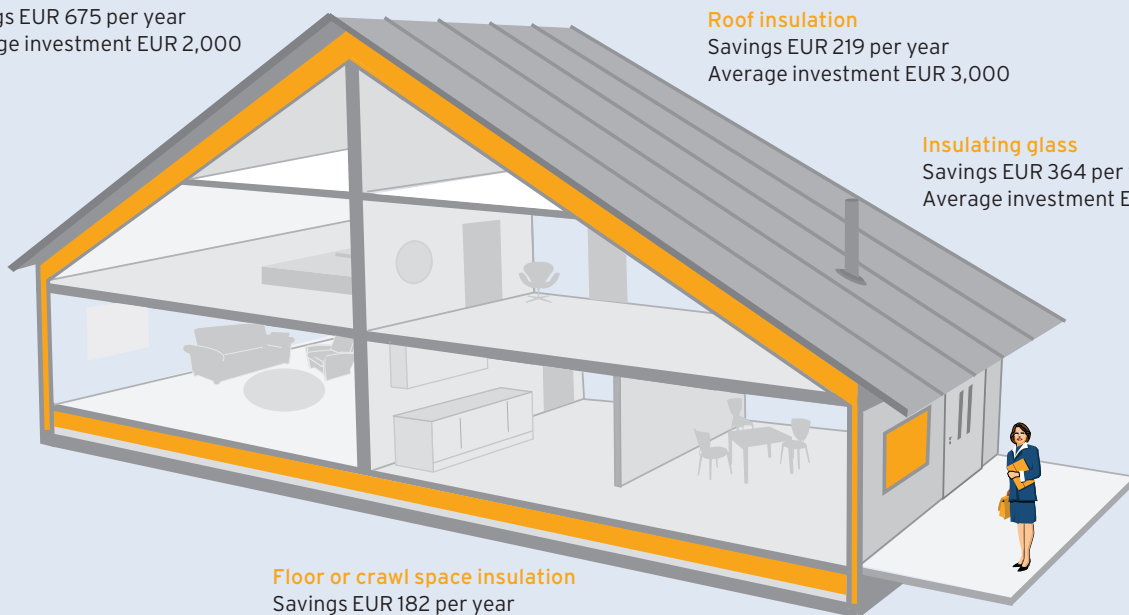
Savings EUR 675 per year
Average investment EUR 2,000

Roof insulation

Savings EUR 219 per year
Average investment EUR 3,000

Insulating glass

Savings EUR 364 per year
Average investment EUR 4,000



Floor or crawl space insulation

Savings EUR 182 per year
Average investment EUR 1,750

Energy advice

Advice on how to save energy in the home, including energy certification
Investment EUR 200

We are creating a win-win-win situation



"Dutch energy supply is based mainly on fossil fuels (about 90%), and possibilities of introducing new sustainable energy production like hydro power and wind are limited. We have to be realistic: fossil fuels like gas will be a part of the Dutch energy supply for a foreseeable future.

So working with sustainability cannot be limited to the generation side. That is why the Dutch government emphasises the importance of energy efficiency. In

order to address the challenge of sustainability, we have also turned it around: we are promoting savings in our role as an adviser, by selling services that save energy and by installing equipment and insulation in co-operation with customers to minimise the waste of energy. In fact, currently, there are more people working in energy saving than in selling energy.

Using less energy without sacrificing comfort is certainly possible – we prove that everyday together with our customers. So

what are we doing in practice? We are realistic about obstacles in getting savings efforts and working for our customers. Our job is to reduce those hindrances. For example, you can log on to our web site or visit one of our stores and shop for easy-to-use energy saving appliances, paying nothing up front. The price of the equipment is then paid over time with the savings you earn on your energy bill. It's a win-win-win situation: less environmental impact, a smaller bill for you as a customer, and we benefit through additional sales. If you are even more ambitious, we can help you insulate your house – today we are one of the largest providers of insulation services in the region.

Sustainability for us is business, and it leads to customer satisfaction. We find ways for you as a customer not to look at the bill as a headache, but as a way to finance your own climate agenda.

I feel proud to be a part of that business."

Vincent Dijk

Director Value Added services,
Vattenfall Business Group Benelux

ENERGY SAVINGS IN PRACTICE

Saving energy requires awareness of how much energy you use, and for what purposes. You also need to know what you can do to save. Last, you may need help with services and appliances that can realize savings without loss of comfort.



Energy advice online

The services offered over the Web in Finland and Sweden are aimed at helping customers with varying levels of insight and knowledge about their options to save energy. Examples of services and tools offered are calculators to estimate consumption, and applications to simulate the impact of changes and improvements. Ideas, guidelines and examples to inspire savings are provided through blogs and web-TV, and users can ask questions directly to energy experts over the Web. The service concept is called Lev Energismart in Swedish and Energianeuvonta in Finnish ("Live energy-smart"), and can be reached through www.vattenfall.se and www.vattenfall.fi, respectively.



Providing personal energy savings advice

In Germany, Vattenfall has customer centres in Hamburg and Berlin. At the customer centre in Berlin, located at Nürnberger Straße, a professional team offers advice on the efficient use of energy. Besides their advice, they offer energy saving services, hold exhibitions and organise events. The energy services offered include energy analysis and individual power checks; free rentals of meters that check consumption of electricity at home; help choosing electric appliances and energy-saving devices like heat pumps; and even courses on cooking with less energy use.

Energy consumption alerts

In Germany, Vattenfall has developed a system called "Energy Controlling Online" (ECO), which enables customers to check their consumption of power, gas, heat and water with a single click of the mouse on the computer. The data is updated every fifteen minutes, and the system shows possible savings and suggests actions. It also allows users to set a limit for consumption, and if the limit is exceeded the system alerts the contact person immediately by e-mail or text message. Customers using ECO include Lufthansa, Citibank, Commerzbank and the Berlin Freie Universität. We have seen that energy savings up to 15% are possible.



Home Zone

Vattenfall's Centennial celebrations in 2009 featured an interactive pavilion that invited visitors to walk through a sustainable city, drawing attention to the climate issue and demonstrating our strategic direction of Making Electricity Clean. The pavilion was featured at 17 events in five countries and received some 40,000 visitors.

One part of the pavilion was designed to look and feel like the inside of someone's home. The objective was to further demonstrate Vattenfall's commitment to sustainable society and encourage people to be aware of their energy consumption and use energy more efficiently. It also showed them how to make sensible energy saving choices in their home and how these individual choices, when looked at cumulatively, have a strong impact on local communities.

The exhibit included various appliances and points of energy consumption as well as interactive touch screens where visitors could gather information about how much energy and money can be saved by making different everyday choices. An energy expert was present and answered questions and provided advice.

Testing technologies that make saving easier

Nuon, together with IBM and Cisco, is currently testing an innovative energy management system in 500 Amsterdam households. A user-friendly energy display the size of a small photo frame gives instant insight into the overall energy consumption and the usage per appliance, making it easier for households to monitor and meet energy saving targets.

The energy display features a wireless connection to digital gas and electricity meters and can be placed anywhere in the home. Residents can see how much energy is being used by the home, and even by each appliance, and gain insight into where energy is being wasted. Personal energy-saving targets on the display encourage customers to save gas and electricity.

The energy display has already been tested on a smaller scale by 18 households in Arnhem. Average savings were 9% for electricity and 14% for gas, working out to around EUR 200 per year for a typical household. Some households achieved much higher savings – up to 34% for electricity and 32% for gas. Savings in the test were achieved both through behavioural changes and through installation of more efficient appliances and systems.

“My family and I are much more aware of our energy use because of the energy display. We bought all kinds of energy saving bulbs. We got rid of a lamp that used an excessive amount of energy, and we have decided not to buy a tumble dryer after all. I really wanted to keep the energy display after the pilot was over!”

Mrs Daamen, Arnhem, the Netherlands



A campaign with twice the impact

A combined energy savings and tree-saving initiative was launched in Poland during 2009. During a three-month period, high efficiency bulbs were offered at a special price to customers. More than 137,000 bulbs were sold. Some of the proceeds from the sales supported the preservation and treatment of a thousand chestnut trees in Silesia with a high symbolic value. Two thousand students were involved in the action. In all, 209,000 bulbs have been sold in Poland thanks to information campaigns.

“ARE YOUR NUCLEAR
OPERATIONS SAFE?”





“Safety comes before all other matters when operating a nuclear power plant. Safety takes priority over profitability – all procedures are subordinate to this basic principle. For this reason, creating and strengthening a culture of safety is of major importance.

A safety culture is not an abstract idea but is expressed in our actions, day in and day out. We must work continuously on a culture of safety and keep it alive in the minds of employees and managers. We achieve this by being a learning organisation in which success, problems, or shortcomings can be discussed openly and without fear. We constantly learn from our own and others’ mistakes.

As managers, we must act as role models: ‘walk the talk’ is a succinct way of expressing this. We must communicate our expectations and standards clearly and directly, show interest in both the actual situation and their fulfilment through inquiring and checking, celebrate success, and promptly analyse and correct deficiencies.

The safety culture permeates everything: my work, my conduct, and my information policy.”

Ernst Michael Züfle, Technical Director and Spokesman of the business management of Vattenfall Europe Nuclear Energy GmbH, seen here together with Udo Münster, shift supervisor in the control room of the Krümmel nuclear power plant.

Yes, safety levels in nuclear operations are not a matter of choice: Our responsibility as an operator is absolute, and if our operations do not meet requirements, plants will be taken or kept off line until Vattenfall and the regulator are satisfied. Delays in modernisation projects, technical defects and procedural deviations drew attention to Vattenfall’s nuclear operations in 2009 and led in some cases to increased downtime for our reactors. These outages hurt customers and Vattenfall’s business, and the company is taking the necessary measures to bring the reactors back on line and minimise future disruptions.

What it means to be a safe operator

Nuclear safety is defined by a balanced combination of human activity, technology and organisation, and not merely by the absence of incidents and accidents. Safe nuclear power plant operation is based on a combination of:

- People who are well-trained, informed, empowered and dedicated, and who uphold the highest personal and professional standards
- An organisation that has a positive and strong nuclear safety culture
- Processes that are robust and an organisation that values problem identification and resolution
- Plants that are well-designed, well-operated, and well-maintained
- Owners who strongly support safe operation and provide the necessary resources

National authorities in Germany and Sweden are responsible for the regulation of nuclear power plant safety. But through its nuclear companies, Vattenfall has the sole and absolute responsibility for the safe operation of its plants. Three separate developments in 2009 raised questions about our operations among stakeholders. We continue to look critically at our systems and processes and to strive for the highest safety standards. Our prime responsibility is to protect the public, the environment and our employees.

How the safety system works

Safety work in nuclear power is aimed at preventing potential accidents and the spread of radioactive material in the plant, to staff and out into the environment.

Society demands flawless operation of nuclear power, and safety work in Sweden and Germany, where Vattenfall operates nuclear power plants, is monitored by supervisory authorities who follow the entire process: from compo-

ment manufacturing and installation to plant operation and in-service inspections.

The main control room of each power plant monitors and records each and every process, 365 days a year, 24 hours a day. Safety in a nuclear power plant covers three stages:

1. Preventing faults through inspection routines, automatic control systems and operator actions
2. Reducing the effects of faults on the operation of the plant through the use of multiple back-up systems and, if necessary, automatic shutdown of the plant by independent safety systems
3. Preventing a fault from leading to the spread of radiation or radioactive material through automatic safety systems and multiple physical safety barriers (see box)

The various back-up and safety systems are located in physically separated areas so that only a part of the safety systems will be affected in the event of a fire, for example.

How incidents are handled

Events and incidents at nuclear power plants are reported and followed up according to strict national regulations and international standards set up by regulators and independent international organisations, such as the IAEA¹ and WANO².

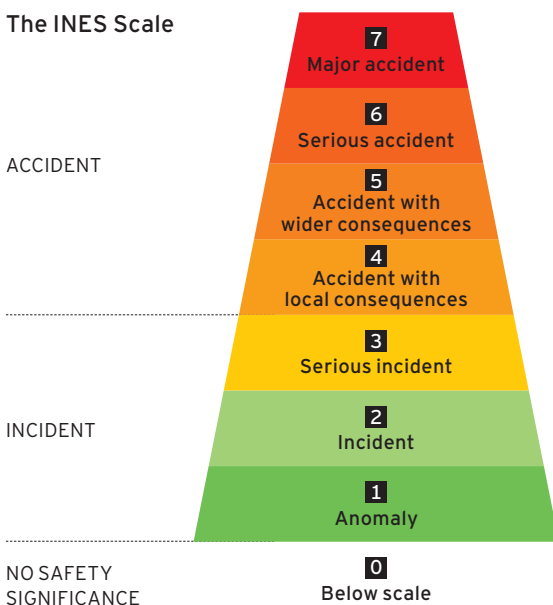
Nuclear incidents are reported and ranked according to a scale called the INES scale (International Nuclear and

Radiological Event Scale). Events are classified on the scale at seven levels: Levels 1–3 are called “incidents” and Levels 4–7 “accidents”. The scale is designed so that the severity of an event is about ten times greater for each increase in level on the scale. Events without safety significance are called “deviations” and are classified Below Scale/ Level 0” (see sidebar).

In addition, the scale further classifies incidents and accidents over three areas of impact: Events that impact people and the environment; events that do not impact people or the environment but involve unplanned high levels of radiation or spread of radioactive material within the installation; and events that do not involve either of the above issues but in which safety mechanisms fail to function as they should. The accident at Three Mile Island in 1979 in the USA, by way of example, was a Level 5 accident that did not impact people or the environment but did lead to the spread of radioactive materials within the facility. Over the years a few events in Swedish reactors have been rated Level 2 incidents, including an incident at Vattenfall’s Forsmark plant in 2006. None of these have impacted people or the environment or led to the spread of radiation/ radioactive material within the installation.

In the case of an incident, the operator has an obligation to notify the regulator without delay and to provide information. Depending on the nature of the incident, Vattenfall’s own procedures in accordance with the regulation may cause the reactor to be taken off line immediately. Alternatively, identified deviations at regular testing, inspections, or safety analyses, as well as experiences and feedback from other similar plants, may lead to the reactor being taken off line so that the issue can be remedied.

The INES Scale



Issues of concern at Vattenfall’s nuclear plants in 2009

During 2009 Vattenfall faced situations that led to unplanned downtime at three different reactors. One of these – at Forsmark – involved an important technical issue but was handled properly through safety routines. The other two involved deviations from routines and processes and have led to further review by Vattenfall, the regulator, our peers, and independent authorities.

Outage at Krümmel – INES 0 (No safety significance)

The reactor at the Krümmel nuclear power plant has been off line since 2007 following a fire caused by a short cir-

1) IAEA – The International Atomic Energy Agency is the world’s central intergovernmental forum for scientific and technical co-operation in the nuclear field.
 2) WANO – World Association of Nuclear Operators.

Safety barriers



Nuclear power plant Brunsbüttel

Safety barriers

Each providing independent mitigation of an accident

- Gas-tight fuel rod cladding tubes.
- Reactor pressure vessel and the pipework around it made of high-quality steel.
- One-metre concrete shield surrounding the reactor pressure vessel.
- A containment providing a gas- and pressure-tight enclosure.
- Reinforced-concrete walls of the reactor building.
- Safety filter ensuring that radioactivity does not leak out even if all other safety systems should fail.

cuit in one of the two station transformers that take power produced by the plant to the external grid. On 4 July 2009, shortly after the restart of the reactor, the other transformer experienced a short circuit and the reactor was shut down automatically. All safety systems worked as intended, and the shutdown was completed safely. The event was judged insignificant from a safety point of view (INES 0), but had a dramatic media and political effect. The negative effect was partly caused because Vattenfall did not meet expectations on very fast response to the regulator – though formal requirements were met – and because the same type of failure occurred in 2007.

The technical cause of the transformer short circuit is still being investigated. The failed transformer was of the same age as the transformer that failed in 2007 and was declared ready for operation (“healthy”) by the supplier and

independent experts after thorough investigations. A special system for early detection of short circuits had been installed, but Vattenfall failed to add an extra measuring device as had been agreed with the regulator. The plant manager who approved the restart chose to resign due to this.

Krümmel will be shut down until new transformers have been installed – in spring 2010 at the earliest.

An independent investigation of the event and a peer review by Vattenfall and E.ON, Vattenfall’s co-owner of Krümmel, recommended the following:

- Faster initial communication towards the authority in Germany in case of a plant shut down is required. While Vattenfall met formal obligations, we did not meet our own expectations or those of stakeholders regarding communications
- Installation of new transformers before restart – not only

the two station transformers but also the auxiliary transformers and 26 smaller ones

- Reinforcement of staffing
- Improved assessment, monitoring, and follow-up with respect to non-nuclear technologies and systems. The incident occurred in an area (the electrical system) where regulatory requirements, as well as Vattenfall's standards, were not as high as those for nuclear operations. We must strive for higher standards throughout the installation

Ringhals placed under special operating conditions

– INES 1 (Anomaly)

In July the Swedish Radiation Safety Authority (SSM) placed Ringhals under special operating conditions initiated by procedural deviations during outages in 2008 and 2009. Ringhals was requested to investigate the causes and develop mitigating actions. The special operating conditions also demand more formal safety management and reporting.

An INES 1 deviation contributed to the regulator's decision. On 15 March 2009, during a regular safety review process, a system designed to automatically react to increased pressure in the reactor vessel was found to be off line. The system had been disconnected since the last outage two and a half months earlier.

Another INES 1 deviation, related to improper and late handling of flow variation in an emergency core cooling system last winter, was also reported in autumn 2009.

To improve performance, we have reinforced management personnel, our self-assessment functions, and our management systems. We have also reduced the load on the organisation by postponing modernisation projects when possible.

Cracks in the control rod shafts at Forsmark 3

– INES 0 (No safety significance)

During a yearly inspection in 2008, some cracking in the control rod shafts at another (non-Vattenfall) plant at Oskarshamn was identified. This led to a special inspection at Forsmark in autumn 2008, which revealed the same type of cracking in some of the 167 control rods, though the system could still perform its safety function. The damaged rods were replaced.

Based on this information as well as on new findings at Oskarshamn in spring 2009, an extensive control rod shaft inspection programme was carried out in Forsmark in 2009. All control rod shafts were inspected and could perform their safety function, but 30% of the control rods had developed minor surface cracking since the last outage. These were replaced. All control rod shafts in unit 3 are now either

new or have been inspected and found to be fully operable.

The cracks in the control rod shafts are caused by so-called thermal fatigue, when materials are degraded by exposure to frequent temperature changes. The permanent solution requires modifications to the control rod shafts to reduce the thermal fatigue. These will be available in 2011 at the earliest.

The regulator issued a temporary operating permit until a final verification of fault-free operation can be declared. This temporary permit allows operation until the next planned outage in September 2010.

Ongoing safety improvements

Vattenfall has established a nuclear safety council that evaluates operations based on independent expert knowledge and installed a Chief Nuclear Officer (CNO), who reviews safety levels much like a controller, and reports directly to the Board of Directors and CEO. The Chief Nuclear Officer and his team are advisers within the organisation, providing expert opinions and helping to form strategies and foster a positive, strong safety culture.

In 2007 Vattenfall conducted a thorough review of the Group's nuclear safety work. Internationally renowned experts have also conducted an in-depth analysis. A comprehensive action programme is now under way which is aimed at strengthening the safety culture at Vattenfall's nuclear power plants and more clearly outlining safety management within the Group.

For the past few years, we have also been conducting an investment programme designed to improve safety further and adapt our power plants to new, stricter safety requirements. Many of the modernisations that we have made to improve plant efficiency have resulted in a higher degree of safety. Following are some examples of investments and improvements:

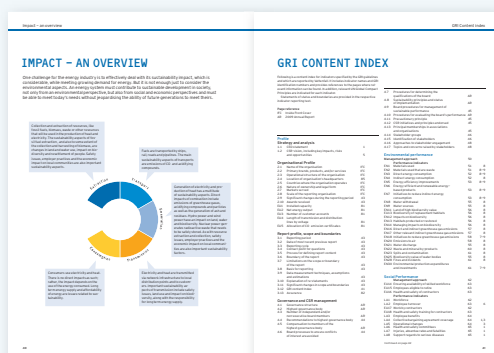
- Security at the plants in Sweden has been substantially increased. This includes new entrances for goods and personnel, new fences and increased technological surveillance and security guard staffing
- The cooling systems at Forsmark (reactors 1 and 2) have been improved and brought up to par with the latest safety design used in nuclear power plants built today
- At Ringhals (reactor 1), a new reactor protection system has been implemented with its own independent safety system, power supply and control equipment
- At Ringhals (reactor 2), the instrumentation and control system and electrical supply have been replaced to the latest safety design
- At the Brunsbüttel plant, supports of steel platforms in the reactor building have been improved to the latest design

WHAT WE HAVE ACHIEVED

Vattenfall reports in accordance with the Global Reporting Initiative's (GRI) G3 Sustainability Reporting Guidelines in order to measure performance and achieve transparency and international comparability in sustainability performance reporting. Vattenfall has applied the GRI guidelines since 2003 and reports on the A+ level as defined by GRI. For further information, see www.globalreporting.org.

The reporting section

The reporting section follows the GRI indicator framework, dividing environmental, social and economic performance indicators specified by GRI in sections. In addition to reporting environmental, social and economic performance, Vattenfall also describes the governance structure and management systems in place.

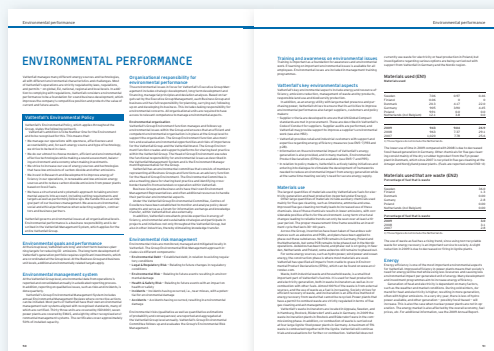


GRI Content index

Vattenfall provides a full content index according to the GRI guidelines to make it easier to navigate to specific areas of the report and to find information regarding a particular indicator.

Page

41



Reporting of performance indicators

Qualitative and quantitative information on indicators specified by the GRI guidelines. Vattenfall's aim is to provide a balanced and accurate presentation of the company's environmental, social and economic performance.

Environmental

50

Social

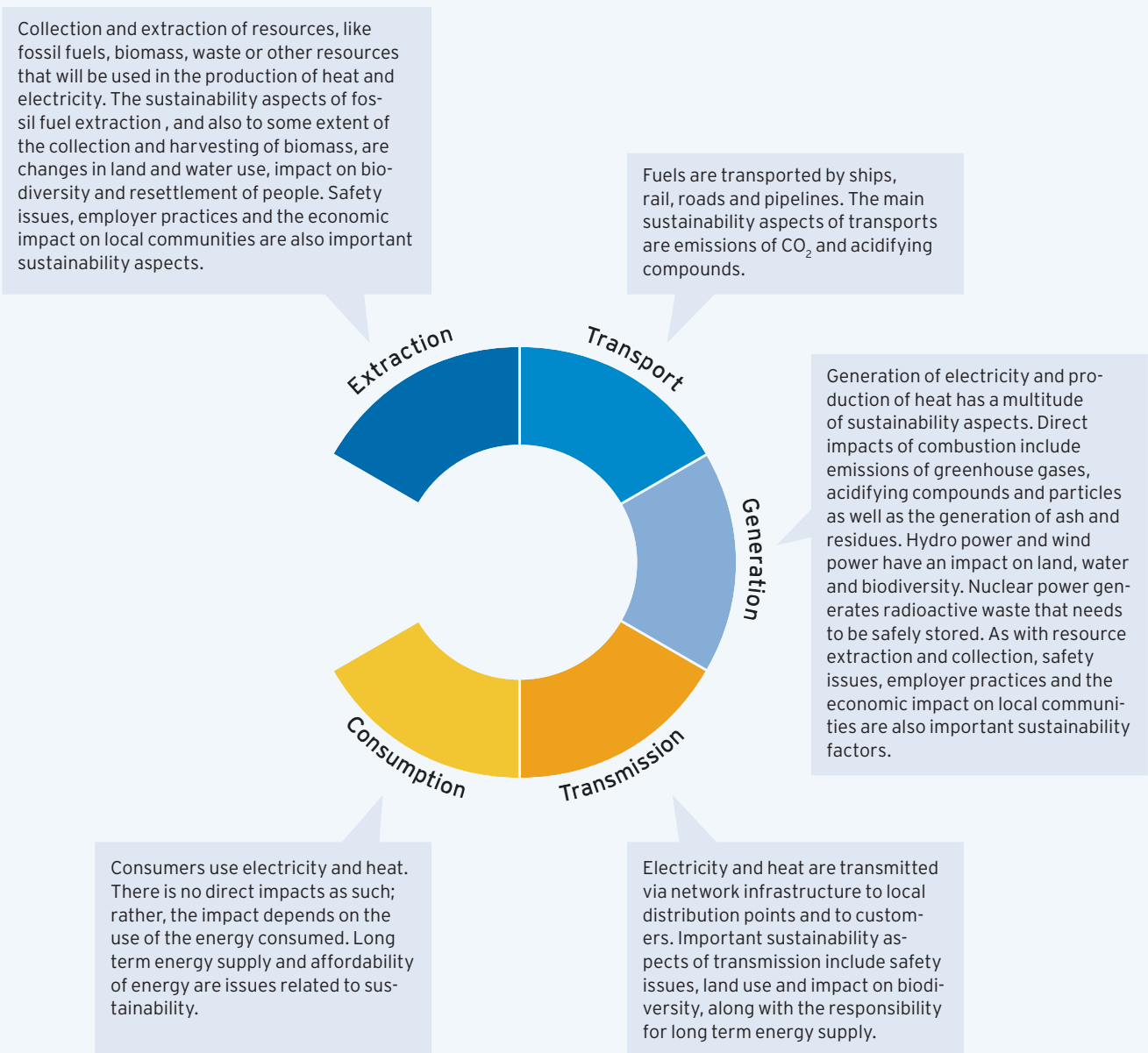
62

Economic

77

IMPACT – AN OVERVIEW

One challenge for the energy industry is to effectively deal with its sustainability impact, which is considerable, while meeting growing demand for energy. But it is not enough just to consider the environmental aspects. An energy system must contribute to sustainable development in society, not only from an environmental perspective, but also from social and economic perspectives and must be able to meet today's needs without jeopardising the ability of future generations to meet theirs.



GRI CONTENT INDEX

Following is a content index for indicators specified by the GRI guidelines and which are reported by Vattenfall. It includes indicator names and GRI identification numbers and provides references to the pages where relevant information can be found. In addition, relevant UN Global Compact Principles are indicated for each indicator.

Statements of status and boundaries are provided in the respective indicator reporting text.

Page reference

IFC Inside Front Cover
AR 2009 Annual Report

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1.1 CEO statement	1	
1.2 CSR-vision, including key impacts, risks and opportunities	5	
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2.2 Primary brands, products, and/or services	IFC	
2.3 Operational structure of the organisation	IFC	
2.4 Location of organisation's headquarters	85	
2.5 Countries where the organisation operates	IFC	
2.6 Nature of ownership and legal form	IFC	
2.7 Markets served	IFC	
2.8 Scale of the reporting organisation	IFC	
2.9 Significant changes during the reporting period	43	
2.10 Awards received	43	
EU1 Installed capacity	81	
EU2 Net energy output	81	
EU3 Number of customer accounts	81	
EU4 Length of transmission and distribution lines by voltage	81	
EU5 Allocation of CO ₂ emission certificates	81	
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3.5 Process for defining report content	43	
3.6 Boundary of the report	43	
3.7 Limitations on the scope or boundary of the report	43	
3.8 Basis for reporting	43	
3.9 Data measurement techniques, assumptions and estimations	43	
3.10 Explanation of re-statements	43	
3.11 Significant changes in scope and boundaries	43	
3.12 GRI content Index	41	
3.13 Assurance	82	
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4.3 Number of independent and/or non-executive board members	AR	
4.4 Recommendations to highest governance body	44	
4.5 Compensation to members of the highest governance body	AR	
4.6 Board processes to ensure conflicts of interest are avoided	44	

Indicator	Page	Related UN Global Compact Principles ¹
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4.8 Sustainability principles and status of implementation	AR	
4.9 Board procedures for management of sustainable performance	45	
4.10 Procedures for evaluating the board's performance	AR	
4.11 Precautionary principle	45	
4.12 CSR initiatives and principles endorsed	45	
4.13 Principal memberships in associations and organisations	45	
4.14 Stakeholder groups	46	
4.15 Identification of stakeholders	46	
4.16 Approaches to stakeholder engagement	48	
4.17 Topics and concerns raised by stakeholders	48	
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EN2 Materials used that are waste	51	8-9
EN3 Direct energy consumption	52	8-9
EN4 Indirect energy consumption	52	8
EN5 Energy efficiency improvements	53	8-9
EN6 Energy-efficient and renewable energy-based products	53	8-9
EN7 Initiatives to reduce indirect energy consumption	53	8-9
EN8 Water withdrawal	55	8
EN9 Water sources	55	8
EN11 Land of high biodiversity value	56	8
EU13 Biodiversity of replacement habitats	56	8
EN12 Impacts on biodiversity	56	8
EN13 Habitats protected or restored	56	8
EN14 Managing impacts on biodiversity	56	8
EN16 Direct and indirect greenhouse gas emissions	57	8
EN17 Other relevant indirect greenhouse gas emissions	57	8
EN18 Initiatives to reduce greenhouse gas emissions	58	7-9
EN20 Emissions to air	58	8
EN21 Water discharge	55	8
EN22 Waste and mineral by-products	60	8
EN23 Spills and contamination	61	8
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EN28 Fines and incidents	61	8
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EU17 Work by contractors	62	
EU18 Health and safety training for contractors	63	
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LA4 Collective bargaining agreement coverage	64	1,3
LA5 Operational changes	64	3
LA6 Health and safety committees	65	1
LA7 Injuries, absentee rates and fatalities	65	1
LA8 Support regards to serious diseases	65	1

Continued on page 42

Indicator	Page	Related UN Global Compact Principles ¹
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LA10 Training of employees	66	
LA11 Skills management and learning	66	
LA12 Performance and career development reviews	66	
LA13 Composition of governance bodies	67	1,6
LA14 Ratio of salary of men to women	67	1,6
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EU24 Accessibility of information on safe use Performance indicators	76	
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Indicator	Page	Related UN Global Compact Principles ¹
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EU8 Research and development activities	80	
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EU10 Planned capacity (MW) against projected electricity demand	80	

Vattenfall does not report on the following core indicators

EN19 Ozone-depleting substances – <i>Not material, ozone depleting substances are used only to a very limited extent</i>	
EN26 Mitigation of environmental impact of products – <i>Not material due to nature of or products</i>	
EN27 Percentage of products sold and packaging materials reclaimed – <i>Not material due to nature of or products</i>	
HR1 Human rights screening of investments – <i>Not material. In countries where Vattenfall operates these issues are controlled by legal frameworks and specific screening is generally not performed</i>	
Sector supplement indicators	
EU7 Demand side management <i>Not material, Vattenfall operates in a deregulated market</i>	
EU11 Average generation efficiency by energy source – <i>Data not available²</i>	
EU12 Transmission and distribution losses – <i>Data not available²</i>	
EU29 Power outage duration – <i>Data not available²</i>	
EU30 Average plant availability – <i>Data not available²</i>	

1) The UN Global Compact's ten principles

Human Rights

- Principle 1 – Businesses should support and respect the protection of internationally proclaimed human rights.
- Principle 2 – Businesses should make sure that they are not complicit in human rights abuses.

Labour

- Principle 3 – Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.
- Principle 4 – Businesses should uphold the elimination of all forms of forced and compulsory labour.
- Principle 5 – Businesses should uphold the effective abolition of child labour.
- Principle 6 – Businesses should uphold the elimination of discrimination in respect of employment and occupation.

Environment

- Principle 7 – Businesses should support a precautionary approach to environmental challenges.
- Principle 8 – Businesses should undertake initiatives to promote greater environmental responsibility.
- Principle 9 – Businesses should encourage the development and diffusion of environmentally friendly technologies.

Anti-Corruption

- Principle 10 – Businesses should work against corruption in all its forms, including extortion and bribery.

² Not reported on as the final EU SS was not available for the full year. Assessment for future reporting is on-going.

Report profile, scope and boundaries (3.1–3.11)

The numerical data provided in the reporting section refers to 2009. Significant events up until 12 March 2010 are also reported. Vattenfall has published annual CSR reports according to GRI guidelines since 2003. This report was published on 31 March 2010. The previous report was published on 31 March 2009, covering performance in 2008. The scope of the report is the Vattenfall Group and its operations, which is the same as for the annual report. The largest change in size, structure, ownership or products/services affecting the report's scope is the consolidation of the acquired Dutch energy group N.V. Nuon (Nuon) into the Group as of 1 July 2009.

Boundaries

Vattenfall has limited the reporting boundaries to areas in which the company has full control over data collection and information quality. Downstream impact of heat and electricity use are so widespread that it would be difficult to measure them in a reliable way.

Accounting principles

The financial data as well as most data related to human resources presented in the CSR report is taken from Vattenfall's audited annual accounts. The reporting currency of Vattenfall AB is Swedish kronor (SEK). The accounting principle for financial reporting are provided in Vattenfall's 2009 Annual Report.

The consolidation principles for environmental data are the same as for the financial statements, i.e. they include subsidiaries in which Vattenfall AB holds more than 50% of the voting power or in any other way has a controlling influence. This principle was fully implemented in 2007.

Environmental data for the CSR report, including energy-related data, is collected via the Group's environmental reporting. Process and supporting software was introduced in 2007 to ensure high quality and consistency of collected data. Group-wide definitions for all environmental parameters are used to enhance quality and facilitate comparisons across the Group. Where possible, reporting of historical data has been recalculated in line with these changes. This is explained in comments adjacent to the tables.

To allow for future comparisons, Nuon's operations are included for the full year 2009, although Nuon is consolidated in the Vattenfall Group as from 1 July 2009. This is in accordance with the standard for greenhouse gas accounting, the Greenhouse Gas Protocol¹⁾, where data shall be updated retroactively; Vattenfall applies that principle to all environmental data. That means that, unlike in financial accounting, an acquisition will result in adding historical data including production to past years accounting and a divestment results in removing data for the divested units from historical accounting. This principle has been followed for the most material data. In some cases data for Nuon are not available for 2007 and 2008 and then this is commented. Any other restatements or changes in environmental accounting are described in comments adjacent to the respective tables.

Reported CO₂ emissions are based on fuel consumption. It should be noted that calculation methods differ from country to country. Calculation methods are stipulated by national legislation, among other things in connection with the EU emissions trading scheme.

All other emissions have either been measured (in cases where continuous monitoring equipment has been installed) or based on periodic measurements.

Significant changes during the reporting period (2.9)

Nuon

On 1 July Vattenfall acquired 49% of the shares for EUR 4,833 million (approx. SEK 52 billion) and took over operational control and controlling influence of Dutch energy group N.V. Nuon Energy (Nuon). As from the third quarter Nuon is part of the Vattenfall Group. Consideration for the remaining 51% of the shares will be paid by Vattenfall in three tranches up until 2015.

Review of asset portfolio

During the year, Vattenfall conducted a review of its shareholdings and made a number of divestments. Vattenfall sold its 80% stake in the German supply and distribution company WEMAG to the 191 municipalities in Mecklenburg–Vorpommern and Brandenburg, and Thüga AG. The deal was completed in early January 2010. In November 2009 the decision was made to leave the Zuidwending gas storage project for profitability reasons. Vattenfall also sold its 50% stake in the associated company AB PiteEnergi to Piteå municipality, its 30% stake in the associated company Luleå Energi AB to Luleå Kommunföretag AB, and its 20.6% stake in Jämtkraft AB to Östersund municipality. Subsequent to the balance sheet date, negotiations with a potential buyer of Vattenfall's subsidiary 50 Hertz Transmission GmbH (formerly Vattenfall Europe Transmission GmbH), which owns and operates Vattenfall's German high-voltage transmission network, were initiated. The negotiations have not yet been finalised.

Awards received (2.10)

- Vattenfall received the Universum award for the most attractive employer in the Swedish energy sector. Universum's Company Barometer is based on surveys of university students and recent graduates.
- The Nuon Solar team finished second in the World Solar Challenge with its Nuna5 solar-powered car. The team is made up of students from the Delft University of Technology in the Netherlands.
- Vattenfall's Climate Signature Initiative was awarded second place in the Best International Campaign category in Sweden's biggest advertising competition, "100-Wattaren".
- The DYNAMIS research project, co-ordinated by SINTEF Energy Research, received a recognition award from the Carbon Sequestration Leadership Forum. Vattenfall participates in DYNAMIS alongside other European power companies.

1) www.ghgprotocol.org

GOVERNANCE AND CSR MANAGEMENT

The Parent Company of the Vattenfall Group, Vattenfall AB, is a Swedish public limited liability company with its registered office in Stockholm, Sweden. Vattenfall AB is subject to the provisions of the Swedish Companies Act (Aktiebolagslagen). This means that the company has a board of directors that is appointed by the Annual General Meeting and which consists of non-executive directors. According to law, the Board also includes employee representatives. The Board of Directors in turn appoints the CEO, who is also the President of Vattenfall AB and responsible for attending to the day-to-day management of the company pursuant to guidelines and instructions issued by the Board of Directors.

The Group's corporate governance is based on applicable Swedish and foreign laws and regulations as well as the companies' Articles of Association and other documents, such as the Vattenfall Management System. Where applicable, Vattenfall also complies with the rules and regulations for companies with shares listed on Nasdaq OMX Stockholm (the Stockholm Stock Exchange).

Vattenfall adheres to the Swedish Code of Corporate Governance and considers it as one of several important sets of governing regulations for external reporting and communication. Vattenfall also adheres to the Swedish state's ownership policy. The departures that Vattenfall makes from the Code are mainly due to the company's ownership structure – Vattenfall has only one owner, while the Code is written primarily for listed companies with broad ownership. Due to the ownership structure, parts of the Code rules are not at all applicable for Vattenfall.

Governance and direction of CSR

Vattenfall does not have a separate CSR organisation. CSR issues are governed at the Group level as an integrated aspect of all other business matters. The overall strategic direction is set at Group level, and the Business Groups are managed through the strategic planning and business planning processes, in which requirements are formulated, and through the Group steering documents. The day-to-day running of operations is decentralised.

Overall CSR responsibility at the Group level rests with Vattenfall's CEO. The Group Functions shall monitor the Business Groups with regard to the Group Functions' respective areas of functional responsibility. Each Group Function has been assigned authority and responsibility throughout the entire Vattenfall Group within its area of expertise and responsibility. With respect to financial compliance, the Finance Compliance Officer within Group Function Finance has specific responsibility for compliance in relation to accounting and to parts of the Vattenfall Management System. The Compliance Officer thereby requires representation letters from the line organisation. The line organisation reports all major disputes to the Legal Affairs Group Function regularly and on specific cases.

As emphasised by the ethical guidelines detailed in Vattenfall's Code of Conduct, the intention is for each employee to assume responsibility for ensuring that the company lives up to the high expectations of its stakeholders. In the light thereof, Vattenfall encourages every employee to report violations of law or of Vattenfall's Code of Conduct. If serious irregularities can be found at an early stage, Vattenfall will be better able to prevent risks and limit any damage to the benefit not only of Vattenfall, but also of its employees and stakeholders. Toward this end, in 2008 work was started on implementation of a Group-wide whistle-blowing function as a complement to the internal reporting lines.

The German organisation has had an external ombudsman in place since 2007, and the Polish organisation had established an ombudsman function prior to the decision to establish a Group-wide whistle-blowing function but only for HR matters. In 2009, ombudsmen were appointed for Poland, Sweden, Denmark and Finland. The Polish ombudsman assumed function on 1 June 2009, and the Swedish ombudsman started its assignment on 1 September 2009. In Denmark and Finland, clearance from the local data protection agencies is needed before the ombuds-

men can start their assignments. In the second half of 2009, work was started to integrate Nuon's whistle-blowing function with Vattenfall's.

The concept of the system is that all employees, managers, consultants and suppliers who want to report a serious irregularity within Vattenfall and do not wish to report it internally may contact one of Vattenfall's external ombudsmen. Such local ombudsmen will consist of lawyers acting according to professional discretion, and will exist in Sweden, Denmark¹, Finland, Germany, Poland, Netherlands and Belgium. To the extent the informant gives his/her consent, the ombudsman will forward information to the local compliance co-ordinator. At the Group level, a Group Compliance Committee has been established and is responsible for communication and co-ordination of compliance issues, identification of necessary actions, recommendations for better practice and analysing whistle-blowing cases from a Group perspective.

A comprehensive disclosure of how Vattenfall is governed (with respect to GRI-indicators 4.1–4.3, 4.5, 4.7–4.8, 4.10) can be found in the 2009 Annual Report and in the corporate governance section on www.vattenfall.com.

Recommendations to highest governance body (4.4)

The shareholder's direct influence over the company is exercised at the Annual General Meeting, which is the highest decision-making body in the company. Vattenfall AB has held open Annual General Meetings since 2005. The reason for this is to offer not just the owner's representative but also the general public the opportunity to attend and pose questions to company management directly.

The Swedish government has established a separate division for state enterprises within the Swedish Ministry for Industry, Employment and Communications which, like other owners, governs and issues recommendations by different means, such as:

- Nomination of the Board of Directors, which is the highest governance body;
- Adoption of the Articles of Association, which stipulate the framework for Vattenfall AB's operations;
- Nomination of auditors;
- Approval of principles for compensation and other employment terms and conditions for board members and senior executives.

In order to clarify the Swedish state's view on certain issues, and to attain unity among the administered companies, the Swedish government has established a State ownership policy, which forms part of the Swedish government's annual report on state-owned companies (a link to this policy can be found in the corporate governance section of www.vattenfall.com). The policy regulates the Annual General Meeting, the board nomination process, the composition of the Board, assessment of the Board's work, directors' fees, committee work, the appointment of auditors and the responsibility of the Board, among other things. The policy requires Vattenfall AB to apply the Swedish Code of Corporate Governance, however with some exceptions, as described in Vattenfall's Corporate Governance Report.

The Swedish government has furthermore established guidelines for external reporting, guidelines for terms of employment for senior executives, for the Board's Rules of Procedure and for managing certain information-related issues. In addition, the Swedish government has identified certain crucial policy issues concerning social responsibility that state-owned companies shall adhere to. This applies to such areas as equal opportunity, the environment, diversity, the work environment and the company's role in society.

Board processes to ensure conflicts of interest are avoided (4.6)

No specific processes exist, however, the rules on conflicts of interest in the Swedish Companies Act apply. For further information, see Vattenfall's 2009 Annual Report and www.vattenfall.com.

1) In Denmark, in order to comply with the Danish Data Protection Agency's guidelines, consultants and suppliers will probably not be allowed to use the function.

Board procedures for management of sustainable performance (4.9)

As stated in the Board's Rules of Procedure, the Board must annually discuss the Group's strategic plan and the Group's total risk exposure. At Board seminars held each year, the Board receives more detailed information about and discusses Vattenfall's long-term development, strategy, competitive scenario and risk management.

Antitrust issues and major disputes are reported annually to the Board. The most important policies and instructions relating to finance, risk and the environment (including the Code of Conduct) are to be approved by the Board.

The Board also has an audit committee which assists the Board on issues regarding financial risks and reporting as well as external auditing. The committee is thereby responsible for preparation of the Board's work to ensure the quality of Vattenfall's financial statements. Furthermore, the audit committee is responsible for application of the Code of Corporate Governance. The Board's risk management process is further described in the Corporate Governance Report and on the corporate governance pages at www.vattenfall.com.

Precautionary principle (4.11)

To improve risk management, Vattenfall decided to implement Enterprise Risk Management (ERM) in 2008; its implementation was finalised in 2009. ERM is a process to identify, evaluate, control, follow up, report and monitor risks. The ERM method enables Vattenfall's management to handle uncertainty, risks and opportunities efficiently but also to compare risks. This gives a better basis for decisions and increases risk awareness and transparency throughout the entire organisation. The Board of Vattenfall has the overall responsibility for control and risk management. In 2009 a Chief Risk Officer (CRO) was appointed. The CRO is responsible for Group Risk Management and reports to the Board's audit committee. The CRO is responsible for the ERM process and supports decision makers in managing risks and opportunities.

The business units are responsible for their own risks and report them to Group Risk Management. Risk Management within Vattenfall is co-ordinated in the Vattenfall Risk Committee (VRC). The committee's task is to ensure that the business units know their risks, to review principles and mandates and to approve risk instructions. The committee is also tasked with making sure that a common definition of risks is used in the Group. Apart from the VRC, Vattenfall has local risk committees and risk-specific committees.

Vattenfall has identified the environment and nuclear safety as specific focus areas. To ensure development and management within these areas, responsible persons have been appointed. Together with their specific committees they manage these issues at the Group level. The Chief Nuclear Officer (CNO) is responsible for nuclear safety, and the Head of Environment is responsible for environmental risks. Both report to the Executive Group Management, and their respective risks are a part of Vattenfall's total risk reporting. More information about Vattenfall's risks and risk management is provided in Vattenfall's 2009 Annual Report.

CSR initiatives and principles endorsed (4.12)

In July 2008 Vattenfall became a signatory to the UN Global Compact initiative. However, since June 2002 Vattenfall has participated in "Globalt Ansvar" (Swedish Partnership for Global Responsibility). By participating, Vattenfall has undertaken to support and respect the UN Global Compact initiative and to adhere to the OECD guidelines for multinational companies.

In February 2005 Vattenfall endorsed the Partnering Against Corruption Initiative of the World Economic Forum (PACI) and the PACI Principles for Countering Bribery. PACI is a private sector initiative with the mission to help consolidate industry efforts in fighting bribery and corruption and shaping the evolving regulative framework. Vattenfall has endorsed numerous policy recommendations and statements concerning global climate change, including those issued by the 3C Initiative (Combat Climate Change) and others including the World Economic Forum, the Climate Group, and the Corporate Leaders' Group. Vattenfall also participates in CSR Europe. Further, Vattenfall participates in efforts to develop improved sustainability criteria for biomass, both through the EURELECTRIC industry association and at the national level in Sweden and in the Netherlands.

Principal memberships in associations and organisations (4.13)

Vattenfall AB participates in numerous associations of various kinds. These include, among others, the 3C Initiative (Combat Climate Change), the World Business Council on Sustainable Development, the European Energy Forum, the Centre for European Policy Studies (CEPS) and CSR Europe.

Furthermore, the company is a member of various standardisation associations and stakeholder organisations, such as the International Standards Organisation (ISO) and GRI Organisational Stakeholder.

Vattenfall AB also holds various positions in numerous industry and member organisations. One example is the European Union of Electric Industry (EURELECTRIC), which is chaired by Vattenfall's CEO, Lars G. Josefsson, who was elected in June 2008 for a three-year term. EURELECTRIC collaborates with similar associations from North America, Japan and Australia. In addition, Vattenfall is a member of national and international chambers of commerce, national energy associations, and generation-specific associations, such as the World Association of Nuclear Operators (WANO), the European Wind Energy Association (EWEA), the British Wind Energy Association (BWEA), and EnergieNed in the Netherlands, as well as heat associations such as Svensk Fjärrvärme ("Swedish District Heating"), and technology-specific collaborations including the Global CCS Institute and the European Technology Platform for Zero Emission Fossil Fuel Power Plants (ZEP).

Stakeholders and identification (4.14–15)

Vattenfall has identified its stakeholders by mapping the impact Vattenfall has on certain groups, or the impact that these groups have on the company. The following major stakeholder groups have been identified through impact assessment:

- **Society:** Neighbours, citizens, media, politicians, authorities, non-governmental organisations, potential employees, sub-contractors and competitors
- **Customers:** Private customers, business and industrial customers
- **Internal:** Employees, employee representatives, unions and managers
- **Financial:** The owner (the Swedish state), capital providers

Characteristics of stakeholder relations

Main group	Stakeholders	Attributes and description
Society	Neighbours	Neighbours are people living close to Vattenfall plants and operations who are directly affected by the company’s activities. It is very important for Vattenfall to keep an open dialogue with neighbours, since they influence public opinion. Vattenfall meets its neighbours in face-to-face meetings with the purpose of providing information and taking neighbours’ needs into account in decision-making processes.
	Citizens	Vattenfall has an impact on citizens in all countries in which it operates, mainly as a provider of electricity and heat, but also as an employer and taxpayer. Vattenfall is owned by the Swedish state, which makes Swedish citizens stakeholders in the sense that they can be regarded as indirect owners of the company. Vattenfall paid a dividend of SEK 5.24 billion to the Swedish state in 2009.
	Potential employees	Vattenfall’s long-term business planning involves analyses of the company’s future competence needs. Mostly, the company needs people with a technical background and good commercial knowledge to work in the core business. But there is also need for people with knowledge and skills in such areas as the environment, IT, project management and general management. Vattenfall’s company philosophy and core values are the foundation for the corporate culture. It is important that potential and current employees share this mindset.
	Media	Energy is high up on the media’s agenda. As one of the largest players in the European energy industry, Vattenfall is in focus. The national media in all markets – including tabloids, daily newspapers, business newspapers, radio and TV – monitor Vattenfall’s development very closely. Local media has a particular interest in Vattenfall, especially in areas in which the company conducts its operations. Recently, Vattenfall has also attracted growing interest from international business media. Media coverage is of utmost importance for Vattenfall, since independent media have a substantial influence on public opinion. Vattenfall maintains an open and constant dialogue with key media to update them on developments within the company while also being available as a knowledgeable partner in energy-related issues.
	Politicians	Vattenfall interacts with politicians at the local, national and European levels. The purpose of these contacts is to increase general knowledge about Vattenfall and the energy industry and thereby enhance the quality of decision-making by mutual support in terms of expertise and knowledge. Relationships are based on respect, trust and openness.
	Authorities	Vattenfall maintains an ongoing open dialogue with authorities involved in the energy sector. This is of great importance since authorities in a wide sense set the rules of the electricity market. Vattenfall has a need to understand how authorities want the energy sector to develop, and it is in the company’s interest to increase the authorities’ knowledge about Vattenfall and the rationale behind company actions. The dialogue is based on openness and respect for the authorities’ oversight of the electricity market.
	Non-governmental organisations (NGOs)	It is of utmost importance for Vattenfall to build relationships with NGOs based on mutual understanding and respect. Vattenfall conducts dialogues at European, national and local levels, for example regarding our Carbon Capture and Storage (CCS) activities, and has partnered with international NGOs on climate change initiatives.

Characteristics of stakeholder relations		
Main group	Stakeholders	Attributes and description
Customers	Retail customers	Vattenfall has close to 7.5 million customers across all its markets. Vattenfall's ambition is to be Number One for the Customer and to continue developing competitive price policies. Margins on electricity trading are extremely narrow, which means that the only way to increase profitability is to exploit benefits of scale by increasing market share. Vattenfall offers a variety of electricity and heat services to households in Belgium, Finland, Germany, the Netherlands, Poland and Sweden. A wide range of fixed, variable and tailored pricing options enables customers to choose the most suitable solution. In many markets, electricity with declaration of origin is also available. Vattenfall has made a number of improvements in recent years, such as the introduction of a Customer Ombudsman function and installing remote meters and issuing disruption guarantees. In the Netherlands, our policies for avoiding termination of energy supply exceed the legislated requirements, and we have taken additional initiatives to avoid termination of supply to customers with special needs.
	Business and industrial customers	Vattenfall provides the public and private industry sectors with electricity and heat, and also offers a variety of energy-related services. Vattenfall caters to the specific needs of each industrial operation. Electricity purchases can be combined with energy solutions and operation and maintenance services to increase efficiency and lower costs. Vattenfall is a long-term partner in large-scale energy projects.
Internal	Employees	Vattenfall has more than 40,000 employees in total, of whom 53% are located in Germany, 26% in the Nordic countries, 15% in the Benelux region, and 7% in Poland.
	Employee representatives	Vattenfall has employee representatives in representative bodies such as the European Works Council (EWC–Vattenfall), local co-determination bodies, supervisory boards and commissions. Vattenfall's Board of Directors includes three employee representatives.
Financial	Owner (the Swedish state)	For information about the owner, see the Corporate Governance section on www.vattenfall.com .
	Capital providers	These include bond investors, such as insurance companies, pension funds, hedge funds and asset managers, and other lenders, such as banks and credit institutions. Vattenfall's total net debt in 2009 was SEK 155 billion.

Stakeholder engagement (4.16–17)

Working in the energy sector is a great responsibility, and providing energy without any environmental and social impact would be impossible. By listening to its stakeholders, Vattenfall can more easily distinguish challenges, opportunities and weaknesses related to its vision to be a leading European energy company. Stakeholder information makes Vattenfall better understand what actions to take and what priorities to make. Information provided by stakeholders includes, for example, concerns regarding climate change, renewable energy sources, security of supply, energy efficiency and equality policies.

Stakeholder communication is a part of daily business. Every day numerous meetings take place between Vattenfall employees and people with an interest in the company's business and activities. Examples of regular stakeholder communication include one-on-one meetings

with customers, business partners, governmental representatives, local authorities and NGO representatives, dialogues with permit-issuing authorities, consultations regarding environmental impact assessments, investor meetings, annual general meetings, employee dialogues and negotiations. Vattenfall's stakeholder interactions rely on four basic principles: to listen, to focus on issues instead of solutions, to make stakeholder consultation a part of the day-to-day business, and to make sure to respond to the feedback received from stakeholders regarding information practices.

Vattenfall's stakeholder dialogue involves all stakeholders. See also EU19 and SO1.

Examples of Vattenfall's Stakeholder Consultation during 2009 are shown below.

Examples of Vattenfall's Stakeholder Consultation during 2009

Stakeholder group	Central level (Group)	Local level (Business Groups, business units)
Society	<ul style="list-style-type: none"> Participation in numerous international dialogues on climate change, including the World Business Summit on Climate Change and the World Economic Forum. Ongoing dialogue with a broad spectrum of stakeholders in the EU, such as European institutions, various non-governmental organisations, trade associations and think-tanks. The Annual General Meeting, which is open to the general public. Direct dialogue with opinion-makers in Sweden that have an impact on or are impacted by Vattenfall. Group-wide Brand Reputation Index measurement. Publication of the CSR Report. Materiality analyses and rankings, and stakeholder expectations. 	<ul style="list-style-type: none"> Contacts with affected stakeholders regarding acceptance for the construction of new plants and infrastructure, e.g. the new power plant in Moorburg, new district heating in Hamburg and wind power parks. Student relations are handled locally with well defined key universities, colleges and other schools and with specific messages for defined target groups. Special emphasis is put on encouraging women to choose a technical education. An important example in 2009 of improved stakeholder management was the continuous stakeholder consultation process surrounding Nuon's plans to build the Magnum electricity power plant in Eemshaven in the province of Groningen. Several meetings on CCS, incl lectures on CCS, a CCS conference and various meetings with stakeholders Vattenfall "talks" in Cottbus, e.g on future lignite use
Customers	<ul style="list-style-type: none"> Group-wide Brand Reputation Index measurement. 	<ul style="list-style-type: none"> Customer Satisfaction Index measurements (see PR5) Customer events.
Internal	<ul style="list-style-type: none"> The annual My Opinion employee survey. European Works Council – dialogue with employee representatives. Group-wide Brand Reputation Index measurement. Annual management conference gathering 250 executives. Employee events – seminars for all employees in connection to Vattenfall's 100 year anniversary. 	<ul style="list-style-type: none"> Continued implementation of company philosophy, core values and Code of Conduct. Annual individual development dialogues between managers and their employees. Discussion of My Opinion results and action planning in all work teams. In Germany special dialogue meetings are continuously arranged where management meets employees. Seminars for all employees on Vattenfall's strategy, Making Electricity Clean.
Financial	<ul style="list-style-type: none"> Group-wide Brand Reputation Index measurement. Annual General Meeting – open to the public. Capital Markets Day, an event that gathers analysts, investors, bankers and financial journalists in a dialogue with Vattenfall's senior management on the strategic direction of the company. Conference calls (webcasts) with capital providers and journalists with the opportunity to ask questions. Investor presentations and one-on-one meetings with capital providers. Annual review meetings as well as ad hoc meetings with rating agencies (Standard & Poor's and Moody's). Publication of annual and quarterly reports. 	

Other contribution to society – Voluntary contributions and investments

Vattenfall strives to be a good corporate citizen, which is manifested through various sponsorship, donation and support activities. According to Vattenfall's Group Instruction on sponsoring, all sponsoring projects should include activities that are benefit society, and priority is given to projects with extensive positive social impact. The most important contributions are collected and aggregated at the Group level.

In 2009 Vattenfall spent SEK 213 million on voluntary contributions, including donations. Vattenfall sponsors a variety of projects within the areas of humanity and ethics, the environment, culture and sports, and community. Following are some examples:

Humanity and ethics

- The World Childhood Foundation – Through the support of more than 100 projects in 14 countries, the World Childhood Foundation works to create a brighter future for the world's most at-risk children – street children, children living in institutions and young mothers. Vattenfall is one of the World Childhood Foundation's major partners and active as sponsor in all countries, where Vattenfall operates.
- Donations of coal to centres for sick and homeless in Poland.
- In Sweden Vattenfall has a sponsorship agreement with Fryshuset, a foundation working with many projects to support young people in Stockholm, Gothenburg and Malmö. In partnership with Vattenfall, Fryshuset is conducting a tour in Sweden called Fryshusandan to spread knowledge and experience and to award local commitment with Vattenfall's "Energisiser" prize.

The environment

- Heureka's Vattenfall Planetarium in Finland is one of the most modern digital planetariums in Europe. Through the co-operation Vattenfall has the opportunity to communicate about the environment, climate change and energy efficiency in a creative way. The planetarium hosts approximately 285,000 visitors per year, of whom many are children and youths.
- Vattenfall's environmental foundation in Hamburg has provided support to more than 112 projects related to environmental care since 1994.
- Through the German foundation Stiftung Lausitzer Braunkohle, Vattenfall provides support to research and development projects, education and environmental protection in the Lausitz region.
- Vattenfall is a sponsor of "Clean Up the World" in Poland, a community-based environmental campaign. In collaboration with the primary partner – the United Nations Environment Programme (UNEP) – Clean Up the World brings together businesses, community groups, schools and governments in a range of activities and programmes that are making improvements to local environments.
- Nuon is the main sponsor of Natuurmonumenten (Society for the Preservation of Nature in the Netherlands). Since 2000, projects have been realised to enhance the sustainability of Natuurmonumenten's energy management by investing in people, means and expertise to equip increasing numbers of visitors' centres, administration offices and excursion boats with clean energy technology.

Culture and sports

- Vattenfall sponsors a variety of sports activities, including sponsorship of regional ice hockey, basketball, handball and football teams, national ski teams and the Swedish Olympic Committee in Sweden. Vattenfall sponsors events such as the Berlin half-marathon, the "Cyclastics" bike race in Hamburg, charity runs in the Netherlands, and swimming competitions.
- Since 2004, in Germany Vattenfall has been an exclusive partner of the Brandenburger Tor in Berlin, one of the most famous historical-cultural monuments in Germany.
- Vattenfall sponsors the "Festival of East European film" in Cottbus, Germany (Filmfestival Cottbus, Festival des osteuropäischen Films). This annual event features films from throughout eastern Europe.
- For twelve years Vattenfall has arranged the Vattenfall Lesetage, in Hamburg. It is one of the biggest literature festivals in northern Germany, offering a wide cultural programme for adults, children and teenagers.
- Vattenfall sponsors "Vattenfall Schul-Cup", the biggest school sport event in Germany. Schoolchildren in Berlin, Hamburg and the Lausitz region can take part in cross-country running, basketball, chess and cycling.

Community

- Many of Vattenfall's power plants have visitors' centres, which provide information to the public about the plants' operations and promote dialogue between the local communities and Vattenfall.
- In the Lausitz region, Vattenfall provides occupational training to apprentices in its in-house training centre and participates in a local citizen contact group, and a co-operation agreement has been signed with a science college in Leipzig (Hochschule für Wissenschaft) and University of Dresden.
- In 2009, Nuon launched the Nuon Energy Foundation. The objectives of the Nuon Energy Foundation are to "stimulate employees to volunteer their time for the benefit of society and to support them financially to that goal" and give employees opportunities to work on different volunteering projects
- Nuon has increased its efforts in the area of social work programmes and currently has currently two social programmes. Within Step2-Work, young unemployed individuals receive education and training that is designed to help them regain paid employment. Participants in Nuon Step2Save in the Netherlands receive training and become qualified as energy advisers so that they can give energy savings advice to tenants of participating housing corporations and municipalities.
- In February 2010 Vattenfall Nordic employees participated in a drive to raise funds benefiting the children of Haiti, in the wake of the major earthquake. Funds were donated to Save the Children.

1) Not including Nuon.

ENVIRONMENTAL PERFORMANCE

Vattenfall manages many different energy sources and technologies, all with different environmental characteristics and challenges. Most of Vattenfall's operations are strictly regulated by laws, regulations, and permits – on global, EU, national, regional and local levels. In addition to complying with regulations, Vattenfall considers environmental performance to be a foundation for sound business development, which improves the company's competitive position and protects the value of current and future assets.

Vattenfall's Environmental Policy

Vattenfall's Environmental Policy, which applies throughout the Group, states the following (extract).

Vattenfall's ambition is to be Number One for the Environment and to be recognised for this. This means that:

- We manage our operations with openness, effectiveness and accountability and, for each energy source and type of technology, we strive to be best in class.
- We do our utmost to choose modern, efficient and environmentally effective technologies while making a sound assessment, balancing environment and economy when making investments.
- We strive to increase our use of energy sources and technologies that have low emissions of carbon dioxide and other emissions.
- We invest in Research and Development to improve energy efficiency in our operations, in renewable and low emission energy sources and to reduce carbon dioxide emissions from power plants based on fossil fuels.
- We have a structured and systematic approach to taking environmental aspects into account, including setting requirements and targets as well as performing follow-ups. We handle this as an integral part of our business management. We assess environmental, social and ethical performance when selecting suppliers, contractors and business partners.

Vattenfall governs environmental issues at all organisational levels. Environmental performance is a business responsibility and is described in the Vattenfall Management System, which applies for the entire Vattenfall Group.

Environmental goals and performance

At the Group level, Vattenfall sets long- and short-term business planning targets for reducing CO₂ emissions. The long-term development of Vattenfall's generation portfolio requires significant investments, which are co-ordinated at the Group level. At the Business Group and business unit levels, additional environmentally related targets apply.

Environmental management system

At the Vattenfall Group level, environmental data from operations is reported and consolidated annually in a dedicated reporting process. In addition, reporting on qualitative issues, such as risks and incidents, is done quarterly.

Vattenfall's Group Environmental Management System includes annual Environmental Management Reviews where corrective actions can be initiated. Most parts of Vattenfall have their own environmental management sub-systems aligned with recognised standards, many of which are certified. Thirty-three units are covered by ISO14001, seven power plants are covered by EMAS, and eight by other recognised environmental management systems. The certificates cover approximately 50% of installed capacity.

Organisational responsibility for environmental performance

The environmental issues in focus for Vattenfall's Executive Group Management includes strategic development, long-term development and financing, managerial principles and deviation analyses. Based on targets set by the Executive Group Management, each Business Group and business unit has full responsibility for planning, carrying out, following up on and developing its business. This includes taking responsibility for environmental concerns. All organisational units are required to have access to relevant competence to manage environmental aspects.

Environmental organisation

Vattenfall's Group Environment function manages and follows-up environmental issues within the Group and ensures that an efficient and competent environmental organisation is in place at the Group level to support the organisation. The Group Environment function also monitors and evaluates environmental opportunities and risks of importance for the Vattenfall Group and the Vattenfall brand. The Group Environment function creates and supports platforms for sharing best practice within the Vattenfall Group. The Head of Group Environment executes the functional responsibility for environmental issues as described in the Vattenfall Management System and is the Environment Management Representative for the Group.

Vattenfall has an environmental committee that consists of members representing all Business Groups and functions as an advisory function for the Head of Group Environment. The Environmental Committee is also a meeting place for sharing best practice and identifying cross-border benefits from extended co-operation within Vattenfall.

Business Groups and business units have their own Environment Management Representatives and often additional resources to handle their particular environmental aspects.

Under the Vattenfall Group Environmental Committee, Centres of Excellence have been established to monitor and analyse policy developments and serve as a forum for information exchange and knowledge transfer, within Vattenfall but also externally.

In addition, Vattenfall consultants provide expertise in energy efficiency, environmental and sustainable strategies and participate in projects and initiatives not only throughout the Vattenfall Group, but also in other industries, thereby stimulating knowledge transfer.

Environmental risk management

Environmental risks are monitored, managed and mitigated locally in Vattenfall. The Group Environmental Risk Management approach includes six different components:

- **Environmental Debt** – Established debt, in relation to existing regulatory conditions
- **Legal & Regulatory Risk** – Relating to future changes in regulatory conditions
- **Environmental Risk** – Relating to future events resulting in environmental damage
- **Health & Safety Risk** – Relating to future events with an impact on health or safety
- **Incidents** – Incidents having occurred, i.e., near misses, with a potential for environmental damage
- **Accidents** – Accidents having occurred, resulting in environmental damage

Environmental risks (qualitative as well as quantitative estimations of probability and consequences) are reported and aggregated at the Vattenfall Group level annually. Vattenfall's Group Environmental Committee follows up and evaluates the Group's Environmental Risk Management.

Training and awareness on environmental issues

Training is important as a foundation for awareness and environmental work. E-learning on important environmental issues is available for all employees. Environmental issues are included in management training programmes.

Vattenfall's key environmental aspects

Vattenfall's key environmental aspects include energy and resource efficiency, emissions reduction, management of waste and by-products, responsible land use and biodiversity protection.

In addition, as an energy utility with large market presence and purchasing power, Vattenfall strives to ensure that its activities to improve environmental performance also target suppliers, customers and policy makers:

- Supplier criteria are developed to ensure that UN Global Compact standards are met in procurement. These are described in Vattenfall's Code of Conduct for suppliers. Supplier audits are performed, and Vattenfall may provide support to improve a supplier's environmental work (see also HR2).
- Vattenfall provides retail and industrial customers with support and expertise regarding energy efficiency measures (see EN5-7, PR3 and p 28).
- Information on the environmental impact of Vattenfall's energy generation is also provided, and in many markets, Environmental Product Declarations (EPDs) are available (see EN5-7 and PR5).
- In relation to policy makers, Vattenfall is actively taking initiatives and entering into dialogue to stimulate the development of frameworks needed to reduce environmental impact from energy generation while at the same time meeting society's need for secure energy supply.

Materials use

The largest quantities of materials used by Vattenfall are fuels for electricity generation and heat production (reported under Energy).

Other large quantities of materials include auxiliary chemicals used mainly for flue gas cleaning, such as limestone, ammonia and urea. Improved flue gas cleaning normally leads to increased use of these chemicals. Use of these chemicals results in lower emissions, with considerable positive effects for the environment. Long-term structural changes leading to reliable trends can only be seen over at least a 10-year period. The proper measurement time frame would be an investment cycle that lasts 30-40 years.

Across the Group, inventories have been taken of hazardous substances such as asbestos and PCBs, and plans have been applied to phase out these substances. No PCB remains in Germany, Poland and the Netherlands, but some PCB remains to be phased out in the Nordic operations. Asbestos has been found, and phase-out is on-going. In Sweden, Netherlands and Poland, some asbestos still remains to be phased out.

For some energy sources, such as hydro power, wind power and ocean energy, the construction phase is where most materials are used. Vattenfall has specified all impacts from cradle to grave in Environmental Product Declarations (EPDs), which can be found on [www.virondec.com](http://www.envi-rondec.com).

Waste, both industrial waste and household waste, is a small but important part of Vattenfall's fuel mix. It is used for heat production and electricity generation, both in waste incinerators as well as in co-combustion with other fuels. Almost 100% of the waste is from external sources, and the use of waste as a fuel is increasing. Society strives for efficient recovery of waste, and incineration is an effective method of energy recovery from waste that cannot be recycled. Power plants that have a permit to combust waste are strictly regulated in terms of flue gas cleaning and ash management.

Vattenfall's waste incinerators are located in Uppsala, Sweden, and in Hamburg, Rostock, Rüdersdorf and Lauta in Germany. In 2009 the waste incineration plants in Rostock and Rüdersdorf were in the commissioning phase. In addition, co-combustion of waste is carried out at four large lignite-fired power plants in Germany. A maximum of 5% waste is combusted together with the lignite. Vattenfall will continue trials and evaluations for further co-combustion. Vattenfall does not

currently use waste for electricity or heat production in Poland, but investigations regarding various options are being carried out with support from Vattenfall in Germany and the Nordic region.

Materials used (EN1)

Materials used

ktonnes	Lime expressed as CaO	Ammonia	Other chemicals for flue gas cleaning
Sweden	7.06	0.97	0.46
Finland	0.06	0	0
Denmark	20.3	4.17	22.0
Germany	905	3.90	4.45
Poland	9.91	0.0	0.0
Netherlands (incl Belgium)	12.1	3.8	0.0

	Lime expressed as CaO	Ammonia	Other chemicals
2009 ¹	943	9.04	26.9
2008 ¹	963	7.37	29.1
2007 ¹	1,020	7.78	25.6

1) These figures do not include the Netherlands.

The lower use of lime in 2009 compared with 2008 is due to decreased fossil-based generation in Germany. Other chemicals for flue gas cleaning consist mainly of the dry scrubber byproduct from the Fyn power plant in Denmark, which since 2007 is recycled in flue gas cleaning at the Amager and Nordjylland power plants. (Fuels are reported under EN3-4)

Materials used that are waste (EN2)

Percentage of fuel that is waste

% (not including uranium)

Sweden	36.0
Finland	1.3
Denmark	0.00
Germany	2.8
Poland	0.00
Netherlands (incl Belgium)	0.00

Percentage of fuel that is waste

2009 ¹	3.0
2008 ¹	3.1
2007 ¹	2.8

1) These figures do not include the Netherlands.

The use of waste as fuel has a rising trend, since using non-recyclable waste for energy recovery is an important service to society. A slight reduction in 2009 is due to decreased co-firing in lignite plants.

Energy

Energy efficiency is one of the most important environmental aspects for Vattenfall. Improved efficiency in power plants means that society's need for energy will be met while using less resources and causing less environmental impact per generated unit of energy. Many development and investment programmes aim to increase energy efficiency.

Generation of heat and electricity is dependent on many factors, such as the weather and market conditions. During cold winters, demand for heat and electricity is higher, resulting in more generation, often with higher emissions. In a very dry year, there is less of hydro power available, and other generation – possibly fossil-based – will increase. This is also the case when nuclear power plants are not in operation. The energy market is also affected by the overall economy, fuel prices, etc. For additional information, see the 2009 Annual Report.

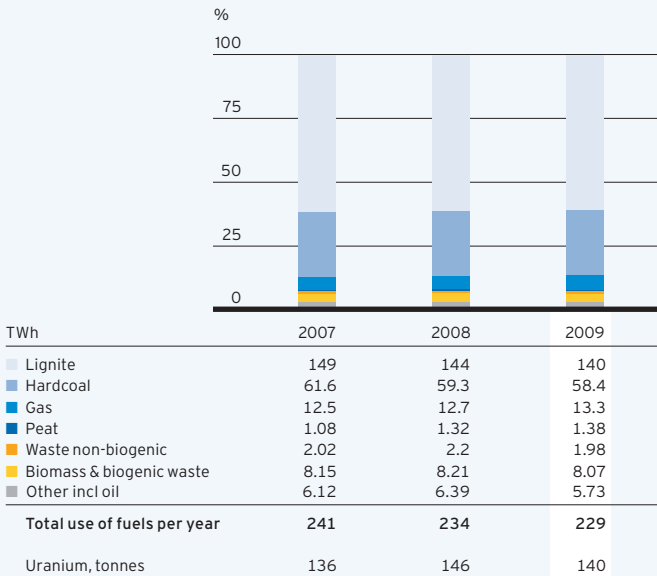
Energy use (EN3-4)

Vattenfall's major energy use consists of fuels. Uranium is used in nuclear power plants to generate electricity. Fossil fuels (lignite, hard coal, oil and natural gas), peat, biomass fuels, blast furnace gas and waste are used to generate electricity and heat. Electricity is also generated in hydro power plants, wind power plants and to a small extent in solar cells.

The largest indirect source of energy consumption is electricity for operating power plants. This electricity is derived primarily from own generation, and data is not gathered at the Group level. The environ-

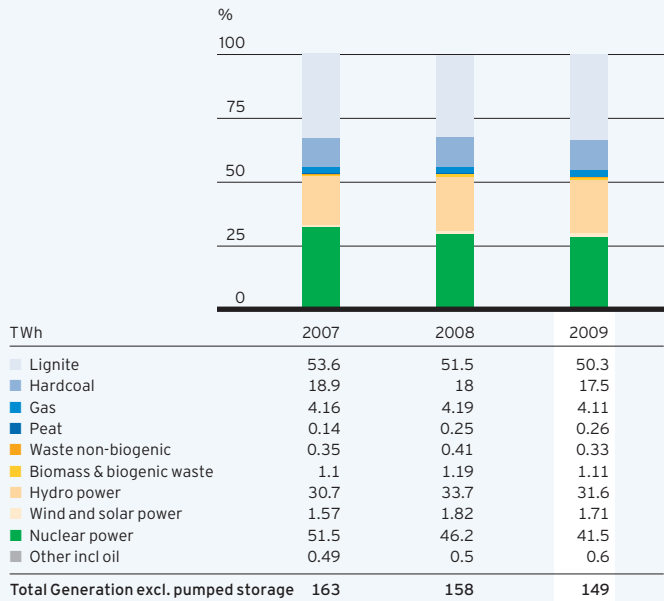
mental impact of this electricity is accounted for through reporting of net production. The second largest source of consumption consists of losses in energy transfer. Electrical resistance in power lines and transformers inevitably causes technical distribution losses amounting to around 6 TWh under normal conditions. Mining is the third largest source of electricity consumption, consuming 1.2 TWh electricity from Vattenfall's own generation, when large amounts of ground water and overburden material (mostly sand) have to be redistributed.

Total use of fuels per year¹



1) These figures do not include the Netherlands.

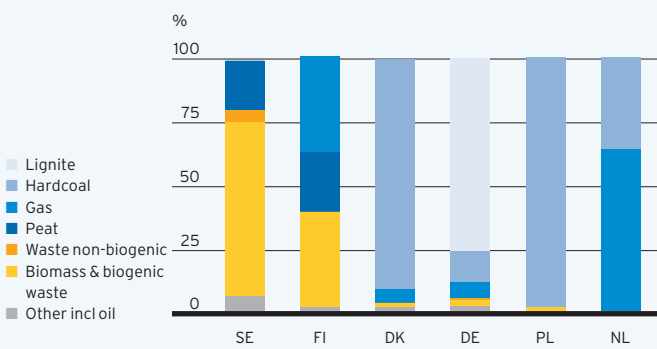
Electricity generation mix per year^{1,2}



1) These figures do not include the Netherlands.

2) The allocation of electricity generation to fuel is a calculation based on simplified assumptions for multifuel power plants. These figures does not include the Netherlands.

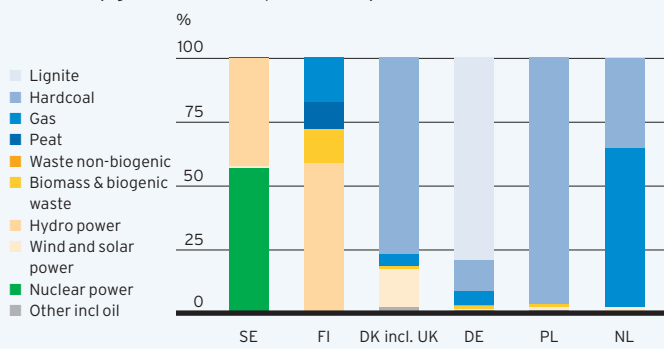
Total use of fuels per country



In addition, 140 tonnes of uranium was used in Sweden.

The use of lignite and hardcoal was lower 2009 due to lower electricity demand in Germany and resulting lower production. A lower amount of waste co-firing in lignite plants reduced both the non-biogenic waste and the total biomass and biogenic waste use as fuels.

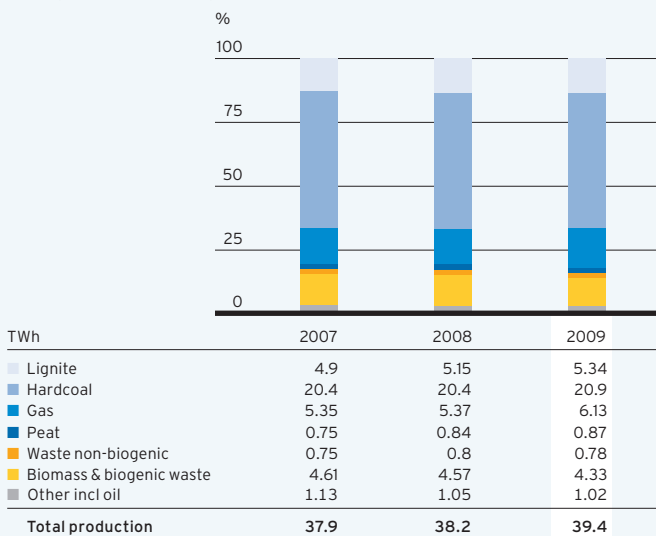
Electricity generation mix per country¹



1) The allocation of electricity generation to fuel is a calculation based on simplified assumptions for multifuel power plants.

Nuclear power production decreased from 2008 to 2009 due to revisions in the Swedish units. The German nuclear power has not generated during 2009.

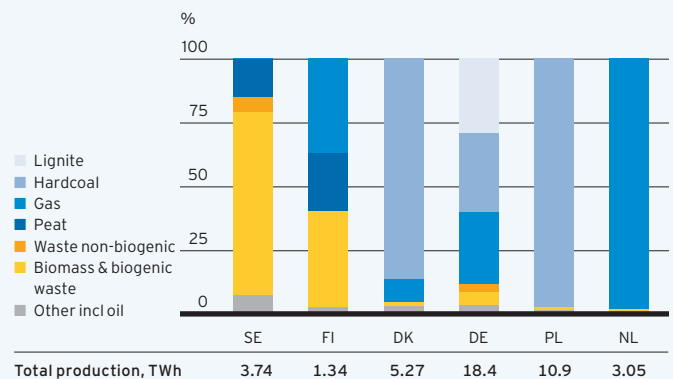
Heat production mix per year^{1,2}



1) These figures do not include the Netherlands.

2) The allocation of heat production to fuel is a calculation based on simplified assumptions for multifuel power plants. These figures does not include the Netherlands.

Heat production mix per country¹



1) The allocation of electricity generation to fuel is a calculation based on simplified assumptions for multifuel power plants.

Energy-efficient and renewable energy-based products (EN5-7)

Energy efficiency and increased generation from renewable energy sources are fundamental components of Vattenfall's environmental strategy. Declaration of origin for electricity sales is being implemented across the Group.

Initiatives to improve efficiency

Initiatives and activities to increase efficiency are performed across Vattenfall's operations, and efficiency measures in power plants target both direct and indirect energy use. Continuous improvement work is long-term, and data on energy savings is not currently gathered at the Group level, since measurements are very complex. Each unit strives to increase energy efficiency, since this has a direct impact on financial and environmental performance, which is measured. Examples of specific energy efficiency projects in the Group:

- The ongoing efficiency increases in the Swedish nuclear power plants will result in an increased generation of some 2.5 TWh annually.
- At the Ringhals nuclear power plant, energy efficiency measures are ongoing to save electricity use in lighting, ventilation and heating. The annual savings potential amounts to approximately 2 GWh.
- In Sweden and Finland, a continuous refurbishment programme is resulting in efficiency increases corresponding to the increased production of a new hydro power plant – with the same amount of water. Also, in Sweden, two new small hydro power plants are being built, in Abelvattnet and Stornorrfors, and a major project in Akkats has been started to rebuild most of the plant, including two new units for increased production and availability.
- The new Moorburg coal-fired power plant in Hamburg, Germany, will increase the energy efficiency of the German portfolio thanks to the combination of heat and power generation.
- In Germany, continuous improvements are being made in generation efficiency. Examples of measures in 2009 include the start of a test plant for pre-drying lignite, efficiency improvements at several pumped storage plants, and improvements of heat exchangers at the Boxberg power plant.
- In March 2009, the heat accumulator at the Siekierki combined heat and power (CHP) in Poland was put in operation. It enables the accumulation of heat during the day for distribution during the evening and night. This has led to improved efficiency from co-generation while at the same time meeting daytime demand for electricity. Also,

there is less need to start up peak water boilers at night time, when heat demand increases.

- In Poland, where improvement potential remains high, investments are being made in the electricity distribution grid to reduce distribution losses, thereby improving energy efficiency and reliability. Analogous improvement is being achieved through installation of pipe insulation in the heat distribution network.
- In 2009 two new turbines were put into operation in Poland – one at CHP Żerań and one at CHP Siekierki. These two investments will enable an increase in generation efficiency.
- A number of research and development efforts are targeted at energy efficiency, see EU8.
- Wind power is being modernised to make better use of land. An example is Nørrekær Enge in Denmark, where 77 small turbines were demolished and 12 new, larger ones were erected, almost doubling the electricity output.
- In the Nordic heat business unit, several thousand MWh of electricity per year has been saved both in Denmark and Sweden through better pump steering, changed ventilation, and other measures. Fuel savings have been achieved by optimising air flow and installing flue gas condensation.

Vattenfall's energy consumption related to other operations than energy generation is minute compared to the generation operations. Work targeting this consumption includes:

- Monitoring business travel and improved travel policies. In 2008, the decision was made to offset CO₂ emissions from all business travel in the Group. This is co-ordinated centrally at the Group level based on reported travel data and was implemented in 2009.
- Improved energy efficiency in administrative office facilities.

Promoting renewable electricity and heat production

- Renewable energy is sold directly to consumers in all of Vattenfall's main markets.
- In Sweden, customers can choose to purchase electricity with an Environmental Product Declaration (EPD) for wind power, hydro power and nuclear power.
- In Germany, electricity with declaration of origin is offered to industrial and retail customers.
- In the Netherlands, Nuon offers NatuurStroom and Nuon GroenStroom

Continued on page 54

to its customers. All power offered as NatuurStroom or GroenStroom is renewable and originates from plants located in the Netherlands. The total amount supplied in 2009 to consumers and small business customers was 1,148 GWh to 310,933 customers.

- In Poland, electricity with environmental declaration is offered to industrial and retail customers. In 2009, after a marketing campaign, the number of customers purchasing these products significantly increased. The customers are also provided information on the CO₂ emission savings achieved from switching to the product.

Vattenfall has a substantial investment programme to increase renewable energy generation across the Group (see p 77).

Promoting customer energy savings

Vattenfall actively supports industrial and retail customers in energy efficiency improvements. (See also page 28). Following are some additional examples from across the Group:

- Customers can get advice on energy savings at customer centres in all countries.
- In the Nordic region, web-based tools are provided for improving energy efficiency, and in Sweden Vattenfall participates on nationwide TV with energy efficiency experts giving advice on efficient use of energy on morning TV.
- In Poland, Vattenfall has been promoting energy conservation by encouraging customers to purchase low energy light bulbs. In addition, Vattenfall promotes and advises customers about energy conservation. For example, as part of a loyalty programme for Vattenfall customers, special discounts are offered for appliances with low energy consumption.
- Vattenfall engineering consultants offer energy advisory services to industrial customers, including consultation, data acquisition, analysis and solution design.
- In Berlin, Vattenfall co-operates with the charity organisation Caritas, arranging seminars to teach unemployed people how they can save energy and money. At the end of the seminar, the participants are able to identify the energy-savings potential in their homes.
- Vattenfall's customer centre in Berlin offers seminars on energy savings with the aim of identifying potential to save energy in the home and improve energy efficiency. The visitor centre also arranges visits for school classes.
- Nuon is aiming to establish a leading position in promoting energy savings among its customers and has many ongoing initiatives. These include the campaign "Energie is mooi. Verspil het niet" (Energy is beautiful. Don't waste it) – an online service created to help corporate clients monitor their electricity and gas consumption as well as give them advice on measures to achieve these savings. Nuon is also working on development of an innovative in-house energy management system (via a display). The company also organised a lamp exchange week, whereby customers could come and exchange their traditional incandescent or halogen light bulbs for an energy-saving bulb at one of the Nuon shops.
- Nuon has a broad portfolio of products and services covering most aspects of energy saving for customers. In 2009, 2,931 solar panels were sold, 16,591 high-efficiency boilers were sold/installed, 40,208 energy labels were issued and 140,304 households received energy-saving advice. In addition, approx. 720,000 m² of insulation was installed. Solar boilers were also added to the portfolio, and Nuon is now looking into insulated glass.
- Nuon has the ambition to double the amount of district heating connections with consumers and small business customers within ten years and has several ongoing projects. On 20 October 2009, the 100,000th customer was connected to district heating. Nuon was also the first supplier of district cooling in the Netherlands and continues to expand its activity in this area in terms of volume supplied and number of customers connected.

Vattenfall also supports research and development on future use of electricity to improve energy efficiency in society. Following a few examples:

- A unique partnership has been formed with Volvo to start serial production of plug-in hybrid cars by the end of 2012. More than EUR 100 million is invested in the project.
- Together with the city of Stockholm, Vattenfall is mobilising potential buyers of electric and plug-in hybrid cars in companies and communities in an effort to stimulate interest in early production cars in Sweden.
- The first phase of field testing 40 MINI E electric cars by customers has been finished with positive responses. Charging synchronised with wind power generation will be tested as a method of managing the varying output from wind power.
- In close co-operation with the city of Amsterdam, Nuon has begun establishing the first electric vehicle charging infrastructure in the city. The goal is to have 200 charging stations installed by 2012.

Water use

Water is used in many of Vattenfall's operations. In mining, ground water is removed, cleaned and returned to water bodies. In combustion power plants and nuclear power plants, water is used for cooling. Hydro power plants affect the hydrology of rivers. Vattenfall takes a water balance perspective on its management of water use, considering impacts of water withdrawal as well as discharge. Impacts of water use include temperature changes and the impact on biodiversity in surrounding water bodies, among others. Risks for emissions and leakages, for example of oils, into water bodies are carefully monitored, and preventive measures are taken.

Use of water for cooling

The cooling process at nuclear power plants and combustion power plants requires water, and cooling water is taken from rivers, lakes and the sea.

The largest amount of cooling water is used in Vattenfall's nuclear power plants in Sweden and Germany, and most of the water is taken from the sea. The temperature increase from discharges of cooling water is monitored and kept within specific limits for each respective plant. In terms of the plant's environmental performance, the benefits of efficient cooling radically exceed the small temperature increase caused from discharges of cooling water into a large body of water.

Power plants with inland locations use cooling towers and thereby significantly less water. For example, Vattenfall's lignite power plants use state-of-the-art industrial cooling systems, with cooling towers and closed cooling cycles, demonstrating water consumption generally less than 2 m³/MWh.

Use of water in lignite mining

The water sources most significantly affected by withdrawal of water are around Vattenfall's lignite mines in Germany: Jämschalde, Cottbus-Nord, Welzow-Süd, Nochten and Reichwalde (no mining is currently being conducted at Reichwalde).

In 2009, approximately 411 million m³ of groundwater was removed to make fuel extraction possible. The removed groundwater is cleaned and used to cover the freshwater requirements of the nearby lignite-fired power plants, thereby sparing other water sources. Vattenfall's need for freshwater is well below the amount of removed groundwater, and the treated excess groundwater is made available to nearby municipalities and industries. Even though Vattenfall and the surrounding municipalities and industries make use of the water, most of the cleaned groundwater is returned to rivers and lakes.

So-called eco-water inlets are used to support protected rivers and watercourses around the mines from running dry as a result of lowered groundwater levels during mining. About a fourth of the extracted mine water is used for this purpose.

To further limit the impact of lowering the groundwater when draining open-cast mines, "sealing wall" technology has been developed by Vattenfall. Inflows from watercourses, valley plains or wetlands are sealed off by underground sealing walls on the periphery of the open-cast mine. To date, Vattenfall has built sealing walls 7 km and 9 km in length along the Jämschalde and Cottbus-Nord open-cast mines, respectively. In 2009, construction of an additional sealing wall was started at the Reichwalde open-cast mine, and in 2010 a sealing wall will be built at the Welzow-Süd open-cast mine.

Hydro power

Vattenfall owns and operates hydro power plants in Germany, Sweden and Finland. In Germany, pumped storage power plants are used to store energy from other energy sources. River regulation and reservoirs for hydro power and pumped storage power have an impact on the natural water flow of rivers as well as on the surrounding landscape. Hydro power plants have a significant impact on biodiversity in rivers and streams, especially fish spawning grounds and the ability of fish to reach them. For this purpose, fish ladders for salmon and trout have been constructed on some of the regulated rivers where spawning areas exist upstream of the power stations. Every year, Vattenfall's Nordic operation plants 1.3 million fish in rivers and streams.

For each hydro power plant, permits regulate how flows are allowed to fluctuate. In some cases, it is ecologically motivated to determine a so-called instream flow, or minimum flow, to ensure a continuous water perimeter. This means that the flow is never allowed to fall below a set minimum level. It can be adjusted over time so that it reflects the variations of the natural flow, but at a lower water level. A combination of instream flow, weirs and other physical adjustments can be very effective for enhancing the conditions for aquatic organisms. The area of suitable fish habitat increases and the flow acquires a more diverse pattern, which benefits most aquatic life but also riverbank vegetation. Re-creating spawning areas is another way of promoting fish populations. These measures have been performed in some of the rivers where Vattenfall operates hydro power plants.

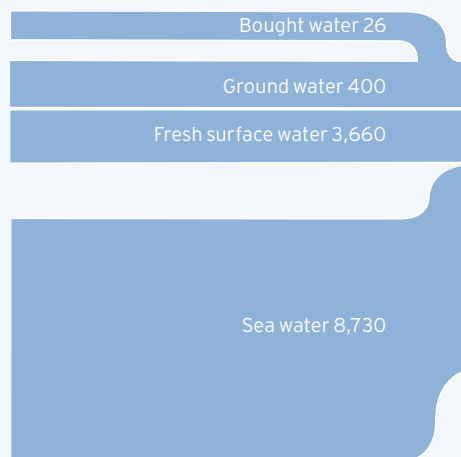
A number of initiatives and investments have been taken to improve the efficiency and environmental standard of Vattenfall's hydro power operations (for additional information, see www.vattenfall.se):

- Mobile environmental ambulances – an emergency response system for oil leaks in both flowing and still waters – have been developed by Vattenfall in Sweden together with Skellefteå Kraft and Statkraft. Three such ambulances are stationed along the Skellefte River and are equipped with absorption material, pumps, petrol generators, inflatable dinghies and outboard motors.
- Expenditures on dam safety and improvement programmes amount to SEK 6.5 billion during the period up until 2014. Planned activities include modernisation and improvements of construction as well as installation of monitoring equipment.
- A research programme aimed at proposing socially and economically viable measures for improving the environmental conditions for hydro power is currently being conducted by Vattenfall in co-operation with Swedish government agencies for energy, fishing and environmental protection and Elforsk, the Swedish electrical utilities' R&D company.
- A new and improved fish passage is being built at Stornorrfors, and will be ready in summer 2010. The new ladder will improve both upstream and downstream migration of fish past the power plant. A large development project is currently studying the possibilities to further improve the conditions for fish populations as well as for recreational fishing in the area.
- At the Nordic hydro power plants, several projects are aimed at reducing the amount of oil used to reduce the risk of oil leaks. When upgrading plants, one standard measure involves replacing oil-lubricated bearings with water-lubricated bearings. A pilot project in Älvkarleby in 2008–2009 involved testing the use of water and glycol in the hydraulic systems of intake gates.

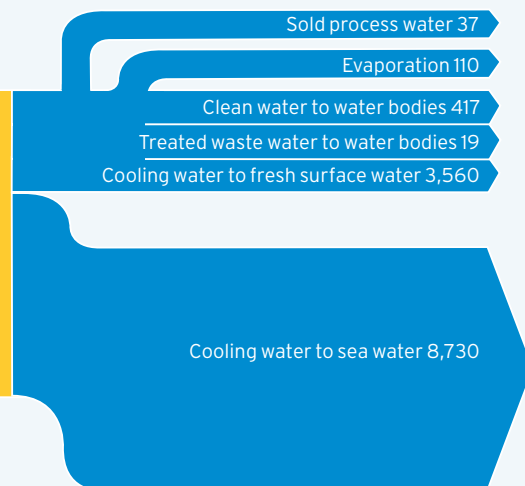
Total water withdrawal and discharge (EN8, EN21)

Vattenfall has conducted a thorough analysis to assess the largest streams and impacts from the use of water in the Group. This analysis has resulted in the reporting of ten water parameters, covering both water withdrawal and water discharge.

Water withdrawal 2009
Million m³



Water discharge 2009
Million m³



Most of the water intake is used for cooling. The largest part of that is taken from the open sea and returned to the sea.

Effect on water sources and biotopes (EN9, EN25)

Due to the diverse nature of Vattenfall's operations and large number of sites, information on water sources, protected status and biodiversity values of water bodies is handled locally, as it is most efficient. Information is therefore not gathered at the Group level; however, the water use and main sources are described in general and with examples above.

Land use and biodiversity

The nature of Vattenfall's operations, with large power plants, dams, open-cast mines, wind farms and electricity networks, has a physical and visual impact on the landscape. The affected areas have differing biodiversity value, and the conservation processes and actions differ accordingly.

Before starting new construction or major rebuilding work, environmental impact assessments are carried out, including impacts on

biodiversity. Vattenfall strives to harmonise operational facilities with the landscape and the environment, and is committed to the protection of flora and fauna in the surrounding area. This is often a requirement of the permits granted by the regulatory authorities to operate power plants, and processes to obtain permits and protect biodiversity are well established within Vattenfall. This work is done in co-operation with national and regional authorities.

Furthermore, Vattenfall has developed the Biotope Method, an assessment tool for quantifying the impacts on biodiversity of land and water use. Impact assessments of Vattenfall's Nordic generation are described in Environmental Product Declarations (these can be found at www.environdec.com). For impacts in the supply chain, see HR2.

In Sweden, a pilot project started in 2009 whereby environmental values are studied in the vicinity of selected hydro power plants. The study will form the basis for assessments of the impact of various technical solutions when hydro power plants are to be rebuilt, improved or enhanced.

Land use in protected areas (EN11)

Vattenfall's most significant land use pertains to electric distribution corridors, power plants – especially hydro power plants – and lignite mining operations in Germany. Due to the diverse nature of the operations and the large number of sites, information on protected status and biodiversity values of sites is handled locally, as this is most efficient. Information is therefore not gathered at the Group level.

Description of impacts, protection and management of biodiversity (EN12–14, EU13)

Land use in lignite mining

Vattenfall's lignite mining in Lausitz, Germany, is conducted in open-cast mines, which claim land areas. The impact on the landscape is considerable when the cast is open, but mining and re-cultivation of mined areas are two phases of the same operation.

Re-cultivation planning starts during the early planning stages of mining. The interests of authorities and business as well as the concerns of the local community are taken into consideration in the early planning. All affected stakeholders are invited to take part in the process. (See also SO1, EU20, EU22.) All land used for open-cast lignite mines is acquired by Vattenfall. Co-operation with potential future land users and local stakeholders creates a solid basis for making productive use of the land after concluding mining activities. Re-cultivation programmes aim to achieve a natural, pre-industrial landscape. The objective is to allow for sustainable agriculture, forestry and water management in the post-mining areas in combination with desirable biodiversity, a harmonic landscape and possibilities for outdoor life. The factors that characterise the new landscape are soil quality, land and water distribution, and topography. Lakes are planned for the post-mining landscape.

During the active operational period of Vattenfall's five lignite mines in Germany, 171 km² have been claimed up until now. Land use in 2009 was 6.61 km² (5.77 km² in 2008). Large quantities of land mass are redistributed in order to enable lignite extraction from the open-cast mines. In 2009, a total of 396 million m³ of land mass (459 million m³ in 2008), mainly sand, was moved to extract 56 million tonnes (58 million tonnes in 2008) of lignite. A total of 3.5 km² (4.2 km² in 2008) were re-cultivated, of which 0.5 km² have become forestlands and 1.2 km² agriculture.

In Germany, Vattenfall owns and operates 380 km of railway, used for transporting lignite from mines to power plants. Rail is also used to transport lime to the power plants and ash and gypsum from the plants. The railway is connected to Deutsche Bahn at two junctions, and Vattenfall owns and operates its own fleet of engines and wagons.

Land use and biodiversity around electricity distribution corridors

Electricity networks also have an impact on large land areas. Overhead transmission and distribution lines, in particular, claim significant land

areas. In some cases though, this has a positive impact on biodiversity. In Sweden, studies show that many rare species have found refuge around overhead distribution grid lines thanks to the regularly recurring right-of-way clearance. Sections of Vattenfall's Swedish power line corridors have been declared "Natura 2000" areas, harbouring rare and red-listed species. This means these areas represent valuable natural habitats to be preserved with the help and support of the EU, with the aim of protecting biodiversity. Special considerations are taken when performing maintenance work in these areas.

Electricity networks claim land areas, and the length of transmission and distribution grid lines provides an indication of the land areas used. The lengths of Vattenfall's local and regional distribution grid lines are 411,000 km. In the cities of Berlin and Hamburg, the networks are mainly served by underground cables. In addition, Vattenfall has 10,000 km of transmission grid lines in Germany, which are planned to be divested.

Power lines are a potential threat to birds. Vattenfall is taking measures to minimise this risk by equipping power lines with devices to prevent birds from flying into the power lines.

Land use for power plants

Power plants, offices and other buildings use limited land area. However, reservoirs for hydro power plants have a significant impact on the landscape. Vattenfall's most significant impact comes from the large reservoirs for river regulation in Sweden, involving both natural lakes and inundated land. Inundated land area amounts to approximately 640 km². Storage capacity varies from a few months to more than a year; the change in water levels of the various reservoirs varies from 2 metres to 34 metres, and storage capacities of the reservoirs range from 300 million m³ to 9,500 million m³. Vattenfall has established a number of protected areas along the Lule River in Sweden which have proved to harbour several rare and threatened species, protecting them from future exploitation.

Emissions

The most significant environmental impact of Vattenfall's operations that remains to be handled is from CO₂ emissions from fossil fuel combustion in energy generation, both in terms of quantity and their effect on global warming. Vattenfall believes that curbing CO₂ emissions will be the overriding challenge of our time and a defining issue for the power industry. Therefore, Vattenfall has laid out the strategic direction of reducing emissions from energy generation by developing low CO₂-emitting technologies and reshaping Vattenfall's energy generation portfolio during the coming 20 years.

Vattenfall has set the target to reduce emissions of CO₂ per kWh in the generation portfolio. The long-term target is a 50% reduction by 2030 compared with 1990. Vattenfall's climate vision is to be climate-neutral by 2050 (2030 in the Nordic countries). As a result, significant investments are currently being made in viable renewable energy sources, such as wind and ocean energy, in the development of coal-fired power generation using Carbon Capture and Storage (CCS) technology, and in increased capacity of nuclear power generation. Improved energy efficiency is also essential for ensuring that customers' and society's needs for energy are met while at the same time reducing emissions per kWh.

Vattenfall believes that a global framework for reducing greenhouse gas emissions will be essential to solving the problem and has taken the initiative to propose such a programme for curbing climate change.

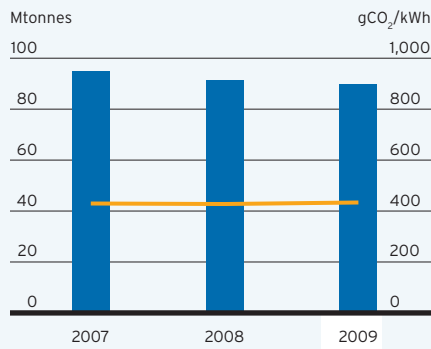
Other significant emissions from Vattenfall's operations are sulphur dioxide (SO₂), nitrogen oxides (NO_x) and particles. These emissions are significantly reduced by flue gas cleaning. Small amounts of greenhouse gases other than CO₂, such as nitrous oxide (N₂O) and methane (CH₄), are produced in boilers when any fuel is combusted. Sulphur hexafluoride (SF₆) is still used in some electrical equipment. Vattenfall strives to reduce emissions as far as possible by using advanced technologies to keep its emission below national and regional requirements.

Greenhouse gas emissions (EN16-17)

The predominant greenhouse gas emission consists of the direct CO₂ emissions from fossil fuel combustion for electricity and heat production. Direct emissions of other greenhouse gases than CO₂ and direct emissions from other activities than energy generation, amounts to 0.8 million tonne of CO₂-equivalents¹, which corresponds to approximately 1% of the reported CO₂ emissions. Indirect emission from fuel transport and business travel accounts for less than 0.5 % of the total greenhouse gas emissions. Emissions from use of electricity (scope 2 according to the Greenhouse Gas Protocol) are included in direct emission, since most electricity used is from Vattenfall's own generation.

CO₂ emissions are dependent on weather conditions and economic development (see also EN3-4). During cold winters, demand for heat and electricity is higher, resulting in more generation and consequently more emissions. During a very dry year, when there is less availability of hydro power, generation from other – possibly fossil-based – energy sources will increase. This is also the case when nuclear power plants are not in operation. This makes it difficult to monitor short-term trends in CO₂ emissions.

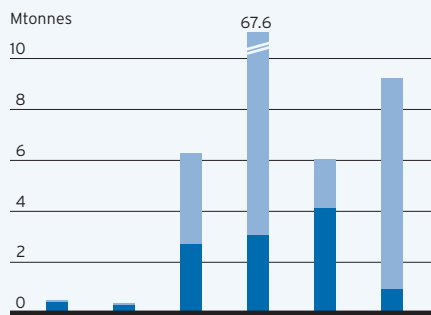
CO₂ emissions, per year (total and specific)



	2007	2008	2009
CO ₂ , Mtonnes	94.9	91.4	89.7
CO ₂ , g/kWh ²	429	426	434

2) Average of electricity and heat production.

Total CO₂ per country

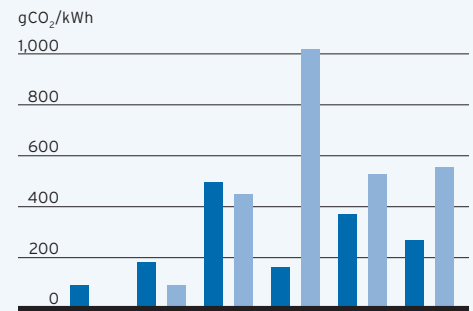


	SE	FI	DK	DE	PL	NL ¹
CO ₂ from electricity generation ³	0.095	0.059	3.60	64.6	1.92	8.3
CO ₂ from heat production ³	0.344	0.245	2.61	2.97	4.06	0.849

3) Allocation of CO₂ between electricity and heat is based on national methods.

1) Approximately 90% of these emissions are N₂O emissions, and the remaining 10% are CO₂ emissions from operations, and emissions of other greenhouse gases.

Specific emissions CO₂ per country

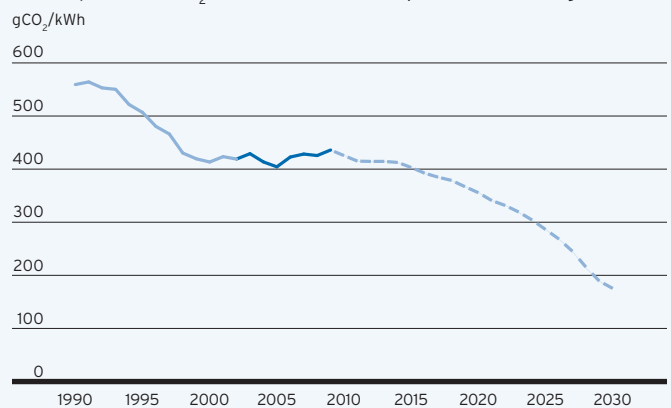


	SE	FI	DK	DE	PL	NL
CO ₂ from electricity generation ⁴	1.29	91	449	1,020	529	553
CO ₂ from heat production ⁴	91.9	183	494	162	372	268

4) Allocation of CO₂ between electricity and heat is based on national methods.

A decrease in absolute emission is the result of lower demand in Germany and therefore lower production in fossil plants. Low emitting sources, primarily nuclear, decreased production more and this lead to an increase in specific emissions.

Development of CO₂ emissions, electricity and heat average



— Estimated emissions 1990-2002 — Actual emissions 2003-2009 — Planned development 2010-2030

Historical data for Nuon before 2003 where missing at the time of compiling this report. An estimation based on a constant market share and the total energy sector emission in the Netherlands, was used to estimate the total Vattenfall emission recalculated according to the Greenhouse Gas Protocol.

Initiatives to reduce greenhouse gas emissions (EN18)

Activities and investments to reduce CO₂ emissions include increasing generation from renewable energy sources, equipping coal-fired power plants with Carbon Capture and Storage (CCS) technology, and increasing capacity of nuclear power. In addition, improvements are being made to existing technology in an effort to increase efficiency, resulting in reduced emissions per generated unit of electricity and heat.

Investments and work on reducing emissions are long-term. A fundamental requirement is that society's need for secure energy supply and stable energy prices is met.

Renewable energy

- In May Vattenfall decided to proceed with construction of the Stor-Rotliden wind farm in Åsele municipality, which will be Vattenfall's largest onshore wind power project. The wind farm, which is expected to be commissioned in 2011, will comprise up to 40 wind power turbines with capacity of 78 MW, corresponding to the electricity needs of nearly 50,000 households.
- In England, construction of the Thanet wind farm continued during the year, and with a capacity of 300 MW it will be one of the world's largest offshore wind farm once it is completed in 2010. It is estimated that Thanet will be able to generate enough electricity to meet the needs of 240,000 households.
- Also during the year, the Alpha Ventus wind farm outside the island of Borkum offshore Germany's North Sea coast was put in operation. Alpha Ventus is a development and demonstration project in which Vattenfall has a 26.25% interest. The remainder is owned by EWE and E.ON. Alpha Ventus is expected to meet the electricity needs of nearly 50,000 households.
- The Ormonde Project, which will be operational around 2011, in England, comprises 150 MW offshore wind generation.
- Co-combustion of biomass fuels is increasing. In Poland, the aim is to diversify the fuel mix, and approximately 5% of the Żerań and Siekierki power plants' fuel source will be converted to biomass by 2011. To achieve this goal, the existing biomass handling installation at CHP Żerań was modernised in 2009, and a new one will be put into operation at CHP Siekierki in the first quarter of 2010.
- Starting in 2009, Heat Nordic is analysing the possibilities of establishing co-combustion of biomass with coal in the Danish power plants. The MaxBio project deals with the how and when in shipping, processing and eventually combusting wood pellets and woodchips. Fuel switching from oil and peat in to biogenic alternatives is also proceeding in Sweden and Finland.
- Development of ocean energy continues and is expected to be the next commercial renewable energy technology after wind power. Vattenfall is co-operating in wave power pilot plants off the coast of Norway and western Sweden. A co-operation agreement for wave power development was signed with the Irish company Wavebob in March 2008, and in January 2009 Vattenfall acquired 51% of Pandion Ltd, the Irish site development company for ocean energy.
- In June 2008, Vattenfall's plans for a new hydro power plant in Abelvattnet, Sweden, were approved by the environmental court, which will enable construction of a new hydro power plant that will generate 14.2 GWh of electricity per year. The planned completion date is 2010.

Coal using Carbon Capture and Storage (CCS)

Vattenfall is a leader in the development and commercialisation of CCS technology (see also page 12)

- The CCS pilot plant in Schwarze Pumpe, Germany, has been in operation successfully during 2009 and will give valuable results for the next steps in development.
- In 2009, the construction of the pilot CO₂ capture plant in Buggenum, Netherlands continued. The total investment is 40 million euro. This project will help working towards CO₂ capture at the Magnum power plant in Eemshaven, Netherlands.
- A demonstration plant is planned for Jämschalde, Germany, by 2015. The project is one out of 6 to be granted support from the EU.
- The earlier announced CCS demoplant at Nordjyllandsværket in Denmark has been postponed. Geological investigations will continue at the storage site.

Nuclear power

Nuclear power generation has low emissions and plays an important role in Vattenfall's strategy to reduce CO₂ emissions from electricity generation in the markets where it is accepted. Significant investments are being made to increase the power output in the Group's nuclear power plants, both by increasing plant efficiency and by capacity increases, all in all increasing the generation of low carbon electricity with some 8 TWh annually, thereby reducing environmental impact per generated kWh of electricity. In parallel, continuous efforts are being made to ensure excellence in safety management.

Distribution

Some electricity circuit breakers contain SF₆ gas, which is a powerful greenhouse gas, to make them compact and possible to fit in confined spaces. Where technically possible, SF₆ circuit breakers are being replaced by vacuum breakers.

NO_x, SO_x and other emissions to air (EN20)

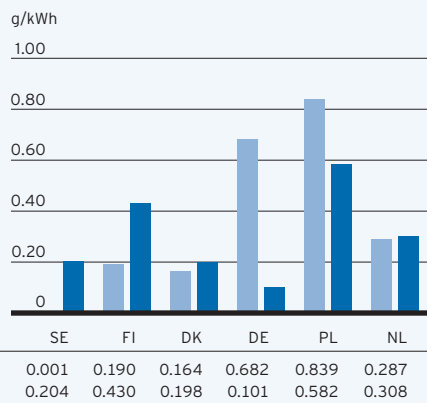
Other emissions to air include SO₂, NO_x and particles, which have decreased in recent decades due to the modernisation of generation facilities and installation of flue-gas cleaning equipment. Some acquired facilities have not yet been equipped with the latest technologies, and work is being done to bring them up to Vattenfall's standards. In Poland a large-scale project of modernisation of electrostatic precipitators was finished in 2008. The environmental effect has been a considerable reduction of dust emissions – the actual specific emission are 50% less than the legal requirements. In 2008 a project to install desulphurisation capacity at the Siekierki combined heat and power plant in Warsaw was launched. The installation will result in a significant reduction of SO₂ emissions. The complete installation will be ready by the end of 2011, however, already by year-end 2010 the three main boilers will be equipped with flue gas desulphurisation. According to new legal requirements for NO_x emission limits, NO_x reduction installations will be indispensable in Polish power plants. Installation of NO_x reduction at CHP Siekierki is planned to take place from 2011 to 2014.

Total emissions of SO_x, NO_x and particles

Thousand tonnes	Sweden	Finland	Denmark	Germany	Poland	Netherlands
NO _x electricity	0.092	0.12	1.31	43.0	3.05	4.30
NO _x heat	0.764	0.576	1.05	1.86	6.35	0.937
SO _x electricity	0.101	0.034	0.403	46.7	7.45	1.33
SO _x heat	0.328	0.219	0.357	1.35	15.1	0.001
Particles electricity	0.005	0.007	0.156	1.14	0.255	0.049
Particles heat	0.058	0.079	0.108	0.023	0.622	0.000

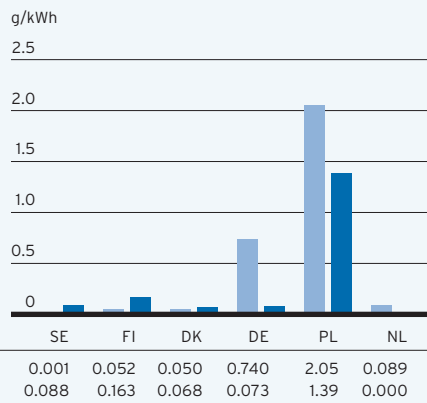
Allocation of emissions between electricity and heat is based on national methods.

Specific emissions, NO_x



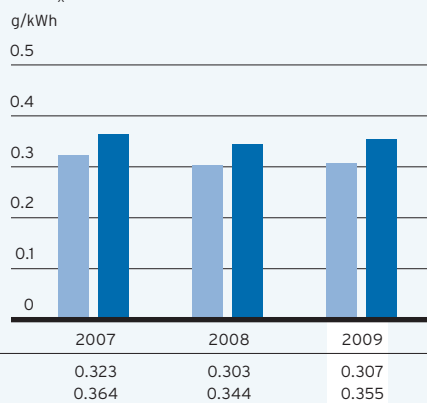
Allocation of emissions between electricity and heat is based on national methods.

Specific emissions, SO_x



Allocation of emissions between electricity and heat is based on national methods.

Specific emissions, NO_x and SO_x per year, electricity and heat average



The emissions of SO_x are varying from year to year depending on varying sulphur content in the lignite mines.

Waste, residues, by-products and spills

Vattenfall's operations generate various types of waste and residues. Nuclear power plants generate radioactive waste. Combustion of solid fuels such as coal, biomass and waste generate ash and mineral by-products, such as gypsum, which can be re-used.

Waste management

Depending on different national legislation, some of the ash generated in Vattenfall's power plants falls under waste legislation. Vattenfall strives to enable re-use of ash by applying quality and environmental standards. Hazardous waste is treated according to permits and regulations.

Waste from construction and the decommissioning of power plants, distribution grids, etc., is handled according to the respective national legislation. Vattenfall strives to stimulate re-use and recycling of construction waste. Amounts of waste vary from year to year depending on the type of operation, ongoing construction work, etc.

Most waste from Vattenfall's administrative offices, such as paper, etc., is recycled. Waste from IT is handled locally by the vendor of the equipment, or by specialised companies.

Re-use of residues, ash and mineral by-products

The burning of solid fuels and cleaning of flue gases result in large amounts of useful ash and gypsum, which are considered as by-products. When ash and by-products are substituted for other materials, it leads to less consumption of new resources. It also significantly reduces the amount of ash that has to be deposited. Most ash and mineral by-products from Vattenfall plants are re-used, and increased use is encouraged. Studies show that the risks associated with using ash as construction material are very small. Vattenfall undertakes research efforts together with the construction industry to improve the use of ash.

The most significant by-products are ash from lignite- and coal-fired plants, and gypsum from flue-gas desulphurisation. This gypsum is sold to Europe's gypsum and cement industry.

Ash from lignite power plants is mainly used in the open-cast mining area for landscaping in the post-mining environment. Ash from Vattenfall's hard coal combustion in Germany, Poland and Denmark is used in the construction industry and for road construction.

Some of the ash from biomass combustion is spread in forests as fertiliser. As biomass fuel use increases, ash from biomass fuels is also increasing.

Discarded poles from overhead transmission lines make up a significant quantity of waste in the Nordic distribution operation. The Swedish distribution network alone uses approximately 1.2 million poles, most of which are impregnated with creosote. When poles are replaced, the discarded poles are used as fuel at the Ludvika Heat power plant. In 2009, 12,000 poles were used as fuel. In Poland coal combustion residues are re-used. Most of them are used as construction material and for roads. During 2009, Vattenfall Poland has worked towards certification of by-products such as gypsum and ash, to facilitate the re-use of these products.

Some ash needs stricter handling, however. Ash from waste incineration is strictly regulated. Ash is reused to the greatest possible extent, and smaller fractions with high metal content are deposited at special sites. Fly ash from the Uppsala waste incineration plant is sent to Langøya, Norway for reuse as filling material.

Radioactive waste

Vattenfall operates nuclear power plants in Sweden and Germany. It is the operator's responsibility to have reliable and acceptable solutions for managing nuclear waste. High-level long-lived radioactive waste, which consists primarily of spent nuclear fuel, must be carefully shielded during handling and transportation. It takes approximately one hundred thousand years for the radioactivity to decline to the level that occurs in the uranium ore from which the fuel was originally extracted. Vattenfall supports research and development on final disposal solutions for radioactive waste, a process that is conducted according to different time plans in Sweden and Germany.

In Sweden, the Swedish Nuclear Fuel and Waste Management Company (SKB), has developed a solution for a final repository for spent nuclear fuel. SKB is jointly owned by Sweden's nuclear power operators.

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In 2009 SKB selected a site near the Forsmark nuclear power plant, in Östhammar municipality, as the most suitable locality for a final repository. The site selection was based on several factors, such as extensive requirements on the bedrock characteristics and long-term safety, environmental impact, supporting infrastructure and local acceptance. The final design and licensing procedures are still to be completed.

The first spent nuclear fuel can be deposited in the final repository by 2020 at the earliest. Meanwhile, all spent nuclear fuel in Sweden is stored in water basins 30 metres below ground level at a central interim storage facility in Oskarshamn municipality. Swedish radioactive operational waste is stored in a final repository (SFR), which is also near the Forsmark nuclear power plant. This is a central facility for disposal of short-lived low- and intermediate-level waste from nuclear power plants, industry, research facilities and hospitals. The repository is located 50 metres underground in crystalline bedrock.

An expansion of SFR is planned for the handling of short-lived low- and intermediate-level radioactive waste from the decommissioning of nuclear reactors. This expansion is expected to be operational by 2020.

In Germany, the concept of establishing two final repositories, both in deep geological formations, is being investigated. After initial studies, the use of a salt formation near Gorleben for high active waste has been explored. The exploration has still not been finalised. It was discontinued in 2000 as a part of a compromise between the nuclear industry and the German government. However, the moratorium on the Gorleben explorations will cease in October 2010, after which development can continue. Alternative solutions other than the Gorleben repository have been discussed but never fully investigated on the technical/scientific level. For Gorleben (or any other repository in salt formations), all basic technology and tools have already been developed. In Germany the interim facilities are located at the nuclear power plants and operated by the nuclear power companies.

For low- and intermediate-level waste, with negligible heat generation, the former Konrad iron mine is fully licensed and under construction. Start of operations is now planned for 2014/15.

Costs associated with the final disposal of radioactive waste from today's nuclear electricity generation are borne today. It has been taken into consideration that a significant part of the costs for the final disposal of high-level radioactive waste is incurred many years after production has been closed down. In Sweden, the nuclear power companies continuously pay fees to the Swedish Nuclear Waste Fund, which is a state fund intended to cover all costs associated with waste handling and storage, and decommissioning of nuclear reactors. In Germany, costs associated with the final disposal of nuclear waste are to be borne by those who produce the radioactive waste. Normally, provisions are built up to cover the cost of handling nuclear waste and decommissioning. These provisions remain within the nuclear industry, i.e., the utilities and energy companies. These provisions are reported in the companies' respective financial statements. See also EU9.

Spills and contamination

The risk for spills and other contamination is monitored, managed and mitigated locally. Incidents that could possibly result in significant envi-

ronmental impact, such as spills, leaks and contamination, are reported according to Vattenfall's Incident and Crisis Management (ICM) framework, see EU21.

To reduce the risk for oil leaks from electricity distribution operations and transformers in water protection areas, Vattenfall has a 4-year programme in force in Sweden to exchange pole-mounted transformers with ground stations. An inventory taken in 2008 shows that out of a total of approximately 40,000 transformer stations, 1,474 are situated in water protection areas, and of these, 200 are pole-mounted. During 2009, 82 of the 200 pole-mounted transformers were replaced with ground stations, and the 4-year-programme is expected to be finalised by the end of 2011.

Many of Vattenfall's facilities have been operating for a long time. Work is under way to identify land that was contaminated during times when environmental awareness was lower and environmental legislation was less rigorous. Contaminated land exists in the Nordic countries, Germany and Poland. Known contaminated sites have been identified and characterised. Action to restore such land is taken when necessary and in dialogue with the authorities.

Monitoring programmes have been developed. For example, all potentially contaminated sites around Vattenfall's facilities in Sweden have been identified, and potential risks associated with the contamination have been assessed. In accordance with established programmes, necessary measures will be adopted no later than 2010. The plan for taking care of contaminated land is progressing on schedule.

Waste and mineral by-products (EN22)

Treatment of waste

ktonnes	Hazardous waste excl. radioactive		Non-hazardous waste	
	Rec	Dep	Rec	Dep
Sweden	4.46	2.17	4.11	0.67
Finland	0.08	0.03	1.40	2.21
Denmark	0.11	8.10	34.5	0.76
Germany	78.1	29.2	312	22.9
Poland	0.18	0.19	12.3	0.70
Netherlands	0.00	1.06	0.00	2.02

ktonnes	Hazardous waste excl. radioactive		Non-hazardous waste	
	Rec	Dep	Rec	Dep
2009 ¹	82.9	39.7	364	27.3
2008 ¹	80.4	35.5	320	26.4
2007 ¹	80.7	26.3	390	27.5

1) These figures does not include the Netherlands.

Waste from reclamation of old, non-operating sites in Germany has been included in this report retroactively from 2007. These volumes where not reported in last years report. In the German figure for hazardous waste approximately 70% are ashes from waste incineration.

By-products

ktonnes	Fly ash	Furnace bottom ash	Ash from biomass fuels	Slag from waste incineration	Gypsum	Other by-products
Sweden	0.0	0.0	38.7	59.8	0.74	10.6
Finland	25.7	7.13	0.0	0.0	0.0	0.0
Denmark	272	29.6	0.0	0.0	56.1	26.2
Germany	4,230	1,070	14.3	195	2,830	33.5
Poland	416	45.8	0.0	0.0	0.0	0.0
Netherlands	128	60.7	0.0	0.0	38.5	0.0
	Fly ash	Furnace bottom ash	Ash from biomass fuels	Slag from waste incineration	Gypsum	Other by-products
2009 ¹	4,950	1,150	53.0	255	2,880	70.3
2008 ¹	5,180	1,160	64.2	287	2,910	77.4
2007 ¹	4,980	1,170	55.2	275	3,060	61.4

1) These figures does not include the Netherlands

The amount of byproducts is closely following the production levels in primarily the lignite and hard coal fired plants.

Radioactive waste

	Medium and low-level radioactive operational waste (m ³)	Nuclear core components (tonnes)	Spent nuclear fuel – assemblies taken out (tonnes)	Spent nuclear fuel – original uranium content (tonnes) ¹⁾
Sweden	484	0	185	139
Germany	29.6	0	0	0
2009	514	0	185	139
2008	3,670	0.273	206	147
2007	1,290	10.2	202	148

1) Original uranium content is a subset of assemblies taken out

The amount of medium and low-level radioactive waste and nuclear core components depends on ongoing projects in the nuclear power plants and which year the waste is deposited.

Spills and contamination (EN23)

In Sweden, three oil spills into water, totalling 92 litres, were recorded at hydropower plants in 2009. In addition, leakage to soil has occurred in a few instances. 100 litres of waste oil leaked out in a waste handling station at the Ringhals nuclear power plant. One spill totalling 60 litres was recorded from hydropower and one significant oil spill was recorded at distribution. The soil has been decontaminated after the spills.

In the Heinsberg industrial park in Oberbruch, Germany, the nitrogen value in the wastewater discharge at the wastewater treatment plant exceeded the threshold for several days. Soon after, the nitrogen values decreased below the threshold, and they continued to decrease over the next few days. To avoid further incidents, the aeration equipment was completely renewed

Nuon's Helianthos solar film factory suffered a gas leak in one of the deposition machines in April 2009. A new gas tank, equipped with a new type of seal and a remote shut-off system, was installed.

Operational safety

Safety is a fundamental aspect and basic requirement for all of Vattenfall's operations. Adverse impact on human health and safety is minimised through comprehensive safety work and well-established risk management systems. Within the nuclear operations area, the Vattenfall Group co-ordinates all safety work through the Chief Nuclear Officer, who reports directly to the CEO (see also EU21).

Dam safety is an important aspect of hydro power, since a dam failure could have serious consequences, causing substantial property damage and a threat to human life. The risk of a dam failure is extremely small, and current requirements are calculated for water flows that statistically occur every 10,000 years. Vattenfall has invested actively in improved dam safety and is active in the industry's dam safety work. International audits indicate that Vattenfall's dam safety has a very high standard.

Risks for incidents, contamination and significant spills are carefully monitored, managed and mitigated locally (at the plant and regional level). Examples of risks include oil leaks from transformer stations and oil filled cables in the distribution grid, and accidental discharges to water from power plants (for example, from hydro power plants). Training in co-operation with local authorities to prepare for possible incident scenarios is regularly carried out in parts of the organisation. In addition, incidents, including such where there is a risk for environmental impact, are handled according to Vattenfall's Incident and Crisis Management (ICM) framework, which is applied to enhance preparedness and provide effective and proactive ways of handling events that could lead to an incident or crisis (see EU21).

Electromagnetic fields (EMFs)

Vattenfall is committed to comply with recommended and legal guidelines regarding electromagnetic fields (EMFs), see PR1.

Compliance with codes, agreements and frameworks

Vattenfall is a signatory of the UN's Global Compact, which is the underlying framework of Vattenfall's overall sustainability work, and as such it has the most important influence. Environmental law sets an important regulatory framework for Vattenfall's operations, and a wide range of legal instruments in this field are relevant for Vattenfall.

Fines and incidents (EN28)

Vattenfall has a Group-wide Incident and Crisis Management (ICM) organisation. For additional information, see EU21.

Environmental incidents and the handling of fines are regulated under Vattenfall's environmental policy, stating that Vattenfall shall comply with existing laws, regulations and permits and take preventive and/or remedial action in order to reduce environmental impact as well as make advance assessments of the environmental impact of new activities. When accidents occur, Vattenfall acts to minimise the damage, restore any damage caused and take precautionary measures to avoid future incidents. On a quarterly basis, all Group functions, business units and shared service centres report on progress in environmental protection as well as on accidents and incidents regarding environmental impact.

In Sweden, two legal actions have been reported pertaining to remediation costs for after-treatment measures to repair damage to the environment on an industrial site. The two claimants state that according to the Swedish Environmental Code, liability for remediation of the polluted site still rests with the Swedish state. The liability claim rests on the Swedish state's role as previous owner of the property and operator of the now closed-down thermal power plant. The Ministry of Enterprise, Energy and Communications has decided that both cases are to be handled by Vattenfall's Nordic operation. The likely outcome for Vattenfall is hard to predict.

In 2009, an inspection of the Siekierki combined heat and power plant in Poland by the Environment Inspector revealed excessive noise levels. A noise reduction project has been launched, and the investment cost will be recognised against the potential fine.

In 2009, three incidents occurred involving a wind park belonging to Nuon. Although the incidents did not lead to any legal action, they did attract media attention. In May, one of the rotor blades on a turbine at the Harry van den Kroonenberg wind farm fell off. In November, lightning struck a blade at the Eemmeerdijk wind farm. The blade did not fall off and was removed a week later, which was as soon as weather permitted.

During regular inspections at the Offshore wind farm Egmond aan Zee, vertical settlements between the foundation pile and transition piece was discovered at some wind turbines. As a result, all of the wind turbines of the wind farm have been inspected. Based on the outcome of the inspection, the base of three wind turbines have been repaired in the fall of 2009 to prevent further issues.

Environmental protection expenditures and investments (EN30)

Vattenfall strives to take environmental aspects into account in all decision-making and investment planning. Investments aiming to improve environmental performance are not specifically reported.

For information on investments made in 2009 and planned investments, see page 77. For information on research and development (R&D) spending, see EU8.

SOCIAL PERFORMANCE

LABOUR PRACTICES

Vattenfall's employees are the backbone of its business. Their talent is a resource comprising individual knowledge, skills and qualifications. In the future, the most significant success factor for Vattenfall will be having people with the right competence. Therefore, one of Vattenfall's strategic ambitions is to be an Employer of Choice. This means that Vattenfall strives to create a work environment that enables the company to attract, develop and retain people with leading competence and promote top performance.

Human Resources Policy

Vattenfall's Human Resources Policy describes Vattenfall's approach to five areas: culture and organisation, leadership, competence development, work environment, and compensation and rewards.

Briefly, the policy states that "Vattenfall strives to create a work environment that attracts and develops people with leading competence and encourages top performance. By continually developing and improving our human resource work, we are recognised, externally as well as internally, as a highly attractive employer. The human resource work contributes to our business operations and to greater competitiveness. We address all issues according to local practice, and our actions are always accountable and socially responsible. We facilitate change and are constructive and open to new possibilities and models."

Vattenfall is a signatory of the UN's Global Compact. Vattenfall is committed to complying with the Global Compact's principles regarding responsible labour practices. The principles adhere to international frameworks such as the core conventions of the ILO and the OECD development guidelines for multinational companies.

Human resources goals and performance

Vattenfall's human resource performance is defined in terms of employee commitment, excellent leaders, the right competence and attractiveness for students.

Vattenfall's annual employee survey, My Opinion, measures a broad range of aspects that reflect Vattenfall's company culture and employee commitment. The overall response rate in the MyOpinion survey was 70% in 2009. We also measure our attractiveness among students using external benchmarks.

Vattenfall's strategic ambition to be an Employer of Choice is followed up by measuring employee commitment. In 2009 the commitment score was 74%, compared to the target score of 72%, which was an increase

from 2008 when the score was 70%. Commitment drivers include job satisfaction together with company management and environment & society. Commitment targets are part of every business unit's business plan for the coming three years. Vattenfall's long-term target is to reach a commitment level of high performance companies, which is 81%.

Organisational responsibility

Group Function Human Resources (Group HR) supports and assists management teams at the Group and Business Group level in the management of Vattenfall. Group HR has functional responsibility for human resource issues at Vattenfall and provides expert advice on matters of importance to the company. The head of Group Function Human Resources is also a Senior Executive Vice President and member of the Executive Group Management.

Group HR issues directions and objectives for different areas and provides models and tools for the local units when appropriate. The work of Group HR is mainly performed in various national and international projects. Most HR-related activities, however, take place locally in the various units.

Group HR focuses on continuous improvement and value creation by developing and providing high-performance programmes and tools, including Talent Management, Organisational Development and Compensation & Benefits.

Employment

During the coming decade, demographic changes will lead to increased competition for potential employees, as a significant number of the company's employees are approaching retirement. In combination with plans for growth and large investments, this is leading to significant recruitment needs and is making the ability to attract, retain and develop the right competence a critical business success factor.

Market-oriented salaries and benefits – including performance-based compensation – are a prerequisite for being able to recruit and retain competent employees. Vattenfall offers competitive salaries and benefits and strives to be an employer that rewards strong performance, identifies potential and applies flexible solutions to facilitate employees' work. Accordingly, Vattenfall offers individual and differentiated salaries with focus on performance and potential.

Vattenfall has an international assignment process, and the number of employees stationed abroad is steadily increasing. In view of the company's international operations, mobility across national borders is highly important.

Workforce (LA1, EU17)

Average full-time equivalents¹

	2009			2008		
	Men	Women	Total	Men	Women	Total
Sweden	6,882	2,270	9,152	6,947	2,179	9,126
Denmark	613	115	728	580	104	684
Finland	269	184	453	279	211	490
Poland	2,163	648	2,811	2,086	626	2,712
Germany	15,554	4,839	20,393	15,111	4,649	19,760
Netherlands (incl. Belgium)	2,302	710	3,012			
UK	25	19	44	6	3	9
Other countries ²	46	16	62	18	2	20
Total	27,854	8,801	36,655	25,027	7,774	32,801

1) Full-time equivalents (person-years) refers to all employees within the company/unit with the following exceptions, Students (Werksstudenten, Praktikanten), thesis graduates (Diplomanden), holiday workers, staff temporary employed for less than three months, staff on leave of absence for more than 3 months, staff on sick leave for more than 3 months (in Germany for more than 42 days). The number of person-years is the number of employees re-calculated into full-year employees. For example 2 half-time positions are equal to one full-time equivalent. Employment categories are not defined in Vattenfall and data is therefore not divided between categories. Certain values have been adjusted compared with previously published information. Breakdown reflects where each individual is employed.

2) UK was included in other countries 2008

Total headcount (as of 31 December)¹

	2009			2008		
	Men	Women	Total	Men	Women	Total
Sweden	7,094	2,477	9,571	6,940	2,354	9,294
Denmark	609	118	727	604	114	718
Finland	285	217	502	286	239	525
Poland	2,215	678	2,893	2,150	643	2,793
Germany	16,500	5,576	22,076	15,956	5,269	21,225
Netherlands (incl. Belgium)	4,582	1,688	6,270			
UK ²	23	16	39	–	–	–
Other countries	–	–	–	25	8	33
Total	31,308	10,770	42,078	25,961	8,627	34,588

1) Headcount includes all employed individuals who are working. Breakdown reflects where each company is situated.

2) UK was included in other countries 2008

The increase in the number of employees is mainly related to the acquisition of Nuon (BG Benelux). Other increases are related to safety improvements in nuclear power and organic growth in wind power.

Subcontractors

Contract workers are used, for example, during maintenance and re-loading of nuclear power plants, in daily operations, and to temporarily fill competence gaps. These contracts are handled locally, and statistics are not gathered at the Group level. Vattenfall does not track or calculate how large a portion of the work that is performed by workers who are legally recognised as self-employed.

Apprentices and seasonal employees are hired when needed. Consultants are used both during peaks in the work load and as a source of additional competence.

Employee turnover (LA2)**Net employment creation¹**

	2009	2008	2007
Sweden (including residual)	277	158	52
Denmark	9	58	37
Finland	-23	-19	-47
Poland	100	13	-64
Germany	851	164	-256
Netherlands incl Belgium	6,270		
UK	39		

1) Net employment creation consists of the net change in the total number of employees at year-end 2009. It includes units that were incorporated or divested during the period. Data on age groups not available

**Employee turnover¹, %
(External recruitment/External resignations)**

	2009	2008	2007
Sweden (including residual)	4.5	4.3	4.5
Denmark	11.4	n/a	7.8
Finland	4.0	7.8	4.1
Germany	1.1	1.1	1.0
Poland	4.3	4.3	5.5
UK	0.0		
Netherlands incl Belgium	6.4		

1) Employee turnover is based on the number of employees holding permanent employment who have left the Vattenfall Group of their own accord. Employee turnover data according to gender or age is not gathered at the Group level.

The increase in the number of employees is mainly related to the acquisition of Nuon (BG Benelux). Other increases are related to safety improvements in nuclear power and organic growth in wind power.

Processes to ensure the availability of a skilled workforce (EU14, EU15)

Ensuring the availability of a skilled workforce is one of the most important areas from a human resources perspective. During the next decade, 19% of Vattenfall's employees will retire, which means the company must attract, recruit, develop and retain skilled employees. The annual Competence Planning process is used to analyse the organisation's current competence status and future competence needs on the basis of business plans. To reduce the gaps identified in the annual process for individual and working group training, Vattenfall arranges internal and external training, including technical training that is specific for various complex operations, such as nuclear power (see also LA10).

Every recruitment is an investment for the recruited person, the recruiting unit and for the Vattenfall Group. In 2009 Vattenfall Group implemented a new advanced job database. The new Job Database ensures a single global system that offers many opportunities to search for jobs across borders. The aim is to increase international rotation and diversity for Vattenfall.

Vattenfall measures its attractiveness among engineering students. In the Nordic region Vattenfall was ranked number 4 in 2009.

Safety training for contractors (EU16, EU18)

All contractors and subcontractors working at Vattenfall's plants and at Vattenfall's facilities receive necessary health and safety information. The content and the extent of instructions and training depend on the work area and work tasks of the respective contractors and subcontractors. Preventive health and safety measures cover essential dangers related to Vattenfall's facilities, plants and processes, and are adapted to the specific national legal requirements of the specific plant or facility.

As a part of the procurement process, suppliers, their subcontractors and sub-suppliers sign the Vattenfall Code of Conduct for suppliers. This includes complying with the respective countries' health and safety legislation and ensuring that employees have undergone the necessary health and safety training. Vattenfall's health and safety policy, which was updated in 2009, states that personnel of contractors shall be treated in the same way as Vattenfall's own employees with respect to health and safety issues. At the same time, Vattenfall expects contractors to adhere to the Group's health and safety standards while working for Vattenfall. Instruction and training is carried out in the decentralised line organisation, and data on number of participants is not aggregated at Group level.

Employee benefits (LA3)

Employee benefits differ between the countries where Vattenfall operates. Examples of benefits include long service awards and child birth grants (Germany), health care (Poland, Finland, Denmark, Sweden), compensation during parental leave (Sweden), support for sporting activities (Finland, Sweden, Poland) and extra days off (Denmark).

Following are some differences in benefits between full-time and temporary or part-time employees:

- In Germany, employer contributions to the company pension scheme are not paid until an employee has served two years for the company. Most temporary employees are therefore not eligible for such payments. A group accident insurance plan is in place for exempt and executive staff – a service that is not provided to other employees.
- In Finland there are differences in support in cases of redundancy and parental and other leaves of absence.
- In Sweden there are differences in company cars, which are regarded as a flexible benefit.
- In Denmark, all employees are offered insurance, which is regulated by the Equal Opportunities in the Labour Market Act (Ligebehandlingsloven). Extra days off are offered after nine months of employment.
- In Poland there is no difference between part-time and full-time employees regarding benefits.
- At Nuon there is no difference between part-time and full-time employees regarding benefits.

Labour/management relations

The annually recurring My Opinion employee survey covers a wide range of issues and aspects. Through My Opinion, employees have an opportunity to express their opinions about everyday work, managers and the company. The tool is used throughout the organisation as a basis for action plans to improve the work environment. Best practices derived from the action plans are shared and become a useful tool for management.

In addition, local actions are taken in all countries and include open-door initiatives in which employees can meet with management, team meetings, and forum/chats on the intranet regarding current issues of employee interest. In 2009 the overall response rate for the MyOpinion survey was 70%.

Collective bargaining agreement coverage (LA4)

Employees represented by trade unions, estimation

%	2009	2008	2007
Sweden	85	85	85
Denmark	70	70	70
Finland	85	85	82
Germany	70	70	70
Poland	55	44	58
Netherlands including Belgium ¹	-		

Employees covered by collective bargaining agreements, estimation

%	2009	2008	2007
Sweden	98	98	98
Denmark	44	44	44
Finland	95	96	96
Germany	98	98	98
Poland	98	92	92
Netherlands including Belgium ¹	-		

¹) Data not available.

Operational changes (LA5)

Collective agreements and regulations regarding operational procedures differ between the countries where Vattenfall operates.

- In Germany, the Human Resources department is closely engaged in extensive restructuring processes, e.g., by answering questions concerning labour law. Communication campaigns and change management activities depend on the complexity of the restructuring process. Vattenfall is obligated to inform the works council in a comprehensive manner about all relevant company-related matters, and the works council has the right to be consulted about specific strategic decisions and company changes. Vattenfall acts in accordance with the Works Council Constitution Act.
- In Finland, operational changes are partly regulated by collective agreements, but in most cases by law (Co-operation law YTL). The time varies depending on the type and scope of the change, from days to several months in cases of redundancy of more than 10 persons. Terms of notice range from 1 to 6 months, depending on the employee's length of employment.
- In Sweden, operational changes are partly regulated by collective agreements, but also by the Co-determination Act (MBL), and terms of notice vary from 1 to 12 months.
- In Denmark, the handling of significant changes in operations are regulated by the Salaried Employees Act (Funktionærloven), and notices must be given on an individual level.
- In Poland, Vattenfall generally informs unions or work councils in advance with a reasonable time frame – usually 10–12 weeks in advance. If a reduction concerns more than 10% of the workforce, a special procedure needs to be followed in co-operation with trade unions.
- Dutch Work Councils Act prescribes that the Works Council (representing the employees of Nuon) is to be formally consulted prior to a decision on significant operational changes. This must take place well before the decision is taken but has no fixed time frame. Next to that Nuon ensures continuous deliberation through regular informal and formal (bi-monthly) consultation.

Occupational health and safety

The protection of the health and safety of those who are affected by our activities is an integral part of our core values. Vattenfall is committed to creating a safe and healthy working environment; this means no injuries, no occupational ill health and no accidents. Our efforts to reach this goal include a systematic and proactive approach to the management of health and safety in all of our activities.

Vattenfall updated its Health and Safety Policy in 2009, which states that no one at Vattenfall should be injured or fall ill as a result of their work. Risks should be reduced as much as possible. No work is so important that it is allowed to be performed unsafely. When a situation becomes unsafe, every employee is required to stop working immediately.

Top management is involved in health and safety work by setting and monitoring safety goals. Vattenfall's managers also serve as role models by promoting health and safety-oriented behaviour.

Overall, Vattenfall follows a preventive approach and implements best practices in health and safety management. To promote high levels of health and safety, Vattenfall maintains a continuous improvement process. An accident reduction programme what was started in 2006 lowered the accident rate at work by 36% to the end of 2009.

Vattenfall works actively to improve employees' health by offering regular health check-ups and taking preventive measures according to national legislation. The company is active in supporting employees with prolonged illnesses so they can return to work.

Employee well-being and safety is measured by health and safety indicators and by reviewing health and safety-related questions in the My Opinion employee survey, which measures health and safety-related matters. The Health Index category measures employees' mental and physical condition. Vattenfall climbed the Health Index from 76% to 77% in 2009 (i.e., 76% of employees evaluate the category positively). In the Safety category, questions are asked about the safety level of the company. Vattenfall's score in the Safety category increased from 76% to 78% in 2009. It is the responsibility of every unit to evaluate My Opinion results and take necessary action.

Health and safety committees (LA6)

Health and safety committees are organised at the operational level. The committees deal with local problems and provide management with suggestions for improvements. Vattenfall's employees are well informed about initiatives and programmes that contribute to safe working conditions. More than 75% of the total workforce is represented in formal joint-management/ worker health and safety committees.

Injuries, absentee rates and fatalities (LA7)

Figures are reported from all parts of the organisation on a quarterly basis as part of the regular reporting system. In 2007 Vattenfall set a goal to reduce work-related accidents by 20% by year-end 2009 compared with 2006. This goal was achieved. To make this possible, preventive measures were set up on the basis of a consequent hazard evaluation. The accident rate decreased from 11.1 accidents per 1,000 employees in 2006 to 7.1 accidents per 1,000 employees at year-end 2009. Vattenfall will continue its work on reducing accidents. The goal is to reduce accidents by a further 20% by year-end 2012. This accident reduction goal will include Nuon.

Injuries, absentee rates and fatalities

	2009	2008	2007
Reported accidents at work (per 1,000 employees)	7.1	7.3	8.7
Commuting accidents (per 1,000 employees)	3.9	4.5	3.9
Number of lost days per employee due to accidents	0.1	0.1	0.1
Sick leave (%)	3.2	3.1	3.1
Work-related fatalities	3 ¹	2 ²	7 ³

Figures are reported from all parts of the organisation on a quarterly basis, as part of the regular reporting system. Accident is defined as an acute incident that occurred in the course of work, and which resulted in personal injury. Staff accidents includes electrical accidents. Commuting accident is defined as accidents occurring during travel to or from work. Work-related fatalities include external contractors. For the occupational disease rate (ODR), qualitative data is not available at the Group level. However, occupational diseases are followed up in accordance with national practice by the health and safety organisation and management.

- 1) Contractor in Finland - drowning accident at hydropower plant; Employee electrocution during maintenance work; Employee in Finland - drowning accident at pump storage plant.
- 2) On 23 January, a contractor was hit by a falling object during maintenance of a high voltage cable in Hamburg, Germany. On 10 November, one employee died in a commuting accident.
- 3) Employee - Electrocution during maintenance work on a 30 kV cable in Rid-darhyttan, Sweden, 14 September; Contractor - Fall from 40 m high pylon, Bad Tennstedt, Sachsen-Anhalt, 17 May; Employee - commuting accident in car, Mulkwitz, Sachsen, 24 June; Contractor - fall from height, Boxberg power plant, 7 August; Contractor - fall from height while dismantling a work platform, Markersbach pumped storage plant, 28 September; Employee - crushed between a truck and a wheel loader, Reichwalde open-cast mine, 22 November; Employee - crushed under a transformer while replacing it, Berlin-Tempelhof, 1 Dec.

Support regarding serious diseases (LA8)

Vattenfall's various companies have a long tradition of promoting good health of employees and of measures to prevent incidents and serious diseases. Accordingly, preventive medical check-ups are provided in compliance with the national health and safety legislation in the respective countries. Employees exposed to night shift work, noise, heat, hazards to eyesight, work on heights, chemicals, ionising radiation, dust, etc., can seek medical assistance and undergo additional tests from various specialists if needed. Employees who have been exposed to high risks, such as exposure to asbestos, undergo regular follow-up examinations to provide early diagnosis of related diseases.

In addition, various measures are offered to employees, such as back exercise courses and health promotion events. In large parts of the organisation, vaccination programmes for influenza and other diseases are further elements of health protection. Medical emergency aid is an integral part of occupational safety and health protection. Vattenfall has a permanent first aid training programme for employees. All employees have access to individual counselling and assistance by professional social workers or psychologists. Reintegration and disability management programmes have been established.

Health and safety and union agreements (LA9)

Health and safety are strategically important matters for Vattenfall, and co-operation with the unions is an important aspect. Regulations differ in the countries where Vattenfall operates. In all countries where Vattenfall operates health and safety matters are covered by law, and union agreements do generally not cover these issues in detail.

Training and education

Vattenfall provides opportunities for all employees to develop as professionals and individuals. There is no Group-wide policy regarding training and education; instead, local country-specific regulations apply.

Vattenfall has two internal institutions for competence development, Vattenfall Management Institute (VMI) and Vattenfall Business Institute (VBI). VMI is designed for management development and offers both general management training as well as advanced programmes at the strategic level for senior managers. Development programmes for functional specialists such as financial control, HR, procurement and communications are offered by VBI.

The Talent Management process is a holistic process designed to define, attract, develop and retain the talent Vattenfall needs to meet future challenges. The process includes management planning and competence planning.

Management planning

Excellent leaders are key drivers of the company. Vattenfall has developed a Group-wide leadership model to evaluate and assess managers and young potentials. The annual management planning process provides an overview of management capacity in the Group as well as information to support succession planning. To ensure a high rate of internal succession, Vattenfall focuses on early development of its leaders. International leadership training programmes are conducted in order to help leaders develop their ability to work under rapidly changing conditions and in different cultures.

Competence planning

Ensuring the right competence is a crucial task for Vattenfall. To do so the Group has an annual competence planning process to analyse the organisation's current competence status and future competence needs. The analyses are made on the basis of business plans, and identify competence gaps. The purpose of the process is to ensure that the organisation has the proper skill sets from both the short-term and a long-term perspectives.

Actions plans are prepared to consider local specific needs and ensure sufficient competence in the future. The competence planning process covers areas such as efficiency improvements, implementation of new technology, investments, skills development, recruitment, job rotation, trainee programmes, demographic analyses and the use of consultants.

Training of employees (LA10)

The company's approach to competence development is that skills development occurs mainly during daily work and through participation in various projects. Therefore Vattenfall does not aggregate information about the number of training days per employee. To enhance managers' knowledge about Vattenfall's vision and strategic ambitions, the Vattenfall Management Institute (VMI) conducts management development programmes. In 2009, 392 managers participated in such programmes. The number of participants in different competence programmes is presented in the table below.

According to the annual My Opinion employee survey, in 2009 73% of employees responded that they receive enough training and opportunities for development. Every Vattenfall company that receives result reports is responsible for analysing and preparing action plans.

Competence programmes, 2009

Target group	Number of participants	Days
Young Potentials	120	2
Managers	211	9
Middle	28	8
Executives	33	9
Controllers	20	6
Purchasers	20	6
Communication	20	6

Programmes for skills management and lifelong learning (LA11)

Vattenfall offers various training programmes to make sure that employees have the skills necessary to maintain high performance and fulfil the company's strategic ambitions as well as to facilitate personal development and life-long personal learning. Several assistance programmes to support employees who are retiring are in place.

Skills management and learning

	Yes	No
Internal training courses	X	
Funding support for external training or education	X	
Sabbatical periods with guaranteed return	X (Germany)	X (Nordic)
Pre-retirement planning for intended retirees	X (Nordic)	X (Germany)
Retraining for employees intending to continue working		X
Severance pay (individual)	X	
Severance pay that takes age and years of service into account	X	
Job placement services	X	
Assistance when retiring	X	

Performance and career development reviews (LA12)

Reviews on performance and career development are important ways of ensuring that Vattenfall's work environment and competence development objectives are met. Following is a summary of results from the My Opinion employee survey:

Performance and career development reviews

Sweden

90% of employees responded that they have had a detailed discussion to clarify their job objectives, and 67% said that their manager has given feedback related directly to their performance and improvements.

Finland

84% of employees responded that they have had a detailed discussion to clarify their job objectives, and 63% said that their manager has given feedback related directly to their performance and improvements.

Denmark

91% of employees responded that they have had a detailed discussion to clarify their job objectives, and 72% said that their manager has given feedback related directly to their performance and improvements.

Germany

74% of employees responded that they have had a detailed discussion to clarify their job objectives, and 56% said that their manager has given feedback related directly to their performance and improvements.

Poland

90% of employees responded that they have had a detailed discussion to clarify their job objectives, and 81% said that their manager has given feedback related directly to their performance and improvements.

Diversity and equal opportunity

Vattenfall's Human Resources Policy states the company's view of diversity and equal opportunity as well as its importance (extract):

"We strive for diversity in teams and units in regards to gender, age, background and experience, enabling employees from different units and of different nationalities to work together".

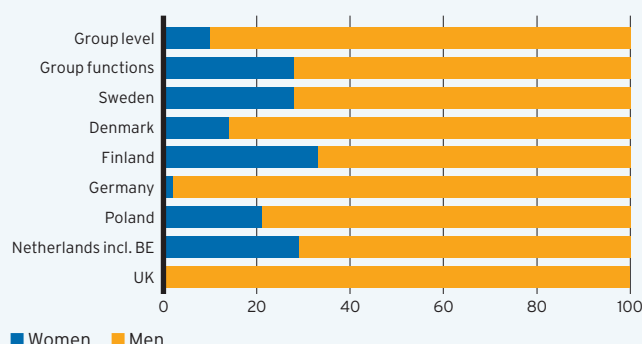
The policy relates to Vattenfall's ambition that the workforce should reflect the societies in which the company operates. Vattenfall is set to create the same possibilities and rights for all employees, and establish diversity as a natural part of operations.

Goals and activities to improve diversity:

Diversity	Goal	Actions
Ethnic background	Vattenfall will mirror society in terms of ethnic background.	Partner company in the Diversity Challenge, a programme for newly graduated, offering advantages to women and people with an immigrant background in the recruitment process. Vattenfall offered two internships in Sweden in 2008/2009. Focus on recruitment process to ensure possibilities for people from diverse backgrounds to apply and succeed with their application.
Age	Obtain a more balanced age structure at Vattenfall.	Use output from the competence planning process as a basis for student relations activities, knowledge transfer programmes and general competence development.
Gender	Attain an equal ratio of female managers to female employees, see LA 13.	Focus on gender diversity in the succession planning and management planning processes as well as in competence development measures.

Composition of governance bodies (LA13)

Composition of governance bodies, %



	Women	Men
Group level	1	9
Group Functions	9	23
Sweden	28	73
Denmark	1	6
Finland	1	2
Germany	2	94
Poland	5	19
Netherlands incl Belgium	11	27
UK	0	1
Total 2009	58	264
Total 2008	42	210
Total 2007	33	211

The numbers refer to end-of-year figures. Categories: Group level – Board of Directors (appointed by AGM) and Executive Group Management. Group functions – Managers within Group functions. Country level – Business Group management, business unit management and company presidents. Data on age groups is not available. Data on minority groups may not be collected by law.

Ratio of salaries of men to women (LA14)

The ratio of salaries of men to women differs between the countries where Vattenfall operates:

- In Finland, women's salaries are about 88% of men's, but in similar positions they are nearly equal.
- In Sweden, women's salaries are about 90% of men's, and in the management category, women's salaries are 91% of men's.
- In Denmark, women's salaries are an average of 74% of men's, ranging from 65%–95%, depending on education, age, employee category and seniority.
- In the Polish energy sector, women's salaries are about 85% of men's salaries. At Vattenfall, the percentage varies between 72% and 100%, depending on the tariff category. The differences are mainly the result of many men working in shifts, for which they have additional allowances. However, when comparing non-shift positions, women's salaries range from 85% to 96% of the level for men.
- In Germany and at the Netherlands (Nuon), no gender breakdown of salary data is collected. Salaries are based on tariffs/standard job scales.

HUMAN RIGHTS

Vattenfall conducts its business in regions where rules and regulations governing basic human rights have a long history and are well established. For example, working conditions, freedom of association, and bans on forced labour are regulated not only on a constitutional level but also on a more detailed level.

Many human rights issues are also monitored by various authorities, unions and non-governmental organisations. Vattenfall will always adhere to laws, regulations and good practices that are in accordance with human rights, regardless of region. These human rights issues are handled as a normal, day-to-day part of business within the general management framework. Although Vattenfall conducts its business in regions with well-established regulation, there is a risk for human rights violations within the supply chain. Vattenfall therefore works actively with compliance in the supply chain.

Policy

Vattenfall's position on human rights issues is expressed in the Code of Conduct, the Code of Conduct for suppliers, the Human Resource Policy and by commitments under the UN Global Compact.

Code of Conduct

In spring 2008 Vattenfall updated the Code of Conduct. The process was completed in spring 2009, when the Code was implemented.

The Code covers compliance topics related to legal requirements (business ethics) and Corporate Social Responsibility topics (e.g., people and environment):

- **Sustainability** – We work to provide energy solutions that support the sustainable development of society and have as little impact on the environment as possible.
- **Customers and suppliers** – Vattenfall takes responsibility along the whole value chain with regard to customer needs, fair competition and setting standards for suppliers.
- **People** – Our employees are empowered to develop to their full potential – with equal opportunities for all.
- **Culture and values** – Our core values – openness, accountability and effectiveness – are the foundation of our work and form the shared basis for an integrated, international Vattenfall.
- **Business ethics** – Employees comply with all laws, rules and regulations as applicable at their workplace, as well as with internal instructions and policies.
- **Health, safety and security** – The safe operation of our plants and facilities is the precondition for protecting our employees' health and the general public – securing the energy supply.
- **Communication** – We strive to share information openly and always have a proactive dialogue with our stakeholders.

Global Compact

Vattenfall joined the UN Global Compact initiative as a business participant in July 2008. However, since 2002 Vattenfall has supported the Swedish government's "Globalt Ansvar" initiative (Swedish Partnership for Global Responsibility), thereby committing to adhere to the United Nations Global Compact and the OECD's guidelines for multinational companies.

Investment and procurement practices

As the fifth-largest generator of electricity in Europe and the largest producer of heat, Vattenfall sources substantial amounts of fuel as well as several billion euros of material and services to operate its business. To be perceived as a Benchmark for the Industry, Vattenfall must ensure that procurement is handled in a responsible manner. Regardless of whether the company is mining lignite in own operations, purchasing other fuels through a partner or contracting a partner to perform maintenance in power plants, Vattenfall sets high standards.

Several strategies, programmes and policies have been adopted to manage these issues:

- In September 2008 Vattenfall adopted a group-wide Code of Conduct for suppliers, which makes the UN Global Compact the basis for the minimum requirements made on all suppliers.
- To make sure that all suppliers accept the Code of Conduct for suppliers and live up to the minimum standards, Vattenfall's Group Procurement has developed a solution where all suppliers are asked to go through a qualification process. The process is managed in the Vattenfall Supplier Bank, a web-based solution that can be accessed via Vattenfall's website. The Vattenfall Supplier Bank solution is gradually being rolled out across the Vattenfall Group. At year-end 2009, around 3,000 suppliers had accepted Vattenfall's Code of Conduct in the Vattenfall Supplier Bank.
- In 2009, the Code of Conduct for suppliers was included as part of new or renegotiated contracts.
- Vattenfall reviews compliance with the Code of Conduct for suppliers on case-by-case basis, also in order to help suppliers to develop. One example of this is the on-site audits of fuel suppliers against the Code of Conduct for suppliers/UN Global Compact.

Human rights screening (HR 2)

Vattenfall's Group-wide Code of Conduct for suppliers is based on the UN Global Compact and has been communicated to thousands of suppliers and included in Vattenfall's agreements with them since the beginning of 2009. Hundreds of employees in procurement have been trained. (Described in "Investment and procurement practices" and HR3.)

The risk assessment of nuclear fuel and hard-coal suppliers has led Vattenfall to pay continuous on-site visits to suppliers in these areas in order to conduct audits against the Code of Conduct for suppliers. The number of audited fuel suppliers is steadily increasing. For biomass, supplier criteria are being developed.

To date 55% of Vattenfall's significant suppliers in all steps in the nuclear fuel supply chain have undergone human rights screening, which is a documented procedure for auditing suppliers' policies, communication and implementation of practices in order to respect and support human rights. Each year two to four audits are performed of suppliers in the nuclear supply chain. These audits also cover other aspects of the UN Global Compact, such as labour standards and environmental impact. Since 1 July 2008, all new nuclear fuel contracts include a clause on compliance with the principles of the UN Global Compact.

To date 6.5% of Vattenfall's hard coal suppliers¹⁾ have undergone auditing against the ten principles of the UN Global Compact. This share decreased from last year, mainly due to the fact that coal suppliers of Nuon (which was acquired by Vattenfall in 2009) are now included in the calculation. Since the suppliers that were audited are large suppliers to Vattenfall, another way to look at this is to calculate the audits in relation to the amount of coal purchased. Accordingly, "audited coal" represents 17.9% of the total amount of coal purchased in 2009. Since the start of 2007 Vattenfall has included a clause on compliance with the UN Global Compact in nearly all hard-coal contracts, and in 2010 two suppliers will be audited based on a risk assessment.

In 2009 a few pilots for reviewing other kinds of suppliers on their compliance with the Code were conducted. The pilots for so-called CSR reviews were on goods manufactured in Southeast Asia, both in energy sector-specific products and in simpler indirect products where the

risks were deemed as high. The pilots turned out to be very effective in discovering areas of improvement among the suppliers. As a result, Vattenfall will conduct CSR reviews more extensively among suppliers in the future, especially in Group-wide contracts and in product categories where the risks are high.

Human rights training (HR3)

All Vattenfall employees are obligated to know and act according to Vattenfall's Code of Conduct, which contains basic information about human rights. The Code of Conduct is part of the management system and is available to employees via the company's intranet.

Vattenfall carried out compliance seminars for all purchasers at Vattenfall during the period autumn 2008–spring 2009. The seminars include training on the Code of Conduct for suppliers/UN Global Compact. Data on number of hours is not collected.

Non-discrimination

Vattenfall does not tolerate any form of insulting behaviour or harassment at work or in work-related situations. Everyone is to be treated with respect. This applies to all areas, including recruitment, salary, benefits, work environment, education, promotion and leadership. It also applies not only to employees, but to all people in contact with Vattenfall, including customers and potential employees in the recruitment process. Each and everyone in contact with Vattenfall should always be treated with respect regardless of his or her background and traits.

Vattenfall's policy is to offer equal opportunity – Vattenfall strictly condemns every act of discrimination – concerning all situations in working life and beginning with the recruitment of personnel. All employees and applicants shall have equal opportunities regardless of their ethnic background, age, sex, religion, political opinions, national or social origin or any other factors. We strive to enable employees from different units and of different nationalities to work together.

Discrimination incidents (HR4)

No cases of discrimination were reported in 2009.

Freedom of association and collective bargaining Freedom of association and collective bargaining (HR5)

In the regions where Vattenfall operates, freedom of association is both constitutionally guaranteed and governed by a number of specific laws. These laws are adhered to throughout our organisation.

- **Nordic countries:** Freedom of association is guaranteed by Swedish and Danish law. Finland's constitution guarantees everyone fundamental rights and general freedom of association. In Vattenfall's Nordic operations, both the companies and employees utilise their freedom of association.
- **Germany:** Article 9 of the German constitution ensures freedom of association and collective bargaining and provides the legal basis for union and employer association. Furthermore, the constitution guarantees that all attempts to restrict or interfere with this right are declared void and illegitimate.
- **Poland:** Trade unions have freedom of association and collective bargaining in Poland. This is described by the Trade Unions Act, which is part of Poland's labour law. Collective agreements and social funds have to be negotiated with the trade unions.

1) "Hard-coal suppliers" are the suppliers of hard coal purchased for Vattenfall's own activities and excluding coal from trading activities.

Preventing child and forced labour

In the regions where Vattenfall operates, the use of child and compulsory labour is prohibited by a number of specific laws. These laws are adhered to throughout the organisation.

Preventing child and forced labour (HR6-7)

Vattenfall opposes all forms of child labour and forced and compulsory labour. Vattenfall considers forced and compulsory labour to be contrary to the Group's core values and the Code of Conduct as well as to its commitments under the UN Global Compact.

When Vattenfall employs minors for summer jobs, apprenticeships and so on, this is done in accordance with national legislation that governs the type of work minors may perform and their working hours, such as only allowing for safe work with limited working hours during school holidays.

Complaints and grievance practices

A Group-wide whistle-blowing system is being implemented; see also "Governance of CSR", page 44.

Indigenous rights

Vattenfall's operations have both natural and cultural environmental impacts. Mainly two indigenous and minority groups are directly affected, the Sorbs in Germany and the Samis in the Nordic region.

The Sorbs are a minority group who live in eastern Germany in areas where Vattenfall has considerable operations. Vattenfall subsidises the Sorb organisation Domowina in eastern Germany, to support and preserve the Sorb culture. Domowina and Vattenfall want to strengthen their existing constructive co-operation in the future. A milestone was reached in 2007, when representatives from Domowina and Vattenfall adopted a joint declaration in which Vattenfall has expressed its support of the Sorbian population in the mining regions by ensuring the preservation of their social and ethnic identity. Initiatives include promotion of the Sorbian language, economics and tourism, support of Sorbian media, traditions and art, and documentation of Sorbian history and development.

In northern Sweden, Vattenfall operates several hydro power plants. The Samis, an indigenous population of formerly nomadic, reindeer-herding people, have inhabited the northern parts of Norway, Sweden, Finland and Russia since ancient times. The Samis are an ethnic minority in Sweden today, with their own language and a rich cultural tradition.

Vattenfall's hydro power expanded from the beginning of the 20th century until the 1960s, and naturally, the building of hydro power plants in the northern parts of Sweden had an impact on reindeer husbandry. Vattenfall is engaged in a continuous dialogue with Sami communities, as with all stakeholder groups. A large number of mitigation programmes have been initiated and sponsored by Vattenfall, including construction of alternative crossing routes for reindeer herds.

In addition, Vattenfall is helping to preserve Sami cultural heritage by supporting cultural projects, such as sponsorship of the Ájtte Sami Museum in Jokkmokk, as well as other small-scale cultural preservation projects. A more organised dialogue between Sami villages affected by hydro power and Vattenfall is currently being developed.

Guidance on dealing with indigenous groups is provided for in Vattenfall's Code of Conduct as well as through adoption of Global Compact Principles.

IMPACT ON SOCIETY

Energy is a basic requirement in modern society. Vattenfall serves society by delivering the energy needed to make society work and become prosperous. Vattenfall also plays an important role in society as an employer and business partner, and corporate citizenship is emphasised in markets where the company operates. Vattenfall's responsibility is to contribute to sustainable development of society while providing energy solutions that meet customers' – and thus society's – needs.

All activities are guided by Vattenfall's core values:

- **Openness:** "We actively seek a dialogue on our performance with our employees and colleagues as well as with the outside world. Our business is not only transparent in a passive way, we also actively invite people to be part of decisions and are open to adapt to and drive changes in our markets and society."
- **Accountability:** "We take responsibility for everything we do. Taking responsibility and being accountable is one of our ways of building trust."
- **Effectiveness:** "We strive to do the right things in the right way. This goes beyond mere process-related efficiency. It is not only important what we do, but also how we do it."

Policy

Vattenfall has no specific, formal framework for managing societal interaction and support. Instead, it relies on several principles and tools, for example:

- The company's philosophy, Business Ethics Principles and Code of Conduct. High ethical standards must be maintained in all actions and in all contexts.
- Vattenfall has formed surveys stakeholders' expectations and opinions. This forms a basis for operational and reporting matters, such as for improving this report.
- Vattenfall is a signatory to UN's Global Compact.
- The World Economic Forum's Partnering against Corruption Initiative – Principles for Countering Bribery (the PACI Principles).

Impact on society – goals and performance

Vattenfall tracks its performance through customer satisfaction measurements and reputation monitoring.

Customer Satisfaction Index

Vattenfall has set a customer satisfaction target to measure success. For more information on CSI, see indicator PR5.

Vattenfall Reputation Monitor

Vattenfall is interested in how society perceives the company and in people's opinions about the company, and strives to continuously improve stakeholder relationships. One important tool for collecting feedback from all stakeholder groups is the annual Vattenfall Reputation Monitor (VRM), which measures awareness, reputation and preference of Vattenfall – among many other parameters – and through statistical simulation suggests actions areas for improvement.

Organisational responsibility

Organisational responsibility for managing societal impact and interaction follows the regular governance structure. Organisational responsibility for managing the impact of operations (including sponsoring and donations) is handled by the respective business units. However, some of these tasks are centralised or managed in co-operation with Group functions.

With respect to community and public policy development, a separate organisation exists within Vattenfall – Vattenfall Public Affairs, under Group Function Communication. This is a wide-ranging function that co-ordinates Vattenfall's positions on key issues and is the direct link to Vattenfall's owner – the Swedish state. Public affairs functions exist in every country in which Vattenfall operates. The Group Public Affairs function co-ordinates activities between countries. Activities are conducted in close co-operation with Vattenfall's European Affairs Office in Brussels.

The most senior position in public policy matters is the Head of Group Function Communication, who is also a vice president of the company and member of Executive Group Management.

The General Counsel of the Vattenfall Group (who is also Head of Group Function Legal Affairs) co-ordinates the instructions and follow-up of measures to prevent corruption and anti-competitive behaviour. It is the responsibility of each manager in the line organisation to ensure compliance (e.g., by implementing local instructions) and to report on this compliance. The line organisation also reports all major disputes to Group Function Legal Affairs regularly and on specific cases.

Training and awareness

Vattenfall's managers and employees throughout the Group carry on a continuous dialogue with stakeholders in society. Vattenfall strives to improve communication skills at all levels of the company, for example through media training and workshops.

Effective and fair competition is vital to ensure market efficiency. Competition rules are important tools serving this purpose. To increase awareness about competition law issues throughout the group and to give a common basic understanding of the rules and how to comply with them and internal Vattenfall policies and rules, in 2005 Vattenfall initiated the Vattenfall Antitrust Compliance Programme. The Vattenfall Antitrust Compliance Programme includes training on competition law and anti-corruption.

The Vattenfall Antitrust Compliance Programme has not yet been implemented in the new Business Group Benelux, which is why an awareness programme on competition compliance was held for the employees of BG Benelux instead of the one-day interactive session included in the Vattenfall Antitrust Compliance Programme.

Community

Access to energy is a prerequisite for the function and development of society. Vattenfall's responsibility as an energy company is to provide energy solutions that meet customers' and society's needs. Vattenfall strives to manage the impact of its business in a responsible way, balancing the needs of different stakeholders.

It is important for Vattenfall that the people living in the vicinity of the company's operations are not affected more than necessary. Regardless of the type of impact the operations may cause, Vattenfall as a company tries to be as receptive as possible to the needs and demands of affected stakeholders. Vattenfall has therefore established processes to interact with communities when planning for new operations. This is to ensure that everybody has an opportunity to have their say and suggest possible improvements.

Including stakeholders in decision-making processes (EU19)

Vattenfall's stakeholder dialogue is conducted on many levels throughout the Group, centrally at the Group level as well as at a local operational level. Vattenfall has identified its stakeholders by mapping the impact Vattenfall has on certain groups, or the impact that these groups

have on the company. Stakeholders are involved in many decision-making processes, especially changes affecting the specific stakeholder group, such as people living in the vicinity of the company's operations. For additional information, see also Governance of CSR, 4.14–15 and 4.16–17 and national websites.

Managing impacts of operations and displacement (SO1, EU20, EU22)

Resettlement and mining operations

Vattenfall's lignite mining operation in Germany has a direct impact on communities, and several small communities have been resettled as a consequence. In 2009 six people were resettled, while larger resettlements are planned for the future. For this purpose, a formalised socially acceptable resettlement process is used for all lignite mining operations to ensure that Vattenfall is a Benchmark of the Industry by handling the issue with great care and respect. The resettlement programme involves all aspects, from financial compensation to preserving the social structure in the village. At the beginning of the resettlement process an assessment is performed which involves all citizens. The assessment results in a specification of social requirements (Soziales Anforderungsprofil, SAP). The resettling community and Vattenfall then sign specific resettlement agreements that address the following points:

- The aim is for all inhabitants to move to a common location together. New villages are connected to existing communities. If there is no access to services (e.g., schools, utilities, healthcare) in the existing community, new institutions are built. In this way both communities benefit.
- The resettlers are included in the overall process of resettlement and are involved in shaping it. The resettlers are part of a working group together with Vattenfall and the county. As part of this working group, the resettlers are fully involved in the complete process of resettlement. It is the resettlers who decide on the new location, usually by choosing from among up to five different locations. The next step is that all resettlers are given the opportunity to choose their new place of property and direct neighbours. Furthermore, all residents' requests and suggestions are considered, such as clubs and social associations of the resettled and the new communities.
- The affected villages are developed and preserved until the time of resettlement.
- Property owners are compensated on the basis of their existing property by providing them with adequate family-based replacement property with no need for new funding.
- A tenant action concept provides a number of guarantees, including acceptable rents in apartments at the resettlement location.
- Small businesses are preserved and continued.
- Community life in clubs and associations is kept functioning and is supported. The resettled community has all necessary infrastructure to conduct social activities, sports or other recreational activities, including stadiums and community centres. Items of cultural heritage, such as historical monuments or buildings, are transferred to the new location. Furthermore, funds are raised to support social and sports activities, events such as anniversaries and local traditions, social work and economic development.
- For the move itself, an action concept is drawn up together with the resettling and the absorbing communities.
- The move is carried out in the shortest time possible.

Three villages have been resettled since 2001, and there are plans to resettle one more village in 2013.

Resettled villages

Year	Village	Resettled inhabitants
2001	Geisendorf	45
2003	Horno	350
2006	Haidemühl	650
2009	parts of Trebendorf	6
2013	parts of Trebendorf/Schleife	260

Preventing corruption and bribery

Vattenfall works against corruption in all forms, including extortion and bribery. Vattenfall's business ethics principles state that no employee may offer or receive improper benefits or benefits that may be regarded as improper remuneration in order to obtain, retain or direct business or in order to secure any other improper advantage in business conduct. Such prohibited benefits (bribes, etc.) include cash, items, pleasure trips or services of another nature.

The key to anti-corruption work at Vattenfall is to educate all managers and others with extensive external contacts on all levels of the organisation about internal and external rules and, for management, to ensure compliance with these rules. Given this, Vattenfall offers training on anti-corruption within the Vattenfall Antitrust Compliance Programme.

Moreover, Vattenfall has signed an anti-corruption initiative launched by the World Economic Forum in co-operation with Transparency International and the Basel Institute of Governance. Vattenfall thereby supports "Partnering against Corruption – Principles for Countering Bribery" (the PACI Principles), derived from Transparency International's Business Principles for Countering Bribery. Adherence to the PACI Principles means adopting a zero-tolerance policy on bribery and a commitment to develop a practical and effective internal programme for implementing this policy. More information about the PACI Principles and definitions can be found at www.weforum.org. In May 2006, Vattenfall also became a Principal Corporate Member of Transparency International Sweden, part of an anti-corruption network headquartered in Berlin. Vattenfall has a zero-tolerance policy regarding the giving and accepting of bribes, and it also expects its suppliers to respect this position. With respect to Vattenfall's suppliers, Vattenfall's Code of Conduct for suppliers has been adopted and shall form a part of all agreements with suppliers.

Risks related to corruption (SO2)

The business unit management is required on an annual basis to confirm that the relevant Group and Business Group instructions that provide guidelines for the use of benefits and gifts have been complied with. This confirmation is a part of the general risk reporting of the Vattenfall Group. All operating units within Business Group Nordic and Business Group Central Europe are part of this reporting.

Anti-corruption policies, procedures and training (SO3)

Training in antitrust compliance and anti-corruption policies has been conducted since 2005 within the Vattenfall Antitrust Compliance Programme. All managers and other employees with extensive external and competitor contacts are required to participate in at least one antitrust compliance seminar or in a similar education programme. It is the responsibility of each business unit to decide which staff to educate.

In 2009, 182 employees participated in a seminar within the Vattenfall Antitrust Compliance Programme, and by year-end a total of 1,311 employees had completed the training within the Vattenfall Antitrust Compliance Programme. In addition, in 2009 approximately 400 employees in Germany participated at an anti-corruption seminar arranged internally but outside of the Vattenfall Antitrust Compliance Programme. A percentage of employees trained is not calculated as not all employees have work tasks that require this.

Actions against corruption (SO4)

No incidents of corruption or actions against corruption were reported during the year.

Public policy

The energy sector is a complex industry that is highly dependent on public policy and political decisions. Being a large energy supplier, Vattenfall is an important actor in society and actively participates in the public debate and democratic process. For example, one major

challenge that society and Vattenfall faces is to increase generation from renewable energy. A number of factors must be taken into account when planning for new energy, such as environmental concerns, public confidence, and legal and regulatory aspects. All public policy work at Vattenfall aims to create the best possible conditions for providing energy to society on commercial grounds.

Through openness and transparency, Vattenfall strives to maintain a continuous dialogue with decision-makers and other stakeholders on the regional, national and international levels. Vattenfall's Business Ethics Principles, stipulate that all actions and activities must be based on full respect for democratic principles as well as for laws, rules and regulations.

Vattenfall's main operations are in the countries in which the company is a provider of electricity and heat: Finland, Denmark, the UK, Germany, Poland, the Netherlands and Sweden. In addition, Vattenfall is active on the European scene, primarily through the Vattenfall European Affairs Office in Brussels.

Public policy positions and development (SO5)

Vattenfall engages in public policy and lobbying discussions on all relevant energy sector issues, from the development of joint policy papers with other actors in industry and society (on for example, CCS and climate change) to direct recommendations from Vattenfall regarding local, national, and European laws and directives. Our policy positions are intended to support our strategic direction of Making Electricity Clean as well as the effective functioning of energy markets.

Dealing with climate change is a significant issue for Vattenfall. Vattenfall fully recognises the risks of climate change and wants to contribute constructively to efforts to find solutions to the problem. Accordingly, Vattenfall has engaged in this issue internationally and launched a global initiative – Combat Climate Change (3C) – which demands that climate issues be integrated into the world of markets and trade. The 3C Initiative is aimed at creating a global alliance of companies that are willing to take the lead in demanding integration of climate issues into the world market and facilitate trading through a global framework that will come into force in 2013. Vattenfall is responsible for co-ordinating the initiative. Other companies are welcome to join. Beginning in 2010, the initiative will collaborate on research related to climate policy with the Stockholm Environment Institute. Voluntary contributions from participating companies will support the research.

Political contributions (SO6)

Vattenfall does not give support to political parties, politicians or related institutions. Other contributions to society are summarised under 4.16–17. Vattenfall is a state-owned company, and shares in the company are not publicly available.

Preventing anti-competitive behaviour

Vattenfall has a range of principles, policies and rules designed to ensure that it does not engage in anti-competitive behaviour. Effective and fair competition is vital to ensuring market efficiency. Competition rules are important tools that serve this purpose. As it is truly beneficial from a business perspective, the Vattenfall Group is dedicated not only to complying with competition rules, but also to acting in accordance with business standards that meet the highest expectations from customers and the public.

Vattenfall's Code of Conduct states: "We are to carry on our business activities effectively and in fair competition. We do not enter into or carry into effect restrictive agreements with competitors."

Vattenfall has also adopted specific internal antitrust and competition compliance rules designed to ensure fair trade and practice in the market.

The key to preventing anti-competitive behaviour at Vattenfall is to educate all managers and others with extensive external contacts on all levels in the organisation about the internal and external rules and, for management, to ensure compliance with these rules. Therefore, a Vattenfall Antitrust Compliance Programme has been initiated by the Executive Group Management (EGM) and is part of Vattenfall's global

Continued on page 72

leadership development programme. This programme supports Vattenfall's core values of openness, accountability and effectiveness while fostering an overall common business culture and attitude. In 2009, 182 employees participated at a seminar within the Vattenfall Antitrust Compliance Programme, and by year-end a total of 1,311 employees had completed training within the Vattenfall Antitrust Compliance Programme. In addition, in 2009 1,268 employees in Germany participated at an antitrust compliance seminar arranged internally but outside of the Vattenfall Antitrust Compliance Programme, and by year-end a total of 3,142 employees in Germany had completed such training on antitrust compliance. Moreover, approximately 125 employees attended the Business Group Benelux Competition Awareness session in 2009, which was held for the management team of N.V. Nuon Energy and for the Sales, Exploration & Production and Business Development & Projects business units and for a part of the Corporate Department of Nuon.

Vattenfall has a monthly Group-wide reporting system in place to ensure compliance. In addition, business units are analysed for risk related to anti-competitive behaviour by the business unit management on an annual basis as part of the Group-wide risk reporting structure. The result of the annual report is reported to the General Counsel, Executive Group Management and the Board.

A specific issue related to competition among energy utilities is unbundling. Vattenfall complies with the unbundling rules. These rules form part of national legislation, based on EU directives, and state that the transmission and distribution business must be separated (for instance placed in separate legal entities) from other businesses, especially the electricity generation and sales businesses. Accordingly, the regulated monopoly business is separated from the businesses under free competition. Compliance with unbundling rules is essential to ensuring that Vattenfall only uses fair means of competition. For instance, Vattenfall's transmission and distribution companies may not discriminate against generation and sales companies from outside the Vattenfall Group. In return, Vattenfall also expects transmission and distribution companies from outside the Vattenfall Group to not discriminate against Vattenfall's generation and sales business.

In cases of non-compliance, Vattenfall's management may, in accordance with internal instructions, take all necessary actions. Employees found responsible for a breach of the instructions and/or competition rules are held accountable. Depending on the nature of the breach, appropriate disciplinary actions, not excluding dismissal, will be considered and taken.

Legal actions pertaining to anti-competitive behaviour (S07)

A total of three legal actions pertaining to anti-competitive behaviour were reported during the year.

The German Federal Cartel Office is investigating whether WEMAG AG has violated the prohibition on abuse of dominant position by overpricing its heat supplies in 2007 and 2008. Vattenfall divested its shares in WEMAG as of 4 February 2010 and is no longer the owner.

The Swedish Competition Authority is investigating whether Vattenfall AB (Heating) has over-priced heating in Uppsala and thereby violated the prohibition on abuse of dominant position regulated in paragraph 19 in the Swedish Competition Act (Konkurrenslagen). The investigation has been ongoing at the Swedish Competition Authority since at least 2005. The likely outcome for Vattenfall is judged to be favourable.

In autumn 2009 the Finnish Competition Authority commenced an enquiry concerning pricing of district heating for the ten largest district heating companies in Finland. Vattenfall expects that the outcome of this enquiry will not give rise to any negative consequences for Vattenfall.

Sanctions (S08)

A total of eleven sanctions for non-compliance with laws and regulations were reported in 2009. The total monetary value is not collected at the Group Level.

Risk management

Vattenfall is exposed to both financial risks (price risk, credit risk) and non-financial risks (political risks, environmental risks). Risks that can threaten Vattenfall's targets are identified and managed in the risk management process.

Non-compliance can have considerable financial consequences, especially with regard to anti-competitive behaviour. Furthermore, there is an obvious risk of damage to the Vattenfall brand.

Internally, prevention of corruption and anti-competitive behaviour is mainly regulated by instructions at different levels in the Group and in Vattenfall's Code of Conduct. Read more about risks in the 2009 Annual Report (page 75) and 4.11.

Emergency management and contingency planning (EU21)

Incident and Crisis Management (ICM) within the Vattenfall Group is steered by Group instructions that are part of the Vattenfall Management System (VMS). The purpose of ICM is to ensure that all types of incidents and crises are managed in a professional, secure and responsible manner.

The main objective is that the organisation shall

- through proactive work, detect, avoid or dampen any event that can lead to an incident or crisis;
- always be prepared and equipped to perform effectively in an incident or crisis situation.

Incident and crisis management must be an integrated part of the daily business activities in order to be able to deal with extraordinary situations that can occur.

The ICM unit includes Duty Officers for Crisis Management and Crisis Communication with 24/7 responsibilities, at both the Group and Business Group levels. The ICM organisation focuses on monitoring events that affect Vattenfall's business, analysing and supporting the line organisation in crisis management to fulfill proactiveness.

The basic requirement is that all units within the Vattenfall Group whose operations involve risks that may lead to an incident or crisis must be able to manage any such incident or crisis. This implies that:

- Analysis must be performed of all risks that may lead to a crisis.
- Business continuity plans shall be in place if the risk is unacceptable.
- An emergency management plan shall be in place.
- An emergency management group shall be appointed, prepared and trained.
- There must be capacity for taking care of personnel and family who are affected by a crisis.

Vattenfall also participates in various national programmes and forums regarding critical infrastructure protection.

In 2008, Vattenfall further raised its nuclear safety ambitions and set the goal of becoming Number One in Nuclear Safety in the industry within five years. Measures taken include the appointment of a new independent Vattenfall Nuclear Safety Council, with external and international members. The new organisation as of 1 January 2009, with a new Group-wide Nuclear power business unit as part of the new Pan-Europe Business Group, will enable this development. In November 2009, the OSART review performed at Forsmark concluded that Vattenfall's safety management maintains a good international standard. An OSART review will be done at Ringhals nuclear power plant in March 2010.

In 2009, two events classified as INES level 1 have been reported in Vattenfall's nuclear power plants in Sweden (none in Germany). These two events occurred in late 2008. All events have been attended to, and appropriate measures taken.

PRODUCT RESPONSIBILITY

Vattenfall's main products are heat and electricity. The nature of these products implies that when used correctly, they have little direct adverse impact on the environment, public health and safety. Vattenfall works actively with energy efficiency, in its own operations as well as by providing customers with advice and support on improving their energy efficiency. Vattenfall also informs customers about safe use of electricity and provides information on electromagnetic fields based on current research in this area.

Managing product responsibility issues

Vattenfall strives to take an advisory role in helping customers save energy. What the company can control pertains to the generation and distribution of electricity and heat and the use of the resources it requires. Vattenfall is actively working to avoid and reduce any adverse impact of its operations, including emissions, effluents, waste and noise from power plants.

Goals, performance and risks

Vattenfall does not control the use of its products, and the products are neither a liability nor a risk to the company as such. However, Vattenfall acts immediately whenever safety risks are discovered and actively promotes energy efficiency. Vattenfall does not track performance regarding product responsibility other than measuring customer satisfaction (which to some extent correlates with how customers perceive information).

Organisational responsibility

Vattenfall provides information on the safe use of electricity to customers via different communication channels. Responsibility for communication with customers lies with the marketing and sales functions. For further information, see the Product and service information (PR3) indicator.

Customer health and safety

Most health and safety issues associated with Vattenfall's products arise when customers use electricity to operate other products, not from the electricity itself. Although there are certain direct risks in the use of electricity, these are usually negligible in correct everyday use. The same applies for heat and cooling.

Vattenfall's marketing and sales functions have a high-profile role in promoting safety by informing customers about safety issues in connection with their use of electricity. Information to customers is generally communicated in brochures, newsletters and marketing material in all countries. Customers are also continuously informed through Vattenfall's websites and at customer service centres in all countries. The information that Vattenfall provides ranges from electricity safety in general, to safety measures during thunderstorms and power outages.

Health and safety impacts (PR1)¹

Vattenfall actively strives to take the initiative in detecting serious hazards that pose a risk to customers, especially with respect to incorrect use. For example, in Poland Vattenfall promotes use of district heating instead of water heated in individual, hazardous old systems based on gas boilers.

Power lines, like any electrical device, generate electromagnetic fields (EMFs). Concerns have been raised about whether electricity could be hazardous to people's health, and whether EMFs could cause cancer or any other disease. Over the past thirty years considerable effort has been dedicated to investigating this issue. The research is ongoing, and there is a range of divergent views. However, the balance of scientific evidence to date suggests that normal levels of EMFs do not cause diseases. Vattenfall actively monitors related international scientific work in this field and complies with the international industry standard set by the International Commission on Non-Ionising Radiation Protection as well as any related national regulatory requirements. Vattenfall contributes to the collaborative research undertaken by Elforsk (the Swedish Electrical Utilities' R&D company).

Number of injuries and fatalities to the public (EU25)

In Poland twelve accidents occurred, including two fatalities in conjunction to trespassing in prohibited areas.

Product and service labelling

In addition to information regarding safety, Vattenfall strives to take a role in helping customers save energy. In the 2009 CSR report, the different roles we play are described in detail in the chapter entitled "What are you doing to help customers save?".

Product and service information (PR3)¹

Vattenfall is committed to complying with local regulatory requirements regarding product information and labelling, and issues regarding this are dealt with by the local marketing organisations. Vattenfall meets the product information requirements on electricity labelling in national legislation (based on EU directives), which require that electricity suppliers provide information to all customers on the fuel mix and environmental performance (minimum CO₂ emissions and radioactive waste).

In addition, Vattenfall describes its environmental impact in a transparent and detailed manner using life cycle assessments and environmental product declarations. Vattenfall uses life cycle assessments (LCAs) as one method to assess the environmental impact of its operations "from the cradle to the grave". LCAs have led to improved environmental performance in many areas, including reduced use of water in operations, reduced risk of oil leaching to soil and water, and increased recycling of materials. Vattenfall was the first company in the world to receive an Environmental Product Declaration (EPD) according to ISO 14025.

1) GRI breakdown not applicable due to nature of our products

Customer satisfaction (PR5)

Customer satisfaction index	B2C 2009	B2C 2008	Business customers			
			SME ¹ 2009	SME ¹ 2008	Large 2009	Large 2008
Electricity sales						
Sweden	69	69	64	62	66	64
Finland	69	66	63	62	79	70
Germany	73	62	66	57	70	64
Poland	76	73	64	62	66	65
Distribution						
Sweden	68	68	63	61	66	62
Finland	67	64	63	60	67	n/a
Germany	72	61	66	57	68	62
Poland	76	74	64	62	67	65
Heat						
Sweden	68	65	65	62	n/a	n/a
Finland	67	67	63	70	n/a	n/a
Germany	n/a	n/a	69	59	n/a	n/a
Poland	72	68	74	84	n/a	n/a

1) Small and medium sized enterprises.

Customer satisfaction issues have gained increased attention during the last couple of years and will continue to have high priority in the future. In 2004 Vattenfall adopted a set of customer satisfaction requirements and targets to measure its performance in fulfilling the strategic ambition to be Number One for the Customer.

Targeting and measuring customer satisfaction

In 2007 Vattenfall adopted five target areas, one for each of its strategic ambitions. The target for the strategic ambition to be Number One for the Customer is based on Vattenfall's Customer Satisfaction Index (CSI) for its retail customers. The target is broken down into individual targets for the Business Groups – Nordic (Sweden, Finland) and Central Europe (Germany and Poland) – as well as for all the Group's sales, distribution and heat business units.

The Business Groups draw up business plans, which describe how the customer satisfaction targets will be reached. The targets are followed up in the same manner as financial targets.

Targets are set in comparison with leading service companies (mainly the major power, telecom and insurance companies) in Europe and are communicated in the business planning directives that are issued to the organisation once a year. The long-term target is that customer satisfaction, as measured by Vattenfall's Customer Satisfaction Index (CSI), should be in the top tier among the leading competitors in each market. Customer satisfaction should also be at the same level as leading actors in similar industries, such as telecom. As of 2010 the long-term CSI target for private household customers was increased from 70 to 75. For corporate & industrial customers, the long-term CSI target remains at above 65.

Formal instructions are issued that direct the way in which CSI measurements are carried out, such as what questions are to be asked, scales for the answers, the statistical analysis method to be used, sample sizes, reporting format and survey timing. This ensures that figures are comparable to the European Performance Satisfaction Index (EPSI).

As of 2008, Vattenfall's CSI process has been more centralised in order to improve the quality and comparability of measurements. The objectives are to enable transparent internal and external benchmarking, to use CSI as a strategic tool, and to use links with other stakeholder measurements in the future. Today Vattenfall has a Group-wide CSI process co-ordinated at the Group level including common customer segmentation for CSI purposes, questionnaires, sampling methodology, survey approach, analysis model, and reporting and presentation structures. The Group-wide CSI process, which was used in 2008 and 2009 CSI measurements, covers the private household customers B2B SME, B2B Large Reseller and MEGA customer segments in Sales, Distribution and Heat in all markets. Following Vattenfall's acquisition of Nuon in 2009, the integration of the Dutch and Belgian customer segments into the Group-wide CSI process was initiated, and Business Group Benelux

will participate in the 2010 CSI measurements.

In 2009, Vattenfall's customer satisfaction index (CSI) for the Group as a whole for private household customers was 72, which is a strong improvement compared with last year's CSI score of 64. The improvement in the Group CSI performance was primarily driven by a large increase in Germany, although all markets showed stable to positive development compared with last year. Stable prices and an improved image were the main contributors to the German improvement, which could be seen for all segments. However, results from additional measurements during the autumn showed a drop in CSI scores, implying that the nuclear issues in Germany in summer 2009 have had a negative impact on customer satisfaction in Germany. In the Nordic region, the results were relatively stable compared with last year, which indicates a consolidation of the sharp increase in 2008. In Poland, Vattenfall's CSI scores improved further from an already high level, particularly for private household customers. In general, Vattenfall strengthened its position versus the main competitors in all markets.

Image and price have a very large impact on customer satisfaction scores, and a tarnished company image and, in some cases, an increase in prices could lead to lower customer satisfaction scores and vice versa.

Trends in customer satisfaction

As markets develop, the same trends for customer satisfaction scores can be seen in all three geographic areas:

- Fairly high levels of satisfaction in regulated or recently deregulated markets (Poland)
- Then a drop in ratings when the competition increases, price pressure intensifies and supplier switching increases (Germany)
- After that, a gradual recovery and gain of new customers as a result of hard work and very competitive price strategies (Sweden)

Actions to improve customer satisfaction

In 2009 Vattenfall took a variety of actions in all its geographical areas to maintain and increase customer satisfaction, mainly on the operational level:

- Investments in more weather-secure air cables in Finland, Sweden and Poland have resulted in significantly lower interruption rates. Finnish customers affected by the investments are sent a post card informing them about the investments and how they will benefit. In Finland a decision was made to only build underground cables in the future.
- Work to ensure security of supply in Germany is contributing to continuous high satisfaction scores. Automation work in the medium voltage grid to ensure faster supply was ongoing during 2009.
- Installation of automatic meter reading for all of Vattenfall's distribution customers in Finland was completed at year-end 2007 and in Sweden in July 2009. This has improved billing and service, and all customers now receive an invoice based on their actual consumption. In Poland most business customers had automatic meter reading installed in 2009.
- In Finland and Sweden, new billing systems have been implemented with the aim to improve the efficiency of customer contacts. In Germany, work on developing a new billing system is in progress.
- Reorganisation of the contact centres in Finland, Sweden and Poland has been completed, resulting in improved customer service as well as in continuous improvements in service centre staff training. A positive effect could be seen in Sweden already in 2008, where private household customers gave higher scores for customer service, and the positive trend continued in 2009. Large B2B customers were more satisfied with their contact person. In Poland, business hours were extended to serve customers in the evenings.
- The opening or reopening of customer centres in Berlin and Hamburg has strengthened Vattenfall's regional presence and given customers an opportunity to obtain personal service.
- In Germany, instant messaging services have been introduced for customers facing an outage. In Sweden and Finland, instant messaging service already exists and is continuously being improved. Since January 2008, Finnish distribution customers are also compensated if an outage exceeds six hours.

- A great deal of effort has been put into providing customers in the Nordic region, Germany and Poland with information and advice on energy efficiency, such as through the website, online discussion forums, campaigns or direct customer meetings. In Sweden, in co-operation with TV4, a major TV channel, energy efficiency programmes have been launched that have been well-received by viewers, e.g. "Många bäckar små". In Germany there is high demand in the B2B segment for the EOnline product, which enables customers to identify possible saving potential in their electricity, water, gas and heating consumption.
- Since 2009 Swedish and Finnish customers can choose electricity made from windpower, hydropower or nuclear depending on their preferences. In Sweden, the share of customers making a choice increased by 140% in 2009.
- In Germany, electricity from renewable sources was offered to customers in all segments to meet the growing demand of such products.
- In Finland, renewal of contracts by text messaging was introduced for B2C customers.
- In Poland, Vattenfall continues to take the lead in the deregulated market when it comes to simplifying processes and developing new products, such as electricity with a price guarantee, and renewable and online products. Vattenfall has been frequently cited in the media as an expert on the liberalisation process of the energy market.

Customer satisfaction at Nuon is not comparable and not yet incorporated in the Group assessment, but will be included in the process in 2010. Overall customer satisfaction in the Dutch consumer and small business markets decreased slightly compared to 2008, from 89% to 88% in 2009. The customer satisfaction ratings among business customers decreased from 81% in 2008 to 77% of large business customers. The customer satisfaction of Nuon Belgium's consumers decreased slightly from 94,6% in 2008 to 94% in 2009. The satisfaction of our business customers in Belgium rose from 75,3% in 2008 to 80,5% in 2009. Nuon has ongoing work to improve customer satisfaction, including an improved complaints handling, increased transparency of annual invoicing procedures and a Customer Ombudsman.

Marketing communications

Responsibility in marketing communications (PR6)

Vattenfall is committed to comply with international codes, such as the ICC International Code of Advertising Practice and the OECD Guidelines for Multinational Enterprises. In the countries where Vattenfall operates, we also comply with national legislation, which is often more stringent than international codes and frameworks. Review of compliance is handled locally, the frequency is not measured at group level.

Non-compliance with regulations and codes (PR7)

No incidents of non-compliance with regulations and codes were reported within this area in 2009.

Customer privacy

Vattenfall's Communication Policy states that "Confidentiality is strictly applied with regard to relations or agreements with customers and business partners. The same applies to information about employees or former employees of Vattenfall."

This is further elaborated upon in the Group Instruction on Legal and Business Ethics Principles, which states, among other things: "Information concerning a natural person (personal data) shall be handled with respect for the individual's privacy at all times. The Vattenfall Group shall always endeavour to ensure that personal data is processed with the individual's consent. Personal data that may be regarded as sensitive may only be processed if there are strong reasons to do so and it is clear that the legal conditions have been met. No one is allowed to disclose personal data to a person outside the Vattenfall Group unless it is clear that the legal conditions for doing so have been met. It shall be noted that in certain cases there might be specific reasons for keeping personal data confidential."

Both the Communication Policy and the Instruction on Legal and Business Ethics Principles apply throughout the Group. Furthermore, a number of laws are in effect that govern citizens' right to privacy, such as through EU directives concerning the protection of data privacy.

According to the Vattenfall Management System, all of Vattenfall's external websites are required to provide information about the Group's privacy policy, including information about cookies. This shall be the case also when it is not a legal requirement. This information can be found on a specific Privacy Policy page on the websites, available via a link on the page footer.

Customer privacy and customer data (PR8)

No complaints regarding breaches of customer privacy were reported in 2009.

Compliance with codes, agreements and frameworks

Vattenfall has adopted and is committed to comply with several product responsibility frameworks:

- Customer privacy laws and regulations, such as national legislation based on EU directives concerning protection of data privacy.
- Vattenfall meets the requirements for product information and electricity labelling stipulated by EU directives.
- Vattenfall was the first company in the world to receive an Environmental Product Declaration (EPD) according to ISO 14025.
- Vattenfall meets the requirements on unbundling according to national legislation (based on EU directives), thus enabling the customer to choose electricity supplier without being discriminated by the customer's distribution company. (See also Work against anticompetitive behaviour, page 71.)

Laws and regulations on products and services (PR9)

Seven cases incidents of non-compliance with laws and regulations concerning the provision and use of products and services were reported in Poland in 2009. Total monetary value is not reported at Group level.

Access to electricity and information

Vattenfall believes that access to electricity is a major contributor to well-being and welfare. We strive to maintain and/or increase access in accordance with the conditions in the markets where we work, and in one case through a voluntary initiative in the developing world. Our provision of electricity is complemented by information on safe and effective use available through multiple channels.

Access to electricity services (EU23, EU26)

Vattenfall is commonly obligated to deliver electricity in all distribution areas, and the number of customers that do not have access to electricity is very small.

In the Nordic countries, Vattenfall is obligated to deliver access to the electricity grid to customers even if they have poor credit scores. In such cases a cash deposit must be paid in advance. If no such means are available, social services are contacted to arrange for payment of the deposit.

In the Netherlands, a ministerial ruling on energy disconnections stipulates that customers may only be disconnected by the grid manager during the winter months (from 1 October to 1 April) if they refuse debt assistance, are guilty of fraud or have no energy supplier.

Nuon's policy is to apply the ministerial seasonal ruling during the summer months as well. Nuon has signed covenants with various Municipal Health Departments, debt assistance organisations and credit institutions, such as the Dutch Association for People's Credit (NVVK), to facilitate the exchange of personal details. Within the limits set by the Personal Data Protection Act, this allows us to provide social services and other institutions with timely information on customers who might be in need of psychiatric and/or psychosocial assistance. In this way, energy disconnections can be avoided for such customers who need assistance.

In addition to programmes in Vattenfall's markets, Vattenfall is engaged in the World Economic Forum's Energy Poverty Action (EPA), which is a private sector initiative to reduce energy poverty by bringing effective energy delivery and use to under-served villages and peri-urban areas. Together with two other utilities, Vattenfall has formed an alliance that is currently developing its first projects in this area. In one of these projects, a village in southern Lesotho will be provided electricity by a combination of grid extension and solar cells.

In the Netherlands, Nuon is the main sponsor of FRES (Foundation Rural Energy Services), a non-profit foundation that was established by Nuon in 2004. Together with FRES, Nuon provides one of the main preconditions for achieving the millennium goals: electricity. FRES provides clean energy to families in rural areas of developing countries. FRES aims to establish new companies to provide approximately one million people with electricity in a professional, sustainable, environmentally safe – and most of – in all healthy manner. Currently, FRES manages four companies in three African countries (Mali, Burkina Faso and South Africa). In 2009, FRES received a grant from the European Commission ACP/EU Energy facility to start a company in Burkina Faso. This project has two concrete objectives: Electrification of 3,400 households and small businesses in rural areas of Burkina Faso, and contribution towards the electrification of 100,000 households and small businesses in rural areas, via the public-private partnership and by launching spin-off business activities.

Accessibility of information on safe use (EU24)

Customer centres and websites are important sources of customer information. Vattenfall strives to support groups with special needs by making its websites more available and user-friendly. The basis for this work is the Group Web Access Initiative and the Web Content Accessibility Guide, which provides a set of international guidelines.

Vattenfall's customer centres are staffed with foreign language speakers, and some information material is produced in different languages. One example is in Berlin, where customer information on energy savings is available in Turkish.

Number of residential disconnections for non-payment (EU27)

A number of cases exist in which people do not pay for their residential electricity for a variety of reasons. In such cases, electricity companies may disconnect a customer from the grid until the payment has been made. Vattenfall strives to ensure rapid reconnection after payment, in order to minimise the length of time for such disconnections.

In 2009, Vattenfall's distribution operation in the Nordic countries had 10,089 disconnections due to non-payment. In Germany, the number of disconnections was 41,300. In the Netherlands, Nuon does not disconnect customers, as this is a task of the unbundled network companies. Nuon is working together with the NVVK (Dutch Association for People's Credit) to reduce the waiting list for financial assistance for customers struggling to pay their bills.

Data on the duration of the disconnection is not gathered at the Group level.

Power outage duration (EU28–29)

Vattenfall's electricity distribution operation strives to provide high quality service with uninterrupted power supply and consistent voltage. However, power outages occur, most of which are for planned maintenance, although some are also unplanned, for example due to extreme weather conditions.

System Average Interruption Frequency Index (SAIFI)

SAIFI is the average number of interruptions that a customer would experience and is measured in units of interruption per customer. It demonstrates the reliability of Vattenfall's electricity supply.

$SAIFI = (\text{total number of customer interruptions}) / (\text{total number of customers served})$

For Vattenfall's Nordic distribution operation, the accumulated SAIFI for 2009 was 2.29 interruptions/year. In Germany, SAIFI was 0.216 (Berlin), 0.202 (Hamburg) in 2008.¹

System Average Interruption Duration Index (SAIDI)

SAIDI is the average outage duration for each customer served, and is measured in units of time. Duration demonstrates Vattenfall's ability to restore power in a timely manner.

For Vattenfall's Nordic distribution operation in 2009, average interruption time per customer was 140 minutes (215 minutes in 2008). In Germany, SAIDI was 14.1 minutes (Berlin) and 16.0 minutes (Hamburg) in 2008.¹

1) Data for 2009 not available at publication.

ECONOMIC PERFORMANCE

Securing the future through economic value creation

Vattenfall's vision to be a leading European energy company is conditional upon economic value creation and profitable growth. Profitability is also a prerequisite for being able to contribute to sustainable development of society. Economic value creation and profitable growth are the starting points for the Group's financial targets, which in turn are the platform for the business planning process at the business unit level.

Measuring and managing performance

Creating economic value by generating a competitive return over time is Vattenfall's overriding financial objective, since the Group's other strategies are based on a requisite level of financial strength. For a capital-intensive company like Vattenfall, it is important to generate a satisfactory return on invested capital. Long-term value creation is measured by calculating operating profit less the required return on net assets to meet the shareholder's required rate of return. The overall long-term profitability requirement for Vattenfall set by its owner is a 15% return on equity (ROE) after tax. This has been translated to a Group-wide return target that is expressed as a return on net assets before tax and financial costs (operating profit as a percentage of average net assets). In addition, the owner has also specified targets for interest coverage, credit rating and dividend pay-out.

The target return on net assets is currently 11% and is based on a balanced consideration of all four financial targets. This target return on net assets, in turn, is broken down into individually defined targets for each business unit, according to which operations are managed. The main reason for this reformulation to individual targets for each business unit is that Vattenfall's operations have widely varying conditions – mainly different asset bases in terms of size and age. Moreover, the company's equity and net financial income and expense are not distributed over the business units. The basic principle for this target formulation is that asset-intensive operations are assessed according to their return on the asset base, while service operations are assessed according to their operating margin.

Financial targets¹⁾

The owner's required rate of return is used as the basis for setting targets for profitability, dividends and financial risk. The Board reviews the proposed targets and decides to propose them to the Annual General Meeting, where the owner then makes the final decision.

Vattenfall's four current financial targets are:

- **Profitability** – The owner's long-term return target is that profit after tax will amount to a 15% return on average equity. Translated to the Group's long-term required level of profitability, expressed as the return on net assets, this corresponds to a return of approximately 11% before tax and financial costs.
- **Cash flow interest coverage** – The cash flow interest coverage ratio after maintenance investments should amount to 3.5–4.5 times over the long-term.
- **Credit ratings** – It is Vattenfall's intention to maintain a long-term credit rating in the single A category from both Moody's and Standard & Poor's.
- **Dividend policy** – The aim is that the dividend over the long-term shall amount to 40%–60% of profit after tax. However, yearly decisions on the dividend shall take implementation of the company's strategy, financial position and other economic targets into account.

1) For further information, see the 2009 Annual Report.

Vattenfall's investments

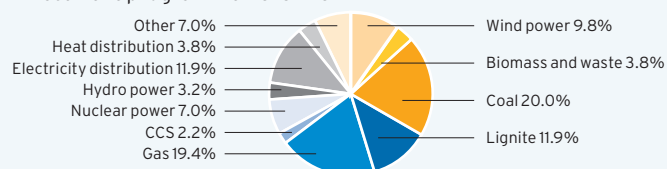
Investments 2009

SEK million	2009	2008
Electricity generation		
Hydro power	1,459	1,260
Nuclear power	4,263	3,583
Fossil-based power	12,591	8,040
Wind power	8,002	2,574
Biomass/waste	151	488
Other	0	0
Total electricity generation	26,466	15,945
Heat		
Fossil-based	2,402	2,179
Biomass/waste	1,249	706
Other	827	726
Total heat	4,478	3,611
Electricity networks		
Electricity networks	7,219	6,314
Other	0	0
Total Electricity networks	7,219	6,314
Purchases of shares	56,562	11,820
Other excl. shares	8,264	4,606
Total	102,989	42,296

Five-year investment programme

Investment planning is done long-term, and at the Vattenfall Group level, five-year investment plans are established. The investments listed in the table below include both maintenance investments in existing production capacity, investments in new capacity that will replace older plants in the existing local portfolios, and growth investments. The investment programme for the period 2010-2014 includes investments in gas fired power plants inherited via the acquisition with Nuon. The period will still see large investments in hard coal as work on plants at Moorburg and Boxberg in Germany is completed. Investments in wind power have decreased, as poorer economic conditions led Vattenfall to prioritise offshore wind ahead of less profitable onshore wind options. Investments in planned offshore wind work will begin after this period.

Investment programme 2010–2014



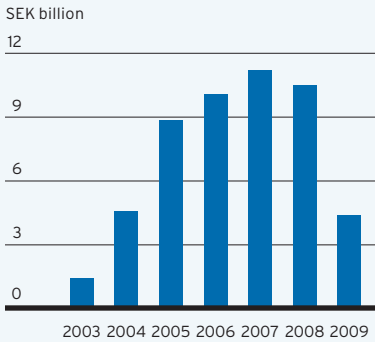
Continued on page 78

Five-year investment program 2010–2014

Billion SEK	
Wind power	19.7
Biomass and waste	7.6
Hard coal	40.2
Lignite	23.9
Gas	39.1
CCS	4.3
Nuclear power	14.1
Hydro power	6.5
Electricity distribution	23.9
Heat distribution	7.6
Other	14.1
Total	201.0

Economic value generated and distributed (EC1)¹
Economic value generated

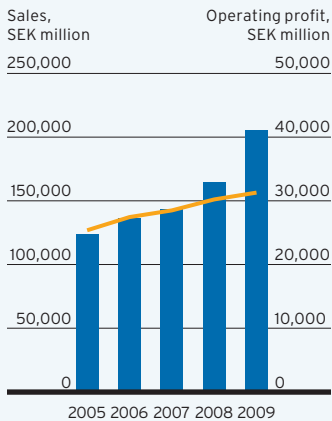
Value creation



The difference between achieved EBIT and the Group's required rate of return (expressed as 11% return on net assets) = an economic value that is generated by the operations every year, before tax.

Figures for 2004 and onward are calculated according to IFRS.

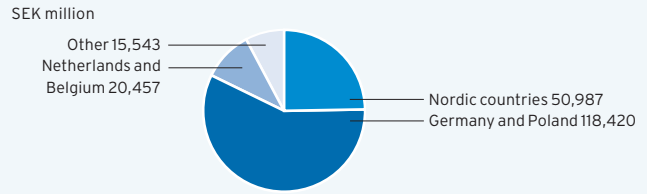
Sales and operating profit



■ Sales
 — Operating profit¹

1) Excl. items affecting comparability.

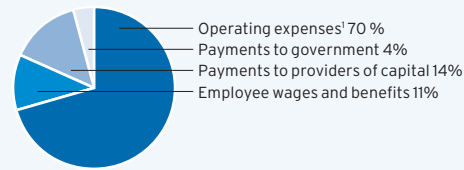
External net sales 2009 – breakdown geographically



Net sales as stated in the Annual Report for 2009, Note 8 to the consolidated accounts. See also Note 6 for a definition of segments.

Economic value distributed

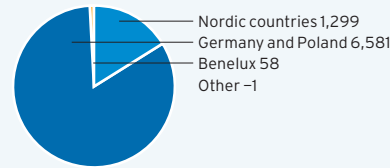
Overview of economic value distributed 2009



1) The cost of all goods and materials are calculated as follows: External net sales minus depreciation/amortisation/impairment losses/reversed impairment losses and operating profit, less employee wages and benefits and excise taxes.

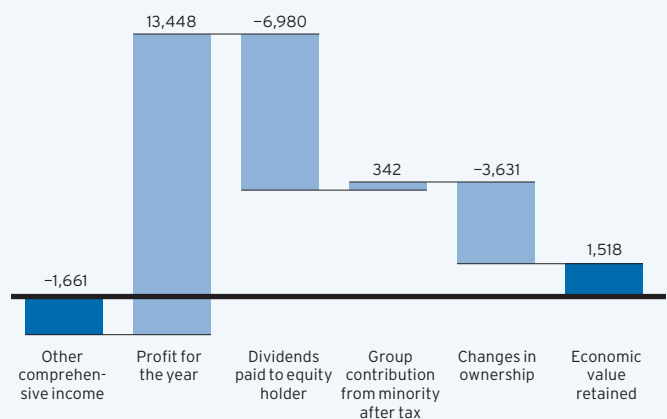
Payment to government – total taxes

Total taxes SEK 7,937 million.



Economic value retained 2009

SEK million



1) Voluntary contributions and investment of funds in the broader community (includes donations) are not included, see 4.16–17.

Financial implications due to climate change (EC2)

Major environmental issues representing financial risk/adverse financial impact

Vattenfall's business environment contains several uncertain factors that are related to climate change. Risks and opportunities are considered and managed throughout the organisation.

Examples of physical risks include changes in weather patterns, water shortages and warmer water temperatures that could affect cooling of combustion plants, more frequent and intensive storms that could have an impact on transmission and distribution networks, and hydro power dam safety, which could be affected by higher precipitation levels. An example of a regulatory risk that affects business is the post-Kyoto EU emission trading scheme, which will affect long-term investments.

Major environmental issues that represent an economic/financial opportunity

Focus on climate change will likely lead to higher demand for sustainable, efficient energy systems. The ability to provide heat and electricity with inherent efficiency and the potential for clean and sustainable generation technology could prove to be a tangible competitive advantage. Vattenfall is investing heavily in renewable energy generation and views renewable energy as a significant business opportunity.

Commercial success for Carbon Capture Storage (CCS) technology would contribute to a renaissance for lignite-fired power plants. As Vattenfall is taking the lead in CCS technology in the energy sector and has its own lignite mines, this may prove to be not only good business, but also a way to profitably bridge towards future energy solutions.

Coverage of benefit plan obligations (EC3)

Defined contribution pension plans

Defined contribution pension plans are post-employment benefit plans according to which fixed fees are paid to a separate legal entity. There is no legal or constructive obligation to pay additional fees if the legal entity does not have sufficient assets to pay all benefits to the employees. Fees for defined contribution pension plans are reported as an expense in the income statement in the period they apply to.

Defined benefit pension plans

Defined benefit pension plans consist of other post-employment benefit plans than defined contribution pension plans. The Group's defined benefit pension obligations are calculated separately for each plan in accordance with the Projected Unit Credit Method by calculating employees' current and past service cost. Estimated future salary adjustments are taken into consideration. The net obligation comprises the discounted present value of the total earned future salaries less the fair value of any plan assets. The discount rate consists of the interest rate on the balance sheet date of a first-class corporate bond with a lifetime that corresponds to the Group's pension obligations. When there is no deep market in corporate bonds of this kind, the market rate yield on government bonds with an equivalent lifetime is used instead. When benefits in a plan are improved, the proportion of the increased benefit attributable to the employees' past service cost is reported as an expense in the income statement on a straight-line basis distributed over the average period until the benefits are fully earned. If the benefits are fully earned, an expense is reported directly in the income statement. For actuarial gains and losses, the so-called corridor rule is applied. Actuarial gains and losses arise from the effects of changes in actuarial assumptions.

The corridor rule entails that the part of the net amount of the accumulated actuarial gains and losses that exceeds 10% of the greater of the obligations' present value and the fair value of plan assets is reported in the income statement, starting in the year after that they arise, over the expected average remaining service period for the employees covered by the plan. When the calculation leads to an asset for the Group, the reported value of the asset is limited to the net of unreported actuarial losses and unreported past service costs and the present value of future repayments from the plan or reduced future payments to the plan.

Government financial assistance (EC4)

Government grants

Grants are reported at fair value when it can reasonably be assumed that the grant will be received and that the Group will meet the conditions of the grant. A grant tied to a non-current asset reduces the book value of the asset. A grant intended to cover expenses is reported in the income statement as Other operating income. Government grants received, balance brought forward, amount to SEK 6,439 million (4,586). Accumulated interest reported as an asset totalling SEK 1,650 million (912) is included in cost of building. Vattenfall is 100% owned by the Swedish state.

Spending locally-based suppliers (EC6)

Vattenfall's policy is to support competition where possible. Vattenfall will always buy from the supplier that is the most competitive and that fulfils established requirements. Although Vattenfall is an important contributor to the business life in the regions where it operates, local suppliers will never be favoured just on basis of being local. Furthermore, sourcing will turn more global as more of the world's suppliers gain access to the European markets. Vattenfall's procurement function embraces this development.

However, local and regional suppliers are competitive and still receive a large share of Vattenfall's order volume¹ (78% in Nordic countries², 78% in the Netherlands, 97% in Germany and 99.7% in Poland).³

Local workforce and management (EC7)

In the countries where Vattenfall operates, local residents represent the recruiting base. In regions where Vattenfall is one of the biggest employers (e.g., Cottbus in Brandenburg, Germany), local residents are the base for employment. In metropolitan areas, there is a mixture of local residents and people from different regions.

Local workforce is the base of setting up new business for Vattenfall, so knowledge of local people is the backbone of operations. When growing through acquisition, Vattenfall takes over the employee responsibility of local residents/people already working at the plants.

Investments and services for public benefit (EC8)

Vattenfall creates and distributes what is perceived as a common good, hence it is hard to separate and distinguish investments by the degree of public benefit. Most investments made represent public benefit in one way or another. For additional information see 4.16–4.17, EN3–4, EN5–7, EN16–18, EU23 and EU26.

1) The definition of "order volume" for EC6 excludes purchases of electricity, electricity grid fees, taxes and charges as well as internal transactions between Vattenfall companies.

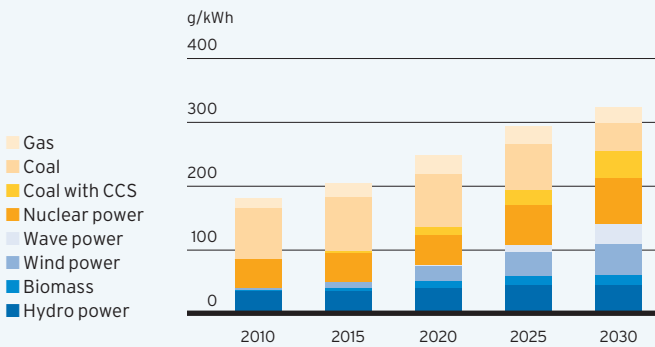
2) "Nordic countries" in this calculation includes Sweden, Denmark and the United Kingdom.

3) Local defined as country

Plans for generation portfolio (EU6, EU10)

Vattenfall's long-term investment roadmap represents a transition to new energy sources to ensure future value creation and to reach the tough targets on reducing CO₂ emissions. The roadmap for the future generation portfolio points to increased diversity in power generation and also reflects Vattenfall's intentions to grow. Read more in the 2009 Annual Report, page 8.

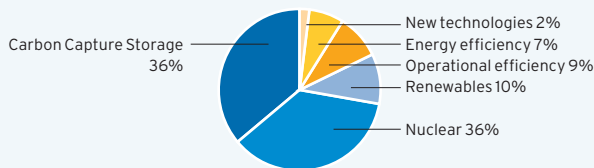
Vattenfall's shift in generation portfolio



Research and development activities (EU8)

Vattenfall performs research and development (R&D) as part of the business development of the Group. R&D activities directly support the Group's strategic ambitions and contribute to our striving of "Making Electricity Clean". The aim is to meet the demands and expectations of the customer, to reduce the environmental impact of our operations as well as to improve their efficiency and increase the share of renewables in the generation mix. In addition, R&D work aims to prepare the company to meet new requirements, to address new business opportunities and to devise future energy solutions and thereby guide the company in its long-term strategies.

Total R&D expenditures 2009: SEK 1,322 million



The company's R&D focuses on improving energy efficiency in all segments of the value chain for energy supply. Vattenfall is, however, not a research and development company in the traditional sense, since it does not develop equipment, but sets requirements and finds intelligent uses of equipment in energy systems. Our ambition is to be an excellent user of technology that is mainly developed by others, notably equipment manufacturers. To achieve this, we work together with different suppliers, from the laboratory stage or in pilot projects and joint demonstration projects. Vattenfall, as all other actors in the energy business, needs good and skilled personnel. Vattenfall collaborates with universities and research institutes in all the countries where we are active.

To support Vattenfall's strategic ambitions and to help the Group achieve its long-term goals, R&D activities are performed in joint-Group R&D programmes.

Provisions for decommissioning of nuclear power sites (EU9)

Vattenfall's nuclear power producers in Sweden and Germany have a legal obligation upon the cessation of production to decommission and dismantle the nuclear power plants and to restore the plots of land where the plants were located. Further, this obligation also encompasses the safeguarding and final storage of spent radioactive fuel and other radioactive materials used by the plants. The provisions include future expenses for the management of low- and medium-level radioactive waste.

For the Swedish operations, current assumptions indicate that all provisions will result in disbursements later than 2026. Current plans for the decommissioning of the German nuclear power operations entail that approximately 93% of the provisions will result in cash flows after 2012. For 2010, disbursements are estimated at about 4% of the provisions. The corresponding figure for 2011 is 3%.

Provisions for future expenses of nuclear operations

Changes in 2009, SEK million	Sweden	Germany	Total
Balance brought forward	27,697	12,081	39,778
Provisions for the period	41	473	514
Discounting effects	1,487	616	2,103
Revaluations versus non-current assets	1,028	819	1,847
Provisions used	-930	-108	-1,038
Translation differences		-694	-694
Balance carried forward	29,323¹	13,187²	42,510

- 1) Of which approximately 26% (22%) pertains to the dismantling, etc. of nuclear power plants and approximately 74% (78%) to the handling of spent radioactive fuel.
- 2) Of which approximately 57% (58%) pertains to the dismantling, etc. of nuclear power plants and approximately 43% (42%) to the handling of spent radioactive fuel.

VATTENFALL PROFILE

For additional information on profile disclosure, see the fold-out of the inside cover of this report. In-depth information is provided in the 2009 Annual Report and on www.vattenfall.com.

Vattenfall profile¹

	Business Group Pan Europe		Business Group Nordic		Business Group Central Europe		Business Group Benelux		Total	
	2009	2008	2009	2008	2009	2008	2009	2009	2008	
Installed capacity										
electricity & heat, MW²										
Hydro power ³			8,419	8,362	2,880	2,894		11,299	11,256	
Nuclear power	7,608	7,559						7,608	7,559	
Fossil-based power			3,090	3,090	12,339	12,178	3,743	19,172	15,268	
of which, gas			320	320	1,725	1,598	2,860	4,905	1,918	
of which, lignite					7,123	7,125		7,123	7,125	
of which, hard coal			1,490	1,490	2,703	2,667	883	5,076	4,157	
of which, oil			1,280	1,280	788	788		2,068	2,068	
Wind power	859	611						859	611	
Biomass, waste			322	300	62	102		384	402	
Total Electricity	8,467	8,170	11,831	11,752	15,280	15,174	3,743	39,322	35,096	
Total Heat			4,544	4,354	14,778	13,518	3,079	22,401	17,872	
Generated electricity, TWh⁴										
Hydro power ³			31.2	35.5	2.5	3.0	0.2	33.9	38.5	
Nuclear power	41.5	46.2						41.5	46.2	
Fossil-based power			7.3	6.2	65.2	68.1	7.9	80.4	74.2	
of which, gas			0.6	0.6	3.4	3.6	5.3	9.0	4.2	
of which, lignite			50.4	51.7				50.4	51.7	
of which, hard coal			6.7	5.5	11.4	12.8	2.5	20.6	18.3	
of which, oil										
Wind power	1.7	1.6						1.7	1.6	
Biomass, waste			0.3	0.4	1.1	1.3		1.4	1.7	
Total Electricity	43.2	47.7	38.8	42.1	68.9	72.3	8.0	158.9	162.1	
Heat sales, TWh										
Fossil-based power			6.0	5.2	25.0	24.0	0.6	31.6	29.2	
of which, gas			1.2	1.0	4.5	3.7	0.6	6.3	4.7	
of which, lignite					4.2	4.4		4.2	4.4	
of which, hard coal			4.7	4.1	16.2	15.8		20.9	19.9	
of which, oil			0.1	0.1	0.1	0.1		0.2	0.2	
Biomass, waste			5.1	5.2	1.3	1.2		6.4	6.4	
Total Heat			11.1	10.4	26.3	25.3	0.6	37.9	35.6	
Gas sales, TWh			0.2	0.1	0.2	0.2	19.7	20.1	0.3	
Number of retail customers, electricity										
			1,257,000	1,053,000	3,654,000	3,559,000	2,597,000	7,508,000	4,612,000	
Number of network customers										
			1,307,000	1,299,000	4,362,000	4,287,000		5,669,000	5,586,000	
Number of gas customers										
			300		13,000	5,000	2,112,000	2,125,300	5,000	
Electricity network										
Transmission grid, km			9,740	9,755				9,740	9,755	
Distribution network, km			247,700	189,300	163,500	103,100		411,200	292,400	
Allowance in million metric tonnes of CO₂/year, trading period 2008–2012⁵										
Sweden			0							
Denmark			2.70							
Finland			0.200							
Germany			44.1							
Poland			6.10							
Netherlands			7.90							

1) Data in this table is based on financial accounting. Contractual adjustments may apply. BG Benelux included from 1 July, 2009.

2) Certain values for 2008 have been adjusted compared with previously published information.

3) Hydropower generation includes pumped storage.

4) Rounding differences of 0.1 TWh exist for some items.

5) The European Emission Trading Scheme (ETS) covers the vast majority of Vattenfall's fossil CO₂ emissions. The annual allocation is 61 million tonnes. Additional allowances are bought on the market.

COMBINED ASSURANCE REPORT

FOR VATTENFALL AB'S CORPORATE SOCIAL RESPONSIBILITY REPORT 2009

To: the readers of Vattenfall AB's Corporate Social Responsibility Report 2009

Introduction

We have been engaged by the board of directors of Vattenfall AB (hereafter: Vattenfall) to perform an assurance engagement related to Vattenfall's Corporate Social Responsibility Report for the year 2009 (hereafter: CSR Report). The board of directors and the senior management are responsible for the ongoing activities regarding environment, health and safety, quality, social responsibility and for the preparation and presentation of the CSR Report in accordance with the applicable criteria. Our responsibility is to express a conclusion on the CSR Report based on our examination.

The objective and scope of work

We conducted the engagement in accordance with RevR 6 'Assurance of sustainability reports' issued by FAR SRS. An audit is aimed to achieve a reasonable level of assurance, that the information is free of material misstatement. An audit includes examining on a test basis, evidence supporting the amounts and disclosures relating to quantitative and qualitative information in the CSR Report. A review is mainly limited to inquiries of company personnel responsible for sustainability issues and analytical and other review procedures. A conclusion based on our review provides a limited level of assurance and does not provide the level of assurance as the conclusion of our audit. Since this constitutes a combined assurance engagement, our conclusion regarding the audit and the review will be presented separately.

Our engagement is aimed at providing assurance on the CSR Report with the purpose of either providing reasonable assurance (hereafter referred to as the audit) or limited assurance (hereafter referred to as review):

1. Our audit has included the following information:
 - a. Financial information, GRI-indicator EC1
 - b. Head count, GRI-indicator LA1
 - c. CO₂ emissions as disclosed in the table 'CO₂ emissions, per year (total and specific)' on page 57
 - d. SO_x and NO_x emissions from the plants in Jämschalde and Lippendorf with a total of 28,3 ktonnes SO_x and 22,5 ktonnes NO_x emissions
2. A review of the other information in the CSR Report

Our assurance engagement does not include the assumptions used, or whether it is possible for the company to achieve future-oriented information (such as goals, expectations and ambitions).

The criteria that our procedures are based on are the applicable parts of the Sustainability Reporting Guidelines G3, published by the Global Reporting Initiative (GRI), which are relevant to sustainability reporting, as well as the accounting and calculation principles that the company has developed and identified. These are presented on page 43 of the CSR Report. We believe that these criteria are suitable for preparation of the CSR Report.

Procedures

Review procedures

The main procedures of our review have consisted of the following:

- Update of our knowledge and understanding for Vattenfall's organization and activities
- Assessment of suitability and application of criteria in respect to stakeholders' need of information
- Assessment of the result of the company's stakeholder dialogue
- Interviews with responsible managers, at group level, subsidiary level and at selected business units in order to assess that the qualitative and quantitative information in the CSR Report is complete, accurate and adequate
- Review internal and external documents to assess if the information stated in the CSR Report is complete, accurate and adequate
- Evaluation of the design of systems and processes used to collect, manage and validate CSR information
- Evaluation of the calculation methods of the SO_x and NO_x emissions
- Analytical review of reported information
- Reconciliation of financial information against company's Annual Report 2009
- Assessment of the company's declared application level according to GRI guidelines
- Assessment of the overall impression of the CSR Report, and format, taking consideration of the internal consistency of information with the relevant criteria
- Reconciliation of the reviewed information against the CSR information in Vattenfall's Annual Report 2009

Audit procedures

Our audit has included the following procedures:

- Examining the design and function of relevant internal controls within the systems and processes used to collect, manage and validate information on the selected indicators during the period covering the reporting period
- Reconciliation of reported information against internal and external source documents and performing detailed test of the above selected indicators
- Reconciliation of indicator EC4 on page 79 against Vattenfall's financial statements for the year 2009
- Evaluation of the calculation methods of Carbon dioxide emissions

We believe the evidence we collected during our procedures to be sufficient and appropriate in order to support our conclusions listed below.

Conclusion

Our conclusion based on our audit

Based on our audit procedures we believe that the information in Vattenfall's CSR Report 2009, included in our audit, has in all material respects, been prepared in accordance with the above stated criteria.

Our conclusion based on our review

Based on our review procedures nothing has come to our attention that causes us to believe that the information in Vattenfall's CSR Report 2009, included in our review, has not, in all material respects, been prepared in accordance with the above stated criteria.

Stockholm, March 24, 2010
Ernst & Young AB

Hamish Mabon
Authorized Public Accountant

Dick de Waard
Authorized Public Accountant

GLOSSARY

3C Combat Climate Change. A global initiative, launched by Vattenfall, aimed at creating a global alliance of companies demanding integration of climate issues into the world markets. From 2010 the 3C Initiative collaborates with the Stockholm Environment Institute (SEI) to produce research on climate policy.

Base load A term that describes electricity or district heating demand that exists irrespective of load fluctuations. This constant demand is met by power plants that operate 24 hours a day, 365 days a year. (See also peak load.)

Bioenergy Bioenergy is generated by the use of biomass fuels.

Biogenic The term means something generated by living organisms and is used to differentiate between waste fractions that are biogenic compounds (such as food residues, paper, etc.) and fossil compounds (such as plastic etc.).

Biomass Biomass refers to products, waste and residues from agriculture, forestry and related industries, as well as the biogenic fraction of industrial and municipal waste.

Biomass fuel Biomass fuels are solid, liquid or gaseous fuels with biomass origin, which are used for energy purposes. (This is contrary to biofuel, which predominantly refers to gaseous and liquid fuels used for transportation.)

Business Group (BG) Vattenfall is organised into four Business Groups: BG Central Europe, BG Nordic, BG Benelux, and BG Pan Europe. The Business Groups comprise business units and Shared Service Centres.

Business unit (BU) Vattenfall's business operations are conducted through business units with full responsibility for accounting, controlling, profitability and value creation.

Capacity Capacity is the maximum ability of for example a power plant to generate electricity or an electricity distribution grid to transfer electricity. It is usually measured in megawatt (MW). It can refer to input (fuel or thermal capacity, MWth) or output (electric capacity, MWe or heat capacity).

Carbon dioxide (CO₂) Carbon dioxide is naturally present in the atmosphere and involved in photosynthesis, but is also formed during combustion. The chemical formula is CO₂. Carbon dioxide is necessary for life on earth to exist. It is a greenhouse gas in the atmosphere, see GHG.

CCS Carbon Capture and Storage involves technologies for isolating carbon dioxide from flue gas (at combustion plants) and storing it. This means that a significantly lower amount of CO₂ is emitted into the atmosphere. There are three principal ways to capture CO₂ produced in large power plants:

- Oxyfuel combustion, where fuel is combusted in oxygen instead of air
- Postcombustion, where CO₂ is removed from the flue gas
- Precombustion, where carbon is removed from the fuel before combustion

CHP Combined Heat and Power. CHP plants generate both electricity and heat.

Climate change Increase of the global temperature caused by a higher concentration of greenhouse gases in the atmosphere, adding to the natural greenhouse effect.

Coal (hard coal and lignite) is combusted to generate electricity and produce district heating. Coal is a major energy source around the world, and is used to produce about 67% of global electricity supply.

CO₂ neutral A fuel or processed is termed CO₂ neutral if it does not lead to the accumulation of excess CO₂ the atmosphere.

Deregulate Deregulation removes legal restrictions on economic activity in order to facilitate freer competition. In the power sector, this often

refers to the elimination of monopoly rights for utilities and the creation of a competitive electricity industry.

District heating A method for distributing heat energy for heating a number of buildings from a central location. To achieve this, hot water is circulated through a system of pipes, usually underground.

EEX European Energy Exchange, the German electricity exchange.

Efficiency The efficiency of a power plant denotes the percentage of the input energy that is converted into electricity and/or heat.

EMAS Eco Management and Audit Scheme. European Commission regulations for environmental management and auditing.

Energy Several different forms of energy exist, for example potential energy, kinetic energy, thermal energy, and electromagnetic energy. Energy is measured in joule (J) or watt-hours (Wh), meaning power (watt) multiplied by time. It is common practice to use an appropriate prefix, such as kilo for 1,000, mega (M) for 10⁶ (1,000,000), giga (G) for 10⁹ or tera (T) for 10¹² (1,000,000,000,000).

EPD Environmental Product Declaration. An ISO standard for certified environmental product declarations (see www.environdec.com).

EU ETS, the European Union Emissions Trading Scheme, wherein companies buy and sell permits to emit greenhouse gases under a shared cap. The EU ETS covers electricity generation and much of heavy industry, and will also cover airlines from 2012.

Fossil fuels Fossil fuels are originally formed from vegetation and microorganisms that have been transformed into coal, oil and natural gas over the course of millions of years. Today, fossil fuels are the world's biggest source of energy, supplying some 80% of all used energy.

Gas Natural gas is a fossil fuel consisting mainly of methane. Natural gas is commercially produced from oil fields and natural gas fields.

Generation Generation of electricity.

GHG Greenhouse gases — gases in the atmosphere, such as carbon dioxide, methane and nitrous dioxide (N₂O), that trap heat and thus contribute to the greenhouse effect.

Global Compact The UN Global Compact is an initiative to encourage businesses worldwide to adopt sustainable business practices and comprises of ten principles in the areas of human rights, labour, environment and anti-corruption.

GWh A measurement of energy. Abbreviation of gigawatt-hour, or 10⁹ (1,000,000,000) watt-hours.

Hard coal Hard coal is a black, sedimentary rock type with a carbon content of 84%–91%. See also fossil fuel.

Hydro power Hydro power plants use the gravitational force of running water to generate electricity. In reservoir plants, water is kept in dams to be able to regulate the generation. In run-of-river plants, turbines are placed directly in the water stream. Pumped storage plants are used to store energy generated from other sources.

IAEA International Atomic Energy Agency. UN's centre of co-operation in the nuclear field. IAEA works with its member states and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies (www.iaea.org).

IEA International Energy Agency. The International Energy Agency (IEA) is an intergovernmental organisation which acts as energy policy advisor to 28 member countries in their effort to ensure reliable, affordable and clean energy for their citizens.

ISO14001 An international standard to certify environmental management systems.

Joule Unit of work or energy. 1 joule = 1 watt second = 2.7778×10^{-4} watt-hour. Since joule is a small unit, giga joule (GJ) is often used, 10^9 Joules, which is equivalent to 278 kWh.

kWh Unit of energy. Abbreviation of kilowatt-hour, or 1,000 watt-hours.

Lignite Lignite is a soft brown type of coal, with characteristics that places it somewhere between hard coal and peat. Lignite has a lower energy content and different characteristics than the longer-compacted hard coal.

MW, MW_e, MW_{th} A unit of power (energy per unit of time). See also capacity.

MWh Unit of energy. Abbreviation of megawatt-hour, or 10^6 watt-hours.

NordPool The Nordic electricity exchange.

NO_x Nitrogen oxides (NO and NO₂) are formed when nitrogen reacts with oxygen during combustion. NO_x have many adverse effects on the environment such as causing ground-level ozone that triggers respiratory problems, and contributing to acidification and eutrophication.

Nuclear power In nuclear reactors, uranium is used to heat water to generate electricity. Nuclear power is used as a base load power in many energy systems.

Ocean energy Energy in waves, currents and tidal streams is used to generate electricity. For example, surface buoys may be used to absorb wave energy.

Oil A mixture of different hydrocarbons usually called crude oil. Crude oil cannot be used directly, but is a raw material that is refined at an oil refinery into a range of products. See also fossil fuel.

OSART Operational Safety Review Team, an IAEA programme under which international teams of experts conduct in-depth reviews of operational safety performance at nuclear power plants

Oxyfuel combustion A type of CCS technology. The Oxyfuel combustion process eliminates nitrogen from the flue gas by combusting the fuel in a mixture of oxygen and recycled flue gases. After combustion, the flue gas is cleaned.

Peak load Short term peak demand of electricity or district heating is called peak load (see also base load).

Peat Peat is an accumulation of partially decayed vegetation matter and forms in wetlands or peat lands, variously called bogs, moors, muskegs, pocosins, mires, and peat swamp forests. Peat is not classified as biomass or as fossil fuel according to IPCC, although it could be defined as slowly renewable.

Plug-in-hybrid car A plug-in hybrid electric vehicle is a hybrid vehicle with batteries that can be recharged by connecting a plug to an external electric power source. It has an electric motor and an internal combustion engine.

Renewable energy Energy from natural resources that are renewable, or naturally replenished. For example wind, solar, geothermal, wave, tidal, hydropower, biomass and biogas.

Scram An emergency shutdown of a nuclear reactor.

SKB Svensk Kärnbränslehantering AB. Swedish Nuclear Fuel and Waste Management Company, tasked with managing Swedish nuclear and radioactive waste in a safe way. Partly owned by Vattenfall.

Smart Grid A smart grid or intelligent network delivers electricity from suppliers to consumers using two-way digital technology to control appliances at consumers' homes to save energy, reduce cost and increase reliability and transparency.

SO₂ Sulphur dioxide is formed when fuels containing sulphur compounds, such as coal and oil, are combusted. When SO₂ is emitted to the air, it causes acidification of water and soil.

Stakeholder A Stakeholder is a person, group, organization, or system who affects or can be affected by an organization's actions or who is interested at an incident, process or the economically development of a company.

Thermal power Electricity generated via a heating process, such as a gas turbine or a steam cycle in a coal-fired or nuclear power plant (compare CHP plant).

TWh Unit of energy. Abbreviation of terawatt-hour, or 10^{12} watt-hours.

UN United Nations

Unbundling Unbundling rules form part of national legislation, based on EU directives, and state that transmission and distribution business must be separated (for instance placed in separate legal entities) from other businesses, especially the electricity generation and sales businesses. Accordingly, the regulated monopoly business is separated from the businesses under free competition.

Uranium A silvery-gray metallic chemical element with the highest atomic weight of the naturally occurring elements. Uranium is weakly radioactive and occurs naturally in low concentrations (a few parts per million) in soil, rock and water. It is commercially extracted from uranium-bearing minerals such as uraninite. When used in nuclear reactors, uranium is enriched which means that the content of the isotope U235 has been increased.

Value chain Set of interrelated economic activities that combine to create value in the production of goods and services.

Waste incineration Waste incineration plants generate heat and/or electricity. As combustible waste mainly consists of organic (biogenic) material, waste is considered to mainly generate bioenergy.

Wind power Electricity is generated by wind turbines, often built in clusters called wind farms. Power generation depend on wind conditions.

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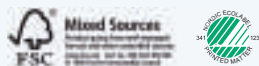


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