

# Towards sustainable energy

Corporate Social Responsibility  
Report 2011

Performance report

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## Additional information

[www.vattenfall.com/csr](http://www.vattenfall.com/csr)

## Other publications



Corporate Social Responsibility 2011.



Vattenfall's Annual Report 2011.

All reports can be ordered or downloaded from Vattenfall's websites

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## Disclaimer

Vattenfall considers that the information contained in this report presents a true and fair picture of Vattenfall. The CSR Report has been assessed by a third party as described in the combined assurance report.

The financial data presented in the report is taken from Vattenfall's audited annual accounts. The reporting currency of Vattenfall AB is Swedish kronor (SEK). For detailed information on Vattenfall's financial status and performance, the reader is kindly requested to refer to the Annual Report.

# GRI Content Index

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 B+ level as defined by GRI. For further information, see [www.globalreporting.org](http://www.globalreporting.org).

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 (a full GRI Content Index can be found at [www.vattenfall.com/csr](http://www.vattenfall.com/csr)). 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

- CSR Report 2011, Narrative section
- CSR Report 2011, Performance report
- Annual Report 2011
- IFC Inside front cover
- AR Annual Report 2011

Indicator	Page	Related UN Global Compact Principles <sup>1</sup>
<b>Profile</b>		
<b>Strategy and analysis</b>		
1.1 CEO statement	2–5	
1.2 CSR vision, including key impacts, risks and opportunities	6–11	
<b>Organisational profile</b>		
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2.2 Primary brands, products, and/or services	IFC	
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2.7 Markets served	IFC	

Indicator	Page	Related UN Global Compact Principles <sup>1</sup>	Indicator	Page	Related UN Global Compact Principles <sup>1</sup>
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2.10 Awards received	3		4.10 Procedures for evaluating the board's performance	AR	
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EU3 Number of customer accounts	31		4.13 Principal memberships in associations and organisations	5	
EU4 Length of transmission and distribution lines by voltage	31		4.14 Stakeholder groups	5	
EU5 Allocation of CO <sub>2</sub> emission certificates	31		4.15 Identification of stakeholders	5	
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3.2 Date of most recent previous report	3		<b>Environmental performance</b>		
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4.3 Number of independent and/or non-executive board members	AR		EN13 Habitats protected or restored	11	8
4.4 Recommendations to highest governance body	4		EN14 Managing impacts on biodiversity	11	8
4.5 Compensation to members of the highest governance body	AR		EN16 Direct and indirect greenhouse gas emissions	12	8
4.6 Board processes to ensure conflicts of interest are avoided	4		EN17 Other relevant indirect greenhouse gas emissions	12	8
4.7 Procedures for determining the qualifications of the board	AR		EN18 Initiatives to reduce greenhouse gas emissions	13	7–9
			EN20 Emissions to air	13	8
			EN21 Water discharge	11	8

Indicator	Page	Related UN Global Compact Principles <sup>1</sup>	Indicator	Page	Related UN Global Compact Principles <sup>1</sup>	Indicator	Page	Related UN Global Compact Principles <sup>1</sup>
EN22 Waste and mineral by-products	15	8	<b>Performance indicators</b>			<b>Vattenfall does not report on the following core indicators</b>		
EN23 Spills and contamination	15	8	SO1 Managing impacts of operations and displacements	22		EN19 Ozone-depleting substances – <i>Not material, ozone depleting substances are used only to a very limited extent</i>		
EN25 Biodiversity value of water bodies	11	8	EU22 Assessment of impacts of operations	22		EN26 Mitigation of environmental impact of products – <i>Not material due to the nature of our products</i>		
EN28 Fines and incidents	15		SO2 Risks related to corruption	23	10	EN27 Percentage of products sold and packaging materials reclaimed – <i>Not material due to the nature of our products</i>		
<b>Social performance</b>			SO3 Anti-corruption policies, procedures and training	23	10	EN27 Percentage of products sold and packaging materials reclaimed – <i>Not material due to the nature of our products</i>		
<b>Management approach</b>	16		SO4 Actions against corruption	23	10	LA14 Ratio of salary of men to women – <i>data not available</i>		
EU14 Ensuring availability of skilled workforce	17		SO5 Public policy positions and development	23	1–10	<b>Sector supplement indicators</b>		
EU15 Employees eligible to retire	17		SO6 Political contributions	24	10	EU7 Demand side management – <i>Not material, Vattenfall operates in a deregulated market</i>		
EU16 Health and safety of contractors	17		SO7 Legal actions pertaining to anticompetitive behaviour	24		EU10 Planned capacity (MW) against projected electricity demand – <i>Not applicable, Vattenfall operates in a deregulated market</i>		
<b>Performance indicators</b>			SO8 Sanctions	24		EU11 Average generation efficiency by energy source – <i>Data not available</i>		
LA1 Workforce	17		<b>Product responsibility</b>			EU12 Transmission and distribution losses – <i>Data not available at time of publication. Assessment of reporting process on-going</i>		
LA2 Employee turnover	17	6	<b>Management approach</b>	25		EU23 Programs that improve access to electricity – <i>Not material at Vattenfall's markets</i>		
EU17 Work by contractors	17		<b>Performance indicators</b>			EU24 Provision of information – <i>Data not available at time of publication</i>		
EU18 Health and safety training for contractors	17		EU25 Number of injuries and fatalities to the public	25		EU26 Percentage of population unserved – <i>Not material at Vattenfall's markets</i>		
LA4 Collective bargaining agreement coverage	17	1, 3	PR1 Health and safety impacts	25		EU27 Number of residential disconnections for non-payment – <i>Data not available at time of publication. Assessment of reporting process on-going</i>		
LA5 Operational changes	17	3	PR3 Product and service information	25	8	EU28 Power outage frequency – <i>Data not available at time of publication. Assessment of reporting process on-going</i>		
LA6 Health and safety committees	18	1	PR5 Customer satisfaction	25		EU29 Power outage duration – <i>Data not available at time of publication. Assessment of reporting process on-going</i>		
LA7 Injuries, absentee rates and fatalities	18	1	PR6 Responsibility in marketing communications	26		EU30 Average plant availability – <i>No data available. Data considered confidential</i>		
LA8 Support regarding serious diseases	18	1	PR7 Non-compliance with regulations and codes	26				
LA9 Health and safety and union agreements	18	1	PR8 Customer privacy and customer data	26	1			
LA10 Training of employees	19		PR9 Laws and regulations on products and services	26				
LA11 Skills management and learning	19		<b>Economic performance</b>					
LA12 Performance and career development reviews	19		<b>Management approach</b>	27				
LA13 Composition of governance bodies	20	1, 6	EU6 Approach to ensure availability and reliability	29				
<b>Human rights</b>			EU8 Research and development activities	29				
<b>Management approach</b>	20		EU9 Provisions for decommissioning of nuclear power sites	29				
<b>Performance indicators</b>			<b>Performance indicators</b>					
HR1 Human rights investment agreements	21		EC1 Economic value generated and distributed	27				
HR2 Human rights screening of suppliers	21	1–6	EC2 Financial implications due to climate change	28	7			
HR3 Human rights training	21	1–6	EC3 Coverage of benefit plan obligations	28				
HR4 Discrimination incidents	21	1–2, 6	EC4 Government financial assistance	28				
HR5 Freedom of association and collective bargaining	21	1–3	EC6 Spending on locally-based suppliers	28				
HR6 Child labour	21	1–2, 5	EC7 Local workforce and management	29	6			
HR7 Forced labour	21	1–2, 4	EC8 Investments and services for public benefit	29				
<b>Impact on society</b>								
<b>Management approach</b>	22							
EU19 Including stakeholders in decision-making processes	22							
EU20 Managing impacts of displacement	22							
EU21 Emergency management and contingency planning	24							

**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.

## Report profile, scope and boundaries (3.1-3.11)

The numerical data provided in the reporting section refers to 2011. Significant events up until 11 March 2012 are also reported. Vattenfall has an annual reporting cycle and has published CSR reports according to GRI guidelines since 2003. This report was published on 29 March 2012. The previous report was published on 31 March 2011, covering performance in 2010. The scope of this report is for the Vattenfall Group and its operations, which is the same as for the Annual Report. Contact points for questions regarding the report or its contents can be found on the inside front cover.

**Boundaries**

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

**Materiality**

At the corporate level, Vattenfall continually tracks concerns of stakeholders who relate to the company as a whole, with particular focus on expectations on Vattenfall to do more than is required by regulations or market competition. This report is in part a documentation of that process.

We monitor more than 30 issues related to corporate responsibility and sustainability, tracking how they are viewed in the political debates, the media, academia and in direct dialogues with our stakeholders. We assess the issues' importance to our stakeholders, the potential impact on our business, our ability to influence the issues, and changes in perception over time. As a part of this analysis, Vattenfall performs a number of stakeholder surveys and interviews throughout the year. The topics raised in this report are based on this feedback.

**Accounting policies**

The financial data as well as most data related to human resources presented in the CSR report are taken from Vattenfall's audited annual accounts. The reporting currency of Vattenfall AB is Swedish kronor (SEK). The accounting policies for financial reporting are outlined in Vattenfall's 2011 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 management control. This principle was fully implemented in 2007. Vattenfall's CO<sub>2</sub> target is expressed and followed up in pro rata terms (reflecting Vattenfall's ownership share in each company).

Environmental data for the CSR report, including energy-related data, is collected via the Group's environmental reporting process. Group-wide definitions for all environmental parameters are used to enhance quality. 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 for the period 2007–2011, although Nuon was not consolidated in the Vattenfall Group until 1 July 2009. This is in accordance with the Greenhouse Gas Protocol<sup>1</sup>, which is the standard for greenhouse gas accounting that stipulates that data shall be updated retroactively; Vattenfall applies that principle for all environmental data. This means that, in contrast to the financial reporting, an acquisition will result in

the addition of historical data, including production, to previous years' accounting, while a divestment would result in the elimination of data for the divested units from historical accounting. Any other restatements or changes in environmental reporting are described in comments adjacent to the respective tables.

Reported CO<sub>2</sub> 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 System. All other emissions have either been measured (in cases where continuous monitoring equipment has been installed) or based on periodic measurements. The number of digits displayed in numbers reflects the accuracy of the data. Rounding differences in the last digit between sums and single items may occur.

## Significant changes during the reporting period (2.9)

In May the Dutch company Exploration and Production B.V. was divested. In December the heating and distribution operations in Poland were divested. Also in December, all operations in Belgium were divested. The associated company Energieversorgung Sachsen Ost AG (ENSO) has been divested. In addition, Vattenfall divested its 25% interest in the German hard coal-fired plant in Rostock and the combined heat and power plant in Helsingør, Denmark. Also, parts of the Swedish engineering consultancy were divested during the year.

## Awards received (2.10)

Networks Finland, a part of the Distribution Business Unit, received the eMeter Innovation Award for its new customer services related to energy efficiency. Airi Laakkonen, an energy efficiency expert at Vattenfall Finland, received the Medal of Honour from the Finnish president for her work advising families in the Energy Family Contest. Buchanan Renewables, which is part-owned by Vattenfall, won the Green Award for the company that has demonstrated outstanding leadership in environmentally sustainable development in Africa at the African Business Awards. In addition, the European Biomass Industry Association honoured Vattenfall with its industry award in recognition of the company's efforts in large-scale use of biomass. Finally, the One Tonne Life project (see CSR Report, page 25), won the award for the energy industry at the European Excellence awards (communications).

1) www.ghgprotocol.org



# Governance and CSR management

## Governance and direction of CSR

Overall CSR responsibility at the Group level rests with Vattenfall's CEO. The day-to-day running of operations is decentralised. The Staff Functions are responsible for monitoring the Business Divisions with regard to the Staff Functions' respective areas of functional responsibility. Each Staff Function has been assigned authority and responsibility throughout the entire Vattenfall Group within its area of expertise and responsibility. The overall strategic direction with respect to reducing CO<sub>2</sub> emissions is set at the Group level, and the Business Divisions are managed through the strategic planning and business planning processes. Other issues related to Corporate Social Responsibility and sustainability are typically managed by relevant Staff Functions and Business Divisions as appropriate. A dedicated sustainability function will be formed in spring 2012 to further strengthen co-ordination and governance of CSR and sustainability activities at the Group level.

With respect to financial compliance, the Finance Compliance Officer within Staff Function Finance has specific responsibility for compliance with respect 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 Staff Function Legal Affairs on a regular basis and in connection with specific cases.

As emphasised by the ethical guidelines laid out 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. Vattenfall has a Group-wide whistleblowing function with locally appointed external ombudsmen to whom employees, consultants and contractors can turn to report suspected, serious improprieties that the whistleblower for some reason does not want to report internally via the normal reporting channels. To the extent the whistleblower gives his or 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 whistleblowing 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 2011 Annual Report and in the corporate governance section on [www.vattenfall.com](http://www.vattenfall.com).

## Recommendations to highest governance body (4.4)

The shareholder's direct influence over the Parent Company Vattenfall AB 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. This is in line with the Swedish State Ownership Policy (see below).

The Swedish government has established a separate division for state enterprises within the Swedish Ministry for Finance which, like other owners, governs and issues recommendations through various means. In order to clarify the Swedish state's view on certain issues, and to achieve uniformity among the administered companies, the Swedish government has furthermore 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](http://www.vattenfall.com)). The ownership policy regulates the Annual General Meeting, the board nomination process, the composition of the Board, evaluation of the Board's work, directors' fees, committee work, the appointment of auditors and the responsibilities of the Board, among other things. The policy requires Vattenfall AB to adhere to the Swedish Code of Corporate Governance, however with some exceptions, as described in Vattenfall's Corporate Governance Report. In addition, the Swedish government has established guidelines for external reporting, for terms of employment for senior executives, for the Board's Rules of Procedure and for managing certain information-related issues. The Swedish government has also 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.

Based on the above-mentioned recommendations, etc., the shareholder exercises its voting rights at the Annual General Meeting.

## 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 2011 Annual Report and [www.vattenfall.com](http://www.vattenfall.com). To get a better view of potential conflicts of interest within the company and to raise more awareness for the ethical guidelines detailed in Vattenfall's Code of Conduct, a questionnaire on conflicts of interest was sent to Vattenfall's top-level management in 2011.

## 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, risks and the environment, as well as the Code of Conduct, are to be annually approved by the Board.

The Board has an established audit committee which assists the Board on issues regarding financial risks and reporting as well as external and internal auditing. The committee is thereby responsible for preparation of the Board's work to ensure the quality of Vattenfall's financial reporting.

In addition, in 2011 the Board established a new Safety and Risk Committee, which prepares the Board's work concerning oversight and quality assurance of the safety and risk work in the Group with regard to financial and non-financial risks, including the focus areas nuclear safety, dam safety and the environment. Among other duties, this committee also supervises and reviews the development of the Group's general framework for handling and controlling safety and risk issues. It also reviews and makes recommendations on risk appetite and risk exposure within the Group.

The Board's risk management process is described in more detail in 4.11, the Corporate Governance Report and on the corporate governance pages of [www.vattenfall.com](http://www.vattenfall.com).

### Precautionary principle (4.11)

The precautionary principle provides guidance in cases where there is a lack of knowledge about the harmful effects that a particular activity may have. At Vattenfall the precautionary principle is formalised through risk management.

The main purpose of risk management at Vattenfall is to identify, manage and control risks to which the Group is exposed in a way that is in line with the strategic, environmental and financial targets. Risks should also be managed in a way that is transparent towards the Executive Group Management, the Board of Directors and ultimately the owner of Vattenfall.

The Board of Vattenfall has overarching responsibility for risk management in the Group. To best fulfil this responsibility, in 2011 the Board established a Safety and Risk Committee. The Board receives independent information on risk issues through Vattenfall's Chief Risk Officer, who manages the Group's risk management organisation framework. Risk governance, control and support are ensured through Vattenfall's risk framework. During the year, the risk framework was updated and enhanced as well as further integrated into the business operations. The risk management organisation also provides independent advice on all key business proposals as an obligatory part of the executive management's decision-making.

Risks that can impede Vattenfall's goal achievement are identified and managed in the Enterprise Risk Management (ERM) process. The ERM process enables Vattenfall's management to handle uncertainties, risks and opportunities efficiently and to compare risks. This gives a better basis for decisions and increases risk awareness and transparency throughout the entire organisation. Vattenfall's ERM process is based on the COSO (Committee of Sponsoring Organizations of the Treadway Commission) risk management standard.

More detailed information about risk management and Vattenfall's risks is provided in Vattenfall's 2011 Annual Report.

### CSR initiatives and principles endorsed (4.12)

In July 2008 Vattenfall became a signatory to the UN Global Compact. However, since June 2002 Vattenfall has participated in "Globalt Ansvar" (Swedish Partnership for Global Responsibility). Through such participation, 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 (PACI) of the World Economic Forum 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 regulatory 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. 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, and the Centre for European Policy Studies (CEPS).

Vattenfall AB also holds various positions in numerous industry and member organisations, such as the Union of the Electricity Industry (EURELECTRIC) in Europe. 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. Vattenfall AB is also a member of 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) and capital providers

### 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 create a strong and diversified European energy portfolio with sustainable and increased profits, significant growth options, and to be among the leaders in developing environmentally sustainable energy production. Stakeholder information makes Vattenfall better understand what actions to take and what priorities to make. Information provided by stakeholders provides insight into such areas as 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, government 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 2011 are shown on page 7.

## 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 4.4 billion to the Swedish state in 2011.
	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 important 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. Relationships are based on respect, trust and openness.
	Authorities	Vattenfall maintains an ongoing open dialogue with authorities involved in regulating the energy sector. 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.

Main group	Stakeholders	Attributes and description
	Non-governmental organisations (NGOs)	It is important 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.
	Customers	Vattenfall has more than 10 million customers across all its markets. Vattenfall's ambition is 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.
	Retail customers	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 37,400 employees in total.
	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 <a href="http://www.vattenfall.com">www.vattenfall.com</a> .
	Investors	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 2011 was SEK 141 billion.



### Examples of Vattenfall's Stakeholder Consultation during 2011

Stakeholder group	Central level (Group)	Local or Business Unit level	Stakeholder group	Central level (Group)	Local or Business Unit level
<b>Society</b>	<ul style="list-style-type: none"> <li>• Ongoing dialogue with a broad spectrum of stakeholders in the EU, such as European institutions, various non-governmental organisations, trade associations and think-tanks</li> <li>• The Annual General Meeting, which is open to the general public</li> <li>• Group-wide Brand Reputation Index measurement</li> <li>• Publication of the CSR Report</li> </ul>	<ul style="list-style-type: none"> <li>• Contacts with affected stakeholders regarding acceptance for the construction of new plants and infrastructure, e.g., the new power plant in Moorburg, new gas heating in Hamburg and wind farms</li> <li>• 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</li> </ul>	<b>Financial</b>	<ul style="list-style-type: none"> <li>• Group-wide Brand Reputation Index measurement</li> <li>• Annual General Meeting – open to the public</li> <li>• 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</li> <li>• Conference calls (webcasts) with capital providers and journalists with the opportunity to ask questions. Investor presentations and one-on-one meetings with capital providers</li> <li>• Annual review meetings as well as ad hoc meetings with rating agencies (Standard &amp; Poor's and Moody's)</li> <li>• Publication of annual and quarterly reports</li> </ul>	
<b>Customers</b>	<ul style="list-style-type: none"> <li>• Group-wide Brand Reputation Index measurement</li> </ul>	<ul style="list-style-type: none"> <li>• Customer Satisfaction Index measurements (see PR5)</li> <li>• Customer events</li> </ul>			
<b>Internal</b>	<ul style="list-style-type: none"> <li>• The annual My Opinion employee survey</li> <li>• European Works Council – dialogue with employee representatives</li> <li>• Group-wide Brand Reputation Index measurement</li> <li>• Annual management conference gathering 250 executives</li> <li>• Vattenfall Management Institute (training)</li> <li>• Employee events</li> </ul>	<ul style="list-style-type: none"> <li>• Ongoing implementation of company philosophy, core values and Code of Conduct</li> <li>• Annual individual development dialogues between managers and their employees</li> <li>• Discussion of the employee survey My Opinion results and action planning in all work teams</li> </ul>			

# Environmental performance

Vattenfall manages many different energy sources and technologies, all with different environmental aspects and challenges. Most of Vattenfall's operations are strictly regulated by laws, regulations, and permits – at the global, EU, national, regional and local levels. Vattenfall also 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 key environmental aspects

Vattenfall's significant environmental aspects include resource efficiency, emissions to air, soil and water, management of waste and by-products, responsible land use and biodiversity.

## Environmental goals and performance

At the Group level, Vattenfall sets long- and short-term business planning targets for reducing CO<sub>2</sub> emissions. The long-term development of Vattenfall's generation portfolio requires significant investments, which are co-ordinated at the Group level. The ambition is to reduce Vattenfall's CO<sub>2</sub> emissions in line with EU's 2020 target, which translates to a total of 65 million tonnes by 2020, compared with 93.7 million tonnes in 2010 in pro rata terms.

## Environmental Management System

Vattenfall's Group Environmental Management System includes the environmental policy, which is the central document. Annual Environmental Management Reviews are performed with the Business Divisions and Business Units, where corrective actions can be initiated.

At the Group level, environmental data from operations is reported and consolidated annually in a dedicated reporting process. In addition, reporting on qualitative issues, such as general status development, red flags/green flags, accidents and external analyses, is done quarterly.

Most parts of Vattenfall have their own environmental management systems aligned with recognised standards, many of which are certified. ISO 14001 is the most commonly used standard for certification, but EMAS registration is also used. The certificates cover approximately 50% of installed production capacity.

## Organisational responsibility for environmental performance

The environmental issues in focus for Vattenfall's Executive Group Management encompass strategic development, long-term development and financing, managerial principles and

## Vattenfall's Environmental Policy

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

An important part of Vattenfall's vision is to be among the leaders in developing environmentally sustainable energy production. This means that:

- For each energy source and each type of technology, we strive to be amongst the best in class.
- Safety, performance and co-operation are fundamental in our operation.
- 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, to increase the competitive-

ness of our renewable and low emission energy sources and to reduce carbon dioxide emissions from our power plants.

- We have a structured and systematic approach to taking environmental and other essential sustainability 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 and have regular strategic discussions within top management.
- We specify and assess environmental, social and ethical performance when selecting suppliers, contractors and business partners.
- We promote customers' efficient use of energy as a means to reduce environmental impact.

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.

deviation analyses. Based on targets set by the Executive Group Management, each unit has full responsibility for planning, carrying out, following up on and developing its business.

Staff Function Environment 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. Staff Function Environment also monitors and evaluates environmental opportunities and risks of importance for the Vattenfall Group and the Vattenfall brand. The Staff Function creates and supports platforms for sharing best practice within the Vattenfall Group. The head of Staff Function Environment executes the functional responsibility for environmental issues as described in the Vattenfall Management System and is the Environment Management Representative for the Group. The Business Divisions and Business Units have their own Environment Management Representatives and often additional resources to handle their particular environmental aspects.

## Environmental risk management

The general concept of environmental risk can be subdivided into three categories: (technical) environmental risks, environmental legal and regulatory risks, and environmental liabilities.

Every year a compilation is made of the company's environmental risks and environmental liabilities as well as of any provisions and measures that may be needed. In 2011, Staff Function Environment changed the environmental risk reporting practices to further align with the practices of Enterprise Risk Management and to secure comparability between all risks Vattenfall has to balance. The environmental risk report is based on Group-wide reporting standards in accordance with set definitions. The analysis covers a general evaluation of the environmental risks at Vattenfall and trends in recent years. The Business Units are responsible for identifying and reporting environmental risks to create a composite picture of the Group's environmental risks. The annual environmental risk report is presented to Vattenfall's Safety and Risk Committee and the Board of Directors.

The work on continuously preventing and controlling the effect of measures is largely conducted locally and is based on the knowledge and experience that exists within Vattenfall. Advance planning in this respect is a way of strengthening the Group's competitiveness over the long term. For example, provisions have been made for contaminated land areas as well as for the restoration of land after lignite mining. In 2011, Staff Function Environment also increased the focus on risk

response activities by supporting the risk owners in inevitable risk response activities.

## Training and awareness

E-learning programmes for important environmental issues are available for all employees. The purpose of the Group-wide environmental training is to give basic knowledge and promote an understanding of the environmental and sustainability effects from Vattenfall's diverse energy mix, and what we are doing to limit the negative consequences. An understanding of the environmental aspects of the energy system should be a knowledge base for all employees in Vattenfall.

## Material use

The largest quantities of materials used by Vattenfall are fuels for electricity generation and heat production.

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.

Both industrial and household waste are also a part of Vattenfall's fuel mix. They are used for heat production and electricity generation, both in waste incinerators as well as in co-combustion with other fuels.

## Material used (EN1)

ktonnes	Lime expressed as CaO	Ammonia	Other chemicals for flue gas cleaning
Sweden	7.5	0.8	1.0
Finland	0.1	0.0	0.0
Denmark	18.0	3.5	16.8
Germany	1,069.2	3.4	6.0
Poland	18.6	0.0	0.0
Belgium	0.0	0.0	0.0
Netherlands	11.2	3.3	0.0
UK	0.0	0.0	0.0
<b>Total 2011</b>	<b>1,124.6</b>	<b>11.0</b>	<b>23.8</b>
Total 2010	931.5	11.8	31.6
Total 2009	948.6	12.3	26.9
Total 2008	966.3	11.0	29.1
Total 2007	1,027.5	11.3	23.7

The lime consumption is higher 2011 compared to 2010 due to higher electricity generation in the lignite plants.

## Material used that are waste (EN2)

### Percentage of fuel that is waste

% (not including uranium)	
Sweden	38.6
Finland	1.8
Denmark	0.0
Germany	3.6
Poland	0.0
Belgium	0.0
Netherlands	0.0
UK	0.0
<b>Total 2011</b>	<b>3.3</b>
Total 2010	3.1
Total 2009	2.6
Total 2008	2.8
Total 2007	2.4

## Energy

Energy efficiency is identified as a key component under resource efficiency. 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 (see also EN5-7).

## 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 using photovoltaics.

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 environmental impact of this electricity is accounted for through reporting of net production. Other large indirect use of energy consists of losses in energy transfer and energy consumption in the mining operations. For data on Energy use see page 10.

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

Vattenfall provides retail and industrial customers with support and expertise regarding energy efficiency measures (see PR3).

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.

## 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 to 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 other things. 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 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 exceed the 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 m<sup>3</sup>/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: Jänschwalde, Cottbus-Nord, Welzow-Süd, Nochten and Reichwalde (no mining is currently being conducted at Reichwalde).

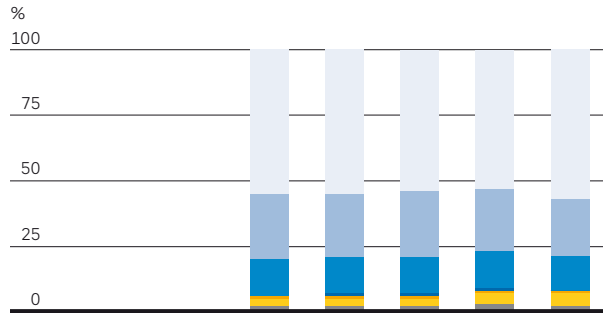
In 2011, approximately 397 million m<sup>3</sup> of groundwater was removed to make fuel extraction possible. The removed groundwater is cleaned and used to cover the freshwater requirements of the nearby lignite-fired power plants, thereby sparing other water sources. Vattenfall's need for freshwater 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.

## Environmental performance

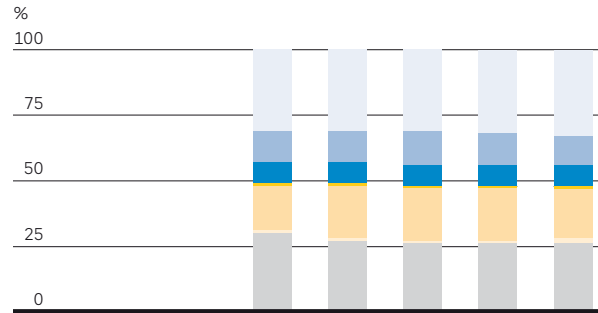
### Total use of fuels per year



TWh	2007	2008	2009	2010	2011
Lignite	149	144	140	143	147
Hard coal	68.9	63.6	66.2	66.1	58.5
Gas	39.2	37.3	36.9	38.2	33.8
Peat	1.1	1.3	1.4	1.6	1.1
Waste, non-biogenic	2.0	2.2	2.0	2.6	2.8
Biomass & biogenic waste	7.7	8.1	8.2	11.7	11.8
Other fuel incl. oil	6.0	6.3	5.7	6.9	5.3
<b>Total</b>	<b>274</b>	<b>263</b>	<b>261</b>	<b>270</b>	<b>261</b>
Uranium, tonnes	136	146	140	104	104

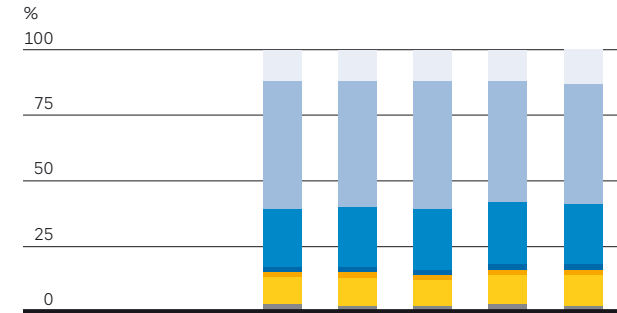
Hardcoal has decreased in Denmark due to units taken out of operation.

### Electricity generation mix per year



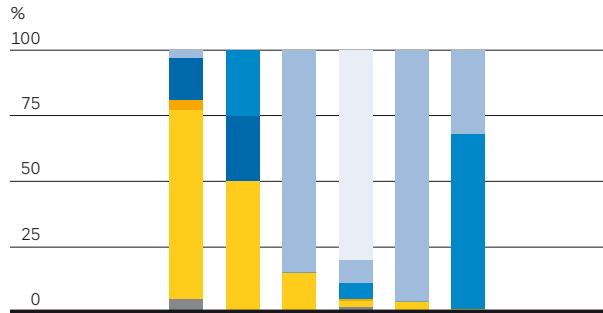
TWh	2007	2008	2009	2010	2011
Lignite	53.6	51.5	50.3	51.4	53.0
Hard coal	21.9	19.7	20.8	19.7	17.6
Gas	14.7	13.9	13.7	13.9	12.6
Peat	0.1	0.2	0.3	0.3	0.2
Waste, non-biogenic	0.4	0.4	0.3	0.5	0.5
Biomass & biogenic waste	1.1	1.2	1.1	2.2	2.3
Hydro power	30.9	33.8	31.7	32.4	32.0
Wind incl. solar	1.8	2.1	2.0	2.5	3.7
Nuclear power	51.5	46.2	41.5	43.6	42.5
Other fuel incl. oil	0.6	0.6	0.7	0.8	0.5
<b>Total generation excl. pumped storage</b>	<b>177</b>	<b>170</b>	<b>162</b>	<b>167</b>	<b>165</b>

### Heat production mix per year



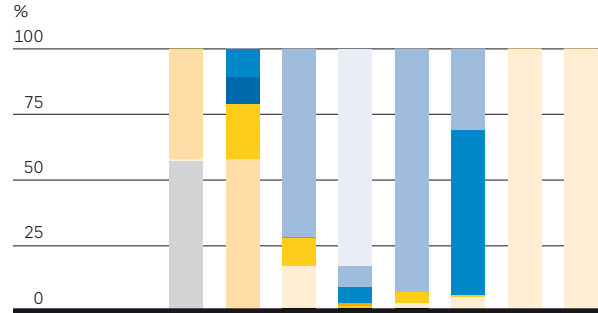
TWh	2007	2008	2009	2010	2011
Lignite	4.9	5.1	5.3	6.1	5.6
Hard coal	20.1	19.9	20.8	22.6	19.7
Gas	9.2	9.6	9.7	11.7	9.7
Peat	0.8	0.8	0.9	1.0	0.7
Waste, non-biogenic	0.8	0.8	0.8	0.8	0.9
Biomass & biogenic waste	4.1	4.5	4.3	5.6	5.2
Other fuel incl. oil	1.1	1.0	1.0	1.4	1.0
<b>Total</b>	<b>40.8</b>	<b>41.7</b>	<b>42.8</b>	<b>49.3</b>	<b>42.8</b>

### Total use of fuels per country



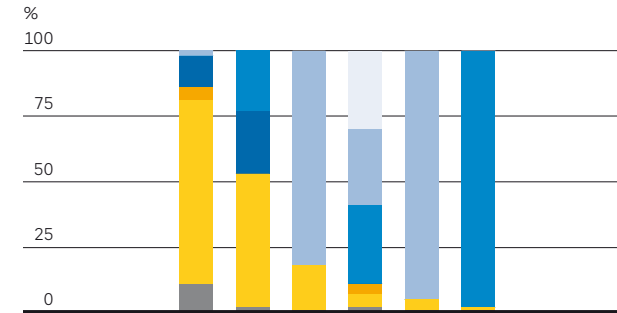
TWh	SE	FI	DK	DE	PL	NL	BE	UK
<b>Total</b>	<b>4.4</b>	<b>1.8</b>	<b>15.1</b>	<b>188</b>	<b>18.1</b>	<b>32.7</b>	<b>0.0</b>	<b>0.0</b>

### Electricity generation mix per country



TWh	SE	FI	DK	DE	PL	NL	BE	UK
<b>Total generation excl. pumped storage</b>	<b>75.3</b>	<b>0.6</b>	<b>6.1</b>	<b>63.9</b>	<b>3.8</b>	<b>14.0</b>	<b>0.01</b>	<b>1.2</b>

### Heat production mix per country



TWh	SE	FI	DK	DE	PL	NL	BE	UK
<b>Total production</b>	<b>3.6</b>	<b>1.2</b>	<b>4.8</b>	<b>18.6</b>	<b>10.8</b>	<b>3.9</b>	<b>0.0</b>	<b>0.0</b>

## 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 by the Group.

This analysis has resulted in the reporting of ten water parameters, covering both water withdrawal and water discharge.

Million m <sup>3</sup>	
Sea water	8,380
Fresh surface water	3,055
Ground water	423
Bought Water	26
<b>Total in</b>	<b>11,883</b>
Cooling water to sea water	8,380
Cooling water to fresh surface water	2,936
Treated waste water to water bodies	21
Clean water to water bodies	377
Evaporation	113
Sold process water	36
<b>Total out</b>	<b>11,863</b>

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

Input and output flows will not match exactly as minor flows are left out.

## 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 under "Water use" 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.

## Land use in protected area (EN11)

Vattenfall's most significant land use pertains to electric transmission corridors, power plants – especially hydro power plants – and lignite mining 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. 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, and 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 harmonious 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, to date 176.6 km<sup>2</sup> have been claimed. Land use in 2011 was 4.77 km<sup>2</sup> (5.28 km<sup>2</sup> in 2010). Large quantities of land mass are redistributed in order to enable lignite extraction from the open-cast mines. In 2011, a total of 414.7 million m<sup>3</sup> of land mass (406 million m<sup>3</sup> in 2010), mainly sand, was moved to extract 59 million tonnes (57 million tonnes in 2010) of lignite. A total of 3.75 km<sup>2</sup> (5.2 km<sup>2</sup> in 2010) were re-cultivated, of which 1.15 km<sup>2</sup> have been restored to forestland and 1.2 km<sup>2</sup> to agricultural land.

## Land use and biodiversity around electricity transmission corridors

Electricity networks also have an impact on large land areas. Overhead transmission and distribution lines, in particular, claim significant land areas. The length of transmission and distribution grid lines provides an indication of the land areas used. The total length of Vattenfall's local and regional distribution grid lines measures 449,000 km. In the cities of Berlin and Hamburg, the networks are mainly served by underground cables.

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

In some cases, however, overhead power line corridors have 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.

## Land use for power plants

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.

Vattenfall's most significant impact comes from the large reservoirs for river regulation in Sweden, involving both natural lakes and inundated land. The reservoirs hold approximately 9,500 million m<sup>3</sup> of water and cover an area of approximately 640 km<sup>2</sup>. The variation in storage period is from zero to several years. The area in which the water is allowed to vary is defined in water rights, and the deviation is between 0 to 34 metres, depending on the reservoir.

Vattenfall has established a number of environmentally protected areas along the Lule River in Sweden. The company's commitment in these areas consists of taking inventories, long-term conservation, enhancing natural assets and presenting them for visitors. Fish ladders for salmon and trout have been constructed on some of the regulated rivers where spawning areas exist upstream of power stations. Every year, Vattenfall plants about 2 million fish in rivers and streams. In Germany, Europe's largest fish ladder was opened in 2011, which will help to repopulate the Elbe River with the almost extinct Atlantic sturgeon.

The impact from the large reservoirs for river regulation in Sweden is followed up every three years using the Biotope Method, which is an assessment tool for quantifying the impacts on bio-



## Environmental performance

diversity 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](http://www.environdec.com)). For impacts in the supply chain, see HR2 on page 21.

In Sweden, a pilot project was 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. Early environmental inventories allow the observed environmental values to be taken into account when alternative technologies are analysed.

### Emissions

The most significant environmental impact of Vattenfall's operations is emissions of CO<sub>2</sub> from fossil fuel combustion in energy production.

Other significant emissions from Vattenfall's operations are sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) and particulates. These emissions are significantly reduced by flue gas cleaning. Small amounts of nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>) are produced during any fuel combustion. Sulphur hexafluoride (SF<sub>6</sub>) is still used in some electrical equipment. Vattenfall strives to reduce emissions as far as possible by using advanced technologies to keep its emissions below national and regional requirements.

The ambition is to reduce Vattenfall's CO<sub>2</sub> emissions in line with EU's 2020 target, which translates to a total of 65 million tonnes by 2020, compared with 93.7 million tonnes in 2010, in pro rata terms.

The long-term target is a 50% reduction of specific CO<sub>2</sub> emissions by 2030 compared with 1990.

### External conditions

Emissions are dependent on weather conditions and economic development. 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 emissions.

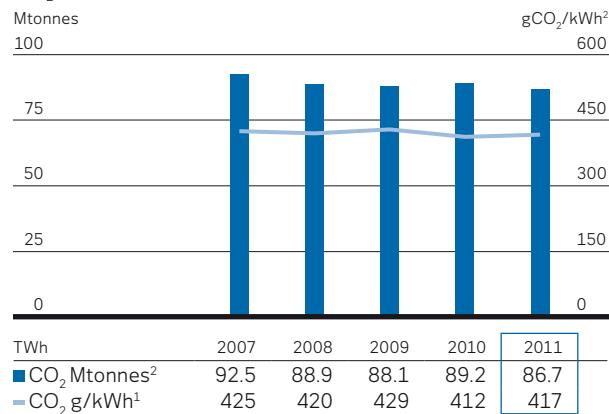
#### Method for calculating specific emissions

$$\frac{\text{Emissions (total)}}{\text{Production (electricity+heat)}} = \text{Specific emissions}$$

### Greenhouse gas emissions (EN16–17)

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

#### CO<sub>2</sub> emissions per year (total and specific, consolidated)<sup>1</sup>



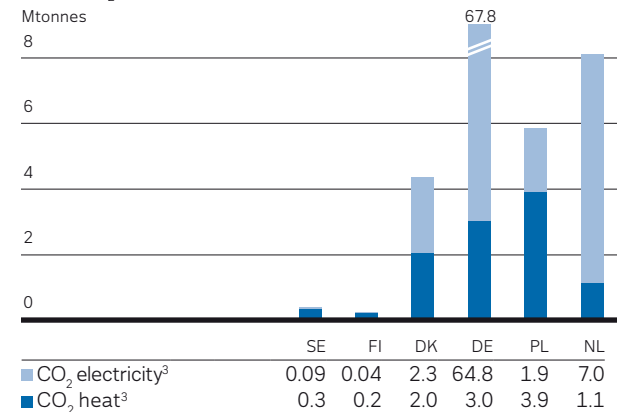
Absolute CO<sub>2</sub> emissions have decreased due to lower production, especially use of hardcoal in Denmark (units taken out of operation)

Specific CO<sub>2</sub> emissions have slightly increased due to a decrease of heat production.

1) Specific emission, see description of calculation method.

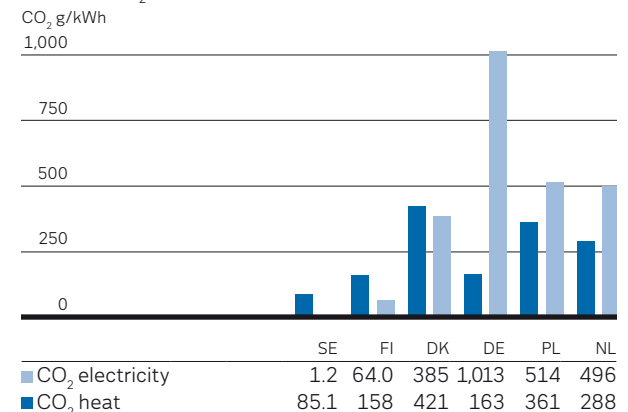
2) Data is consolidated in accordance with the Greenhouse Gas Protocol, which stipulates that data shall be updated retroactively. This means that emissions from divested assets have been subtracted from historical accounting. Absolute CO<sub>2</sub> emissions from the portfolio, not subtracting sold assets, where 91.5 Mtonnes in 2010.

#### Total CO<sub>2</sub> per country



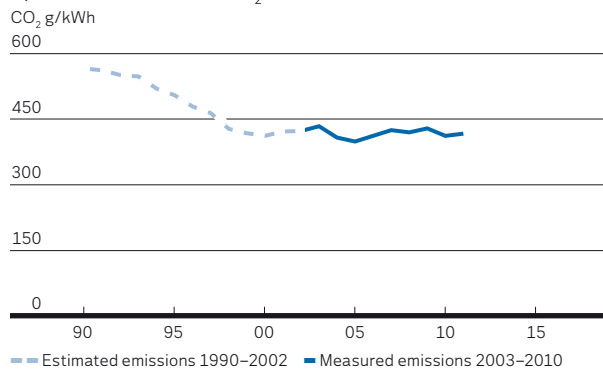
3) Allocation of CO<sub>2</sub> between electricity and heat is based on national methods.

#### Specific CO<sub>2</sub> emissions per country<sup>4</sup>



4) Allocation of CO<sub>2</sub> between electricity and heat is based on national methods.

### Specific emissions of CO<sub>2</sub><sup>1</sup>



1) Historical data for Nuon before 2003 is based on an estimation of a constant market share. The total energy sector emission in the Netherlands has been used to estimate Vattenfall's total emissions recalculated according to the Greenhouse Gas Protocol.

### Initiatives to reduce greenhouse gas emissions (EN18)

Vattenfall is involved in a number of both large- and small-scale initiatives aimed at reducing greenhouse gas emissions. Overall activities and investments to reduce such emissions include increasing generation from renewable energy sources, equipping coal-fired power plants with Carbon Capture and Storage (CCS) technology, and increasing nuclear power capacity. Improvements are also being made to existing technology in an effort to increase efficiency, resulting in reduced emissions per generated unit of electricity and heat. In addition, Vattenfall has a substantial R&D programme supporting the development of new renewable energy sources, as well as better use of existing ones.

### NO<sub>x</sub>, SO<sub>2</sub> and other emissions to air (EN20)

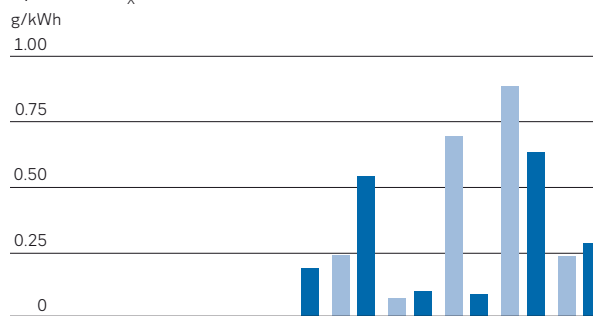
Other emissions to air include SO<sub>2</sub>, NO<sub>x</sub> and particulates, which have decreased in recent decades due to the modernisation of generation facilities and installation of flue-gas cleaning equipment.

### Total emissions NO<sub>x</sub>, SO<sub>2</sub> and particulates

Absolute emissions, ktonnes <sup>2</sup>	SE	FI	DK	DE	PL	NL
NO <sub>x</sub> electricity	0.1	0.1	0.6	44.5	3.3	3.3
NO <sub>x</sub> heat	0.7	0.7	0.5	1.7	6.9	1.1
SO <sub>2</sub> electricity	0.1	0.03	0.2	49.0	5.5	1.3
SO <sub>2</sub> heat	0.4	0.2	0.3	1.3	11.5	0.01
Dust electricity	0.0	0.0	0.1	1.3	0.3	0.1
Dust heat	3.7	0.05	0.08	0.03	0.6	0.0

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

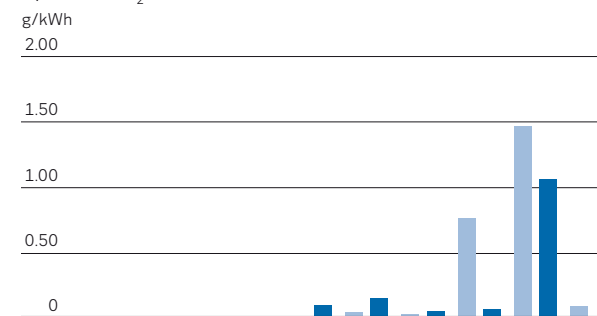
### Specific NO<sub>x</sub>



Specific emissions, g/kWh <sup>3</sup>	SE	FI	DK	DE	PL	NL
NO <sub>x</sub> electricity	0.002	0.2	0.1	0.7	0.9	0.2
NO <sub>x</sub> heat	0.2	0.5	0.1	0.1	0.6	0.3

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

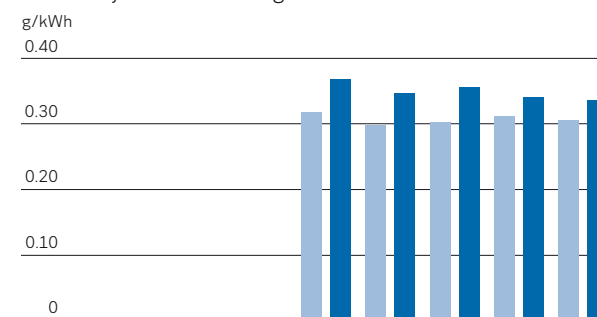
### Specific SO<sub>2</sub>



Specific emissions, g/kWh <sup>4</sup>	SE	FI	DK	DE	PL	NL
SO <sub>2</sub> electricity	0.001	0.05	0.03	0.8	1.5	0.09
SO <sub>2</sub> heat	0.1	0.2	0.05	0.07	1.06	0.003

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

### Specific NO<sub>x</sub> and SO<sub>2</sub> emissions per year, electricity and heat average



Specific emissions <sup>5,6</sup>	2007	2008	2009	2010	2011
NO <sub>x</sub>	0.319	0.299	0.303	0.312	0.306
SO <sub>2</sub>	0.369	0.348	0.356	0.341	0.336

5) Specific emissions of SO<sub>2</sub> and NO<sub>x</sub> were slightly decreasing mainly due to installation of flue gas cleaning technology in our Polish plants.

6) Specific emission, see description of calculation method

### 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 hard coal, lignite, biomass and waste generate ash and mineral by-products, such as gypsum, which can be reused.

#### 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 reuse of ash by applying quality and environmental standards. Hazardous waste is treated in accordance with permits and regulations.

Waste from construction and the decommissioning of power plants, distribution grids, etc., is handled in accordance with the respective national legislation. Vattenfall strives to promote reuse 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.

#### Reuse of residues, ash and mineral by-products

Combustion of solid fuels and flue gas cleaning result in large amounts of 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's plants are reused, 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.

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-life radioactive waste, which consists primarily of spent nuclear fuel, must be carefully shielded during handling and transportation. It takes approximately 100,000 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.

In 2009 SKB selected a site near the Forsmark nuclear power plant, in Östhammar municipality, as the most suitable location for a final repository. In 2011 SKB applied for the permits needed for the final repository in accordance with the Swedish Act on Nuclear Activities, and will then simultaneously apply for permits for the interim storage facility, the encapsulation facility and the final repository in accordance with the Swedish Environmental Code.

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.

In Germany, plans to establish two final repositories, both in deep geological formations, are being investigated. Following initial studies, the use of a salt formation near Gorleben for high active waste has been explored. This exploration has still not been finalised. The Gorleben repository was chosen out of more than 140 salt formations in the 1970s. 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 2015.

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 dismantling of nuclear reactors. In Germany, costs associated with the final disposal of nuclear waste are to be borne by the operators that 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).

## Waste and mineral by-products (EN 22)

### Treatment of waste<sup>1</sup>

ktonnes	Hazardous waste excl. radioactive <sup>2</sup>		Non-hazardous waste	
	Recovered	Deposited	Recovered	Deposited
Sweden	9.7	1.2	8.3	0.7
Finland	0.4	0.1	0.7	0.2
Denmark	3.6	4.8	2.9	0.3
Germany	106	83.0	222	26.5
Poland	0.0	0.3	10.0	1.3
Netherlands	0.0	2.2	0.0	17.5
UK	0.0	0.0	0.0	0.0
Belgium	0.0	0.0	0.0	0.0
<b>Total 2011</b>	<b>119</b>	<b>91.7</b>	<b>244</b>	<b>46.5</b>
Total 2010	109	97.5	234	29.2
Total 2009	82.2	35.6	320	29.0
Total 2008	76.0	20.9	149	21.0
Total 2007	77.9	17.6	169	19.3

1) Totals 2007–08 are excluding the Netherlands.

2) Hazardous waste includes fly ash from waste incineration.

### By-products

ktonnes	Fly ash	Furnace bottom ash	Ash from biomass fuels	Slag from waste incineration	Gypsum	Other by-products
Sweden	3.9	1.9	40.3	54.3	1.2	8.1
Finland	0.0	0.0	18.9	0.0	0.0	0.0
Denmark	191	16.7	14.0	0.0	49.1	41.8
Germany	4,279	1,235	17.1	247	3,037	37.6
Poland	530	51.3	0.0	0.0	22.2	0.0
Netherlands	0	0	0	0	0	0
UK	0	0	0	0	0	0
Belgium	0	0	0	0	0	0
<b>Total 2011</b>	<b>5,003</b>	<b>1,305</b>	<b>90.3</b>	<b>301</b>	<b>3,109</b>	<b>87.6</b>
Total 2010	4,974	1,186	118	305	2,718	102
Total 2009	4,993	1,195	53.0	255	2,902	73.2
Total 2008	5,215	1,206	63.2	287	2,930	80.3
Total 2007	5,069	1,206	48.5	275	3,087	64.1

Other by-products mainly consist of desulphurisation products other than gypsum.

### Radioactive waste

Radioactive waste	Medium and low-level radioactive operational waste (m <sup>3</sup> )	Nuclear core components (tonnes)	Spent nuclear fuel – assemblies taken out (tonnes)	Spent nuclear fuel – original uranium content (tonnes) <sup>1</sup>
Sweden	930	842	157	103
Germany	152	0	0	0
<b>Total 2011</b>	<b>1,082</b>	<b>842</b>	<b>157</b>	<b>103</b>
Total 2010	561	494	135	82
Total 2009	514	0	185	141
Total 2008	3,670	0	206	147
Total 2007	1,288	10	202	148

1) Original uranium content in assemblies taken out.

### Spills and contamination (EN23)

The risk for spills and other contamination is monitored, managed and mitigated locally. Incidents that could possibly result in significant environmental impact, such as spills, leaks and contamination, are reported in accordance with Vattenfall's Incident and Crisis Management (ICM) framework, see EU21.

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. The plan for taking care of contaminated land is progressing on schedule.

### Electromagnetic fields (EMFs)

Vattenfall is committed to complying with recommended and legal guidelines regarding electromagnetic fields.

### Compliance with codes, agreements and frameworks

Vattenfall is a signatory of the UN 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 reduce the damage, restore any damage caused and take precautionary measures to avoid future incidents.

# Social Performance

## Labour practices

Vattenfall's employees are the backbone of its business. Their talent is a resource of individual knowledge, skills and qualifications. In the future, a key success factor for Vattenfall will be having people on board with the right competence. This means that Vattenfall strives to create a corporate culture and work environment that attracts, develops and retains people with leading edge competence, and encourages extraordinary performance. Vattenfall's newly introduced Core Values – Safety, Performance and Co-operation – support these undertakings. To put the Core Values into practice in our daily work, joint efforts and support activities, such as work with safety culture and performance dialogues, are carried out (see also LA12).

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

### Human Resources Policy

Vattenfall's Human Resources Policy describes the Group's approach to the following six areas: Compliance & Processes, Core Values & Corporate Culture, Leadership & Management, Competence Development, Compensation & Benefits and Organisational Design.

Briefly, the policy states that the Staff Function Human Resources creates value by

- attracting people who provide a required competence and level of performance,
- developing people's performance in an efficient and effective way, and
- retaining the people necessary to achieve the strategic objectives.

In parallel with this policy, the Core Values Safety, Performance and Co-operation provide further direction.

Furthermore, the policy states that Staff Function Human Resources shall actively drive and support the development of Vattenfall's organisation towards the goal of helping achieve the Group's business objectives.

### Human resource goals and performance

Vattenfall's annual employee survey, My Opinion, measures a broad range of aspects that reflect Vattenfall's company culture and work environment. The overall response rate in the My Opinion survey was 76% in 2011, which is three percentage points higher than in the preceding year's survey. The ambition, as a minimum, is to maintain this participation rate and ideally to attain an even higher level of employee response.

Vattenfall's aspiration to be a highly attractive and relevant employer is followed up explicitly by measuring employee commitment. In 2011, a commitment score of 65% was recorded, which given the recent reorganisation seems fairly stable in comparison to the preceding year (66%). Targets on the Overall Average (the average of all questions in the survey that were answered in a favourable way) are part of the Group's and the individual business units' business plans.

In addition, Vattenfall measures its attractiveness among engineering students using external benchmarks, such as a ranking performed by the employer branding company Universum. Measurements of attractiveness are focused on Vattenfall's three core markets: In 2011 Vattenfall ranked fifth among engineering students in Sweden, 27th in Germany, and 80th in the Netherlands with the NUON brand position.

### Organisational responsibility

Staff Function Human Resources (Group HR) supports and advises the business in strategic development and execution. The aim is to enable the business to co-operate efficiently across national borders to the maximum extent. 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 Staff Function Human Resources is also a Senior Vice President and member of the Executive Group Management.

Group HR focuses on continuous improvement and value creation by providing tools and developing high performance programmes, including talent management, organisational development and organisational change, to name a few. Moreover, Group HR keeps human resource-related legal complexities to a minimum and strives for alignment and simplification as far as possible, for example by developing global governing documents with minimal local variations.

### 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 Vattenfall's long-term 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 becoming increasingly important.



## Workforce (LA1, EU17)

Total headcount (as of 31 December)<sup>1</sup>

	2011			2010		
	Men	Women	Total	Men	Women	Total
Sweden	6,455	2,158	8,613	6,784	2,242	9,026
Denmark	544	105	649	576	111	687
Finland	221	156	377	224	174	398
Poland	76	23	99	2,189	630	2,819
Germany	14,886	4,522	19,408	14,911	4,585	19,496
Netherlands	4,163	1,254	5,417	4,225	1,291	5,516
UK	60	41	101	48	27	75
France	3	5	8	2	1	3
Belgium	-	-	-	89	55	144
Serbia	10	3	13	12	3	15
<b>Total</b>	<b>26,418</b>	<b>8,267</b>	<b>34,685</b>	<b>29,060</b>	<b>9,119</b>	<b>38,179</b>

1) Employment categories are not defined in Vattenfall, and data is therefore not divided between categories. The breakdown reflects where each individual is employed.

The decrease in the total number of employees is mainly attributable to divested operations in Poland and Belgium, and natural attrition.

### Subcontractors

Contract workers are used, for example, during maintenance and reloading 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 classified 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)

Employee turnover<sup>1</sup>, %

(external recruitment/external resignations)

	2011	2010
Sweden (including residual)	7.3	6.5
Denmark	13.5	4.5
Finland	8.7	5.2
Germany	2.0	0.9
Poland	4.0	6.4
UK	6.9	9.1
Netherlands	7.9	10

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. Average length of tenure not available.

### 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 five years, 7% of Vattenfall's employees will retire, and within the next ten years, 22.5% of the number of employees will be retiring, which means that the company must attract, recruit, develop and retain skilled employees.

The talent management processes at Vattenfall are based on strategies and Group-wide processes to ensure Vattenfall's ability to attract, develop and retain the talent Vattenfall needs to meet future challenges. The processes include competence planning, management planning, leadership development and cross-border mobility (see also Training and education on page 18).

Vattenfall has an internal job market, where all internal vacancies are advertised Group-wide. The job database ensures a single global system that offers many opportunities to search for jobs across geographical and functional borders. In addition, Vattenfall develops strategies and tools for the operations to facilitate cross-border rotation, both for job positions and projects.

### 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 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 necessary health and safety training. Vattenfall's health and safety policy 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 are carried out in the decentralised line organisation, and data on the number of participants is not aggregated at the Group level.

### 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 forums/chats on the intranet regarding current issues of employee interest.

### Collective bargaining agreement coverage (LA4)

Employees covered by collective bargaining agreements, estimation<sup>1</sup>

%	2011	2010
Sweden	98	98
Denmark	44	44
Finland	95	95
Germany	98	98
Poland	98	98
UK	n.a	n.a.
Netherlands incl. Belgium	98	n.a.

1) Data on contractors not collected at the Group level.

### Operational changes (LA5)

Collective agreements and regulations regarding operational procedures differ between the countries where Vattenfall operates, depending on national legislation and collective bargaining agreements.

## Occupational health and safety

Protection of the health and safety of the people who are affected by Vattenfall's activities is such an important issue that Vattenfall has defined it as one of the company's Core Values. Vattenfall is committed to creating a safe and healthy work environment; this means that the company aims for zero injuries, zero occupational ill health and zero process safety incidents. Vattenfall's efforts to reach this target include a systematic and proactive approach to the management of health and safety in all of the Group's activities.

Vattenfall's Health and Safety Policy expresses the goal 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 in an unsafe manner. 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 and demonstrating health and safety-oriented behaviour.

Overall, Vattenfall takes a preventive approach and implements best practices in health and safety management at all times. To promote high levels of health and safety, Vattenfall maintains a continuous improvement process. Health and safety are part of the management scorecards and the business planning process. Additionally, a safety culture development programme is up and running. These activities have contributed to a 30% reduction in accidents compared with the preceding year's results (see also LA7).

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

Each year well-being and safety are also measured in the My Opinion employee survey. This instrument allows analyses of the health and safety status of every unit and takes adequate action for each group within Vattenfall. In 2010 the survey was revised with regard to health and safety questions in order to obtain in-depth information in this area. In 2011, 62% of respondents gave positive scores to Vattenfall's health and safety concerns.

## 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)

In 2011 Vattenfall managed to reduce its accident rate by about 30%. This can be credited to higher safety awareness driven by the Core Value of Safety as well as to various preventive measures. Unfortunately, an employee of a contractor and a Vattenfall employee fell victim to fatal accidents while performing maintenance work on the electric distribution grid. Both accidents were investigated, and Vattenfall has taken several actions to improve safety in the respective work environments.

The absentee rate varies in Vattenfall's different core countries. Vattenfall is currently working on implementation of a Group-wide health management system which will enable the sharing of best practice health activities among the Group's units and countries.

	2011	2010	2009	2008
Reported accidents at work (per 1,000,000 hours worked)	3.3	4.5	4.3	4.4
Sick leave (%)	3.9	3.8	3.2	3.1
Work-related fatalities	2 <sup>1</sup>	2 <sup>2</sup>	3 <sup>3</sup>	2 <sup>4</sup>

Figures are reported from all parts of the organisation on a quarterly basis, as part of the regular reporting system. An accident is defined as an acute incident that occurred in the course of work and which resulted in personal injury. 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. Because of different regulations in the Group's countries of operation, commuting accidents and the number of lost days per employee due to accidents are not reported.

- 1) On 23 February, an employee died from electric shock during maintenance work on a substation. On 11 July an employee of a contractor company fell from a height of 25 m and died. He was renovating the steel construction of a power pole.
- 2) On 10 February, a contractor who was delivering wood shred to a plant biomass receiving station fell on a conveyor system and was pulled into the shredder. On 24 March, a linesman from a contractor came in contact with electric current (10 kV) when climbing a pole, and was electrocuted.
- 3) A diver (contractor) was sucked under water and died. An employee entered a wrong switchgear station and died from electric shock. During maintenance in the basin of a pump plant, a rope of the working machine broke and a man on it drowned.
- 4) On 23 January, a contractor was hit by a falling object during maintenance of a high voltage cable in Hamburg, Germany. On 10 November, an employee died in a commuting accident.

## Support regarding serious diseases (LA8)

Vattenfall's various companies have a long tradition of promoting employee health and measures to prevent accidents 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 at 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 activities. In large parts of the organisation, vaccination programmes for influenza and other diseases are further elements of health promotion. 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 generally do not cover these issues in detail.

## Training and education

Vattenfall provides opportunities for all employees to develop as professionals and individuals. At the Group level, Vattenfall designs, develops and provides leadership development training and programmes through the Vattenfall Management Institute (VMI). Programmes for functional specialists, such as financial control, human resources, procurement and communication are also available. Competence planning and development for Project Managers – a key competence group within Vattenfall's operations – are managed and steered for the whole Group through a special business unit.

## Management planning

Proficient leaders are key drivers of the company. Vattenfall's strategic direction is underpinned by reviewed and integrated leadership capabilities, which form the basis for assessment and development programmes.

The annual management planning process provides an overview of management capacity, potential and development needs 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. Vattenfall Management Institute (VMI) provides opportunities for leadership development and management training for all management levels. Increased focus is given to international leadership training programmes in order to help leaders develop their ability to work under rapidly changing conditions as well as to work in different cultures.

### Competence planning

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

Competence development and training strategies are important tools in reducing identified competence gaps. One example of Group needs is the importance of creating a mutual understanding of Vattenfall's vision and strategy. Employee dialogues were held throughout Vattenfall in 2011 to communicate and discuss the strategic direction and Core Values.

Action plans are drawn up to meet the Group's needs as well as local requirements to ensure sufficient competence in the future. The competence planning process covers areas such as efficiency improvement, implementation of new technology, investments, skills development, recruitment, job rotation, trainee programmes, demographic analyses and the use of consultants.

### Training of employees (LA10)

Individual competence development needs are identified as part of the Performance Management Process, where the employee and manager define and agree on individual development plans and actions.

In the annual My Opinion employee survey, in 2011 69% of employees responded that there are sufficient opportunities to receive training to help them perform their present job well, which is the same score as 2010. Every Vattenfall company that receives result reports is responsible for analysing and preparing action plans.

Vattenfall'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.

### Programmes for skills management and life-long 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. Vattenfall arranges internal and external training, including technical training that is specific for various complex operations, such as nuclear power.

Several assistance programmes to support employees who are retiring are in place, including internal training courses, funding support for external training or education, sabbatical periods with guaranteed return, assistance when retiring, severance pay that takes age and years of service into account and job placement services.

### Performance and career development reviews (LA12)

Reviews of performance and career development are important ways of ensuring that Vattenfall's work environment and competence development objectives are met. In the 2011 My Opinion employee survey, 83% of Vattenfall's employees responded that they had had a detailed discussion in the last 12 months with their manager to clarify their job objectives. Moreover, 87% knew which skills and competencies they need to develop to meet their performance objectives. Performance reviews and continuous follow-up by employees and managers is at the core of the performance culture that Vattenfall is growing from within. The target is for 100% of employees to have an individual development plan that includes actions for development through training, assignments and work experience.

### Diversity and equal opportunity

Vattenfall's Human Resources Policy states the company's view of diversity and equal opportunity as well as their importance:

"We strive for diversity in teams and units with regards to gender, age, background and experience, enabling employees from different units and of different nationalities to work together. It adds value to our business by creating development opportunities for the employees at the same time as it increases our total competence base and strengthens our cultural understanding."

The policy covers Vattenfall's ambition that the workforce should reflect the societies in which the company operates. Vattenfall is committed to creating equal opportunities and rights for all employees, and to establishing diversity as a natural part of operations.

### Goals and activities to improve diversity

- Vattenfall aspires to mirror society in terms of ethnic background. In Sweden, Vattenfall partners with the Diversity Challenge, a programme for new college graduates that offers advantages to women and people with a multicultural background in the recruitment process. To establish equal working conditions for all employees, in Germany Vattenfall co-operates with "Beruf und Familie GmbH", a foundation that advocates more family-oriented personnel policies.
- To obtain a more balanced age structure, Vattenfall uses output from the competence planning process as a basis for student relations activities, knowledge sharing programmes and general competence development. Furthermore, special in-house events for female students with a potential interest in the energy industry and in Vattenfall have been carried out in co-operation with technical-oriented universities. For example, once a year Vattenfall arranges a "Ladies Day" in co-operation with Swedish universities to stimulate aspiring young women to choose an engineering education.
- Vattenfall is working to attain an equal ratio of female managers to female employees. The focus is on gender diversity in the succession planning and management planning processes as well as in competence development measures. To increase the number of female managers, we have set a common target for 2015 that is regularly monitored. As support for that ambition, Vattenfall offers an international mentoring programme for potential female executives. Top management takes responsibility with an active mentoring role in the programme and participation in specific activities regarding gender diversity.

## Composition of governance bodies (LA13)

Composition of governance bodies (managers), %



	Women	Men
Executive Group Management	2	8
Vice presidents	17	44
Directors	52	167
Sweden	47	98
Denmark	1	6
Finland	1	2
France	0	1
Germany	7	74
Netherlands	15	33
UK	0	5
<b>Total management</b>	<b>71</b>	<b>219</b>
<b>All employees</b>	<b>8,276</b>	<b>26,418</b>
Total management, 2010	58	248
Total management, 2009	58	264
Total management, 2008	42	210
Total management, 2007	33	211

The numbers refer to end-of-year figures. Categories: Executive Group Management (EGM). Vice presidents – one level below EGM, Directors – two levels below EGM. Total management includes EGM, EGM-1 and EGM-2. Data on age groups is not available. Data on minority groups may not be collected by law.

## 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, work conditions, freedom of association, and bans on forced labour are regulated not only on a constitutional level but also on a more detailed level.

Vattenfall strives to be a good and reliable corporate citizen by always adhering to laws, regulations and good practices that are in accordance with human rights in the countries in which it operates. The company supports fundamental human rights and respects those rights when conducting its operations.

Human rights issues are handled as an ordinary part of day-to-day business activities within the general management framework. Although Vattenfall conducts its business in regions with well-established regulations, where risks are smaller, there is still a risk for human rights violations within the supply chain. Vattenfall urges all of its suppliers to adhere to the ten principles of the UN Global Compact, including human rights.

### Policy

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

Vattenfall became a signatory to the UN Global Compact in July 2008. However, since 2002 Vattenfall has supported the Swedish government's "Globalt Ansvar" initiative (Swedish Partnership for Global Responsibility) and has thereby been committed to adhering to the UN Global Compact and the OECD's guidelines for multinational enterprises.

### Investments and procurement practices

Vattenfall sources substantial amounts of fuel as well as several billion euros of material and services to operate its business. 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.

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.

To make sure that suppliers accept the Code of Conduct for suppliers and live up to the minimum standards, Vattenfall's Group Procurement has developed a solution where Vattenfall's main suppliers are asked to go through a qualification process. The process is managed in the Vattenfall Supplier Bank (VSB), a web-based solution that can be accessed via Vattenfall's

### Code of Conduct

Vattenfall's Code of Conduct covers compliance topics related to legal requirements (business ethics) and Corporate Social Responsibility (e.g., people and the 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 – Safety, Performance and Co-operation – are the foundation of our work and guide us to achieve our strategic direction and to create an integrated international company.

**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.

website. The Vattenfall Supplier Bank solution is gradually being rolled out across the Vattenfall Group.

To increase the number of registered suppliers, registration campaign efforts are carried out, starting with Poland in 2010 and continuing with campaigns in the Nordic countries in 2011. The Nordic campaigns specifically target suppliers with an average spend over a three-year period equal to or above EUR 50,000. Although the outcome of the campaigns will not be known until spring 2012, it is anticipated that it will result in the qualification of some 150 suppliers.

Although a Supplier Management and Supplier Qualification organisation has been set up, the intended 24 yearly audits on the self-assessment model could not be conducted as intended. On the other hand, Vattenfall has reached an agreement with its business partner to further develop the Supplier Bank. By the end of 2012 the Nordic, Central Europe and UK systems will be fully integrated. This will allow Vattenfall to improve its control of suppliers in a more uniform way.



Vattenfall will continue conducting CSR reviews where risks are high.

Vattenfall owns a stake in the company Buchanan Renewables Fuel in Liberia through its subsidiary Vattenfall Biomass Liberia. A number of specific actions are taken to ensure that the company employs good practices with regard to social and environmental issues. During the year, Buchanan Renewables Fuel adopted a CSR policy, with support from Vattenfall, and updated its environmental policy. These policies have been implemented in the company. Progress is monitored through quarterly reporting to Vattenfall as well as regular assessments and meetings in Liberia. External audits were performed 2011 and also will be performed in 2012.

### Human rights screening (HR 1-2)

Vattenfall conducts its main business in countries with well-established regulations, and human rights screening of investment agreements is generally not performed. However, in specific cases, human rights due diligence is performed.

In 2010 Vattenfall acquired 20% of Buchanan Renewables Fuel in Liberia. Prior to the acquisition, CSR due diligence was performed, particularly with respect to human rights.

Risk assessment of nuclear fuel and 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.

To date, 85% of Vattenfall's significant suppliers in all steps of 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.

During 2011 Vattenfall performed one audit of a coal mine. Vattenfall is also a member of the Better Coal initiative whose mission is to advance the continuous improvement of corporate responsibility in the coal supply chain.

Vattenfall intends to increase the use of biomass in its operations. To assess the risks in the biomass supply chain, specific criteria are being developed.

### Human rights training (HR3)

Vattenfall's employees are obligated to know and act in accordance with the company'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. The number of hours spent on training is not measured.

### 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 every one 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 work life and beginning with employee recruitment. All employees and applicants shall have equal opportunities regardless of their ethnic background, age, gender, faith, 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 2011.

### Freedom of association and collective bargaining, child and forced labour Freedom of association and collective bargaining and preventing child and forced labour (HR5–7)

In the core markets in which Vattenfall operates, freedom of association is both constitutionally guaranteed and governed by a number of specific laws. Likewise, child and forced labour is prohibited by a number of specific laws. These laws are adhered to throughout the organisation.

Vattenfall opposes all forms of child labour and forced labour. Vattenfall considers forced 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.

### Complaints and grievance practices

Vattenfall has a Group-wide whistleblowing system; see also "Governance of CSR", page 4.

### Indigenous rights

Vattenfall's operations have both natural and cultural environmental impacts. Two main indigenous and minority groups are directly affected by Vattenfall's operations: 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. To support and preserve the Sorb culture, Vattenfall subsidises the Sorb organisation Domowina in eastern Germany. 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 the building of hydro power plants in the northern parts of Sweden had an impact on reindeer husbandry. As with all stakeholder groups, Vattenfall is engaged in a continuous dialogue with Sami communities. 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 the 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:

- Safety means that we care about the health and safety of our employees, contractors and society. All actions must be taken in a safe and responsible manner. We continuously make every effort to prevent injuries and occupational illnesses. We put a strong effort on increasing awareness and knowledge on safety and safe behaviour. Our production sites must adhere to a high level of process safety from design to operations.
- Performance means that we focus on passionately achieving our objectives while acting according to our Core Values. It's natural for us to perform at our best and continuously evaluate our actions in order to improve. While progressing we will ensure excellence in performance to realise our strategic direction. We do what we say and we keep our promises.
- Co-operation means that we trust each other and openly work together to achieve our objectives and reach our vision. We want to live in a new era of co-operation – getting to know each other better, thinking, acting and sharing knowledge while learning from each other and exchanging experiences across countries, divisions and functional borders. In the same way, we work together with our external stakeholders.

### 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 formal processes for assessing stakeholders' expectations and opinions. This forms a basis for operational and reporting matters, such as for improving this report.
- Vattenfall is a signatory of the UN Global Compact.
- The World Economic Forum's Partnering against Corruption Initiative – Principles for Countering Bribery (the PACI Principles).

### Impact on society – goals and performance

#### Customer Satisfaction Index

Vattenfall has set a customer satisfaction target to measure success. For more information on the CSI, see indicator PR5 on page 25.

#### 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 Staff Functions.

With respect to community and public policy development, a separate organisation exists within Vattenfall – Vattenfall Public and Regulatory Affairs, under Staff Function External Relations and Communications. 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 and at Vattenfall's European Affairs Office in Brussels.

The General Counsel of the Vattenfall Group 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 Corporate 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 understand-

ing 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 in competition law and anti-corruption.

The Vattenfall Antitrust Compliance Programme was updated in 2011 and re-launched in the new organisation .

### 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 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

The most significant impact on communities is related to Vattenfall's lignite mining operation in Germany, where several small communities have been resettled as a consequence of the Group's mining activities. In 2011 seven estates 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 village's social structure. At the beginning of the resettlement process an assessment is performed that involves all citizens. This 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, health-care) 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.
- Four villages have been resettled since 1993, and plans have been drawn to resettle parts of two more villages by 2013.

## 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 accept 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.

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](http://www.weforum.org).

Vattenfall has a zero-tolerance policy regarding the giving and accepting of bribes, and it also expects its suppliers to respect this position.

## Risks related to corruption (SO2)

Management of the Business Units is required on an annual basis to confirm that the relevant Group and Business Division 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.

## 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. In 2011, training in anti-corruption was provided in Germany. Awareness of anti-corruption was raised in the Netherlands by posting information on the intranet. The percentage of employees trained is not calculated, as not all employees have work tasks that require this.

In 2011 preparations were begun to draw up new instructions for prevention of bribery and corruption. An action plan

to improve awareness regarding bribery and corruption risks has been developed as well. This renewed attention is an initiative spurred by the UK Anti-bribery Act, which took force in July 2011.

## Actions against corruption (SO4)

No cases of anti-corruption actions at Vattenfall were reported in 2011, in which employees were dismissed, disciplined for corruption. One contract with a business partner was not renewed due to a corruption-related violation.

## Public policy

The energy sector is a complex industry that is highly dependent on public policy and political decisions. As 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 investments, 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 at 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 2011 were in the countries in which the company is a provider of electricity and heat: Sweden, Germany, the Netherlands, Finland, Denmark, the UK, and Poland. In addition, Vattenfall is active at the EU level 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 development of joint policy papers with other actors in industry and society (for example, on climate change) to direct recommendations from Vattenfall regarding local, national, and European laws and directives. Vattenfall's policy positions are intended to support the Group's strategic direction and 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. Among other initiatives, in 2011 Vattenfall contributed to the European Climate Foundation study Power Perspectives 2030, as well as the 3C (Combat Climate Change)/Stockholm Environment Institute study Driving Technological Innovation for a Low-Carbon Society.

### Political contributions (SO6)

Vattenfall does not give support to political parties, politicians or related institutions. Vattenfall is a state-owned company, and shares in the company are not publicly available.

### Preventing anti-competitive behaviour

Vattenfall has numerous 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." 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 at all levels in the organisation about 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).

In 2011, antitrust law seminars were arranged at regular intervals in Germany, Sweden and the Netherlands. Many of the seminars were also available via video link in order to enable participation from other locations. All of Vattenfall's Business Units are analysed by the Business Unit management on an annual basis for risks related to anti-competitive behaviour as part of the Group-wide risk reporting structure. The results of

this annual review are reported to the General Counsel, Executive Group Management and the Vattenfall AB Board.

One specific issue related to competition among energy utilities is unbundling. Vattenfall complies with unbundling rules. These rules form part of national legislation, based on EU directives, and stipulate that transmission and distribution businesses 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 businesses that operate under free competition. Compliance with unbundling rules is essential to ensuring that Vattenfall uses only fair means of competition.

In cases of non-compliance, Vattenfall's management may, in accordance with internal instructions, take all necessary action. 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 action, not excluding dismissal, will be considered and taken.

### Legal actions pertaining to anti-competitive behaviour (SO7)

An investigation initiated in Finland in 2009 into district heat pricing by the ten largest heat companies in Finland was closed on 12 January 2012, due to the fact that the Finnish Competition Authority did not find grounds to proceed with the case to the Market Court.

In October 2011 the Belgian Competition Authority commenced an enquiry concerning pricing of "green certificates" at several companies active in the supply of electricity in Belgium, including Nuon Belgium NV. This enquiry by the Belgian Competition Authority is still ongoing. Vattenfall expects that the outcome of this enquiry will not give rise to any adverse consequences for Vattenfall. Vattenfall sold Nuon Belgium NV to the Italian company ENI in 2011.

### Sanctions (SO8)

No administrative sanctions for non-compliance with laws and regulations were reported in 2011.

### Emergency management and contingency planning (EU21)

Incident and Crisis Management (ICM) within the Vattenfall Group is governed by functional 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

- work proactively to detect, avoid or mitigate any event that could 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 core country levels. The ICM organisation focuses on monitoring events that affect Vattenfall's business while analysing and supporting the line organisation in crisis management to ensure proactiveness.

The basic requirement is that all units within the Vattenfall Group whose operations involve risks that could 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 could lead to a crisis;
- business continuity plans shall be in place if the risk is unacceptable;
- a crisis management plan shall be in place;
- a crisis management team shall be appointed, prepared and trained; and
- 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.

## 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 for customers is generally communicated in brochures, newsletters and marketing material in all countries. Customers are also

continuously informed through Vattenfall's websites and via customer service in all countries. The information that Vattenfall provides ranges from electricity safety in general to topics such as safety measures during thunderstorms and power outages.

### Health and safety impacts (PR1)

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 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 2011 no health or safety-related legal cases were reported within Vattenfall.

### Product and safety labelling

In addition to information regarding safety, Vattenfall strives to take a role in helping customers save energy. In the 2011 CSR report, the various roles we play are described in detail in the chapter entitled "Are you helping to save energy?"

### Product and service information (PR3)

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 CO<sub>2</sub> 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.

### Customer satisfaction (PR5)

Customer satisfaction issues have gained increased attention during the last couple of years and will continue to have high priority in the future.

Customer Satisfaction Index (CSI)	B2C		B2B			
	2011	2010	SME		Large	
	2011	2010	2011	2010	2011	2010
<b>Electricity sales</b>						
Sweden	65	68	59	62	70	69
Finland	73	72	67	65	71	74
Germany	66	72	60	65	65	73
Poland	78	76	64	66	70	66
Netherlands	71	71	65	64	62	65
Belgium	69	71	62	65	66	66
<b>Distribution</b>						
Sweden	61	67	56	61	65	65
Finland	69	69	63	62	68	65
Germany	63	72	59	65	65	71
Poland	78	76	63	65	70	66
<b>Heat</b>						
Sweden	66	72	63	61	-	-
Finland	65	64	65	66	-	-
Germany	-	-	67	69	-	-
Poland	73	74	81	75	-	-
Netherlands	68	70	60	61	-	-

Together with the overall Customer Satisfaction Index, a number of parameters/factors such as image, customer service, product range, price value, etc. are measured. Statistical modelling then provides insight into influences from each area on overall satisfaction.

### Targeting and measuring customer satisfaction

Vattenfall's process of measuring customer satisfaction is centralised in order to ensure quality and comparability of results between markets and customer segments within the Group.

The objectives of the centralised process are to enable trans-



parent internal and external benchmarking, target-setting and utilisation of links with other Group-wide stakeholder measurements. The Customer Satisfaction Index (CSI) process covers retail customers as well as business-to-business customers within Electricity Sales, Distribution and Heat.

Customer satisfaction targets have been set in comparison with leading service companies in Europe (mainly the major power, telecom and insurance companies). The long-term target is that Vattenfall's CSI score 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. The CSI methodology used gives an index result on a scale of 0 to 100. The long-term CSI target for retail customers is set at 75.

### Development of customer satisfaction

While Vattenfall's CSI scores performed favourably overall from 2008 to 2010, downturns were noted in some segments in 2011. The strongest downturns occurred among retail customers and small and medium business customers in Sweden and Germany, and for large business-to-business customers in Germany.

Key reasons for the lower scores in 2011 include intensive media debate about rising energy prices, fuelled by cold and long winters, and the debate about nuclear power, particularly in Germany.

IT-related issues within Customer Service in Germany also had negative effects on the overall customer experience.

### Actions to improve customer satisfaction

Vattenfall has taken a number of actions in all its geographical areas to maintain and increase customer satisfaction, mainly on the operational level:

- Customer experience – Initiatives have been taken to improve customers' experience in all contacts with Vattenfall. For example, Customer Service has enhanced its training programmes for customer service agents to better understand and service customers. Also, Customer Service in Germany has further developed the processes for handling more contacts, as experienced during 2011. Vattenfall has also introduced customer promises for distribution customers in Sweden, Finland and Germany in order to create more value for the customers. These promises entail, for example, compensating customers for outages and poor delivery quality, in addition to the ordinary contract terms and legal requirements.
- Product portfolio development – The product portfolios have been developed to better suit customers' specific needs and preferences. Examples of product development efforts include the launch of gas service nationwide and online products in Germany. Other efforts include the possibility to choose

source of energy. For example, in Sweden and Finland, customers can now choose electricity from wind, nuclear or hydro power.

- Additional services to customers – In recent years Vattenfall has developed advisory services for both retail and business customers regarding how to save energy. In Sweden and Finland, such advisory services are offered via the company's website and in personal contacts.
- Customer information – Improvements have been made in several markets in the way Vattenfall provides information to customers. This includes communication about various development projects that Vattenfall is undertaking, such as investments and partnerships in green energy, improved websites, more frequent newsletters to business customers, and customer seminars and events.

### Marketing communications Responsibility in marketing communications (PR6)

Vattenfall is committed to complying 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, and the frequency is not measured at the Group level.

### Non-compliance with regulations and codes (PR7)

No cases related to non-compliance with marketing communications were reported in 2011 in which a fine was assessed. In 2011 The Dutch Telecom Authority assessed a fine of EUR 70,000 on Nuon Energy for infringements of the rules of the "Do not call me register" in 2009.

### Customer privacy

Vattenfall's Communication Policy states that "Secrecy is strictly applied with regard to relations or agreements with customers and business partners. The same applies to information about employees or previous employees of Vattenfall". The Code of Conduct also states that "information concerning personal data is handled with respect for the individual's privacy and in consideration of the respective valid personal data protection laws in the various countries in which Vattenfall operates".

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.

### Customer privacy and customer data (PR8)

No substantial complaints regarding breaches of customer privacy were reported in 2011.

### Compliance with codes, agreements and frameworks

Vattenfall has adopted and is committed to complying 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 customers to choose their electricity supplier without being discriminated by the customer's distribution company.

### Laws and regulations on products and services (PR9)

No incidents of non-compliance with laws and regulations concerning the provision and use of products and services were reported in 2011.



# Economic performance

## Securing the future through economic value creation

Improved profitability and greater value creation are fundamental prerequisites for continued growth and for Vattenfall's ability to be among the leaders in developing environmentally sustainable energy production. 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. Vattenfall's strategic direction emphasises a need to act decisively to reduce the major financial exposure to the price of CO<sub>2</sub> emissions that Vattenfall's existing generation facilities have today and thereby to change the composition of the generation portfolio towards more environmentally sustainable energy production.

## Measuring and managing performance

Vattenfall's overarching financial target is to create economic value by generating a competitive return over time. Based on this, Vattenfall's owner has set four financial targets – for profitability, interest coverage, credit ratings and the dividend (see also financial targets below). The targets are long-term, which means that they are to be evaluated as averages over a business cycle, i.e., approximately 5-7 years. The financial targets are also the foundation for the business planning process within the Group and constitute the framework for Vattenfall's business control.

## Financial targets

Vattenfall's four current financial targets are:

**Profitability** – The owner's long-term target for Vattenfall's earnings is that profit after tax should amount to at least 15% of average equity (ROE).

**Cash flow interest coverage** – The owner's long-term target for Vattenfall's interest coverage is that the cash flow interest coverage ratio after maintenance investments should amount to 3.5-4.5. This target has been set to ensure that Vattenfall always has sufficiently high cash flow to be able to cover its interest expenses even after bearing the cost of maintenance investments. By maintenance investments is meant primarily investments in maintenance and productivity improvements in existing plants.

**Credit ratings** – Vattenfall's goal is to maintain a long-term credit rating in the "single A" category from both Moody's and Standard & Poor's (S&P). The "single A" category is defined as A1-A3 by Moody's and A+-A- by S&P. A rating from these rating

agencies is a balanced assessment of a company's creditworthiness based on quantitative credit metric analysis as well as qualitative assessment of the company's business risk. Ratings are therefore a good indication of a company's financial position.

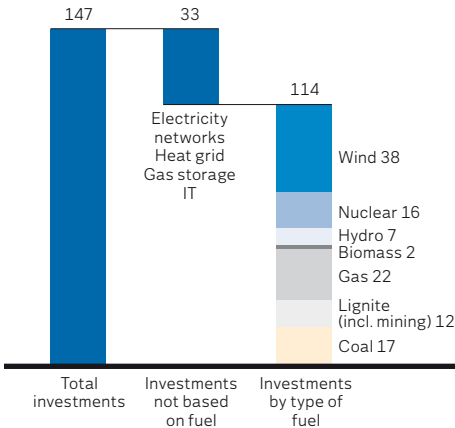
**Dividend policy** – The aim is that the dividend over the long-term shall amount to 40%-60% of profit after tax. However, yearly decisions on the dividend shall take implementation of the company's strategy, financial position and other economic targets into account.

## Vattenfall's investments

### Five-year investment programme

Investment planning is done long-term, and at the Vattenfall Group level, five-year investment plans are established. Vattenfall sets its investment plans in five-year moving cycles, meaning that last year's plan for 2011-2015 has now been updated for 2012-2016. This approach also means that much of Vattenfall's current investment capital is tied up in ongoing projects begun in earlier periods, which with few exceptions, the company will see through.

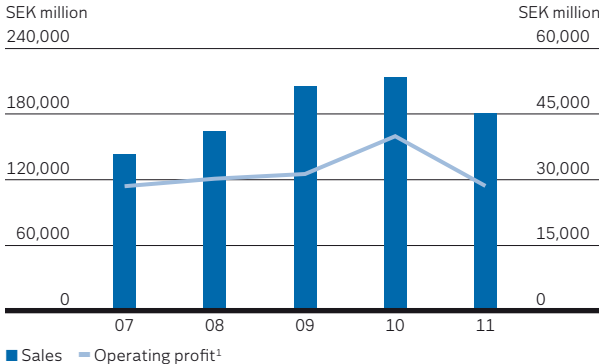
Total investments 2011-2015, SEK billion



## Economic value generated and distributed (EC1)

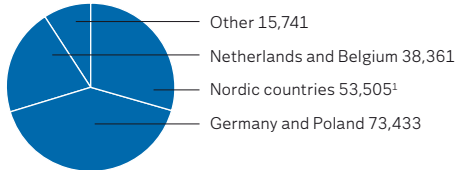
### Economic value distributed 2011

Sales and operating profit 2011



1) Excl. items affecting comparability.

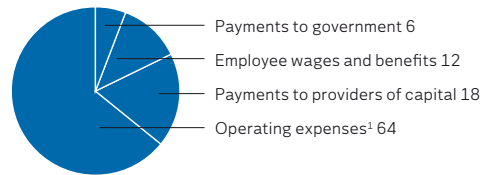
External net sales 2011  
Geographic breakdown, SEK million  
Total SEK 181,040 million



External net sales as stated in the 2011 Annual Report, Note 10 to the consolidated accounts.

## Economic performance

Overview of economic value distributed 2011, %

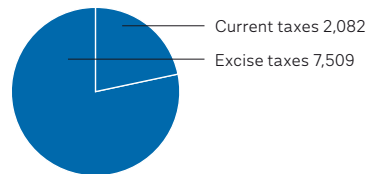


1) Note on Operating expenses: The cost of all goods, materials and services is based on the information in Notes 7, 8 and 50 to the 2011 Annual Report and is calculated as follows:

External net sales minus depreciation/amortisation/impairment losses/reversed impairment losses and operating profit.

Voluntary contributions and investment of funds in the broader community (includes donations) are not included in the above graph, but are disclosed below.

Payment to government – total taxes, 2011  
Total SEK 9,591 million



### Economic value retained, SEK million

External net sales	181,040
Operating costs	-99,803
Employee wages and benefits	-18,418
Payments to providers of capital	-27,260
Payments to government	-9,591
<b>Economic value retained</b>	<b>25,968</b>

## Financial implications of climate change (EC2)

### Major environmental issues enailing 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.

The primary impact of climate change for Vattenfall is regulatory, as the EU Emissions Trading System (EU ETS) creates a cost for the emission of greenhouse gases and a corresponding value for reductions of emissions. A cornerstone of Vattenfall's long-term strategy is to reduce negative exposure to rising CO<sub>2</sub> prices by reducing emissions from the Group's portfolio and increasing the Group's investments in low-emitting electricity generation, including gas (see page 14 in the narrative section).

Vattenfall is also exposed to physical risks, including changing weather patterns that could affect demand as well as supply from hydro power plants. Water shortages and warmer water temperatures could also affect cooling of combustion plants, and more frequent and intensive storms could have an impact on transmission and distribution networks. In hydro power, dam safety could be affected by higher precipitation levels.

### Major environmental issues that represent an economic/financial opportunity

Concerns about climate change will likely lead to higher demand for efficient and low-emitting energy solutions. 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 sees significant business opportunities in areas such as sustainable cities and e-mobility.

## Coverage of benefit plan obligations (EC3)

### Defined benefit pension plans

Vattenfall's pension obligations in the Group's Swedish, German and Dutch companies are predominantly defined benefit pension obligations. The concerned pension plans are primarily retirement pensions, disability pensions and family pensions. The assets in these funds (the plan assets) are reported at fair value. There are also pension plans in these and other countries that are defined contribution plans. See also note 3 and 38 in the Annual report.

## 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, amounted to SEK 4,983 million (6,439). Accumulated interest reported as an asset, totalling SEK 2,524 million (1,650), is included in cost of building. Vattenfall is 100%-owned by the Swedish state.

## Spending on 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 in which it operates, local suppliers will never be favoured solely on basis of being local. Furthermore, sourcing will become 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 volume

### 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 make up the employment base. In metropolitan areas, the employment base is made up of a mixture of local residents and people from different regions. For Vattenfall, the local workforce is the foundation for setting up a new business, so knowledge of local people is crucial for operations. When growing through acquisition, Vattenfall takes over the employer responsibility for 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.

### Plans for generation portfolio (EU6)

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 CO<sub>2</sub> emissions, see pages 6–11 in the narrative section.

### Research and development activities (EU8)

Vattenfall's R&D plays an important role in supporting the Group's strategic ambition to increase electricity generation and heat production from low-emitting energy sources, reduce CO<sub>2</sub> exposure, and be among the leaders in sustainable development. In 2011 Vattenfall invested a total of SEK 1,092 million on R&D activities, which includes energy efficiency improvements across the entire value chain for energy supply, from fuel extraction to consumers' use of electricity, heat and gas. A key part of Vattenfall's R&D encompasses activities intended to meet previously made obligations, such as the final storage of spent nuclear fuel from Vattenfall's nuclear power plants in Sweden. Vattenfall is not a research and development company in the traditional sense, since it does not develop equipment or products, but sets requirements and finds intelligent uses for equipment in energy systems, and explores new areas for efficient electricity use. Vattenfall's ambition is to be an excellent user of technology that is mainly developed by others, notably equipment manufacturers. To achieve this, the company works together with different suppliers, from the laboratory stage or in pilot projects and joint demonstration projects. Like all other actors in the energy sector, Vattenfall needs educated and talented personnel. Vattenfall collaborates with universities and research institutions in all of the countries in which it is active.

### 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 44% of the provisions will result in cash flows relatively evenly distributed over the period 2012–2016, with a further approximately 40% over the period 2017–2025, and approximately 16% thereafter.

#### Provisions for future expenses of nuclear operations

Changes in 2011, SEK million	Sweden	Germany	Total
Balance brought forward	34,345	11,083	45,428
Provisions for the period	50	4 720	4,770
Discounting effects	1,402	528	1,930
Revaluations versus non-current assets	853	-	853
Provisions used	-945	-978	-1,923
Provisions reversed	-	-	0
Translation differences	-	-115	-115
<b>Balance carried forward</b>	<b>35,705<sup>1</sup></b>	<b>15,238<sup>2</sup></b>	<b>50,943</b>

1) Of which approximately 29% (27%) pertains to the dismantling, etc. of nuclear power plants and approximately 71% (73%) to the handling of spent radioactive fuel.

2) Of which approximately 75% (49%) pertains to the dismantling, etc. of nuclear power plants and approximately 25% (51%) to the handling of spent radioactive fuel.

# Vattenfall profile<sup>1</sup>

	Sweden		Finland		Denmark		Germany		Poland <sup>2</sup>		Netherlands		Belgium <sup>3</sup>		UK		Total	
	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010 <sup>4</sup>
<b>Installed capacity</b>																		
<b>electricity, MW</b>																		
Hydro power <sup>5</sup>	8,215	8,510	126	126	-	-	2,880	2,880	-	-	24	24	-	-	-	-	11,245	11,540
Nuclear power	6,815	6,792	-	-	-	-	- <sup>6</sup>	771	-	-	-	-	-	-	-	-	6,815	7,563
Fossil-based power	1,212	1,212	-	45	1,333	1,757	11,006	11,292	878	878	3,680	3,764	-	-	-	-	18,109	18,948
of which, gas	-	-	-	45	-	137	1,777	1,712	-	-	2,797	2,861	-	-	-	-	4,574	4,755
of which, lignite	-	-	-	-	-	-	7,123	7,123	-	-	-	-	-	-	-	-	7,123	7,123
of which, hard coal	-	-	-	-	1,333	1,620	1,318	1,826	878	878	883	903	-	-	-	-	4,412	5,227
of which, oil	1,212	1,212	-	-	-	-	788	631	-	-	-	-	-	-	-	-	2,000	1,843
Wind power	245	258	-	-	415	388	13	13	30	30	276	313	5	15	581	431	1,565	1,448
Biomass, waste	185	179	65	20	104	126	123	123	-	-	20	-	-	-	-	-	497	448
<b>Total electricity</b>	<b>16,672</b>	<b>16,951</b>	<b>191</b>	<b>191</b>	<b>1,852</b>	<b>2,271</b>	<b>14,022</b>	<b>15,079</b>	<b>908</b>	<b>908</b>	<b>4,000</b>	<b>4,101</b>	<b>5</b>	<b>15</b>	<b>581</b>	<b>431</b>	<b>38,231</b>	<b>39,947</b>
<b>Installed capacity</b>																		
<b>heat, MW</b>	<b>2,255</b>	<b>2,441</b>	<b>965</b>	<b>930</b>	<b>1,632</b>	<b>2,223</b>	<b>10,034</b>	<b>10,013</b>	<b>4,707</b>	<b>4,235</b>	<b>2,987</b>	<b>2,844</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>22,580</b>	<b>22,686</b>
<b>Generated</b>																		
<b>electricity, TWh</b>																		
Hydro power <sup>5</sup>	31.5	31.9	0.3	0.3	-	-	2.6	3.1	-	-	0.1	0.1	-	-	-	-	34.5	35.4
Nuclear power	42.5	43.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42.5	43.6
Fossil-based power	-	0.1	-	0.1	4.9	7.4	63.3	65.2	3.7	3.6	13.1	13.3	-	-	-	-	85.0	89.7
of which, gas	-	-	-	0.1	-	0.5	3.7	3.9	-	-	8.8	9.3	-	-	-	-	12.5	13.8
of which, lignite	-	-	-	-	-	-	53.5	52.4	-	-	-	-	-	-	-	-	53.5	52.4
of which, hard coal	-	-	-	-	4.9	6.9	6.1	8.9	3.7	3.6	4.3	4.0	-	-	-	-	19.0	23.4
of which, oil	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1
Wind power	0.8	0.5	-	-	1.0	0.7	-	-	0.1	0.1	0.2	0.2	-	-	1.3	0.7	3.4	2.2
Biomass, waste	0.4	0.5	0.2	0.1	0.2	0.2	0.4	0.7	-	-	0.1	-	-	-	-	-	1.3	1.5
<b>Total electricity</b>	<b>75.2</b>	<b>76.6</b>	<b>0.5</b>	<b>0.5</b>	<b>6.1</b>	<b>8.3</b>	<b>66.3</b>	<b>69.0</b>	<b>3.8</b>	<b>3.7</b>	<b>13.5</b>	<b>13.6</b>	<b>-</b>	<b>-</b>	<b>1.3</b>	<b>0.7</b>	<b>166.7</b>	<b>172.4</b>
<b>Heat sales, TWh</b>																		
Fossil-based power	0.2	0.1	0.6	0.8	4.1	5.4	14.4	16.3	10.3	11.5	4.5	4.3	-	-	-	-	34.1	38.4
of which, gas	-	-	0.6	0.7	0.5	0.8	5.0	5.1	-	-	4.5	4.3	-	-	-	-	10.6	10.9
of which, lignite	-	-	-	-	-	-	4.0	4.5	-	-	-	-	-	-	-	-	4.0	4.5
of which, hard coal	0.1	-	-	-	3.6	4.6	5.4	6.7	10.3	11.5	-	-	-	-	-	-	19.4	22.8
of which, oil	0.1	0.1	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.2
Biomass, waste	3.7	4.5	0.9	0.9	1.7	1.6	0.8	1.3	0.4	0.4	-	-	-	-	-	-	7.5	8.7
<b>Total heat</b>	<b>3.9</b>	<b>4.6</b>	<b>1.5</b>	<b>1.7</b>	<b>5.8</b>	<b>7.0</b>	<b>15.2</b>	<b>17.6</b>	<b>10.7</b>	<b>11.9</b>	<b>4.5</b>	<b>4.3</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>41.6</b>	<b>47.1</b>
<b>Gas sales, TWh</b>	<b>-</b>	<b>-</b>	<b>0.2</b>	<b>0.2</b>	<b>-</b>	<b>-</b>	<b>1.0</b>	<b>0.1</b>	<b>-</b>	<b>-</b>	<b>49.4</b>	<b>58.8</b>	<b>3.2</b>	<b>4.1</b>	<b>-</b>	<b>-</b>	<b>53.8</b>	<b>63.2</b>

	Sweden		Finland		Denmark		Germany		Poland <sup>2</sup>		Netherlands		Belgium <sup>3</sup>		UK		Total	
	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011	2010 <sup>4</sup>
<b>Number of retail customers, electricity</b>	964,000	983,000	354,000	347,000	-	-	2,756,000	2,823,000	1,012,000	1,012,000	2,267,000	2,288,000	342,000	320,000	-	-	7,695,000	7,773,000
<b>Electricity volume, TWh, retail customers</b>	8.4	9.5	2.6	2.8	-	-	8.8	9.0	2.8	2.7	9.9	8.8	1.5	1.5	-	-	34.0	34.3
<b>Electricity volume, TWh resellers</b>	5.1	4.3	1.4	0.7	1.3	1.7	20.2	20.0	0.7	0.7	-	-	-	-	-	-	28.7	27.4
<b>Electricity volume, TWh, industries</b>	33.7 <sup>7</sup>	34.2 <sup>7</sup>	5.6	4.9	-	-	19.9 <sup>8</sup>	19.4 <sup>8</sup>	4.1	4.1	8.4	5.8	3.1	1.8	-	-	74.8	70.2
<b>Number of network customers</b>	922,000	921,000	399,000	393,000	-	-	3,240,000	3,273,000	1,133,000	1,132,000	-	-	-	-	-	-	5,694,000	5,719,000
<b>Number of gas customers</b>	-	-	400	300	-	-	11,700	9,300	-	-	1,943,100	1,935,000	204,800	190,000	-	-	2,160,000	2,134,600
<b>Electricity network</b>																		
Transited volume, TWh <sup>9</sup>	71.1	73.4	6.1	6.4	-	-	27.0	27.1	14.6	14.0	-	-	-	-	-	-	118.8	120.9
Distribution network, km	176,000	168,000	75,000	74,000	-	-	137,000	137,000	71,000	70,000	-	-	-	-	-	-	459,000	449,000
<b>Number of employees (full-year equivalents)</b>																		
Countries	8,591	9,000	377	398	649	687	19,414	19,395	99	2,819	5,417	5,770	-	-	102	58	34,649	38,127
Group total <sup>10</sup>																	34,685	38,179
<b>CO<sub>2</sub> emissions per country, mtonnes</b>	0.4	0.6	0.2	0.3	4.4	6.4	67.8	70.1	5.8	6.4	8.1	7.8	-	-	-	-	86.7	89.2
<b>CO<sub>2</sub> emission allowances in mtonnes CO<sub>2</sub>/year, trading period 2008–2012<sup>11</sup></b>	-	-	0.2	0.2	2.7	2.7	44.1	44.1	6.1	6.1	7.9	7.9	-	-	-	-	61.0	61.0

**Market position**

	Sweden	Germany	Netherlands	Denmark	Finland	UK
Electricity generation	1	3	3	2	>10	~12
Electricity distribution	2	4	-	-	-	-
Electricity sales	1	4	2	-	3	-
District heating	4	1	2	2	-	-
Gas sales	-	-	1	-	-	-

1) Data in this table is based on financial accounting. Contractual adjustments may apply.

2) Vattenfall's Polish operations were divested in December 2011.

3) Vattenfall's Belgian operations were divested in December 2011.

4) Certain values for 2010 have been adjusted compared with previously published information.

5) In Germany, mainly pumped storage power.

6) In 2011, Germany's parliament decided to immediately close eight nuclear power plants, including Vattenfall's Brunbützel plant (ownership interest 66.7%)

7) 5.5 TWh (3.6) to Norwegian business customers.

8) 6.7 TWh (5.6) to French business customers.

9) Excl. transited production.

10) There are 36 employees (52) in other countries.

11) The EU Emissions Trading System (EU ETS) covers most of Vattenfall's fossil-based emissions. The annual allocation is 61 million tonnes. Additional emission allowances are bought on the market.

12) Top 2 in offshore wind power.



# Combined assurance report

## Auditor's Combined Assurance Report on the Vattenfall AB's Corporate Social CSR Report 2011

To the readers of the Vattenfall AB's CSR Report

### Introduction

We have been engaged by the Board of Directors of Vattenfall AB (hereafter: Vattenfall) to perform an examination on the Vattenfall's CSR Report for the year 2011 (hereinafter: CSR Report). The Board of Directors and the Executive Management are responsible for ongoing activities regarding the environment, health & safety, quality, social responsibility and sustainable development, 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 Scope of the Examination

We have performed the assurance engagement in accordance with RevR 6 Assurance of Sustainability Reports issued by Far. The objective of an audit is to obtain reasonable assurance that the information in the CSR Report is free of material misstatements. An audit includes examining, on a test basis, evidence supporting the quantitative and qualitative information in the CSR Report. A review is mainly limited to making inquiries of personnel responsible for sustainability issues, and applying analytical and other review procedures. Hence, the conclusion based on our review procedures does not comprise the same level of assurance as the conclusion of our audit. Since this assurance engagement is combined, our conclusions regarding the audit and the review will be presented in separate sections.

Our assurance engagement includes examination of the following areas, with the purpose of either providing reasonable assurance (hereafter referred to as audit) or limited assurance (hereafter referred to as review)

Our audit is limited to the following information:

- Financial information, GRI- indicator EC1;
- The procedures for the collection, compilation, validation and aggregation of 2011 data from the business divisions Production and Renewables on
  - CO<sub>2</sub> emissions from reporting units.
  - workplace safety from reporting units including LTIF and number of fatalities.
- Head count, GRI- indicator LA1;

Our review included further the following information:

- The procedures for the collection, compilation, validation and aggregation of 2011 group wide data on
  - Gender Composition of Governance Bodies at group level

- Employer Satisfaction along the "My Opinion" survey at group level
- Customer Satisfaction Index at group level
- The systems, structures, processes and controls (e.g. quality tests and validations) for managing Health, Safety and Environment established at Vattenfall group
- The methodology and reporting/validation processes that Vattenfall at group level has put in place
- For the preparation of the Report, as described in the chapter "About the Report", and
- whether the information presented in the Report meets its objectives and was set up in alignment with the Global Reporting Initiative Sustainability Reporting Guidelines (GRI application level B+).

Our review is to verify that the information in the CSR Report of Vattenfall is, in all material respects, a reliable and adequate representation of the policy, activities, events and performance with respect to corporate responsibility during 2011. Our engagement does not provide any assurance relating to future information such as estimates, expectations or targets, or their achievability.

The scope of the report including any inherent limitations that could affect the reliability of the information contained therein is set out in the section "Report profile, scope and boundaries" of the Report.

The criteria on which our review are based are the parts of the CSR Reporting Guidelines G3, published by The Global Reporting Initiative (GRI), which are applicable to the CSR Report, as well as the accounting and calculation principles that the Company has developed and disclosed. These criteria are presented on page 3. We consider these criteria suitable for the preparation of the CSR Report.

### Review Procedures

The main procedures of our review have included the following:

- Assessing the acceptability of the reporting policies used and their consistent application, as well as reviewing significant estimates and calculations made in preparing the Corporate Social Responsibility Report 2011.
- Obtaining an understanding of the sector, organisation and its most relevant environmental and social responsibility issues;
- Obtaining an understanding of the design and operation of the systems and methods used to collect and process the reported information, including the consolidation process;
- Reviewing based on a risk analysis the plausibility of the information contained in Vattenfall's Corporate Social Responsibility Report by performing analytical procedures, conducting inter-

- views with responsible company officers, and checking the sub-stations of this information on a test basis, as well as retrieving the relevant corporate documents and consulting external sources;
- Assessment of the company's declared application level according to GRI guidelines;
- Evaluating the sufficiency of the Corporate Social Responsibility Report of Vattenfall and its overall presentation against the criteria mentioned above.

We believe the evidence we collected during our procedures to be sufficient and appropriate in order to support our conclusions listed below.

### Audit Procedures

We have performed all the procedures deemed necessary to obtain the evidence that is sufficient and appropriate to provide a basis for our conclusions. Our main procedures performed for the information where we provide reasonable assurance on are:

- Identifying inherent risks relating to the reliability of the information and investigating the extent to which these risks are covered by internal controls;
- Performing tests of control to review the existence and effectiveness of internal controls aimed at reviewing the adequacy and reliability of the information;
- Following the audit trail on a test basis, from the source data to the information contained in the Corporate Social Responsibility Report 2011;
- Performing tests of details on a test basis aimed at reviewing the reliability of the primary information.

### Conclusion

*Our conclusion based on our review*

Based on our procedures performed, nothing has come to our attention that causes us to believe that the information in the Vattenfall's CSR Report which has been subject to our review has not, in all material respects, been prepared in accordance with the above stated criteria.

*Our conclusion based on our audit*

In our opinion, the information in Vattenfall's CSR Report which has been subject to our audit has, in all material respects, been prepared in accordance with the above stated criteria.

Stockholm, March 21, 2012  
Ernst & Young AB

Hamish Mabon  
Authorized Public Accountant

Dr. Sam Vaseghi

# 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-based 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.)

**Capacity** Capacity is the maximum ability of a power plant to generate electricity or an electricity distribution grid to transfer electricity. It is usually measured in megawatts (MW). It can refer to input (fuel or thermal capacity, MWth) or output (electric capacity, MWe or heat capacity).

**Carbon dioxide (CO<sub>2</sub>)** Carbon dioxide is naturally present in the atmosphere and involved in photosynthesis, but is also formed during combustion. The chemical formula is CO<sub>2</sub>. 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 CO<sub>2</sub> is emitted into the atmosphere. There are three principal ways to capture CO<sub>2</sub> produced in large power plants:

- Oxyfuel combustion, where fuel is combusted in oxygen instead of air
- Postcombustion, where CO<sub>2</sub> 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 worldwide and is used to produce about 67% of global electricity supply.

**CO<sub>2</sub>-neutral** A fuel or process is termed CO<sub>2</sub>-neutral if it does not lead to the accumulation of excess CO<sub>2</sub> in 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.

**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 10<sup>6</sup> (1,000,000), giga (G) for 10<sup>9</sup> or tera (T) for 10<sup>12</sup> (1,000,000,000,000).

**EPD** Environmental Product Declaration. An ISO standard for certified environmental product declarations (see [www.environdec.com](http://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 oxide (N<sub>2</sub>O), 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 ten principles in the areas of human rights, labour, environment and anti-corruption.

**GWh** A measurement of energy. Abbreviation of gigawatt-hour, or 10<sup>9</sup> (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 power 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. The UN's centre of co-operation in the nuclear field. The IAEA works with its member states and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies ([www.iaea.org](http://www.iaea.org)).

**IEA** International Energy Agency. The International Energy Agency (IEA) is an intergovernmental organisation that acts as energy policy advisor to 28 member countries in their efforts 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<sup>-4</sup> watt-hour. Since a joule is a small unit, giga joule (GJ) is often used, 10<sup>9</sup> 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, MWe, MWth** A unit of power (energy per unit of time). See also capacity.

**MWh** Unit of energy. Abbreviation of megawatt-hour, or 10<sup>6</sup> watt-hours.

**NordPool** The Nordic electricity exchange.

**NO<sub>x</sub>** Nitrogen oxides (NO and NO<sub>2</sub>) are formed when nitrogen reacts with oxygen during combustion. NO<sub>x</sub> 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 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 car 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, hydro power, biomass and biogas.

**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.

**SO<sub>2</sub>** Sulphur dioxide is formed when fuels containing sulphur compounds, such as coal and oil, are combusted. When SO<sub>2</sub> is emitted to the air, it causes acidification of water and soil.

**Stakeholder** A Stakeholder is a person, group, organisation, or system that affects or can be affected by an organisation's actions or that is interested in 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<sup>12</sup> watt-hours.

**Unbundling** Unbundling rules form part of national legislation, based on EU directives, and state that transmission and distribution businesses 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 is dependent on wind conditions.



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