

# Risks and risk management

The recent financial crisis and turbulent market underscore the need for transparency, clear governance and control of all aspects of operations.

Companies today are active in a market with new conditions and a considerably faster pace of change. The need of an independent risk function with the right staffing and competence has never been greater. In accordance with Vattenfall's Articles of Association, a framework for risk management has been established to ensure acceptable risk exposure, independent oversight of Vattenfall's governance, and to ensure a transparent analysis of Vattenfall's risks. During the year, Vattenfall developed the Enterprise Risk Management (ERM) process and established a functionally organised risk organisation, which has created a solid foundation for the Group's work in this area.

## Enterprise Risk Management at Vattenfall

Vattenfall creates value when it exceeds the required rate of return on net assets with a set level of balanced risk. In the course of its operations, Vattenfall is exposed to financial risks (such as price and credit risks) as well as non-financial risks (such as political, technical and environmental risks). ERM is a continuous process for identifying, assessing, managing and following up risks in the business at an early stage (see below).

ERM is based on the risk management standards of the Committee of Sponsoring Organizations of the Treadway Commission (COSO) and is conducted on a continuous basis in connection with the company's financial reporting. ERM enables quantification and comparability of financial and

non-financial risks. This provides strong support to decision-makers in managing risks and opportunities, and has led to greater transparency and risk awareness throughout the entire organisation.

An important improvement that was made in the ERM process in 2010 is the direct connection to the business planning and financial follow up processes. In accomplishing this, Vattenfall has ensured that risk management is fully integrated in all parts of the Group's operations.

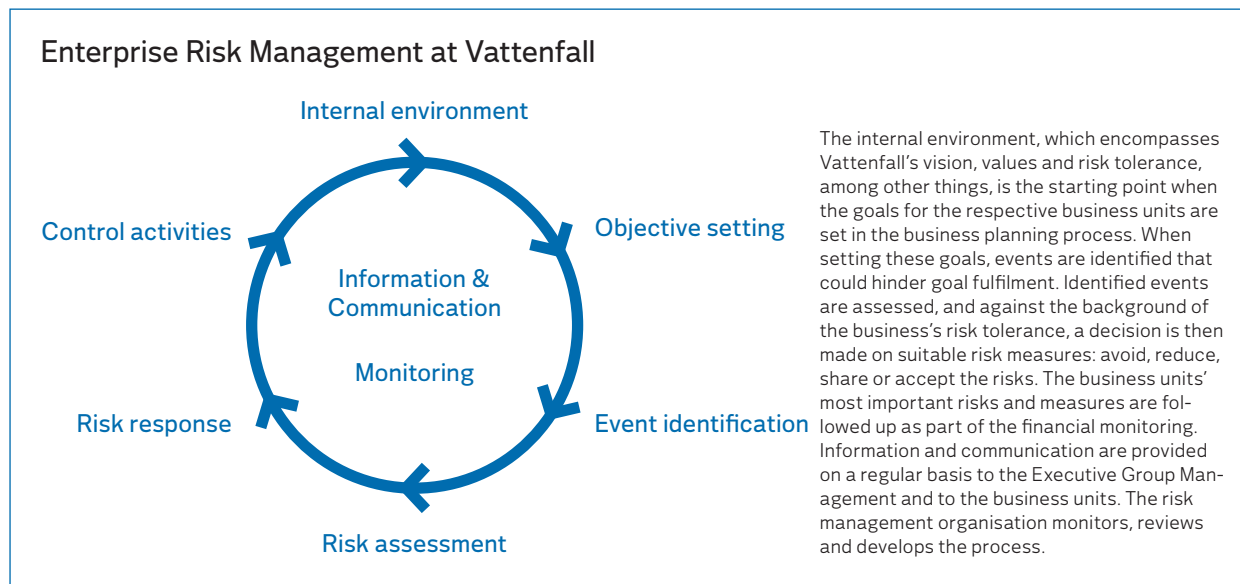
## A strengthened risk function

The Board of Directors has overarching responsibility for risk management within Vattenfall. The risk function's independence is ensured in such way that the Chief Risk Officer (CRO) keeps the Board informed about risk issues. The CRO has overall responsibility for the ERM process. Risk decisions of strategic importance are made by the Vattenfall Risk Committee (VRC), which is chaired by the Group CEO.

Since 2010 the risk management organisation has been functionally organised and clearly segregated from the business owners. In addition, enhanced quality work ensures that the risk framework is fully implemented and aligned with Vattenfall's overall governance.

The risk function's proximity to operations is ensured through risk managers, who support the business in risk management and control. In addition, all business units have designated risk co-ordinators who co-ordinate the ERM process locally.

Vattenfall applies the "three lines of defence" model, in accordance with the Basel II recommendations, where management and control of risks are divided into three lines of defence. The first line of defence consists of the business units, which own and manage risks. The risk organisation makes up the second line of defence and is responsible for monitoring risks. Both the auditor and the internal auditor make up the third line of defence and perform an independent review and oversight of both the first and second lines of defence.



**Market and financial risks**

Vattenfall’s board of directors has given the CEO a risk mandate for the Group, which is delegated onward to the business units. To ensure transparency and clear governance, the CRO is responsible for co-ordinating and documenting the risk mandate delegation process. Every business unit has scope to manoeuvre within its mandate and is responsible for ensuring that appropriate risk measures are undertaken.

Within Vattenfall, the vast majority of exposures within the proprietary trading portfolio are mark-to-market. In cases where market prices cannot be observed, modelled prices are used (mark-to-model). Mark-to-model positions occur primarily in the asset and sales-related portfolios. An example is that a market valuation of production from the plants or sales demand requires the derivation of an hourly forward curve. This granularity cannot be observed in the market and hence these positions are mark-to-model. Approval of these valuation models is strictly regulated and monitored by the risk organisation.

**Electricity price risk**

The price of electricity has the single greatest bearing on Vattenfall’s earnings. Electricity prices are determined by fundamental factors such as supply (water levels and available generation capacity, etc.), demand (steered by electricity use, which in turn can be affected by weather and the economy), fuel prices and the price of CO<sub>2</sub> emission allowances. Vattenfall analyses these factors on a continuous basis in order to be able to optimally manage electricity price risk.

Vattenfall hedges its electricity generation and sales with the help of physical and financial forward contracts. Such hedging is done while taking into account liquidity in the market at different periods in time. As the sharp fluctuations in electricity prices have shown in recent years, as shown in the sensitivity analysis table on page 79, trading in the futures market is an important way of smoothing out and balancing the major electricity price risk in the business. The amount that is hedged varies, as shown in the graph on page 79.

**Vattenfall’s risk categories and risk areas**

**Market & financial**

Risks related to competition, prices and sales volumes, interest rates, currencies, credit and counterparties. See page 78.

**Technology**

Risks related to all technology that is needed to produce, distribute and sell electricity, gas, heat and other related products and services. See page 81.

**Infrastructure**

Risks related to all infrastructure that Vattenfall needs for its operations. This includes IT infrastructure (hardware and software), telecommunications, buildings and safety systems. See page 82.

**Politics & society**

Risks that are affected by regional and global political and social trends. See page 82.

**Laws & Regulations**

Risks related to all laws and regulations that apply for Vattenfall. See page 82.

**Personnel & organisation**

Risks related to Vattenfall’s organisation, processes and employees, such as company culture, leadership and motivation. See page 83.

**Examples of risks in the respective risk areas (which are described on the following pages):**

Electricity price risk

Volume risk

Price area risk

Fuel price risk

Credit risk

Liquidity risk

Interest rate risk

Currency risk

Investment risk (financing)

Operational risks of assets

Environmental risks

Investment risk (technology)

IT and information security risks

Political risk

Investment risk (political decisions)

Legal risks  
Environmental risks

Risk of losing expertise and key persons

Organisational Change

Risks in health and safety

Fraud

**Risk measures**

**Avoid**

**Reduce**

**Share**

**Accept**

Vattenfall also enters into long-term contracts with major industrial customers. These contracts pertain to time horizons in which there is no possibility to hedge prices in the wholesale market and stretch as far as to 2022. The total hedged volume for the period 2014–2022 is 92 TWh. The level of hedging for electricity generating units is decided

by the VRC; within the risk mandate given by the Board of directors. Vattenfall conducts its hedging in the various markets through Vattenfall Energy Trading, which hedges its own positions in external markets via electricity exchanges, such as Nord Pool and the European Energy Exchange (EEX), as well as through bilateral trading with other counterpart-

ties. Vattenfall Energy Trading's mandate is monitored on a daily basis. To measure electricity price risk, Vattenfall uses methods such as Value at Risk (VaR) and Gross Margin at Risk along with various stress tests.

**Sensitivity analysis of electricity and commodities**

Market-quoted	Impact on profit before tax, SEK million, for the three-year period 2011-2013	Calculated yearly volatility
Electricity	+/-13,000	17
Coal	+/-800	17
Gas	+/-700	22
CO <sub>2</sub>	+/-1,200	31
Uranium	+/- < 100	-

1) Impact on profit before tax (SEK million) for the three-year period 2011-2013, given a price movement of +/-10%, based on Vattenfall's degree of hedging as per 31 December 2010.

The sensitivity analysis reflects the impact of a variation in market quotes of factors that affect Vattenfall's earnings: electricity, coal, gas, uranium and CO<sub>2</sub> emission allowances. In the analysis, it was assumed that the risks are independent of each other. The exposure to electricity includes the Nordic countries, Germany, the Netherlands and Poland. The volatilities are the annualised daily market movements in 2010 of the considered commodities and are based on a three-year contract and assumed 252 trading days in a year. Regarding electricity, annual volatility is a weighted average of Vattenfall's open position for the corresponding volatilities. All data considered in the analysis, prices and positions, are as per 31 December 2010.

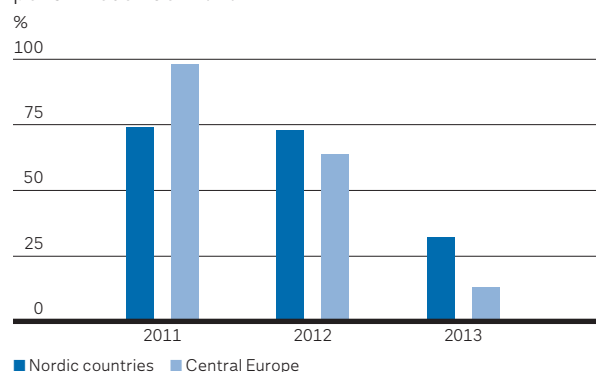
**Volume risk**

Volume risk is the risk of deviations between the forecast and the actual volume. In hydro power generation, volume risk is managed by analysing and forecasting such factors as precipitation and snowmelt. The models are based on extensive weather history and other key factors. Volume risk also arises in the sales activities as deviations in anticipated vs. actual volumes delivered to customers. This risk is managed by improving and developing forecasts of electricity consumption. The sensitivity of Vattenfall's electricity generation volume is inherent in the electricity price sensitivity, since there is a correlation between price and volume. See the sensitivity analysis table above.

**Price area risk**

Price area risk arises when the price of electricity differs between various geographic areas. Vattenfall's price area risk is centralised and managed by Vattenfall Energy Trading. In the Nordic countries, Nord Pool provides financial instruments – price area swaps (Contracts for Differences, CfDs) – which can be used to manage price area risk. Vattenfall Energy Trading also acts as a CfD price area market maker

Vattenfall's degree of price hedging in various markets per 31 December 2010



The chart shows Vattenfall's price hedging of planned electricity generation in the Nordic countries and Continental Europe. Vattenfall continuously hedges its electricity generation through sales in the futures market.

**Average price hedges as per 31 December 2010**

EUR/MWh	2011	2012	2013
Nordic countries	45	44	44
Continental Europe	55	54	59

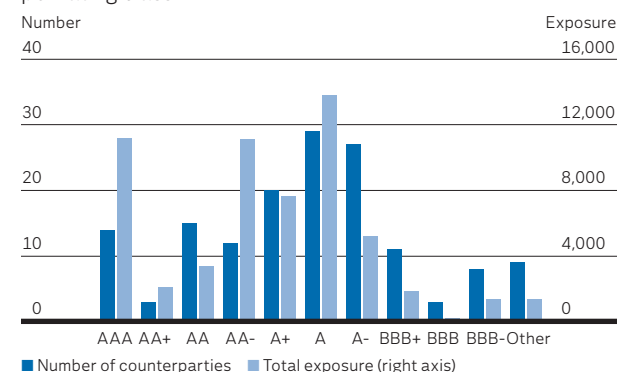
on Nord Pool. Through this undertaking, liquidity is ensured in these financial instruments. Price differences also exist between the various areas in which Vattenfall is active. These are managed through contracts in these price areas and contracts for transmission capacity. In comparison, the price area risk is less than, for instance, electricity price risk.

**Credit risk**

Credit risk is the risk of loss if a counterparty or customer cannot or will not fulfill its obligations. Vattenfall is exposed to credit risks in connection with electricity trading, commodity trading, sales activities and investments.

Vattenfall strictly adheres to instructions and policies governing the company's approach to credit risk as sanctioned by the Board of Directors. These instructions and processes ensure a consistent application of credit risk measures throughout the Vattenfall Group and provide a framework for managing credit risk. Vattenfall's exposures are aggregated in the table on page 79. Exposures resulting from electricity and commodities are reported separately from financial market exposures.

Counterparties, number and exposure, SEK million, per rating class



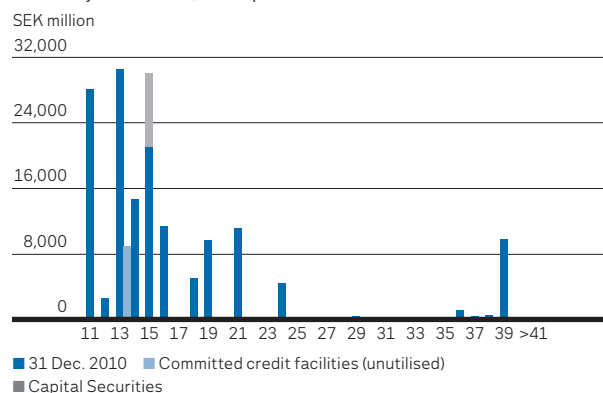
The chart shows Vattenfall's counterparties where Vattenfall's exposure is greater than SEK 50 million per counterparty. "Other" consists of exceptions for contracts that have existed for a long time and which Vattenfall has taken over in connection with acquisitions. Sales and heat exposure in Benelux, and procurement exposures, are not included.

A number of tools are used for qualitative and quantitative analysis. Existing and potential future exposures are measured. In-depth analyses of counterparties are performed, including time series analyses, analyses of annual reports and analyses of future performance. In addition to internal ratings, the credit ratings provided by the major credit rating agencies are used. Credit exposures per rating class, according to Standard & Poor's rating system, are shown in the Counterparties per Rating Class graph.

Vattenfall uses a variety of instruments to manage and mitigate credit risks, such as Master Netting Agreements (based on standards such as ISDA – International Swaps and Derivatives Association and EFET – The European Federation of Energy Traders) and collateral requirements of Credit Support Annexes (CSA). Credit risk exposure is managed on an aggregated basis within the Vattenfall Group and is reported and monitored on a daily basis.

## Risks and risk management

### Maturity structure, debt portfolio<sup>1</sup>



1) Excl. loans from minority owners and associated companies.

### Credit risks

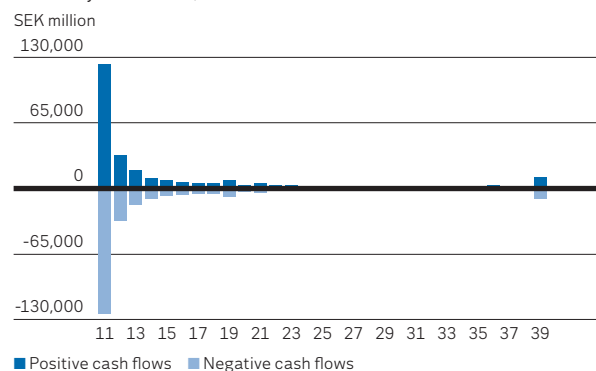
Type of instrument	Exposure
Exposure from electricity and commodity transactions – positive market values	10,586
Exposure from electricity and commodity transactions – settlement risks	7,265
Interest and currency derivatives – positive market values	1,521
Fixed-income investments, including large bank balances	37,941
Shares	677
<b>Total</b>	<b>57,990</b>

Total credit exposure from electricity and commodity transactions taking into account netting under agreements amounted to SEK 17,515 million. The reporting threshold is set to SEK 50 million per individual exposure. Exposure in interest and currency derivatives adjusted for netting under ISDA agreements or the equivalent amounts to SEK 1,521 million (921). This calculation takes into account margin security requirements under CSA agreements, totalling SEK 5,128 million (2,680). Without adjustment for ISDA and CSA agreements, the exposure amounts to SEK 11,724 million (8,903).

### Fuel price risk

Fuel prices pertain to the risk of a change in earnings due to a change in fuel prices. Fuel prices are primarily affected by macroeconomic factors. Fuel price risk is minimised through analysis of the various commodity markets and diversification of contracts with respect to price model and terms. Both financial and physical instruments such as coal, gas and oil are used to smooth Vattenfall's earnings over time. Most of Vattenfall's coal-fired plants in Germany use lignite from Vattenfall's own mines. Regarding coal-fired electric-

### Maturity structure, derivatives



The chart shows the maturity structure for all of Vattenfall's derivatives (gross amounts).

ity generation, hedges on electricity and coal prices are co-ordinated to secure margins. Uranium is used as fuel in Vattenfall's nuclear power plants. However, the price risk is limited, since uranium makes up a relatively small proportion of the total cost of generation. The sensitivities of Vattenfall's fuel prices are displayed in the sensitivity analysis table on page 79.

### Liquidity risk

Liquidity risk pertains to the risk of not being able to pursue the trading strategy due to insufficient liquidity in the market. This is managed through proxy hedging (hedging with the help of an instrument that correlates with the risk to be hedged) and collateral agreements as well as by securing an optimal number of counterparties. Liquidity risk can also be described as the risk for a financing crisis, where Vattenfall does not have the ability to finance its capital needs. In this respect, liquidity risk is mitigated by maintaining an even maturity structure and a long average remaining term in the company's debt portfolio. Liquidity risk is also mitigated by Vattenfall's treasury operations, having several types of debt issuance programmes and thereby ensuring access to capital and flexibility. The Group has a target for the short-term accessibility to capital; funds that shall be available in the form of liquid assets or committed credit facilities. The target is that funds corresponding to no less than 10% of the Group's sales, or at least the equivalent of the next 90 days maturities, shall be available.

For a capital-intensive company like Vattenfall, it is important to have access to financing in the international credit

market at favourable terms. One prerequisite for this is that Vattenfall maintains a good credit rating from leading credit ratings agencies such as Moody's and Standard & Poor's.

### Remaining fixed rate term in loan portfolio

Excl. loans from minority owners and associated companies.

SEK million	Liability	Derivatives	Capital Securities	Committed credit facilities (unutilised)
< 1 year	27,792	130	–	100
1 year–5 years	70,390	-1,187	9,002	9,002
> 5 years	56,795	-1,720	–	–
<b>Total</b>	<b>154,977</b>	<b>-2,777</b>	<b>9,002</b>	<b>9,102</b>

### Borrowing programmes and credit facilities

SEK million	Maximum aggregated amount	Currency	Maturity	Used proportion, %	Reported external liability
<b>Borrowing programmes</b>					
Commercial Paper	15,000	SEK	–	30	4,495
Euro Commercial Paper	2,000	EUR	–	–	–
Euro Medium Term Note	15,000	EUR	–	70	99,391
<b>Committed credit facilities</b>					
Revolving Credit Facility <sup>1</sup>	1,000	EUR	2013	–	–
Bank overdraft facilities	100	SEK	2011	–	–
<b>Other credit facilities</b>					
Bank overdraft facilities and other lines of credit	9,544	SEK	–	28	1,341
<b>Total</b>					<b>105,227</b>

1) Backup facility for short-term borrowing.

### Benchmark bonds

Type	Currency	Amount	Coupon, %	Maturity
Euro Medium Term Note	EUR	850	5.750	2013
Euro Medium Term Note	EUR	500	4.125	2013
Euro Medium Term Note	EUR	1,350	4.250	2014
Euro Medium Term Note	EUR	1,100	5.250	2016
Euro Medium Term Note	EUR	500	5.000	2018
Euro Medium Term Note	EUR	650	6.750	2019
Euro Medium Term Note	GBP	350	6.125	2019
Euro Medium Term Note	EUR	1,100	6.250	2021
Euro Medium Term Note	EUR	500	5.375	2024
Euro Medium Term Note	GBP	1,000	6.875	2039

The table above shows the largest issues made under Vattenfall's borrowing programmes.

**Interest rate risk**

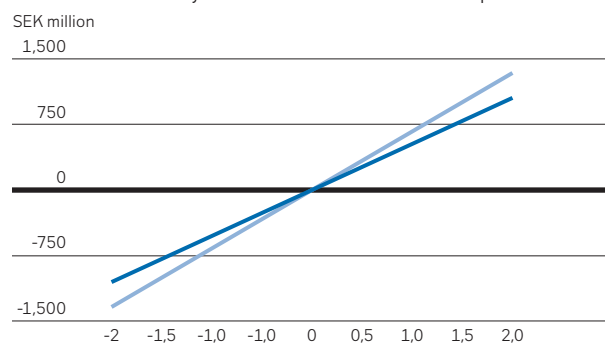
Interest rate risk in Vattenfall's debt portfolio is measured in terms of duration, which is permitted to vary from a norm of four years by up to 12 months either way. The duration of the company's debt portfolio at year-end was 3.87 years. Including Capital Securities the duration was 3.88 years. To adjust the duration of borrowing, Vattenfall uses interest rate swaps, interest rate forwards and options, among other instruments. See the table below for the remaining fixed rate term in Vattenfall's loan portfolio.

**Remaining fixed rate term in loan portfolio**

Excluding Capital Securities and loans from minority owners and associated companies. Nominal amounts.

SEK million	SEK	EUR	Other	Total
< 3 months	814	69,075	10	69,899
3 months–1 year	10,973	13,049	–	24,022
1 year–5 years	170	23,168	607	23,945
> 5 years	7,012	27,318	4	34,334
<b>Total</b>	<b>18,969</b>	<b>132,610</b>	<b>621</b>	<b>152,200</b>

Average financing interest rate, %	SEK	EUR	Other	Total
	4.4	3.3	4.3	3.4

**Interest rate sensitivity, excluding Capital Securities and loans from minority owners and associated companies**

■ 31 Dec. 2009 ■ 31 Dec. 2010 Change in interest rate, percentage points

The chart shows how changes in interest rates affect the Group's interest expenses over a 12-month period based on the Group's present fixed rate structure.

**Remaining fixed rate term in loan portfolio**

Excluding Capital Securities and loans from minority owners and associated companies. Nominal amounts. Negative amounts are explained by the use of derivatives like interest rate swaps and interest rate forwards. The sum of derivatives is not equal to zero due to currency effects.

SEK million	Debt	Derivatives	Total
< 3 months	8,526	61,373	69,899
3 months–1 year	22,367	1,655	24,022
1 year–5 years	68,446	-44,501	23,945
> 5 years	55,638	-21,304	34,334
<b>Total</b>	<b>154,977</b>	<b>-2,777</b>	<b>152,200</b>

**Currency risk**

Currency risk pertains to the risk of a negative impact on the consolidated income statement and balance sheet caused by changes in exchange rates. Vattenfall is exposed to currency risk through exchange rate movements attributable to future cash flows (transaction exposure) and in the revaluation of net assets in foreign subsidiaries (translation or balance sheet exposure). Vattenfall's loan portfolio per currency is displayed in the table below. The objective in managing the company's currency risk is to minimise exchange rate effects while taking into account hedging costs and tax aspects. Currency exposure in borrowing is eliminated using currency interest rate swaps for the purpose of avoiding the effect of exchange rate differences on earnings.

**Loan portfolio, breakdown per currency**

Including loans from minority owners and associated companies but excluding Capital Securities. Nominal amounts.

Original currency	Debt	Derivatives	Total
CHF	4,160	-4,160	–
DKK	607	–	607
EUR	125,032	18,093	143,125
GBP	14,243	-14,239	4
JPY	4,389	-4,389	–
NOK	2,621	-2,621	–
PLN	10	–	10
SEK	23,736	4,539	28,275
<b>Total</b>	<b>174,798</b>	<b>-2,777</b>	<b>172,021</b>

Vattenfall has limited transaction exposure, since most generation, distribution and sales of energy take place in the respective local markets, see the table Consolidated operating revenues and expenses per currency. In the Nordic operations, most transaction exposures arise in conjunction with hedging of electricity prices, primarily on Nord Pool,

since trading is conducted partly in EUR. In the German and Danish subsidiaries, transaction exposures arise primarily in conjunction with purchases of fuel. In both cases, currency risk is managed through the use of forward exchange contracts.

**Consolidated operating income and expenses per currency, %**

Currency	Revenues	Expenses
EUR	68	77
SEK	15	14
PLN	8	1
DKK	5	7
Other	4	–
<b>Total</b>	<b>100</b>	<b>100</b>

Values are calculated based on a statistical compilation of external operating income/expenses. Changes in inventory and investments are not included in the compilation.

The business units are required to hedge contracted transaction exposure when it exceeds the equivalent of SEK 10 million. Hedges are made through Vattenfall's Treasury department, where currency risks are managed within established risk limits for interest rates and currencies. With respect to translation exposure, a 5% change in exchange rates would affect the Group's equity by approximately SEK 5,196 million (5,590). The Group's of translation exposure is displayed below. Reporting of translation exposure is described in Note 3 to the consolidated accounts, Accounting policies, under the headings Derivative instruments and Hedge accounting.

**Translation exposure**

Currency	Equity	Hedging after tax	Net exposure after tax
EUR	165,412	92,892	72,520
PLN	16,940	2,509	14,430
DKK	9,492	–	9,492
GBP	7,479	–	7,479
Other	1	–	1
<b>Total</b>	<b>199,324</b>	<b>95,402</b>	<b>103,922</b>

**Technology****Operational asset risks**

Vattenfall's largest operational asset risks are associated with the operation of power generation and heat production plants, which can be damaged as a result of incidents such

as breakdowns or failures of components and equipment. This could give rise to volume losses and outage costs. These operational risks are mitigated through measures such as maintenance, training, advanced planning of the renewal of plants and effective administrative routines. A rolling inspection programme for the largest plants is an important part of the continuous risk management work.

Vattenfall has identified nuclear power safety as a particular focus area. Vattenfall's Chief Nuclear Officer (CNO) is responsible for overseeing nuclear safety at Group level. The ambition is to be world-leading when it comes to nuclear safety. This is achieved by promoting a strong safety culture, by training employees and by establishing clear and effective processes. Detailed analyses are conducted of Vattenfall's nuclear power plants to identify risks. These analyses are updated continuously in consultation with the safety authorities in the respective countries and form the basis for continuous improvement work. Vattenfall also participates in research and development, and in various forms of external co-operation activities to ensure that the company is using best practice solutions in nuclear power.

Dam safety is another focal area involving substantial investments. Much of the work associated with traditional hydro power today focuses on increasing the safety of dams and minimising adverse effects on the surrounding natural environment. Safety aspects are primarily aimed at preventing dam leakage and ruptures. Advances in meteorology and hydrology have increased hydro power plant risk awareness, and Vattenfall is investing in improving dam safety at many older plants. Several of these plants have been fortified to be able to handle water flows that are so high that, statistically speaking, they occur only one year every 10,000 years. Further operational assets risks include damage to machinery and other equipment at Vattenfall's open-cast lignite mines. A disruption in mining operations could cause a halt in lignite deliveries, which could lead to a disruption in generation and loss of revenue for Vattenfall. Risks associated with operational assets concern not only electricity generation but also damage to distribution networks. In the Nordic countries Vattenfall is continuously working to make electricity networks less vulnerable by replacing power lines above ground with underground cables. This work has already been done for the German networks.

### Risk mitigation through insurance

Vattenfall protects itself against economic loss to the greatest extent possible through insurance. Vattenfall has two captive insurance companies (company's that insure the

Group's own risks exclusively) – Vattenfall Insurance and Vattenfall Reinsurance (Luxembourg). Vattenfall Insurance optimises the risk financing of insurable risks within the company. Reinsurance is procured in the international reinsurance market and provides Vattenfall Insurance with some reinsurance capacity.

Vattenfall Insurance underwrites insurance for most of the Group's property and business interruption exposure as well as for construction and design risks. Most of the actual power lines in the distribution networks are uninsured. This is due to the difficulty of finding cost-effective insurance solutions. In addition, Vattenfall Insurance provides Group-wide general liability insurance, including consultant and product liability. With respect to dam liability, Swedish dam owners have strict and unlimited liability for damage to third parties caused by dam accidents. In co-operation with other Swedish and a number of Norwegian dam owners, Vattenfall procures dam liability insurance with an insured amount of SEK 9 billion.

Property insurance for Vattenfall's nuclear power plants is issued by EMANI (the European Mutual Association for Nuclear Insurance), and for the Swedish power plants also by Nordic Nuclear Insurers. Nuclear power liability in Sweden is strict and limited to 300 million Special Drawing Rights (SDRs), corresponding to approximately SEK 3.4 billion, which means that owners of nuclear power plants are only liable for damage up to this amount. Obligatory nuclear liability insurance is issued by Nordic Nuclear Insurers and by the mutual insurance company ELINI (European Liability Insurance for the Nuclear Industry).

In Germany, nuclear liability is strict and unlimited. By law, nuclear power plants are required to have insurance or other financial guarantees for up to EUR 2.5 billion. The German Atomic Insurance Pool issues insurance for up to EUR 256 million. Thereafter, the nuclear power plants and their German parent companies (in Vattenfall's case, Vattenfall Europe AG) are liable for amounts exceeding this level, in proportion to the respective ownership interest the parent companies have in the nuclear power plant. It is not until these resources are exhausted that a solidarity agreement ("Solidarvereinbarung") between the German nuclear power plant owners (Vattenfall, E.ON, RWE and EnBW) would take force for up to EUR 2.5 billion. Since the liability is unlimited, the nuclear power plants and their German parent companies are ultimately liable also for amounts in excess of this level.

### Infrastructure

IT plays a key role in nearly all parts of operations, and a

disruption in a network or application could have a major impact on the company's performance. For example, a breakdown in the customer management system could lead to a loss of trust in Vattenfall, while a disruption in a trading system could lead to lost opportunities, fines and trading losses. To manage dependence on IT systems, major focus is put on security controls to ensure the information's confidentiality, integrity, availability and traceability.

Vattenfall also works extensively to secure the technical IT infrastructure that is used for production and distribution of electricity and heat. An example is security in Supervisory Control and Data Acquisition (SCADA) systems, an area in which Vattenfall works closely with national authorities and other national organisations since the company is part of the national critical infrastructure.

### Politics and society

#### Political risk

Political risk is defined as the business risk that can arise as a result of political decisions, such as price regulations in electricity distribution, uncertainty regarding a new political majority, or changes in finance policies. In connection with acquisitions and other investments, this type of risk is considered by adjusting the cost of capital and through scenario analyses for instance.

Another type of political risk stems from changes in legislation and in the rules and regulations that govern the energy industry. These can be factors such as changes in taxes, environmental surcharges, environmental legislation and permit requirements, as well as changes in how natural monopolies are regulated and political objectives regarding the composition of the energy system. To protect itself from this risk, Vattenfall conducts business intelligence activities and maintains contacts with decision-makers. In addition, Vattenfall belongs to various national and international trade organisations to safeguard the company's interests.

A third area concerns the public acceptance of Vattenfall's operations, such as the lifetime extensions of nuclear power plants in Germany, CCS technology or procurement of biomass from developing countries.

### Law and regulations

#### Legal risks

Legal risk can be defined as the risk of loss of value due to non-compliance with relevant laws, regulations, Code of Conduct, or (contractual) claims by third parties, or changes in legislation.

The Legal Affairs Group function supports the business

units in formulating their legal risks via the Vattenfall Enterprise Risk Management system. Vattenfall mitigates legal risks through the Legal Affairs Group function, which performs legal analyses and participates in the decision-making process. In addition, Legal Affairs is involved, together with the risk co-ordinators, in the process to mitigate and manage legal risks by establishing appropriate measures, including procedures, standards, guidelines and training.

Vattenfall's General Counsel regularly provides a Claims & Litigation report to the Executive Group Management and the Board of Directors.

### Personnel and organisation

#### Risk of losing unique expertise and key persons

Vattenfall has unique expertise and key persons in certain areas, where the impact would be particularly tangible if the individuals in question were to leave Vattenfall. To manage this risk, a record is kept of where persons with these qualities work in the organisation, and the risk is mitigated through efforts to spread their expertise. Vattenfall takes a structured approach to succession and competence planning, as well as to leadership and management development programmes, especially in view of the demographic trend and competition for specialists.

#### Organisational change

2010 was characterised by preparations for the new organisational structure, which has been in place since 1 January 2011. From a risk perspective, Vattenfall has several factors to take into consideration: a reorganisation takes time and effort, which may cause business activities to lose pace and focus as employees are encountered with changes that may affect their motivation and performance. The aim of the reorganisation of Vattenfall's operations, combined with the integration of N.V. Nuon Energy, is to achieve major scale benefits and synergy effects. To realise the full potential of these activities, Vattenfall has established a project management organisation to work with the organisational change.

#### Health and safety

Health and safety are important elements in Vattenfall's corporate culture and an integrated part of the company's business strategy. Vattenfall takes a preventive approach and implements best practices in its health and safety work to reduce risk. Quantitative targets are defined and evaluated based on Vattenfall's Health and Safety policy, and all managers are responsible for preventing work-related accidents and health hazards. Furthermore, Vattenfall's production

sites adhere to a high level of process safety to ensure the safety of both employees and society in general.

#### Fraud

The Group's security organisation works with preventive security measures and crisis management in order to protect personnel, assets, IT systems and information, and to safeguard production and distribution of electricity and heat from fraudulent activities. Fraud is prevented by – among other things – always applying the so-called four eyes principle in all processes and decisions, which entails that decisions must be approved by at least two persons.

### Risks that are a part of several risk areas

#### Investment risk

Vattenfall is a highly capital-intensive company and has an extensive investment programme. Before every investment decision, a risk analysis is performed. By simulating various outcomes created by changes in e.g., price and costs, by delays and the cost of capital, risks are estimated for an investment. Several different types of investment risk exist in the various risk areas, such as procurement risk, financing risk, risk in the choice of technology and the risk of changes regarding environmental permits.

Vattenfall's Group Asset Management department ensures that capital is invested in a manner that maximises long-term economic value. In addition to a strategic investment roadmap, a list of prioritised investment projects is continuously updated to provide the Executive Group Management with guidance in the investment decision process. Projects are ranked according to a number of criteria, including support of Vattenfall's overall strategic direction, consequences for the existing generation portfolio, risk profile and profitability.

#### Environmental risk

The Vattenfall Environmental Committee, under the direction of the Group's Head of Environmental Affairs, follows-up and evaluates environmental risk management. The general concept of environmental risk can be subdivided into three categories: environmental risks, legal and regulatory risks, and environmental liabilities.

Environmental liabilities are cases where emissions, use of chemicals and other substances, or the use of technology in accordance with currently applicable environmental legislation, requires remedial measures. It can also be a case in which demands are made on financial reporting of provisions.

The business units' reporting on environmental liabilities cover the following areas, among others: air and water pollution, oil-filled cables with lead encapsulation, mercury in electrical equipment, asbestos and PCB in thermal power plants and CHP plants, and measurement of magnetic fields from transformers and power lines.

Every year a compilation is made of the company's environmental risks, environmental liabilities, as well as of any provisions and measures that may be needed. This compilation is based on Group-wide reporting standards in accordance with set definitions. The analysis covers a general evaluation of the risk situation and trend in recent years. The business units are responsible for identifying and reporting environmental risks so as to create a holistic picture of the Group's environmental risks.

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.

#### Dynamic change

Effective risk management is a good way of managing an uncertain future. In 2010 Vattenfall implemented a number of measures, including an organisational change and adoption of a holistic approach to risk management through Enterprise Risk Management. Vattenfall's risk management organisation drives risk awareness and motivation, and ensures that risks with potential impact on the organisation are followed up in an effective manner. Vattenfall has distinct internal control and works according to a set of best practice, which together form the cornerstones of sound company management.