

# A LEADING EUROPEAN ENERGY COMPANY

In 2009 Vattenfall celebrated its 100-year jubilee – the company started out in 1909 as the Swedish State Power Board, in Trollhättan. Since then, Vattenfall has evolved to become Europe's fifth-largest generator of electricity and largest producer of heat. Vattenfall took its modern form in 1992 when the Swedish State Power Board (Statens Vattenfallsverk) was restructured and incorporated to form a public limited liability company. The company's evolution during the last twenty years can be encapsulated in four main phases, described below. The work on Vattenfall's vision of being a leading European energy company has intensified in recent years. The main challenges in the years ahead are to reduce the Group's climate impact, improve profitability and strengthen cash flow.



Phase 1: 1990–1995

## The modern Vattenfall takes shape

The state enterprise Statens Vattenfallsverk is restructured into a state-owned limited liability company in 1992. In connection with this, the national grid – the Swedish high-voltage network – is detached and transferred to Svenska Kraftnät, a newly formed state utility.

Phase 2: 1996–2001

## Strong growth

The Swedish electricity market is deregulated in 1996. Vattenfall's board decides to embark on an international growth strategy, beginning with the acquisition of Finnish company Häämen Sähkö. In Germany, Vattenfall acquires the companies HEW, Bewag, VEAG and Laubag, and thereby becomes Germany's third-largest generator of electricity and largest producer of heat. In Poland Vattenfall acquires the heat producer EW and the distribution company GZE. Vattenfall's international establishment is concentrated in northern Europe, and holdings in various projects in Asia and Latin America are divested.

Phase 3: 2002–2006

## Consolidation

Vattenfall focuses on consolidation and integration of its newly acquired companies and builds a uniform brand. Starting in 2006, all operations in Germany and Poland are conducted under the Vattenfall name. A number of combined heat and power and wind power assets are acquired in Denmark.

Phase 4: 2007–2009

## Climate issue and renewed growth

Awareness about the risks of climate change rises around the world. Vattenfall formulates its climate vision, which entails that operations are to be climate-neutral by 2050 at the latest. In 2008 Vattenfall inaugurates the world's first coal-fired pilot plant for Carbon Capture and Storage employing oxyfuel technology, in Schwarze Pumpe, Germany. Vattenfall completes wind power facilities and also acquires several wind power companies in the UK 2008. In 2009 Vattenfall acquires Dutch energy company N.V. Nuon Energy.

## MAIN CHALLENGES 2010–2014



CCS pilot plant, Schwarze Pumpe, Germany.

### Reduce environmental and climate impact of operations

The EU's climate goals call for a shift in the European energy market towards a more sustainable society. By 2020, 20% of energy production shall be renewable, CO<sub>2</sub> emissions shall have been cut by 20% (compared with 1990 levels), and energy consumption shall have been made 20% more efficient.

Vattenfall was the first energy company to establish a climate vision, calling for its operations to be climate-neutral by 2050 at the latest. One goal along the way is to halve CO<sub>2</sub> emissions per generated unit by 2030 at the latest, compared with 1990 levels. The shift to climate-neutral operations will require a radical change in the production portfolio in favour of low-emitting technologies. This will take a long time due to long lead times; it will also require financial strength and cutting edge technological expertise. Today a substantial share of Vattenfall's energy generation is still based on combustion of fossil fuels, and the Group is thereby one of Europe's largest emitters of carbon dioxide.

### Improve profitability and strengthen cash flow

Value creation and long-term profitability that is in line with the market are the overarching demands that Vattenfall's owner, the Swedish state, puts on the company. However, during the last two years Vattenfall's earnings have fallen and the company has not achieved the required 15% rate of return on equity. At the same time, the company's debt has mounted while its cash flow has decreased. Vattenfall intends to improve profitability and strengthen its cash flow through concrete measures in the following three areas:

- Reprioritisation and reduction of investments
- Divestment of non-core assets
- Productivity improvement programme

Vattenfall's work on strengthening the brand and instilling trust in its operations is a prerequisite for improved profitability, since this will lay the foundation for continued value creation. Vattenfall is also working intensively on further improving safety at its nuclear power plants. High safety is a prerequisite for the company's ability to maintain high availability and production, and thereby generate a stable stream of revenue.

# MAKING ELECTRICITY CLEAN – A LONG-TERM COMPETITIVE ADVANTAGE

The challenges of reducing the climate impact of operations and improving profitability are expressed in Vattenfall's strategic direction: Making electricity clean. This strategy is not only a matter of setting ambitious environmental and climate targets – it is also a business strategy for long-term profitability and growth, which will improve profitability and lead to Vattenfall's vision of being a leading European energy company. Energy companies that adapt their generation portfolio and operations to tomorrow's operating environment will have a major competitive advantage in the energy market of the future.

Vattenfall's work on reducing the environmental and climate impact of its operations is a prerequisite for strengthening its long-term competitiveness. The company's work with these matters is expressed in its strategic direction: Making electricity clean. A key part of this strategy involves Vattenfall's climate vision, that is, that operations shall be climate-neutral by 2050 at the latest. As a goal along the way, Vattenfall has also set the goal of halving its emissions of CO<sub>2</sub> per generated unit of electricity and heat by 2030, compared with 1990 levels. This means that Vattenfall will gradually be reducing the climate impact of its operations.

In Europe, the framework for future energy generation has been set through various EU directives. The long-term goal can be summarised with the formula 20–20–20: by 2020, the share of renewable energy shall be 20%, CO<sub>2</sub> emissions shall be reduced by 20% (compared with 1990 levels), and energy efficiency shall be improved by 20%.

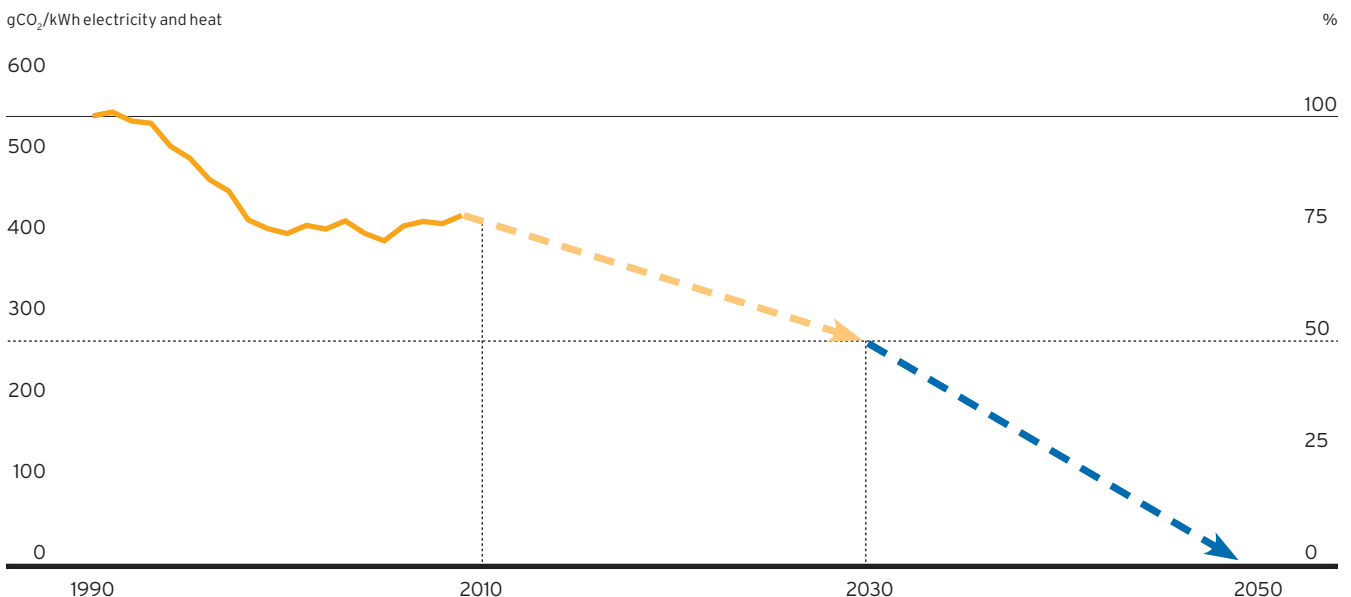
These standards will be gradually sharpened in the future. The EU is currently discussing a target to cut CO<sub>2</sub> emissions by 80%–95% compared with 1990. Energy companies that adapt their production portfolios and operations to tomorrow's conditions will have a major competitive advantage in the energy market of the future.

## Shift in production portfolio

A shift is taking place in the production portfolio through development of the portfolio towards low-emitting technologies, such as nuclear power and renewable energy sources, like hydro power, biomass, wind power and – in time – ocean energy. Since many of Vattenfall's geographic markets (Germany, Poland and the Netherlands in particular) are largely dependent on fossil-based forms of energy – like coal and natural gas – for their energy and heat production, development of CCS technology for the capture and permanent storage of carbon dioxide is play-

### Vattenfall's climate vision

Vattenfall's target is to halve specific emissions from its existing operations by 2030, compared with 1990 levels. The vision is to be climate-neutral by 2050.



ing a key role in Vattenfall's work to radically reduced its emissions of carbon dioxide and other gases.

New technologies for low-emitting generation will take time to develop. Many technologies are not yet commercially viable and are dependent on support systems and subsidies. Consequently, bridging solutions are needed ahead of energy systems of the future, such as CCS technology, to ensure stable energy supply at a reasonable price, at the same time that environmental and climate impact must be reduced already today.

Moreover, lead times in the energy industry are long, and it commonly takes many years before investment decisions show any effects in the form of, for example, lower CO<sub>2</sub> emissions and higher production volume.

### Vattenfall has a good starting position

The massive investments that Vattenfall needs to make to bring about a shift in its production portfolio require good profitability and strong cash flows.

Vattenfall has a good starting position. The Group is well-diversified, both geographically and in terms of its balance of electricity, heat and gas production. Being active in several markets also reduces Vattenfall's sensitivity to declines in demand in individual countries. A well balanced mix of hydro power, nuclear power, fossil-based

power, wind power and power from biomass reduces the company's sensitivity to price changes or regulations that could affect the profitability of an individual type of energy.

A large share of Vattenfall's energy is generated from the Group's own resources – hydro power and coal-fired power using lignite from own mines – which makes the Group highly independent of fluctuations in commodity prices.

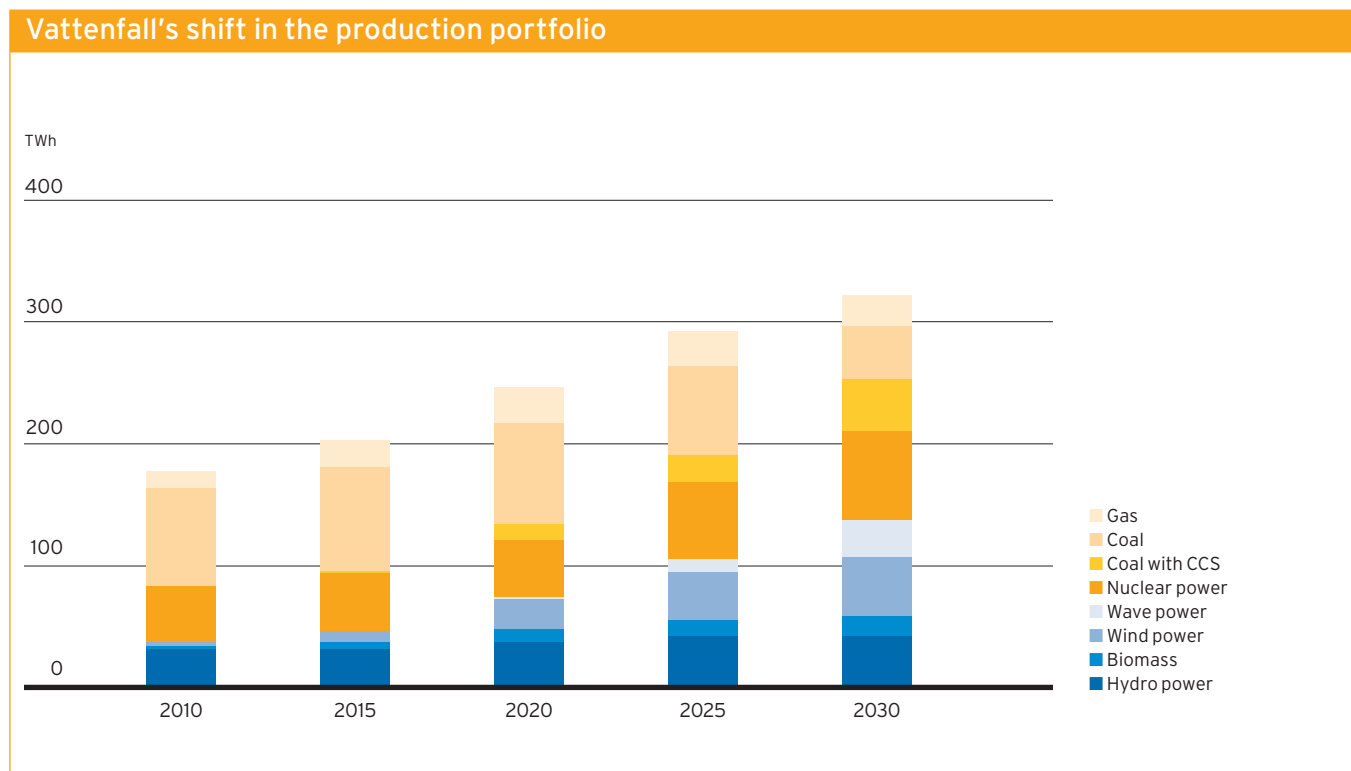
### Measures to improve profitability and strengthen cash flow

Vattenfall enjoyed good profitability for a number of years, which enabled ambitious investment plans. However, during the last two years Vattenfall's earnings have declined at the same time that its investment challenges remain great. The work on improving profitability and strengthening cash flow is mainly being conducted along three lines:

- Reprioritisation and reduction of investments
- Divestment of non-core assets
- Productivity improvement programme

### Reprioritisation of investments

The Group's investment volume must be in line with the set financial parameters and must be steered in a direction that



generates the best return. Every planned investment must meet a number of criteria in order to be carried out. Among other things, investments must meet demands for good profitability and acceptable risk profile. In addition, it is imperative that society has confidence in the planned investments.

**Vattenfall's investment plan 2010–2014**

The energy industry is generally characterised by long lead times and planning requirements, and as a result, investment decisions made today will not take effect until quite some time into the future.

Vattenfall's investment plan for the period 2010–2014 is worth SEK 201 billion, excluding any acquisitions. The investment plan also encompasses the acquired operations in the Netherlands and Belgium. In this plan, investments in fossil-based power amount to approximately SEK 100 billion. The investments in the coal-fired Moorburg and Boxberg plants in Germany, which were decided on several years ago, are now in an intensive phase. The Group's investments in gas-fired plants – primarily the Magnum plant in the Netherlands – are a consequence of Vattenfall's acquisition of N.V. Nuon Energy during the year. The investments in these conventional plants will increase Vattenfall's generation capacity and contribute to security of supply in Germany and the Netherlands.

The major investments being made also include Vattenfall's wind power ventures in the UK, such as the Ormonde offshore wind farm outside the North West region in the Irish Sea and Thanet, off the south-east coast of Kent. As many wind power projects are in the planning and development phase, they will bear great weight in Vattenfall's investment plans some time in the future, after 2015. This is due in part to a strategic repriorisation from land-based wind power to more profitable offshore projects in the UK, among other places.

Vattenfall is also investing in efficiency improvements at the Forsmark and Ringhals nuclear power plants in Sweden in order to boost generation capacity. In addition, work is being conducted to improve safety in the nuclear power operations, which is a prerequisite for Vattenfall's ability to maintain high availability and thereby generate a steady stream of revenue.

Of the total investment plan for 2010–2014, nearly 80% pertains to investments in electricity generation and heat production. The rest pertains to investments in electricity and heat networks, among other things.

**Divestment of non-core assets**

One part of the work on strengthening profitability involves divesting non-core assets that are not aligned with Vattenfall's future strategic direction or which do not meet the required rate of return set by Vattenfall's owner. The largest divestment made in 2009 was the sale of Vattenfall's stake (80%) in the German electricity trading and network company WEMAG. The deal was completed on 5 January 2010.

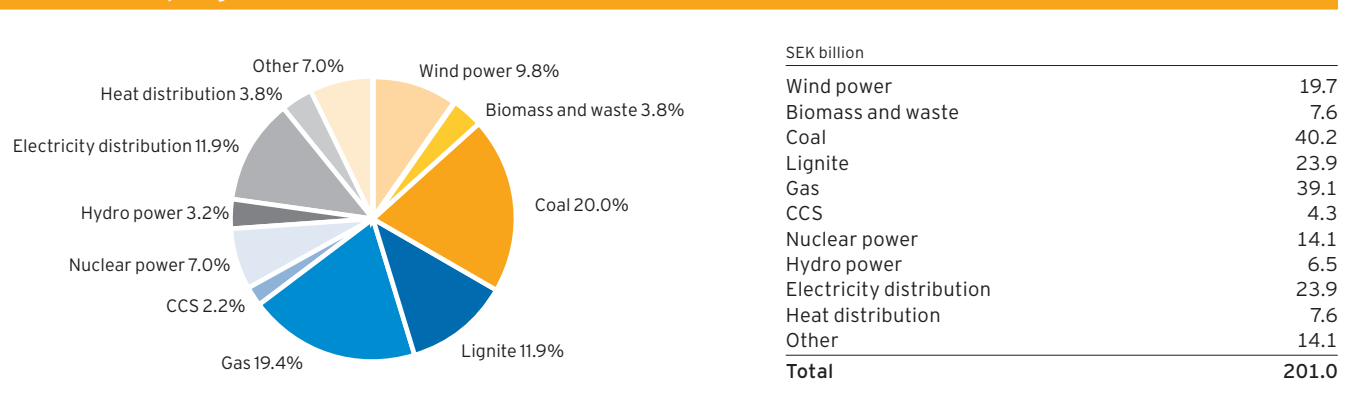
In November 2009, the decision was made to leave the Zuidwending gas storage project for profitability reasons. The project was a co-operation venture between N.V. Nuon Energy and Gasunie.

In 2009 Vattenfall also sold its stakes in the three Swedish energy companies Luleå Energi AB, AB PiteEnergi and Jämtkraft AB.

**Productivity improvement programme continues**

Vattenfall is also working on improving productivity throughout the Group. Since 2007 the company has been conducting an initiative called Operational Excellence, with the goal of improving productivity by 11% during the period 2006–2010, corresponding to a reduction in costs

**Investment programme 2010–2014**



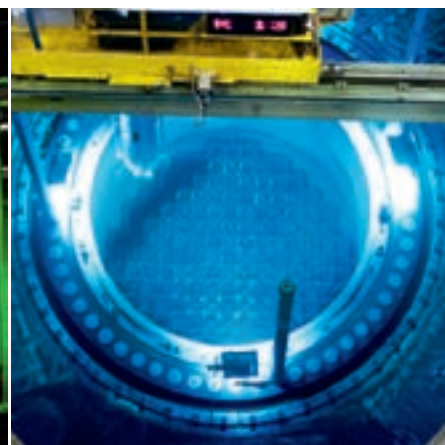
## Renewable energy, development of CCS technology and nuclear power are vital in the shift of the generation portfolio



Vattenfall is investing in renewable sources of energy, such as wind power, hydro power and bioenergy. Substantial sums are therefore being invested in several areas, above all in wind power. Vattenfall is today one of the world's largest wind power operators.



Coal will continue to be an important source of energy in Europe for many years to come. Consequently, CCS technology, involving the capture and storage of carbon dioxide from coal combustion, will be a key technology for reducing future CO<sub>2</sub> emissions. With CCS, carbon dioxide from fossil-based power plants can be captured and permanently stored deep underground. Vattenfall has taken a leading position in the development and demonstration of CCS technology through its Schwarze Pumpe pilot plant in Brandenburg, Germany.



Vattenfall is working continuously on restoring trust in the company as a nuclear power operator and on attaining world-class nuclear power safety and generation. High safety is a prerequisite for the ability to maintain a high level of availability and thereby generate stable revenue. Nuclear power is also an important component in Vattenfall's work to achieve climate-neutral operations.

by SEK 5 billion. In addition to its goals for 2006–2010, Vattenfall expects that synergy effects from the integration of Nuon will generate another EUR 100 million in value creation starting in 2015.

### Long road lined with challenges

In summary, the challenges that Vattenfall is facing – both in the near and long term – are substantial. The path from today as one of the companies in Europe that emits the most carbon dioxide to that of an energy company with climate-neutral operations in 40 years is long. The challenges are of many types – technological, financial, but also communicative. By being the first in the energy industry to adopt a climate vision, Vattenfall has taken a pioneering role. Vattenfall has thereby also taken upon itself a heavy burden to explain: to create an understanding that the shift from today's energy generation to tomorrow's climate neutrality will not be achieved with leaps and bounds, but through many small steps in the right direction.

The major and costly investments that are needed will require stronger profitability that is achieved through measures that perhaps do not always point unequivocally

to the final goal. Along the way, Vattenfall will also be making investments in new, modern, conventional technologies that do not take the Group all the way to its climate goal, but which nevertheless constitute the attainment of important partial goals through higher degrees of efficiency, lower emissions and the ability to out-compete older, less climate-friendly production plants.

At the same time, there is no getting around the fact that some of the planned investments in the coming years will be made in renewable energy that will not immediately realise its profitability potential. However, in pace with legislation and regulations that make emitting carbon dioxide and other greenhouse gases financially unprofitable, these far-sighted investments will grow increasingly competitive. Vattenfall is convinced that a change in the production portfolio, adapted to the conditions of the future, will give the Group a major competitive advantage and thereby contribute to the realisation of Vattenfall's vision to be a leading European energy company.