Contents

• Vattenfall at a glance
• Market dynamics
• Political & regulatory issues
• Market trends
• Strategy & Structure
• Lignite business
• Ringhals nuclear phase out
Vattenfall’s electricity production in 2014 (173 TWh in total)

<table>
<thead>
<tr>
<th>Country</th>
<th>2014 TWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>81.7</td>
</tr>
<tr>
<td>Finland</td>
<td>0.3</td>
</tr>
<tr>
<td>Denmark</td>
<td>5.0</td>
</tr>
<tr>
<td>UK</td>
<td>1.8</td>
</tr>
<tr>
<td>Netherlands</td>
<td>13.7</td>
</tr>
<tr>
<td>Germany</td>
<td>70.4</td>
</tr>
</tbody>
</table>

- Sweden: Biomass, waste 0.2, Wind power 0.7, Nuclear power 49.9, Hydro power 30.9
- Finland: Hydro power 0.3
- Denmark: Biomass, waste 0.1, Wind power 1.0, Fossil-based power 3.9
- UK: Wind power 1.8
- Netherlands: Wind power 1.5, Fossil-based power 13.1, Hydro power 0.1
- Germany: Biomass, waste 1.5, Fossil-based power 65.9, Hydro power 3.0

Vattenfall’s electricity production in 2014 (173 TWh in total)

<table>
<thead>
<tr>
<th>Category</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net sales (MSEK)</td>
<td>165,945</td>
</tr>
<tr>
<td>Underlying operating profit (MSEK)</td>
<td>24,133</td>
</tr>
<tr>
<td>Total assets (MSEK)</td>
<td>496,433</td>
</tr>
<tr>
<td>Electricity generation (TWh)</td>
<td>172.9</td>
</tr>
<tr>
<td>Sales of electricity (TWh)</td>
<td>199.0</td>
</tr>
<tr>
<td>Sales of heat (TWh)</td>
<td>24.1</td>
</tr>
<tr>
<td>Sales of gas (TWh)</td>
<td>45.5</td>
</tr>
<tr>
<td>CO₂ emissions (Mtonnes)</td>
<td>82.3</td>
</tr>
<tr>
<td>Number of employees (FTE)</td>
<td>30,181</td>
</tr>
</tbody>
</table>

1) Underlying operating profit, excluding items affecting comparability

Number of customers

<table>
<thead>
<tr>
<th>Category</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>6.2  million</td>
</tr>
<tr>
<td>Gas</td>
<td>1.9  million</td>
</tr>
<tr>
<td>Electricity network</td>
<td>3.2 million</td>
</tr>
</tbody>
</table>
The object for the Company’s activities is to generate a market rate of return by operating a commercial energy business that enables the company to be among the leaders in developing environmentally sustainable energy production.
The development of the European Energy Markets

1999
- Liberalisation of power market
- Trading start Elspot area
- Erneuerbare Energien Gesetz

2000
- Start power trading

2001
- Erneuerbare Energien (Renewable Energy)

2002
- Start nuclear phase-out
- Internal market for power and gas

2003
- Liberalisation gas market

2004

2005
- ETS Phase I

2006
- Intraday market starts
- 20-20-20 targets

2007
- ETS Phase II
- EEX adopts negative prices
- First Market coupling

2008
- Nuclear lifetime extension

2009
- Second Nuclear phase-out

2010
- Estonia enters Nordpool

2011
- Fukushima
- Sweden divided into price areas

2012
- EEG Direct Marketing

2013
- Lithuania and Latvia enter Nordpool

2014
- Market coupling of 15 members

2015
- Flow Based Market Coupling

2016
- Ser Agreement
- Co2 Market Stability Reserve

Timeline:

- 1999: Liberalisation of power market, trading start Elspot area, Erneuerbare Energien Gesetz
- 2000: Start power trading
- 2001: Erneuerbare Energien (Renewable Energy)
- 2002: Start nuclear phase-out, internal market for power and gas
- 2003: Liberalisation gas market
- 2004: ETS Phase I
- 2005: Intraday market starts, 20-20-20 targets
- 2006: ETS Phase II, EEX adopts negative prices, first market coupling
- 2007: Nuclear lifetime extension
- 2008: Second nuclear phase-out
- 2009: Estonia enters Nordpool
- 2010: Fukushima
- 2011: Sweden divided into price areas, EEG Direct Marketing
- 2012: Lithuania and Latvia enter Nordpool
- 2013: Market coupling of 15 members
- 2014: Flow Based Market Coupling
- 2015: Ser Agreement
- 2016: Co2 Market Stability Reserve
Emission price driven by regulatory framework and its continuous changes

Verified Emissions for 2005: the market is long

No banking allowed. Oversupply caused price drop to zero

Price increase lead by the energy complex

Recession

Backloading, Market Stability Reserve and 2030 Targets lead to gradual price recovery

Phase I 2005-2007

Phase II 2008-2012

Phase III 2013-2020

CO₂ allowances (EUA) December delivery

EUR/t
Power price development since 2005

Front year base contract prices

EUR / MWh

- High fuel prices
- Economic crisis, low industrial demand
- CO₂ price collapsed
- Low hydro balance
- Fukushima
- More and more Renewables, dropping CO₂ prices, lower demand
- Belgian Nuclear outages
- Low hydro balance
- Emission Trading introduced
- NorNed Cable Online
- BritNed Cable Online


Coal price setting in Germany and gas in NL

- CO\textsubscript{2} price collapse
- Start ETS Period 2
- Fukushima
- Oversupply building up due to strong RES growth
- Belgian Nuclear outages

Coal price setting in Germany and gas in NL

- NL Clean Spark 54%
- DE Clean Spark 54%
- DE Clean Dark 40%

Power demand is subdued in all core countries

Lower power demand due to

- Global financial crisis 2008
- Increased energy efficiency

High consumer prices due to high taxes and levies
Germany: strong growth in renewable production capacity

**Installed Capacity in MW**

- EEG 2000: feed in of wind and solar power receives subsidy
- EEG 2004: reduction of wind infeed subsidy
- EEG 2009: aims to reach 30% RES by 2020
- EEG 2012: Direct Marketing introduced, Offshore wind receives extra subsidy
- EEG 2014: Reduction of Offshore installment target
- Solar Update: Reduction of solar subsidies

**Chart Notes:**
- EEG 2009: aims to reach 30% RES by 2020
- EEG 2012: Direct Marketing introduced, Offshore wind receives extra subsidy
- EEG 2014: Reduction of Offshore installment target
- Solar Update: Reduction of solar subsidies
Baseload power: Flattening out on a low level?

€/MWh

Netherlands

Germany

Nordic

maj-14 aug-14 nov-14 feb-15 jun-15 maj-16 maj-17 maj-18 jun-19 maj-20

maj-14 aug-14 nov-14 feb-15 jun-15 maj-16 maj-17 maj-18 jun-19 maj-20
# Political and regulatory issues (EU, Sweden)

<table>
<thead>
<tr>
<th>EU</th>
<th>Sweden</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Agreement on Market Stability Reserve (MSR) in the European Emissions Trading System (ETS) and upcoming further reform</td>
<td>• A parliamentary Energy Commission appointed with the task to present, by January 2017, a proposal for Sweden’s long-term energy policy</td>
</tr>
<tr>
<td>• Reference document on Best Available Techniques (BREF) setting the frame for future emission thresholds (non-CO₂) for large combustion plants (LCP)</td>
<td>• National strategy for hydropower that could limit the loss of hydro generation capability to 1,5 TWh (of which approx. 0,5 TWh for Vattenfall)</td>
</tr>
<tr>
<td>• Upcoming EU initiatives with a view to implementing the Energy Union and the 2030 targets (CO₂ reduction, energy efficiency, renewable energy)</td>
<td>• New requirements on nuclear power (capacity tax; new safety and security requirements being investigated by Swedish Radiation Safety Authority (SSM)).</td>
</tr>
<tr>
<td></td>
<td>• Electricity Distribution: New model for calculating the revenue frame for the next regulatory period, 2016-2019.</td>
</tr>
</tbody>
</table>
### Political and regulatory issues (DE, NL, UK)

<table>
<thead>
<tr>
<th>Germany</th>
<th>Netherlands</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Ongoing discussion on proposals for additional measures to meet Germany’s 40% CO2 reduction target by 2020 – climate levy on fossil power plants (“Baake plan”) / capacity reserve / revision of CHP act</td>
<td>• Pending implementation of the coal deal under the energy agreement</td>
<td>• Awaiting government declaration following election won by David Cameron’s Conservative party. Continued support to the UK Climate Change Act and for a strong global climate deal later this year as well as to ‘good-value green energy’ and expansion in new nuclear expected.</td>
</tr>
<tr>
<td>• Stress test of provisions for nuclear decommissioning and debate on creation of a public fund. Search for permanent nuclear waste repository has restarted.</td>
<td>• Preparation of offshore tenders to be launched at the end of 2015</td>
<td>• Continued discussion on “Brexit”.</td>
</tr>
<tr>
<td>• Tender process for Berlin concessions for electricity networks (currently on hold) and discussion on ownership options</td>
<td>• Ongoing discussion on the role of heat in meeting renewable energy targets</td>
<td></td>
</tr>
</tbody>
</table>
Market trends in a new energy landscape

Customer awareness

Regional/local energy solutions

Demand for low CO\textsubscript{2} emitting generation

New level of requirements on grid distribution
A new value chain is here

Increased consumer and community engagement

Support and back-up for renewable and low CO₂-emitting power

New level of requirement – bi-directional flows, many decentralized generators
Utilities will need to adapt their business models

- Cost decline of renewables
- Continued public and political support

- Integrating heat and electricity supply.
- Increased dispatch flexibility
- Adding heat buffers to CHP plants

- Distribution core of future energy system
- Increased digitalization
- Bi-directional flows, distributed generation

- Operate fossil generation to meet the energy systems' need for backup and reliable supply
- Increase flexibility

- Hydro and nuclear power - increased requirements on flexibility, safety and availability

- Enable customers to meet their specific energy needs
Focus on six Business Areas

Heat

... 24/7 for comfort and climate - partner of choice for customers & communities

Wind

...a leading developer and operator of wind power in our markets

Customers & Solutions

...a supplier of a full range of energy management products and services to B2B and B2C customers

Generation

...a significant operator of safe and efficient large-scale low CO₂ emitting production

Markets

...a trusted provider of wholesale market services, and responsible trader

Distribution

...an operator of high quality networks with superior service to enable a sustainable energy society

German lignite operations are governed in a separate unit, Mining & Generation
# Identified growth areas

<table>
<thead>
<tr>
<th>Business Area</th>
<th>Description</th>
</tr>
</thead>
</table>
| Wind          | • Attractive returns less exposed to wholesale volatility  
                • Significant growth expected in Vattenfall’s markets  
                • Vattenfall has resources and skills |
| Heat          | • Stable return  
                • Energy efficient solution premiered by EU and (selected) national legislation  
                • Attractive “marginal growth” and business development opportunities |
| Sales         | • Sound stand-alone business with large growth options  
                • Capital-light portfolio diversification from asset business |
| Distribution  | • Stable return, attractive risk/return ratio  
                • “Scalable” growth opportunities  
                • Vattenfall core competence |
| Markets       | • Aggregation of third party distributed energy assets as a growth area for Vattenfall, leveraging BA Markets’ core capabilities |

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**Business responsibility allocated close to the business**  
**Business Areas fully accountable and empowered**  
**Strong level of performance transparency**

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**Deliver value from an attractive long term business portfolio**
Our Nordic hydro power assets - increasingly valuable

- Total installed capacity: 8,300 MW
- Annual generation volume: ~35 TWh
- High flexibility with large storage capacities supports wind power expansion (balancing power)
- Low marginal cost and long operating lifetime
- Virtually CO$_2$ free
Executive Group Management – EGM as of 1 April 2015

* Due to unbundling reasons, Head of BA Distribution is not a member of the EGM.
Lignite divestment – process ongoing

- On 29 October 2014, Vattenfall’s Board of Directors’ decided to investigate various alternatives for a new ownership structure for Vattenfall’s German lignite operations (both power plants and open cast mines)
- Goal: To achieve a long-term sustainable ownership structure
  - Ambition to present a proposal of new ownership structure to Vattenfall’s owner before year end
- A decisive measure to shift Vattenfall’s production portfolio towards more renewable production and reduce Vattenfall’s CO₂ exposure
- Process in close dialogue with the federal states of Brandenburg and Sachsen
- Vattenfall remains committed to continue operating the Group’s other businesses in Germany, including district heating, electricity distribution, sales, trading, wind power and other types of power generation
## Vattenfall’s lignite operations

<table>
<thead>
<tr>
<th></th>
<th>60-65mn tonnes/a</th>
<th>8,095 MW&lt;sub&gt;gross&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lignite production</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Installed power plant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>capacity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jänschwalde</td>
<td>3,000 MW</td>
<td></td>
</tr>
<tr>
<td>Schwarze Pumpe</td>
<td>1,600 MW</td>
<td></td>
</tr>
<tr>
<td>Boxberg</td>
<td>2,575 MW</td>
<td></td>
</tr>
<tr>
<td>Lippendorf R*</td>
<td>920 MW</td>
<td></td>
</tr>
<tr>
<td><em>(Vattenfall share)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Electricity generation</strong></td>
<td>approx. 55 TWh/a</td>
<td></td>
</tr>
</tbody>
</table>

* Outside of the Lusatian portfolio

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- Operating opencast mine areas
- Recultivation areas
- Approved mining fields
- Continuation
- Future fields
- Lignite-fuelled power plants
- Refining plant
- Central railway operation VEM

Proposed carbon levy under fire

Druck auf Gabriel steigt: Minister muss bei Braunkohle-Abgabe nachbessern

VON FRANK JOHANNSEN
UND JÜRGEN KINZKHAUSEN

Berlin/Deutschland. Der von der Opposition für eine verstärkte Klimapolitik, insbesondere in der Energiepolitik, plädierte SPD-Chef Martin Schulz, will seinen Druck auf den Kanzler erhöhen. In einem Interview mit der Frankfurter Zeitung sagte er, dass die Kohle-Abgabe nicht nur ein Mittel zur Finanzierung von Klimaschutzmaßnahmen sein sollte, sondern auch eine Grundsatzentscheidung für die Zukunft der Energiewirtschaft.

Gabriel kommt RWE bei Klimaabgabe entgegen


Merkel will wieder Klima-Kanzlerin sein

Die Kanzlerin hält die Klimaabgabe für sinnvoll. Bis Ende des Jahrhunderts müsse die Welt auf Öl und Kohle verzichten.

Franfurter Allgemeine Zeitung, Deutschland

Keine Angst vor Braunkohle

Mit der CEZ-Gruppe bewirbt sich der schwäbische Investor um ostdeutsche Kraftwerke des Betreibers Vattenfall


Lausitzer Rundschau

Brandenburger und Sachsen gegen Gabriels Klimaabgabe

Vattenfall’s plan to reduce CO₂ exposure

CO₂ emissions corresponding to Vattenfall’s share of ownership in the respective plants (electricity and heat), Mtonnes

<table>
<thead>
<tr>
<th>CO₂ emissions 2010</th>
<th>Realised reduction</th>
<th>CO₂ emissions 2014</th>
<th>Change in number of operating hours</th>
<th>Replacement and growth investments</th>
<th>Co-combustion and closures</th>
<th>Possible divestments</th>
<th>CO₂ emissions for 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>94</td>
<td>-12</td>
<td>82</td>
<td>-2</td>
<td>6</td>
<td>-1</td>
<td>65</td>
<td>approx. 20</td>
</tr>
</tbody>
</table>
Vattenfall changes direction for operational lifetimes of Ringhals 1 and 2

- Vattenfall has decided that Ringhals reactors 1 and 2 shall be closed down between 2018 and 2020 instead of, as previously announced, around 2025.

- The final decision will be made by the Board of Directors of Ringhals AB and requires unanimity between the owners, i.e. Vattenfall and E.ON.

- The book value of Ringhals 1 and 2 in the Vattenfall Group consolidated balance sheet amounts to SEK 15.1 billion as of 31 March, 2015, of which Vattenfall’s share is 70.4%.

- The existing plans of at least 60 years of operation remain unchanged for Vattenfall’s five other nuclear reactors Ringhals 3 and 4 and Forsmark 1, 2 and 3.

<table>
<thead>
<tr>
<th></th>
<th>Ringhals 1</th>
<th>Ringhals 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial start up (year)</td>
<td>1976</td>
<td>1975</td>
</tr>
<tr>
<td>Installed capacity (MW)</td>
<td>881</td>
<td>865</td>
</tr>
<tr>
<td>Average annual generation (TWh)</td>
<td>6.3</td>
<td>5.9</td>
</tr>
</tbody>
</table>
Summary and conclusions

- Price recovery not likely until 2020
  - Requires strict cost and investment control
- Trend towards increased regulations
  - Market risk ➔ Political risk
- New value chain – utilities need to adapt their business models
- New business area oriented organisation with individual P/L
- Vattenfall sees growth opportunities within Wind, Heat, Sales and Distribution supported by aggregation through BA Markets
- Hydro power is an increasingly valuable renewable source for balancing system – invest in flexibility
- Clear target to reduce CO₂ exposure
  - Ongoing process to divest German lignite operations
- Market and tax driven decision to bring forward phase-out of two nuclear reactors in Sweden – remaining 5 reactors to run until 2040-45