VATTENFALL PRESENTATION

Analyst meeting SEB 2017-09-28
Vattenfall will help customers reduce the need for fossil fuels and enable the next generation to live fossil free. This is the core of Vattenfall’s new guiding principle for the future that has now been presented by the Group management.
VATTENFALL AT A GLANCE

- One of Europe’s largest producers of electricity and heat
- 100% owned by the Swedish state
- Main products: electricity, heat, gas, energy services
- Main markets are Sweden, Germany, Netherlands, UK, Denmark and Finland
- 20,000 employees

Net sales in 2016: SEK 139bn
Underlying operating profit\(^1\) in 2016: SEK 22bn

1) Operating profit (EBIT) excluding items affecting comparability
A NEW VATTENFALL IS TAKING SHAPE

A new Vattenfall is taking shape, both from a strategic and financial perspective.

Vattenfall has moved from a heavy fossil-based production towards a more sustainable portfolio in 2016...

... and are further moving towards more quasi-regulated business with more limited risk exposure going forward.
STRATEGY AND STRATEGIC TARGETS

Vattenfall is well on track to meet its strategic targets until 2020

Our strategic objectives and prioritised areas

- Increase customer centricity and build a sizable position in decentralized energy
- Grow in renewables, maintain efficient operations within hydro and nuclear power and implement our CO₂ roadmap
- Develop culture, competence and brand
- Reduce costs and improve operational efficiency

Strategic targets to 2020

1. Customer engagement, NPS +2 (Net Promoter Score)
   - 30 June 2017: +3

2. Aggregated commissioned new renewables capacity 2016-2020: ≥2,300 MW
   - 30 June 2017: 597

3. Absolute CO₂ emissions, pro rata, continuing operations: ≤21 Mtonnes
   - 30 June 2017: 11.8

4. ROCE: ≥9% (continuing operations)
   - 30 June 2017: 4.2

5. Safety as LTIF (Lost Time Injury Frequency): ≤1.25
   - 30 June 2017: 1.3

6. Employee Engagement Index: ≥70%¹

¹ Only updated on an annual basis
OUR CONTRIBUTION TO UN’S SUSTAINABLE DEVELOPMENT GOALS

Vattenfall focuses on six of the 17 sustainable development goals on a group level. On a local level, we are also contributing to five additional sustainable development goals.

1) Gender equality, clean water and sanitation, decent work and economic growth, life below water and life on land

- Vattenfall operates 2.8 GW of renewables capacity as of H1 2017
- Strategic target to commission 2.3 GW of new renewables capacity 2016-2020

- Charging solutions for electric vehicles
- Zero-CO₂-cement with Cementa, Fossil-free-steel with SSAB and LKAB, Green hydrogen with Preem

- City partnerships with Uppsala, Berlin, Hamburg and Amsterdam to help achieve ambitious climate goals

- Enabling our customers to produce and consume their own renewable energy
- Launch of Powerpeers to trade locally generated renewable electricity

- Vattenfall aims at being climate neutral by 2050 and by 2030 in the Nordics
- Contributing to electrification of transportation, heating and the industry

- Vattenfall is active in partnerships with both cities and corporates
CHALLENGING MARKET CONDITIONS, BUT...

Challenging market conditions with depressed electricity prices has lead to impairments

Front year contract price (EUR/MWh)

- China induced commodity boom
- High fuel prices
- Financial crisis
- Fukushima
- Increase of German renewables, dropping CO₂ prices, lower demand
- Low coal prices, strong hydro supply

Total impairments of SEK 160.3bn

Source: EEX
...STABILISED FINANCIAL DEVELOPMENT

After several years of challenging market conditions leading to recognition of substantial impairment losses and pressure on profitability, profit levels have now stabilised.
### The Energy Agreement – Positive for Vattenfall

<table>
<thead>
<tr>
<th>Targets</th>
<th>Nuclear</th>
<th>Hydro</th>
<th>Renewables</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Target of <strong>100% renewable production by 2040</strong> (annual production level corresponding to domestic demand)</td>
<td>• <strong>Capacity tax</strong>¹ abolished over two years beginning 2017</td>
<td>• <strong>Real estate tax</strong>² reduced to same level as other power plants (from 2.8% to 0.5% over a four year period starting 2017)</td>
<td>• El-certificate system prolonged - 18 TWh added 2020-2030</td>
</tr>
<tr>
<td>• Sweden should <strong>have zero net emission of GHG by 2045</strong>, implying further electrification</td>
<td>• Adjustments to changes in <strong>Nuclear Waste Fund payments</strong> under investigation</td>
<td>• Expansion of hydro power should in first hand occur through <strong>capacity increases in existing plants</strong>. “Nationalälvarna” still protected.</td>
<td>• Connection charges for <strong>offshore wind</strong> discontinued</td>
</tr>
<tr>
<td>• A target for <strong>energy efficiency</strong> for 2020-2030 to be set</td>
<td>• <strong>No “political phase-out”</strong> of nuclear</td>
<td></td>
<td>• Facilitation of <strong>small-scale production and services</strong> for energy efficiency, storage and sales of power</td>
</tr>
<tr>
<td></td>
<td>• <strong>Permission to replace reactors</strong> at existing sites can be given</td>
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The energy agreement enables Vattenfall to take the lead in the transformation to a sustainability energy system in Sweden

¹ & ²: Approx. SEK 3 billion respectively for Vattenfall in 2015
WE ARE RESHAPING OUR ASSET BASE TO MEET NEW MARKET REQUIREMENTS

<table>
<thead>
<tr>
<th>Grow</th>
<th>Central Production</th>
<th>Grids</th>
<th>Wholesale markets</th>
<th>Commodity sales and decentralized solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Customer attractiveness</td>
<td>• Wind</td>
<td>• Regulated</td>
<td>• Trading</td>
<td>• Electricity retail</td>
</tr>
<tr>
<td>✓ Long term viability</td>
<td>• Solar</td>
<td>• Non-regulated</td>
<td>• Aggregation</td>
<td>• Decentralized</td>
</tr>
<tr>
<td>✓ Strong Vattenfall capabilities</td>
<td>• District heating</td>
<td>• Services</td>
<td>Optimization</td>
<td>solutions**</td>
</tr>
<tr>
<td>✓ Attractive returns</td>
<td></td>
<td></td>
<td>Marketing</td>
<td></td>
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<tr>
<th>Keep and develop</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>✓ Long term viability</td>
<td>• Hydro</td>
<td>• Trading</td>
<td>• Gas retail</td>
</tr>
<tr>
<td>- Limited growth opportunities</td>
<td>• Nuclear</td>
<td>• Aggregation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Gas condensing</td>
<td>Optimization</td>
<td></td>
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<td></td>
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<table>
<thead>
<tr>
<th>Non core</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Limited long term viability</td>
<td>• Hard coal</td>
<td>• Regulated</td>
<td></td>
</tr>
<tr>
<td>- Not supporting the transition</td>
<td></td>
<td>• Non-regulated</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Services</td>
<td></td>
</tr>
</tbody>
</table>

* Hard coal CHP to be converted to gas end of economic life time
**E.g. aggregation services, heat pumps and solar panels
SIGNIFICANT GROWTH IN RENEWABLES

A total of 2.8 GW are now in operation. With a further ~2 GW in development and construction or awarded, Vattenfall is well on track meeting its strategic long-term target on renewable capacity growth.

Highlights H1 2017

✓ Commissioning of UK-onshore wind farms Pen y Cymoedd (228 MW) and Ray (54 MW) and Sandbank in Germany (288 MW)
✓ Investment Decision Slufterdam (29 MW)
✓ Newly established business unit (within BA Wind) for PV and Batteries to increase growth in those areas
✓ More than one third of all capex in the first half of 2017 was invested in new renewables (wind, solar, biomass), in total SEK 2.7 bn

1) Danish Kriegers Flak expected commissioning 2021
2) Commissioning expected in 2025-2027
3) Commissioning TBD
**ELECTRIFICATION IS AN ENABLER FOR SOLVING THE CLIMATE ISSUE**

Vattenfall aims to play a leading role given our strong position in heating, renewable generation and our “Nordic” heritage coming from a low-emitting region.

### Electrification of the transport sector
- Supports e-mobility growth with resulting reduction of CO₂ as well as solving pollution and noise issues

### Electrification of heating
- Energy efficiency achieved by switching from gas, oil or electric boilers to heat pumps or district heating
- Power to heat is an attractive solution to reduce the cost of heating

### Electrification of the industry
- Greater use of electricity by industry can lead to fossil free steel, green concrete and boost the production of non-fossil diesel
ATRACTIVE PARTNER IN THE ENERGY TRANSITION

- Research project for a carbon dioxide free steel industry
- Cooperation in large scale bio-diesel production
- Supplier of carbon dioxide neutral district cooling
- Storage projects at a number of wind parks
- Launch of a market place for energy sharing
- Support of a major enterprise for battery production in Sweden
- Study on electrified cement production
GROWING IN BOTH LARGE SCALE AND DECENTRALISED SOLAR PV

Growth strategy in solar decided in Q1 2017, consisting of two pillars

1. Decentralized solar PV & storage
   Offering solutions for commercial and residential customers. Besides winning new customers Vattenfall will also leverage the existing customer base of 6 million.

2. Large-scale solar
   Installing solar PV at our wind farms or other existing sites offers synergies from using joint grid connections and infrastructure.

Strategic fit with Vattenfall’s purpose and strategy

✓ Solar PV powers climate smarter living
✓ Substantial experience in solar PV and storage already gained
✓ Attractive growth in our main markets, notably the Netherlands
✓ Leverage on synergies by installing solar PV at existing wind farms by using joint grid connection, infrastructure etc.
Key takeaways

- The industrialisation of offshore wind is rapidly changing the competitive environment
- Winning bid levels of 372 DKK/MWh (Vattenfall – Danish Kriegers Flak) and 54.50 EUR/MWh (Shell consortium – Borssele 3/4) considered new industry benchmarks
- Offshore wind is experiencing a learning curve similar to other renewable technologies, from learning to fine-tuning
- The development over the last years ensures offshore wind a long term position in the energy production mix, with benefits for the customers/consumers and the most competitive operators

Vattenfall’s competitive advantage is based on three pillars: fast adaptation to the tender landscape, ability to decrease O&M costs applying latest business standards, lean and agile organisation set-up

1. Figures are only considering revenue streams and are not scope-adjusted, e.g., UK OFTO and grid charges. This might lead to 5-15% correction factor, which does not question the trend as such
VATTENFALL HEAT IN NUMBERS

Highlights

▪ Solid, semi-regulated, revenue streams
▪ A growing customer base with low churn
▪ An accelerating contribution to climate smartness
▪ An established platform to tap into new decentral heat businesses

Key data

>2m end customers measured in dwelling equivalents

Growth by 50k new customers in 2016

20.3 TWh Heat sold in 2016

3,790 employees in 2016

Financial development (SEK bn)

- Net Sales
- EBITDA
- Underlying EBIT

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Sales</th>
<th>EBITDA</th>
<th>Underlying EBIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>27.8</td>
<td>5.6</td>
<td>2.4</td>
</tr>
<tr>
<td>2015</td>
<td>27.3</td>
<td>5.7</td>
<td>1.8</td>
</tr>
<tr>
<td>2016</td>
<td>28.4</td>
<td>7.1</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Vattenfall is a European leader in district heating

1 Including condensing
2 Based on average household heat consumption
THREE CORE MARKETS WITH DIFFERENT CHARACTERISTICS

<table>
<thead>
<tr>
<th>Market characteristics (all market players)</th>
<th>Germany</th>
<th>Netherlands</th>
<th>Sweden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (space) heating market size (TWh)¹</td>
<td>712</td>
<td>203</td>
<td>83</td>
</tr>
<tr>
<td>Dominating fuel</td>
<td>gas/coal/waste</td>
<td>gas/waste</td>
<td>wood/waste/el. no gas grid</td>
</tr>
<tr>
<td>Share of renewables in District Heating (DH)¹</td>
<td>10%</td>
<td>1%</td>
<td>68%</td>
</tr>
<tr>
<td>Average customer heat price €ct/kWh</td>
<td>8</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Number of customer equivalents</td>
<td>1,7m</td>
<td>210k</td>
<td>230k</td>
</tr>
<tr>
<td>Vattenfall’s market position</td>
<td>#1</td>
<td>#1</td>
<td>#3</td>
</tr>
</tbody>
</table>

Growing German market
Young Dutch Market
Mature Swedish market

¹ Source: Vattenfall analysis

A well balanced market mix allows Vattenfall to capitalize on growth opportunities
HEAT: POTENTIAL FOR PROFITABLE GROWTH

Residential heat market structure

- **Netherlands**: <15% DH in cities
  - Other: 100%
  - Renewables, heat pumps: 4%
  - Gas: 86%
  - District Heating: 4%

- **Germany**: 20-30% DH in Berlin and Hamburg
  - Other: 100%
  - Renewables, heat pumps: 49%
  - Gas: 49%
  - District Heating: 2%

- **Sweden**: ~80% DH in Uppsala and Stockholm
  - Other: 100%
  - Renewables, heat pumps: 30%
  - Gas: 52%
  - District Heating: 8%

Our (current) footprint

- **Sweden – mature DH market**
  - Strong growth in metropolitan areas expected (esp. Stockholm, Uppsala)
  - District heating providing CO₂-free base supply, heat pumps taking larger market share

- **Netherlands – young DH market**
  - Strong growth in Amsterdam and surroundings (+6% p.a.)
  - Ambition to replace gas by 2050; an opportunity for district heating growth
  - District heating with high usage of third party heat sources (waste, etc.), growth of heat pumps

- **Germany – developing DH market**
  - Hamburg and Berlin “boom” towns of the future
  - District heating based on climate neutral solutions in densely populated areas; modern decentralised solutions (gas based, heat pumps) replacing old oil and gas boilers elsewhere

A well balanced market mix allows Vattenfall to capitalize on growth opportunities

1) Source: Vattenfall analysis
POSITIVE DEVELOPMENTS IN GERMAN NUCLEAR OPERATIONS IN H1 2017

Vattenfall has significantly reduced its business risks related to German nuclear operations

Four positive developments

✓ EU has approved the new law regarding obligations for interim and final storage of nuclear waste
✓ SEK 17.2 bn payment made on 3rd July (event after Q2) to the public fund, thereby releasing Vattenfall from obligations for interim and final storage of nuclear waste
✓ De-fueling of the nuclear power plant Brunsbüttel: 300 MSEK provisions released
✓ Decision of German constitutional court: SEK 1.8 bn nuclear tax refund for the 20%-share in nuclear power plant Brokdorf

➢ Note: Decision unrelated to the arbitration proceedings at the ICSID\(^1\), where a decision is expected later in 2017.

\(^1\) ICSID: International Centre for Settlement of Investment Disputes (ICSID)