Business Area Markets

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Head of Business Area Markets

Facts and figures – Business Area Markets

Our Mission

We commercially optimise Vattenfall’s and our customers’ portfolios and create value in energy trading in a responsible manner, readily adapting to the evolving market landscape.

Trading volume 2014 (external)

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Electricity (TWh)</td>
<td>2,411</td>
</tr>
<tr>
<td>CO₂ (EUA and CER), mt</td>
<td>1,040</td>
</tr>
<tr>
<td>Gas (TWh)</td>
<td>275</td>
</tr>
<tr>
<td>Coal (Swaps and FFA), mt</td>
<td>178</td>
</tr>
<tr>
<td>Number of counterparts</td>
<td>~750</td>
</tr>
<tr>
<td>Transactions per day</td>
<td>&gt;2,000</td>
</tr>
</tbody>
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BA Markets

Number of employees (FTE) ~700

Asset Optimisation
- Maximise the value of Vattenfall assets in the day-to-day operations up to ~1 month

Portfolio Management
- Manage assets to maximise value and develop and execute hedge strategy
- Support Group on investments / divestments decisions

Trading
- Market access for Vattenfall Group
- Execution of Vattenfall flows and proprietary trading
- Sourcing for hard & liquid fuel

Operations
- Develop IT systems, models for optimisation, pricing, risk management and price forecasting
- Projects for implementation of new products and processes
Vattenfall’s hedge strategy

The hedge strategy is optimised on Group level with the purpose of supporting the financial targets of the owner.

Group Level

Support achieving owner's financial targets and own ambition to maintain single A rating

- FFO / Adjusted Net Debt remains as main financial indicator for hedging
- FFO / Adjusted Net Debt (as defined by Vattenfall) > 22%

The development and execution of the hedging strategy follow a clear process description and governance.

Hedge Target  →  Assessment of financial situation  →  Optimise hedging strategy  →  Feedback loop

FFO / Adjusted Net Debt remains as main financial indicator for hedging

FFO / Adjusted Net Debt (as defined by Vattenfall) > 22%
Hedge levels and prices

Hedging level at the end of each Q1 - Nordic

<table>
<thead>
<tr>
<th></th>
<th>Current year</th>
<th>Current year +1</th>
<th>Current year +2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ratio</strong></td>
<td>Q1 2012</td>
<td>Q1 2013</td>
<td>Q1 2014</td>
</tr>
<tr>
<td>Q1 2012</td>
<td>77%</td>
<td>68%</td>
<td>73%</td>
</tr>
<tr>
<td>Q1 2013</td>
<td>76%</td>
<td>58%</td>
<td>67%</td>
</tr>
<tr>
<td>Q1 2014</td>
<td>68%</td>
<td>54%</td>
<td>56%</td>
</tr>
<tr>
<td>Q1 2015</td>
<td>73%</td>
<td>31%</td>
<td>54%</td>
</tr>
</tbody>
</table>

Note: hedge levels (ratios) in % and prices in EUR/MWh

Hedging level at the end of each Q1 – Continental/UK

<table>
<thead>
<tr>
<th></th>
<th>Current year</th>
<th>Current year +1</th>
<th>Current year +2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ratio</strong></td>
<td>Q1 2012</td>
<td>Q1 2013</td>
<td>Q1 2014</td>
</tr>
<tr>
<td>Q1 2012</td>
<td>100%</td>
<td>100%</td>
<td>98%</td>
</tr>
<tr>
<td>Q1 2013</td>
<td>100%</td>
<td>100%</td>
<td>98%</td>
</tr>
<tr>
<td>Q1 2014</td>
<td>100%</td>
<td>72%</td>
<td>84%</td>
</tr>
<tr>
<td>Q1 2015</td>
<td>98%</td>
<td>28%</td>
<td>55%</td>
</tr>
</tbody>
</table>

Note: hedge levels (ratios) in % and prices in EUR/MWh
Vattenfall welcomes the decision on the EU ETS Market Stability Reserve (MSR)

Political agreement reached on 5 May 2015

- Start date: 1 January 2019 (instead of 2021)
- Direct transfer of the “backloaded” volume of EUAs into the MSR (instead of reinjecting them into the EU ETS market in 2019-2020)
- Direct transfer of “unallocated” EUAs from Phase 3 into the MSR (future usage to be considered in the upcoming ETS review)
- Shortening of the MSR’s reaction time.

• MSR’s two main benefits:
  - address the massive over-supply of EUAs short-term.
  - contribute to a more robust CO\textsubscript{2} price signal long-term.
• By 2020, the amount of EUAs set-aside in the MSR could reach up to 2 billion.
The EU ETS is being structurally reformed, step by step

<table>
<thead>
<tr>
<th>Political process</th>
<th>Backloading</th>
<th>MSR</th>
<th>EU ETS review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content of decision</strong></td>
<td>• Adjustm. of EUA auction volumes within Phase 3:</td>
<td>• Market Stability Reserve established and operative as from 1 January 2019</td>
<td>• Revision of the Linear Reduction Factor (LRF) in line with the EU’s 2030 climate target</td>
</tr>
<tr>
<td></td>
<td>• 2014: -400 M</td>
<td>• Rule-based mechanism to address the over-supply &amp; make CO₂ price robust</td>
<td>• Phase 4 allocation rules. CO₂ leakage measures and competitiveness</td>
</tr>
<tr>
<td></td>
<td>• 2015: -300 M</td>
<td>• The backloaded and unallocated EUAs directly placed into the Reserve</td>
<td>• Expansion of the EU ETS to other sectors, etc</td>
</tr>
<tr>
<td></td>
<td>• 2016: -200 M</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 2019: +300 M</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 2020: +600 M</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Status</strong></td>
<td>[✓]</td>
<td>[✓]</td>
<td>In preparation..</td>
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European market integration is proceeding

- Introduction of flow based market coupling (FBMC) in Central Western Europe on 20 May is a further step towards an integrated European energy market.
- Change of algorithm at power exchange to better reflect physical flows: Capacity calculation and allocation is performed together with market clearing.

⇒ More transmission capacity is made available to transport electricity across borders. This leads to price convergence, better integration of renewables, security of supply and lower costs for consumers.

![Graph showing prices comparison]

*From Q2 2014 – Q1/2015*

- German prices rise
- Dutch prices drop
- ATC: available transfer capacity
- FBI: Flow based intuitive

**CWE**

**Cross-border cables**

**FBMC region**
EC’s initiative – towards an improved market design

Topics expected to be addressed among others:

- Governance of ACER / ENTSO-E
- Blueprint for regional cooperation
- Assessing the need for CRMs in member states
- Design principles (possible blueprint)
- Role of transmission and distribution grids
- Suggestions for defining bidding zones and coupling balancing markets
- Self-consumption
- Integration into spot, intraday and markets
- Suggestions for phase-out of regulated customer tariffs
- Suggestions on role of data handling by DSOs
- In addition, DG Competition launched a State Aid sector inquiry into capacity remuneration mechanisms

- EC market design initiative
- Regional cooperation
- Infrastructure
- Capacity Remuneration Mechanisms (CRMs)
- RES integration
- Retail
Vattenfall’s view: No need for CRMs in a situation of fundamental oversupply

• **Currently, there is no capacity shortage**
  - Low prices and mothballing of capacity are signals of overcapacity
  - Allow prices and capacity to adjust until a new equilibrium is reached

• **Before introducing CRMs, strengthen the existing market**
  - Enable prices to freely fluctuate. Interpret high prices as signals for investment in desired capacity and storage solutions
  - Integrate renewable energy into the European power system by e.g. moving gate closure times closer to real-time
  - Increase flexibility in the power system by e.g. demand side management, coupling of sectors and network as well as investment into interconnection

• **Regional cooperation reduces the need for national generation adequacy measures**
  - Think regionally. Conducting regional supply adequacy assessments (that take cross-border contributions into account) and judging the capacity situation against nationally desired security of supply levels, allows for more efficient use of resources
  - If the target supply adequacy level is in danger, the TSO should be allowed to procure a strategic reserve. Regional solutions for the strategic reserve should be sought
Focus areas

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

<table>
<thead>
<tr>
<th>Challenges/Opportunities</th>
<th>Focus areas</th>
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<tbody>
<tr>
<td>• A New Energy Landscape is evolving</td>
<td>• Increase focus on asset backed and physical trading activities to generate more value from Vattenfall’s portfolio</td>
</tr>
<tr>
<td>• Markets increasingly global and interconnected</td>
<td>• Expand BA Markets platform by repositioning trading &amp; origination to growing value pools - products, commodities, geographies</td>
</tr>
<tr>
<td>• Rising share of intermittent production</td>
<td>• Expand our activities in the New Energy Landscape</td>
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<tr>
<td>• Liquidity stable, but low volatility offering fewer opportunities</td>
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<tr>
<td>• Uncertain regulation</td>
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