Business Group Vattenfall Europe
Dr Rauscher, President Vattenfall Europe

Vattenfall Capital Markets Day, October 5th 2004
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Business Group Vattenfall Europe - Key facts

- **Turnover:** € 7.0 billion (2003/Swedish GAAP)
- **Employees:** Ca. 20,880 (June 30, 2004)
- **Customers:**
  - Electricity: 3 million
  - Network: 3.3 million
  - Heat: ~1.2 million residential units
- **Output:** 74.6 TWh /2003
- **Km Network:**
  - 10,500 km (transmission)
  - 75,000 km (distribution)
- **Mining:** 57 million tons of lignite coal
- **Energy sources:** Lignite, nuclear power, water power, hard coal, organic substances, waste, solar
- **Capacity:** 15,755 MW (Dec. 2003)
**Vattenfall Europe - Legal Structure & Business Units**

<table>
<thead>
<tr>
<th>BU</th>
<th>Vattenfall Europe AG (Holding)</th>
<th>BU Sales</th>
<th>BU Distribution</th>
<th>BU Heat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining &amp; Generation</td>
<td>Vattenfall Europe Mining AG</td>
<td>Private and Business Customers Berlin/Nationwide</td>
<td>Bewag AG</td>
<td>Heat Power Plants, Heat Supply Berlin</td>
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<td>Open-Cast Mining</td>
<td>Vattenfall Europe Transmission GmbH</td>
<td>Transmission Grid</td>
<td>Distribution Grid Berlin</td>
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<td>Vattenfall Europe Generation AG &amp; Co. KG</td>
<td>Private and Business Customers Hamburg/Nationwide</td>
<td>HEW AG</td>
<td>Heat Power Plants, Heat Supply Hamburg</td>
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<td>Conventional Power Plants</td>
<td>Vattenfall Europe Nuclear Energy GmbH</td>
<td>Vattenfall Europe Sales GmbH</td>
<td>Distribution Grid Hamburg</td>
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<td></td>
<td>Nuclear Power Plants</td>
<td>Vattenfall Europe Power Plants</td>
<td>Regional Suppliers Municipal Works</td>
<td></td>
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</tbody>
</table>

Legal Entity

Business Unit as per Vattenfall Group Management Structure
EBIT (Swedish GAAP):

- Actual 03: € 694 million
- Actual 04: € 487 million (H1)
- Good Development expected (H2)

**Cost Reductions Achieved:**

**Staff Reductions Achieved:**
Vattenfall Europe - Market position in Germany

- **Generation:** 16% of 105,000 MW installed generating capacity
- **Mining:** 33% of lignite output
- **Transmission:** 27% of 38,600 km network (220/380 kV)
- **Distribution:** 4.9% of 1,550,000 km network (≤ 110 kV)
- **Sales:** 16% of 500 TW hours energy consumption, 8% of 44 million customers
- **Heat:** 23% in Hamburg, 37% in Berlin
- **Trading:** 12% of wholesale trading volume (2,500 TW hours) in Germany
Strategies / Challenges of the Value Chain

- Rising wholesale price level
- Evaluation of investments in new power plants

- Common trading platform
- Market access function

- Political framework
- Investment projects in grid enforcement (Wind energy)

- Preparation for Unbundling
- Increasing regulatory influence

- Price Development
- Margin precedence over volume

- Stable market position
- Organic growth strategy
The German Market - Energy Mix 2003

Installed capacity (MW)

- Nuclear: 19%
- Lignite: 16%
- Gas: 14%
- Water: 8%
- Hard coal: 22%
- Wind: 12%
- Oil: 6%
- Others: 3%

Generation (MWh)

- Nuclear: 29%
- Lignite: 27%
- Hard coal: 23%
- Gas: 9%
- Water: 5%
- Oil: 1%
- Wind: 3%
- Others: 3%

provisional data, without industry and railway, source: VDEW
The German Market - Capacity Gap until 2020

Demand = load + system reserve

40 - 50 GW capacity decrease
(of which: 20 GW nuclear energy)

Fossil fuels
Potential from repowerment

Source: Study "Investitionen im liberalisierten Strommarkt" by Prof. Pfaffenberger (BEI), 2004
Top Issues

- Implementation of the Kyoto Protocol and the National Allocation Plan
- EU-Directive / New energy law
  - Regulatory Authority
- Renewable Energy Law – impacts of wind power feed-in
**Timetable**

- **7 July 2004**: German NAP accepted with amendments by EU-Commission
- **31 August 2004**: German Allocation law ("Zuteilungsgesetz") comes into force
- **1 November 2004**: Decision of allocation to German installations
- **Sept. – Nov. 2005**: Implementation of linking directive
- **1st half of 2005**: Beginning discussion about specifics NAP 2008
- **31 July 2006**: German NAP 2008-2012
Impact on Vattenfall Europe

- National Allocation Plan provides clear framework
- VE expects nearly full allocation for the first emission trading period (2005-7) due to recognition of “Early Actions”
- Yet, unclear implications for the second emission trading period (2008-12)
- Clarity vital for future investment projects
**Timetable**

- **25 February 2004**: Publication first draft of the new German energy law (EnWG) by the ministry of economics (BMWA)
- **28 July 2004**: Government: Regulation specifics yet undecided
- **24 September 2004**: Statement of federal states: ex-ante regulation claimed
- **5 November 2004**: Government statement re. regulatory specifics
- **Nov. 2004 - ? 2005**: 1st – 3rd parliament reading
- **1st half 2005**: EnWG will come into force
Unbundling of network companies
- Unbundling of functions, information, accounts and legal unbundling

Labelling for electricity supplied to end-users
- Declaration of primary energy mix and impacts of environment (CO₂ emissions/radioactive waste) on bills

Security of supply
- Network owner: Obligation to upgrade and extend network
- Transmission System operator: System responsibility
- Ministry of economics: Possible tendering of generation capacities
Grid Tariffs
- Network operators to prove efficient operation

Regulatory Body
- Supervision by national vs. federal authorities
- Supervision ex-ante or ex-post

Vattenfall Europe’s Position:
- We welcome a regulation of the network market
  - provides tariff transparency
- Return on investments
- Regulator as lean authority with referee status
Network bottlenecks due to strong expansion of wind energy

Massive strengthening of network required

Up to 2011: Network investment of € 500 million required

Balancing Power costly - up to € 600 million p.a.
Forecast - Installed Wind Power Capacity

- **Germany**
- **VE Transmission**

<table>
<thead>
<tr>
<th>Year</th>
<th>MW</th>
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<tbody>
<tr>
<td>2002</td>
<td>5,400</td>
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<tr>
<td>2003</td>
<td>8,000</td>
</tr>
<tr>
<td>2004</td>
<td>11,950</td>
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<tr>
<td>2005</td>
<td>14,500</td>
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<tr>
<td>2006</td>
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<td>2008</td>
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<td>2009</td>
<td>29,000</td>
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<tr>
<td>2010</td>
<td>32,000</td>
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<tr>
<td>2011</td>
<td>35,000</td>
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- **offshore 380 kV**
- **onshore 380/220 kV**
- **onshore bis 110 kV**

1 source: dena 06/2004
Electricity Price Discussion in Germany

Germany: 3500 kWh/yr, household

Year

- Energy+Distribution
- Concession fee
- Coal fee
- CHP
- VAT

- Renewable Energy
- Energy tax
- Consumer Price Index
Electricity price burdens

State-driven burdens on electricity price 1998 and 2004 (EUR billion)

Source: VDEW
1) for Households
2) up to 2000: Stromeinspeisungsgesetz
3) as per tax estimation (BMF), May 2003

1998: 4.4 billion EUR (total)  2004: 14.9 billion EUR (total)

- 3.1 VAT 1)
- 2.3 Renewable-Energy-Act
- 0.7 Combined Heat and Power Act
- 2.2 Concession fee
- 6.6 Eco tax 3)
Grid enforcement Project

- North-line and South-West-Coupling-line approved – ca. 370 km
- Security of supply
- Investment volume ca. € 260 million

Power Plant Investment Analysis

- Approved locations for power plants
- Subject to Supervisory Board approval
- Subject to development of political framework
• Good market position in core business

• Growth options

• Participation in shaping legal framework

• Our Vision: a leading, European, responsible energy company