Vattenfall Capital Markets Day 2008

Presentation by:

Hans von Uthmann
Senior Executive Vice President
Head of Business Group Vattenfall Nordic

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• The generation portfolio
• Nuclear
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Overview – Business Group Nordic

Nordic market:
Vattenfall is the largest electricity generator with 23% market share

• Sweden:
  82.3 TWh electricity generation
  4.8 TWh heat generation
  0.7 million electricity sales customers

• Finland:
  0.8 TWh electricity generation
  1.6 TWh heat generation
  0.3 million electricity sales customers

• Denmark:
  8.0 TWh electricity generation
  4.3 TWh heat generation
The generation portfolio
Our electricity generation portfolio

- 7 Nuclear reactors (~54 TWh/a)
- 53 Large hydro power stations (~33 TWh/a)
- 47 Small hydro power stations (~0.2 TWh/a)
- 5 CHP-plants (~7 TWh/a)
- On- and off-shore wind power (~1.5 TWh/a)
- 7 Condensing plants (reserve power ~0.5 TWh/a)

- Most units are certified according to ISO environmental management system (international standard) or EMAS (European Management Audit Scheme)

- Vattenfall was one of the first energy companies in the world to analyse the electricity generation in a life-cycle perspective – LCA
  - LCA shows the environmental impact on resource use, emissions and waste.

- About 90 % of the generation is environmentally declared according to EPD (Environmental Product Declaration)
### Estimated changes in Base Power 2008 – 2020

<table>
<thead>
<tr>
<th>Country</th>
<th>Total TWh</th>
<th>Wind</th>
<th>Hydro</th>
<th>Nuclear Power Upgrading</th>
<th>Natural Gas CHP*</th>
<th>Biofuel CHP*</th>
<th>Coal/oil CHP*</th>
<th>CHP*</th>
<th>Nuclear</th>
<th>Decommissioning of coal condensing units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sweden</strong></td>
<td>22.9</td>
<td>6.6</td>
<td>1.8</td>
<td>9.1</td>
<td>1.3</td>
<td>5.1</td>
<td>-1.0</td>
<td></td>
<td>12.4</td>
<td>-8.1</td>
</tr>
<tr>
<td><strong>Finland</strong></td>
<td>9.6</td>
<td>1.8</td>
<td>0.6</td>
<td>2.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.4</td>
<td></td>
</tr>
<tr>
<td><strong>Norway</strong></td>
<td>12.4</td>
<td>4.6</td>
<td>1.4</td>
<td>6.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Denmark</strong></td>
<td>-4.3</td>
<td>4.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* District heating and back-pressure generation

**Total Nordic:** 40.6 TWh  
**Increased consumption:** 8.4 TWh
Planned capex for electricity generation 2008-2012

Business Group Vattenfall Nordic:
(SEK billion)

- Total capex: SEK 55 billion
- Whereof growth investments: SEK 29 billion
Growth in renewable energy

- Vattenfall Nordic aims to establishing a further 10 TWh of power generation capacity from renewable sources by 2016

  - Hydropower  approx. 2 TWh
  - Biofuels    approx. 0.5 TWh
  - Wind power approx. 7-8 TWh
Nuclear
Vattenfall’s nuclear strategy

**Target**
- Keep nuclear position in Germany and Sweden
- Expansion of nuclear energy-based generation portfolio in other markets, especially UK
- Reduce CO₂ exposure

**Prerequisites**
- World class safety standard
- Lifetime extension of existing nuclear plants
- Securing sites for future expansion
- Planning, competence and resources for new nuclear

**Opportunities**
- Public awareness of nuclear as CO₂-neutral
- Germany to postpone nuclear phase out?
- Replacement of nuclear in Sweden
Ongoing nuclear capex programme in Sweden

• Programme for renewal
  – Fulfil new security regulations and expected EU harmonisation
  – Modernise power plants for continuously high availability and safety
  – Improved efficiency ($\rightarrow \sim 1.6 \text{ TWh}$)

• Programme for power increase
  – Increase the thermal power on 5 of 7 units ($\rightarrow \sim 6.4 \text{ TWh}$)

• Physical protection
  – Fulfilment of SKIFS 2005:1 with substantially increased level of ambition for the physical protection
Short-term issues Swedish nuclear

There have been four (May-Aug) deviations from the requirements in the Safety Analysis Report, and/or the Technical Specifications:

• Ringhals 2, capacity problem in auxiliary feed water pumps, May (INES 1)
• Forsmark 2, external grid disturbance that resulted in exceeding the thermal limits of the reactor fuel, June (INES 0)
• Forsmark 2, closed valve in one train of the core cooling system, Aug (INES 1)
• Ringhals 3, fuel elements not corresponding to design spec, Aug (INES 1)
Wind
The global wind power revolution is already here…

World wind energy
- total installed capacity and estimate until 2010

New capacity installed 2007 (Diff 2007-2006)
Total capacity installed at the end of 2007

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**Facts:**

- 110 MW - 48 units, 2.3 MW each
- 330 GWh / year
- Investment of SEK 1.8 billion
- Turbine supplier: Siemens
- Foundations supplier: Pihl Hochtief JV
Vattenfall large scale offshore development

316 MW in operation and more than 2,000 MW in pipeline

**Swedish Offshore**
- Trolleboda
  - 110-150 MW
  - 0.3-0.5 TWh
  - All permits 2008
- Taggen
  - 300 MW
  - Approx. 1 TWh
  - Agreement with Wallenstam regarding 50/50 ownership
  - All permits 2009

**Danish offshore**
- Danish Government is planning for 3,000 MW offshore to 2025
- Vattenfall Nordic prepare to bid on next site of 200 MW during 2008

**UK Offshore**
- UK Government is planning for 30,000 MW offshore by 2020
- Vattenfall Nordic is preparing to take part in the site award process for 3,000 MW

**German Offshore**
- German Government is planning for 20,000 MW offshore by 2020.
- Vattenfall Central Europe is developing two projects of totally 500 MW

- Kriegers flak
  - 500 MW
  - Approx. 1.5 TWh
  - All permits 2009
Onshore development mainly in Sweden

Currently more than 2,000 MW in pipeline
Sales activities
153 TWh contracted with power intensive industry

During the last year 33 TWh have been signed in new long-term contracts with industrial customers in order to support their capacity requirements and offer stable and competitive electricity prices. Latest large deals:

- Boliden
- Stora Enso
- Smurfit Kappa
- Vargön Alloy
- Outokumpu
BG Nordic is increasing its retail market share

• Several attractive offers to retail customers

• Strong improvement in CSI for all segments 2008

• The net growth during last 12 months is 70,000 retail customers
Thank you!
Back-up
# Key data – BG Nordic

<table>
<thead>
<tr>
<th></th>
<th>H1 2008</th>
<th>H1 2007</th>
<th>% Change</th>
<th>LTM</th>
<th>FY 2007</th>
<th>FY 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net sales</strong></td>
<td>26.3</td>
<td>24.6</td>
<td>6.9</td>
<td>48.4</td>
<td>46.7</td>
<td>40.1</td>
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<tr>
<td><strong>External net sales</strong></td>
<td>26.8</td>
<td>21.8</td>
<td>22.9</td>
<td>49.4</td>
<td>44.4</td>
<td>48.2</td>
</tr>
<tr>
<td><strong>EBIT</strong></td>
<td>10.3</td>
<td>7.0</td>
<td>47.1</td>
<td>15.9</td>
<td>12.4</td>
<td>13.2</td>
</tr>
<tr>
<td><strong>Net assets</strong></td>
<td>92.7</td>
<td>83.7</td>
<td>10.8</td>
<td>n.a.</td>
<td>91.1</td>
<td>81.7</td>
</tr>
<tr>
<td><strong>Electr. generation, TWh</strong></td>
<td>50.0</td>
<td>48.1</td>
<td>4.0</td>
<td>93.1</td>
<td>91.1</td>
<td>85.8</td>
</tr>
<tr>
<td><strong>Heat generation, TWh</strong></td>
<td>5.9</td>
<td>6.4</td>
<td>-7.8</td>
<td>10.2</td>
<td>10.7</td>
<td>8.5</td>
</tr>
<tr>
<td><strong>Employees</strong>*</td>
<td>9 508</td>
<td>9 458</td>
<td>0.5</td>
<td>n.a.</td>
<td>9 489</td>
<td>9 158</td>
</tr>
</tbody>
</table>

* Excl. intra group transactions  
** At the end of the period  
*** Full time equivalents (FTE)
## Key figures - renewable energy generation

<table>
<thead>
<tr>
<th>Actual June 2008</th>
<th>Wind</th>
<th>Hydro*</th>
<th>Heat</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Profit (MSEK)</td>
<td>234.2</td>
<td>109.3</td>
<td>252.5</td>
<td>596.0</td>
</tr>
<tr>
<td>Investments (MSEK)</td>
<td>418.3</td>
<td>10.3</td>
<td>609.3</td>
<td>1 038.0</td>
</tr>
<tr>
<td>Tangible fixed assets (MSEK)</td>
<td>6 228.8</td>
<td>311.4</td>
<td>5 275.5</td>
<td>11 815.7</td>
</tr>
<tr>
<td>Return on tangible fixed assets (%)</td>
<td>7.4</td>
<td>68.6</td>
<td>8.9</td>
<td>9.6</td>
</tr>
<tr>
<td>Sold Volume Electricity (GWh)</td>
<td>763</td>
<td>201</td>
<td>263</td>
<td>1 227</td>
</tr>
<tr>
<td>Sold Volume Heat (GWh)</td>
<td>2 152</td>
<td>2 152</td>
<td>2 152</td>
<td>2 152</td>
</tr>
</tbody>
</table>

* pertains to hydro power that qualifies for electricity certificates in Sweden