"Powering the future – Marine energy opportunities"
Lisbon, 13.10.2009

Sway floating wind turbines

Michal Forland
CFO
“Our vision is to harvest the abundant deep water offshore wind resources without the need of public subsidies”
Sway history in short

- Sway origins from oil and subsea industry
- 2001: Sway enters floating wind turbine development
- 2005: R&D project floating tower initiated
- 2006: Sway wins Norwegian innovation price.
- 2007: €20M equity raise. StatoilHydro, Lyse and Norwind new co-owners
- 2007: Verification of scaled prototype in wave tank
- 2007: Build up organization of 17 empl.
- 2009: Sway received concession floater
- 2009: Sway and Multibrid announce partnership.
Major owners:
• Statoil
• Statkraft
• Norwind
• Lyse Produksjon AS

- Wind direction
- Wire stays
- Floating tower
- Ballast
- Yaw bearing
- Tension / torsion leg
- Suction anchor
- Universal joints
Market for the SWAY technology

- Large scale power export to the onshore grid – Asia, USA, Europe etc.
  - China 30GW offshore by 2020
  - Spain 5GW floating offshore by 2020
  - Maine (US) 5GW floating offshore by 2020

- Power Supply to offshore installations.
Why deep water?

- Similar Capex to shallow water, but 20-30% higher annual production
- Flexible positioning (fisheries and other interest)
- Possible to place nearby load centers (save onshore grid)
- Many countries have no alternatives offshore; Spain, US, Japan and Portugal?

<table>
<thead>
<tr>
<th>Annual average wind velocity</th>
<th>10MSL m/s</th>
<th>90MSL m/s</th>
</tr>
</thead>
<tbody>
<tr>
<td>North sea</td>
<td>8.6</td>
<td>11.5</td>
</tr>
<tr>
<td>Galicia</td>
<td>7.7</td>
<td>10.7</td>
</tr>
<tr>
<td>Trafalgar</td>
<td>6.5</td>
<td>9.5</td>
</tr>
<tr>
<td>40km off Cabo Raso</td>
<td>7</td>
<td>10</td>
</tr>
</tbody>
</table>

Productivity in kWh/kW installed wind power

<table>
<thead>
<tr>
<th>Location</th>
<th>kWh pr. kW installed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onshore field Norway</td>
<td>3000</td>
</tr>
<tr>
<td>Horns Rev Offshore Denmark</td>
<td>3750</td>
</tr>
<tr>
<td>SWAY</td>
<td>4415</td>
</tr>
</tbody>
</table>
Wind and depth conditions in Portugal
Example off "Cabo Raso"
Units 1500, effect 7500MW and output 30.000GWh
Our way forward..

- Sway 5MW first turbine to be installed in 2011
- Sway seek collaboration with utility costumer for the first turbine
- Unlimited source of cost competitive clean energy available from 2015
- Potential to reduce costs significantly (30-50%) the next 10-15 years by technology steps.
- Floaters can be step changer in renewable contribution to world energy production
Thank you for your attention!

Learn more about Sway at:

www.sway.no