Global Wind Power Outlook

Steve Sawyer, Secretary General
ReVision 2012, Tokyo
9 March 2012
GWEC – Uniting the global wind industry and its representative associations
2011 growth: 20.9%

15 yr avg growth: 27.8%
Beijing        |        Brussels        |        London

15 yr avg growth: 29.2%

2011 growth: 6%

GLOBAL ANNUAL INSTALLED WIND CAPACITY 1996-2011

15 yr avg growth: 29.2%
MARKET FORECAST 2011-2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual capacity [GW]</th>
<th>Cumulative capacity [GW]</th>
<th>Annual capacity growth rate [%]</th>
<th>Cumulative capacity growth rate [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>38.3</td>
<td>197.0</td>
<td>24.1</td>
<td>-0.5</td>
</tr>
<tr>
<td>2011</td>
<td>43.5</td>
<td>240.6</td>
<td>22.1</td>
<td>13.6</td>
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<tr>
<td>2012</td>
<td>48.1</td>
<td>288.7</td>
<td>20.0</td>
<td>10.6</td>
</tr>
<tr>
<td>2013</td>
<td>52.7</td>
<td>341.4</td>
<td>18.3</td>
<td>9.6</td>
</tr>
<tr>
<td>2014</td>
<td>57.1</td>
<td>398.5</td>
<td>16.7</td>
<td>8.3</td>
</tr>
<tr>
<td>2015</td>
<td>62.5</td>
<td>459.0</td>
<td>15.2</td>
<td>9.5</td>
</tr>
</tbody>
</table>
Offshore development

~ 4100 MW Global cumulative capacity end 2011: <2% of total installed wind power capacity

~1,000 MW 2011 Market
  ~2.5% of annual wind power market

2020: ~70 GW <10% cumulative capacity
Challenges (1)

Perceptions

LEVELIZED COSTS: BEST NEW WIND VS NEW COAL ($/MWh)

Perception:
- Wind: 120
- Coal: 30

Reality:
- Wind: 65
- Coal: 68

- New coal must cover cost of capital
- New coal requires advanced pollution control
- Wind turbines back to 2005 prices, but now perform much better
- Wind bankability has driven down cost of capital
- Coal suffers from carbon price risk

Source: Bloomberg New Energy Finance
Challenges (2)

Integration/transformation

Coherent and flexible energy systems

- Transportation
- Electric vehicles
- Heat pumps
- Electric boilers
- Gas & Oil
- District Heating
- Other sectors

50% of electricity demand

Energy vs. Electricity graph
New Markets

Latin America: Brazil leading, followed by Mexico, Chile, Uruguay and others;

Africa: Morocco and Egypt; now Kenya, followed by Tanzania and Ethiopia. South Africa now beginning

Asia: Mongolia, Viet Nam, Thailand, Sri Lanka. Japan?
Conclusions

- Asian market driving global growth
- European market solid for now
- North America uncertain and volatile
- Hopeful signs in Latin America, Africa
- Downward price pressure continues
- Trade barriers/new protectionism?
- International commodity price volatility returns with economic recovery
- **Market drivers all still in place**, and increasingly prominent: energy security; cost stability; macroeconomic security; local economic development and job creation; local environment and climate
Thank you!

For more information:

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