Results

WINDENERGY TREND: INDEX – AN ON- AND OFFSHORE WIND ENERGY SURVEY

WindEnergy Hamburg
The global on- & offshore expo
25 – 28 September 2018

windenergyhamburg.com
INTRODUCTION
TASK, METHODOLOGY, PARTICIPANTS

WindEnergy Hamburg, the world’s leading expo for onshore and offshore wind energy, has prepared—in cooperation with wind:research, the leading market research institute for the wind energy sector—a “mood barometer” that measures the WindEnergy trend:index (WETI).

The first survey period was from March 16 to April 19, 2018, during which period the online survey had roughly 1,200 responses, of which over 700 answered all questions.

The distribution of response rates (based on IP addresses) among countries and regions approximates the market sizes of the countries and regions with regard to onshore and offshore wind. Therefore a highly representative status was achieved. Only China, with a relatively strong isolated market and a low response rate, is underrepresented compared with the Asia region. This statement addresses the installed capacity onshore and offshore and the importance, or rather the market shares, of the wind energy industry (turbine, tower, foundation, project development, etc.).

The distribution of the respondents lies mostly in the onshore sector, which has more than double the mentions that occur in the offshore sector. Slightly less than half of the participants are active in both market sectors.

The respondents are primarily active in production, mostly in turbine production. Operation and maintenance, project development, installation, and other sectors are present as well, according to market shares.

More than half the participating companies focus on Germany and/or Europe; North America, Asia, and the rest of the world are ranked similarly.

Management is the most highly represented category, at approximately 25%. R&D, sales, and maintenance each account for roughly 10%.

On the following charts. “Germany” may be chosen separately but is also included in the “Europe” option.

As noted above, the first survey period was from March 16 to April 19; the second survey period will start with the opening of WindEnergy Hamburg 2018 on September 25, 2018.
SUMMARY
KEY FINDINGS

The first survey, online from March 16 to April 19, had a very good return rate, with almost 1,200 responders, of which over 700 answered all questions. Key findings are:

- All in all, the distribution is assessed as mostly representative, so that a substantiated picture can be derived from the WindEnergy trend:index.
- The mood regarding framework conditions for onshore wind is mostly neutral to good. In Germany, the mood today is not as positive as the mood in Asia or rest of the world (ROW).
- The mood regarding the framework conditions in the offshore wind energy sector is significantly better than in the onshore sector. This holds true mainly for Asia, while the ROW noticeably drops compared to the others.
- The current market situation for onshore wind is assessed mainly neutral for Germany, with some negative and even very negative assessment. Europe, and especially Asia, are ranked significantly better.
- The current market situation for offshore wind is assessed significantly better overall than for onshore. Europe stands out with a mostly positive assessment.
- The future market situation for onshore wind is assessed as very positive to neutral for Asia and Europe, as well as for the rest of the world. The assessment for North America leans toward neutral.
- The future market situation for offshore wind is assessed differently from that for onshore wind: Asia and Europe are clearly in the lead and even more positive for the offshore market than for the onshore market. Germany, North America, and ROW drop in comparison.
Digitalization will lead to optimization in the onshore and offshore sectors, according to 2/3 of the respondents. More than 20% of the respondents rated the potential for offshore wind as very high, whereas the potential for onshore wind was rated high at most. There are almost no mentions of very low and low potential.

New technologies will lead to cost reductions, especially in the offshore wind sector, according to almost 3/4 of the respondents (compare zero bids in the 2017 tender procedures). For onshore wind, more than half of the respondents state the aforementioned assessment.

It will be exciting to see the results of the next survey, starting with the opening of WindEnergy Hamburg 2018 on September 25, 2018.
The leading on- and offshore wind nations and regions were defined for the poll. As the event takes place in Germany, the team decided to list Germany separately from Europe. North America was another option to select. Rest of the World contains: Africa, Australia/Oceania as well as Central and South America.
The distribution of key activities of the participants lays mostly in the onshore sector – more than double the amount of mentions than in the offshore sector, slightly less than half of the participants are active in both market sectors.

In which segment of the wind industry is your company’s focus?

- Onshore: 43%
- Offshore: 39%
- Both: 18%

n = 1,091
The mood regarding framework conditions for onshore wind is mostly neutral to good. In Germany, the mood today is not as positive as the mood in Asia or rest of the world (ROW).

How do you assess the current development of the framework conditions for onshore wind energy (overall: legal, political and social)?

- **Germany**
  - Very negative: 7%
  - Negative: 31%
  - Neutral: 30%
  - Positive: 25%
  - Very positive: 7%

- **Europe**
  - Very negative: 16%
  - Negative: 40%
  - Neutral: 35%
  - Positive: 7%

- **North America**
  - Very negative: 4%
  - Negative: 14%
  - Neutral: 56%
  - Positive: 23%
  - Very positive: 3%

- **Asia**
  - Very negative: 5%
  - Negative: 48%
  - Neutral: 34%
  - Positive: 12%

- **Rest of World**
  - Very negative: 7%
  - Negative: 53%
  - Neutral: 30%
  - Positive: 9%

n = 718
The mood regarding the framework conditions in the offshore wind energy sector is significantly better than in the onshore sector. This holds true mainly for Asia, while the ROW noticeably drops compared to the others.

<table>
<thead>
<tr>
<th>Region</th>
<th>Very Negative</th>
<th>Negative</th>
<th>Neutral</th>
<th>Positive</th>
<th>Very Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>4%</td>
<td>16%</td>
<td>35%</td>
<td>35%</td>
<td>10%</td>
</tr>
<tr>
<td>Europe</td>
<td>8%</td>
<td>32%</td>
<td>46%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>North America</td>
<td>3%</td>
<td>14%</td>
<td>55%</td>
<td>24%</td>
<td>5%</td>
</tr>
<tr>
<td>Asia</td>
<td>6%</td>
<td>48%</td>
<td>32%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>Rest of World</td>
<td>3%</td>
<td>14%</td>
<td>67%</td>
<td>14%</td>
<td>3%</td>
</tr>
</tbody>
</table>

n = 519
2018: The current market situation for onshore wind is assessed mainly neutral for Germany, with some negative and even very negative assessment. Europe, and especially Asia, are ranked significantly better.

2020: The future market situation for onshore wind is assessed as very positive to neutral for Asia and Europe, as well as for the rest of the world. The assessment for North America leans toward neutral.
2018: The current market situation for offshore wind is assessed significantly better overall than for onshore. Europe stands out with a mostly positive assessment.

2020: The future market situation for offshore wind is assessed differently from that for onshore wind: Asia and Europe are clearly in the lead and even more positive for the offshore market than for the onshore market. Germany, North America, and ROW drop in comparison.

How do you assess and predict the global market for the offshore wind industry? (comparison of 2018 and 2020)

- Germany 2018: 14%, 38%, 38%, 9%
  - Germany 2020: 10%, 38%, 39%, 12%
- Europe 2018: 7%, 35%, 45%, 13%
  - Europe 2020: 5%, 28%, 48%, 19%
- North America 2018: 14%, 54%, 25%, 5%
  - North America 2020: 10%, 45%, 33%, 10%
- Asia 2018: 4%, 45%, 36%, 13%
  - Asia 2020: 2%, 38%, 40%, 20%
- Rest of World 2018: 3%, 12%, 64%, 16%
  - Rest of World 2020: 2%, 9%, 57%, 26%

Very negative | Negative | Neutral | Positive | Very positive
--- | --- | --- | --- | ---
14% | 10% | 7% | 5% | 2%
38% | 38% | 35% | 45% | 28%
38% | 39% | 45% | 48% | 48%
9% | 12% | 13% | 19% | 20%
54% | 45% | 33% | 25% | 5%
25% | 10% | 13% | 20% | 5%
64% | 57% | 26% | 16% | 5%
16% | 6% | 13% | 20% | 5%

n2018 = 466
n2020 = 431
Digitalization will lead to optimization in the onshore and offshore sectors, according to 2/3 of the respondents. More than 20% of the respondents rated the potential for offshore wind as very high, whereas the potential for onshore wind was rated high at most. There are almost no mentions of very low and low potential.
New technologies will lead to cost reductions, especially in the offshore wind sector, according to almost 3/4 of the respondents (compare zero bids in the 2017 tender procedures). For onshore wind, more than half of the respondents state the aforementioned assessment.

<table>
<thead>
<tr>
<th></th>
<th>Very Low</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onshore</td>
<td>7%</td>
<td>35%</td>
<td>46%</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>Offshore</td>
<td>3%</td>
<td>27%</td>
<td>40%</td>
<td>29%</td>
<td></td>
</tr>
</tbody>
</table>

n = 715
The respondents are primarily active in production, mostly in turbine production. Operation and maintenance, project development, installation, and other sectors are present as well, according to market shares.

On which level of the value chain is your company’s activity in the wind energy industry? (Multiple answers possible)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>36%</td>
</tr>
<tr>
<td>Operation and maintenance</td>
<td>17%</td>
</tr>
<tr>
<td>Planning and projecting</td>
<td>15%</td>
</tr>
<tr>
<td>Installation</td>
<td>12%</td>
</tr>
<tr>
<td>Others</td>
<td>10%</td>
</tr>
<tr>
<td>Financing and insurance</td>
<td>6%</td>
</tr>
<tr>
<td>Energysupply / gridoperation</td>
<td>5%</td>
</tr>
</tbody>
</table>

Breakdown of "Production"

- Substations: 25%
- Foundations / transition pieces (TPs): 13%
- Towers: 14%
- Blades: 20%
- Others: 19%
- Turbines: 10%

n = 682
N = 1,880
n = 658
More than half the participating companies focus on Germany and/or Europe; North America, Asia, and the rest of the world are ranked similarly.

<table>
<thead>
<tr>
<th>Region</th>
<th>Focus Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>62%</td>
</tr>
<tr>
<td>Europe (incl. Germany)</td>
<td>79%</td>
</tr>
<tr>
<td>Asia</td>
<td>34%</td>
</tr>
<tr>
<td>North America</td>
<td>41%</td>
</tr>
<tr>
<td>Rest of the world</td>
<td>32%</td>
</tr>
</tbody>
</table>

n = 681
N = 1,690
RESPONSIBILITIES OF THE PARTICIPANTS

Management is the most highly represented category, at approximately 25%. R&D, sales, and maintenance each account for roughly 10%. All in all the distribution is assessed as mostly representative, so that a substantiated picture can be derived from the WindEnergy trend:index.

<table>
<thead>
<tr>
<th>What is your area of responsibility?</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>25%</td>
</tr>
<tr>
<td>Others</td>
<td>15%</td>
</tr>
<tr>
<td>Research and development, design</td>
<td>13%</td>
</tr>
<tr>
<td>Sales</td>
<td>11%</td>
</tr>
<tr>
<td>Maintenance, repairs</td>
<td>8%</td>
</tr>
<tr>
<td>Marketing, advertising, PR</td>
<td>6%</td>
</tr>
<tr>
<td>Manufacturing, production, quality control</td>
<td>5%</td>
</tr>
<tr>
<td>Finance, accounting, controlling</td>
<td>5%</td>
</tr>
<tr>
<td>Logistics, material management, storage, transport</td>
<td>5%</td>
</tr>
<tr>
<td>Buying, procurement</td>
<td>3%</td>
</tr>
<tr>
<td>Information and communication technology</td>
<td>2%</td>
</tr>
<tr>
<td>Human resources, administration</td>
<td>1%</td>
</tr>
</tbody>
</table>

n = 674
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Next online panel: August/September 2018

The first survey period was from March 16 to April 19, 2018, during which period the online survey had roughly 1,200 responses, of which over 700 answered all questions. The origin of the respondents was mainly Germany (60%) and Europe (30%). [source: IP-addresses]