New Offshore Wind Tenders in Denmark

1,350 MW before 2020
This is all you have to know

15 percent
30 percent
70 percent
Denmark - 24 years of experience in offshore wind

- **1991**: First Danish offshore wind farm


- **2011**: 868 MW offshore

- **2012**: Anholt 400 MW new offshore wind farm

- **2013**: app. 1300 MW offshore
New Offshore Wind projects in Denmark

- Horns Rev 3: 400 MW
- Kriegers Flak: 600 MW
- Tender for 350 MW near shore wind farms
- 50 MW turbines for research and development
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Electricity consumption by energy source

2010:
- Coal: 40%
- Natural gas: 30%
- Other RE: 20%
- Wind: 10%

2020:
- Coal: 30%
- Natural gas: 20%
- Other RE: 30%
- Wind: 20%
Role of the Danish Energy Agency

- Responsible for the call for tenders
- Contracting authority
- Responsible authority for EIA offshore
- One-stop-shop for permits
- Planning of future wind farms
The Danish offshore approach
Low risk

- TSO to develop the site and EIA
- Grid connection constructed and paid for by the TSO*
- Fixed feed-in tariff for 50,000 full-load hours
- Priority access to the grid

*For nearshore farms: Cable to shore constructed and paid for by the investor
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The Danish offshore approach
Low risk

- Dialogue and negotiation with potential bidders
- Efficient and transparent electricity market
- No requirement for local content
- Award criteria is price only
- One Stop Shop
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Horns Rev 3

Denmark's 14th offshore wind farm

App. 160 km² pre-investigation area

Grid connection guaranteed from January 2017
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Horns Rev 3 timeline

November 2013: Contract notice
Beginning of 2014: Preliminary tender specifications
23 April 2014: Deadline for prequalification
16 September 2014: Deadline for preliminary tenders
December 2014: Final tender specifications
16 February 2015: Deadline for binding tenders
Soon after: Concession contract and licenses
From 1 January 2017: Guaranteed connection to the grid
Early 2020: Full operation of offshore farm

Please note: The deadline for binding tenders has been postponed.
The outcome of the Horns Rev 3 tender:

- Competitive tender procedure
- Price-reduction $\rightarrow$ 32 percent
- More efficient and bigger turbines drive costs down
- Industry also praised the tender process for being transparent and cost-effective $\rightarrow$ 15 percent.
New Offshore Wind Tenders in Denmark

Historic bid prices for Danish offshore wind farms

<table>
<thead>
<tr>
<th>Tender</th>
<th>Øre pr. kWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horns Rev 2</td>
<td>64,5</td>
</tr>
<tr>
<td>Rødsand 2</td>
<td>71,4</td>
</tr>
<tr>
<td>Anholt</td>
<td>113,2</td>
</tr>
<tr>
<td>Horns Rev 3</td>
<td>77</td>
</tr>
</tbody>
</table>

The graph shows the following:

- **Horns Rev 2** with a bid price of 64,5 Øre per kWh.
- **Rødsand 2** with a bid price of 71,4 Øre per kWh.
- **Anholt** with a bid price of 113,2 Øre per kWh.
- **Horns Rev 3** with a bid price of 77 Øre per kWh.
Getting to where we are today:

It took us 11 years and two important rounds of trial and error to get the tender strategy right.
First round: From Rødsand to Anholt

• Get a sharp price!
Second round: From Anholt to Horns Rev 3

• Dialogue, negotiations and flexibility
Conclusions

• Technology specific tenders work spectacularly well if they are done right.

• Competitive bidding with initial dialogue and negotiations works – if you have the right partners in a mature market.

• It takes time to develop a successful tender strategy.
Thank you for your attention
Extra slides
<table>
<thead>
<tr>
<th>Pre-investigations and EIA On- and offshore (internal resources)</th>
<th>Technical project (grid connection) (internal resources)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 full-time resources (app. 3 years) (March 2012 – March 2015)</td>
<td>6 full-time resources for app. 2 years</td>
</tr>
<tr>
<td>2 full-time resources app. 1 year (March 2015 – March 2016)</td>
<td>10 full-time resources for app. 2 years</td>
</tr>
<tr>
<td>NOT including consultants doing the pre-investigations and EIA on contract with Energinet.dk</td>
<td>NOT including consultants doing the designs etc. on contract with Energinet.dk.</td>
</tr>
<tr>
<td>NOT including resources to handle negotiations with private landowner (right-of-way etc.).</td>
<td>NOT including client representative on various production sites and for the offshore installation.</td>
</tr>
</tbody>
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