



NORTH SEAS DECLARATION ON ENERGY COOPERATION (SG4)

Technical Standards & Regulation

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WindEurope: Representing offshore wind

- **Working Group: Offshore Wind**

- An industry work group comprising of all leading developers, turbine manufacturers and supply chain
- Membership includes national associations
- Reworked our group structure in 2017 to mirror the support groups in North Seas declaration

- **Offshore Wind Ports Platform**

- Largest European offshore wind ports at the table
- Launched in September 2016
- Sharing best practice between ports

The state of the industry

As of 1 January 2017:

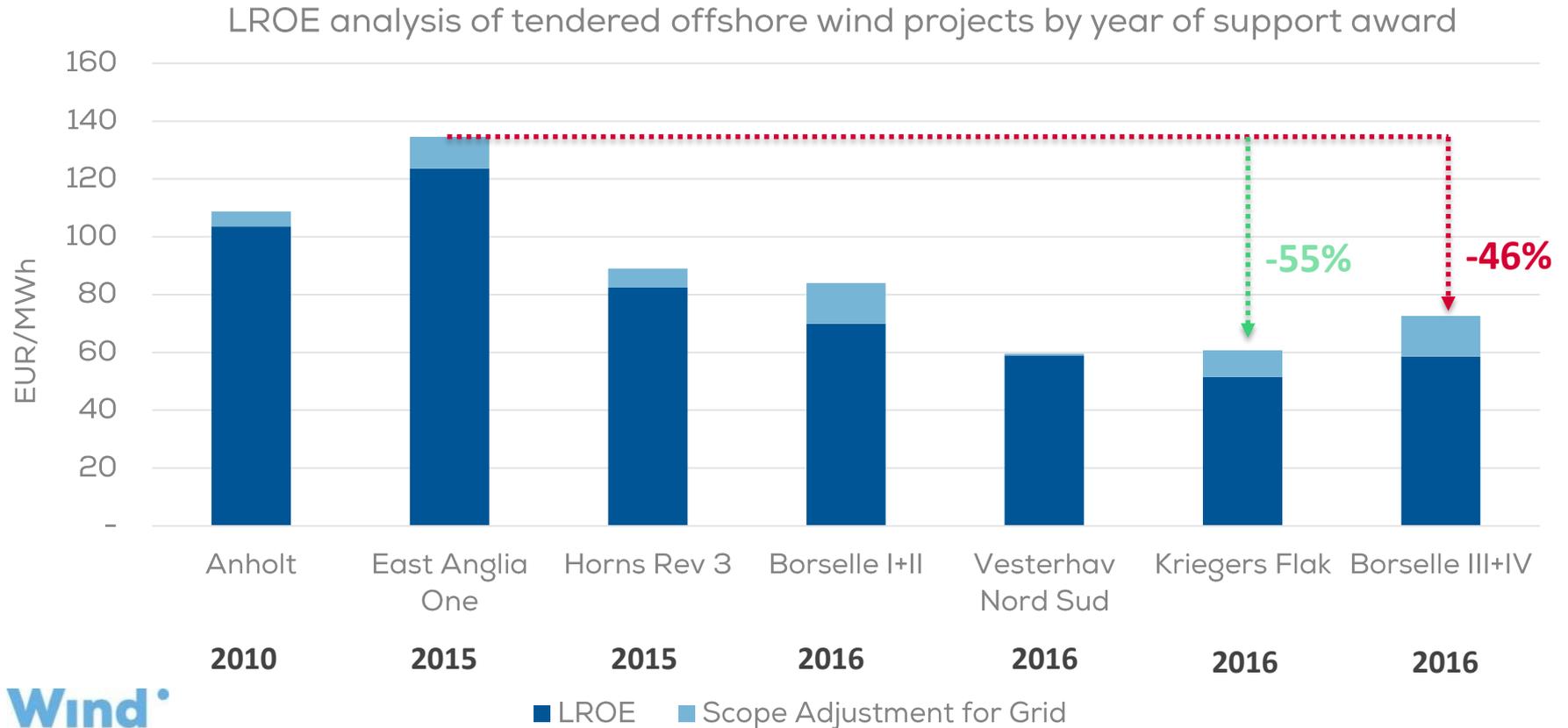
12,631 MW Installed capacity

3,589 Grid-connected turbines

€64.7bn New asset investment
2010-2016

+15% Larger turbines vs 2015

Cost trajectories in Offshore Wind



Industry's focus within Support Group 4

Cost reduction is industry's priority within this Support Group

- Policy review as another driver in cost reduction via several channels
 - Harmonisation of standards
 - Sharing of best practices and guidance
 - Up-to-date information, scientific findings
- Key recommendations are within our **Regulatory Practices Report**
 - Kept in restricted working status to allow for newest updates
 - Government updates received from BE/DK/NL/UK



Regulations and standards



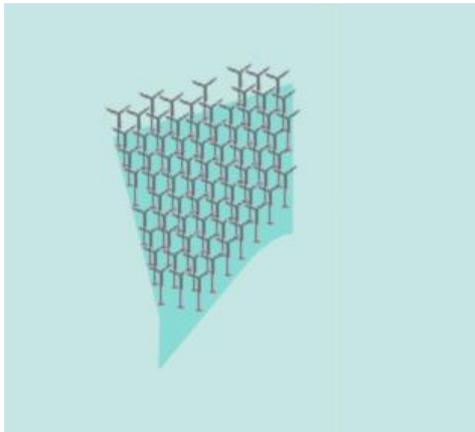
Issues raised by offshore wind industry

1. Park Layout
2. Underwater Noise
3. Decommissioning
4. Project Certification & Standards
5. Unexploded Ordnance
6. Crew and Vessel Requirements
7. Aviation Markings and Lighting
8. Shipping markings (TP)
9. Cable Burial
10. Health and Safety alignment
11. Search and Rescue provision
12. Treatment between EEZ and Territorial Seas
13. Helihoist design alignment

1. Sharing best practice on park layout

Larger turbines naturally increasing turbine spacing

Humber Gateway
219 MW – 73 x 3 MW
35 km²



Westermost Rough
210 MW – 35 x 6 MW
35 km²

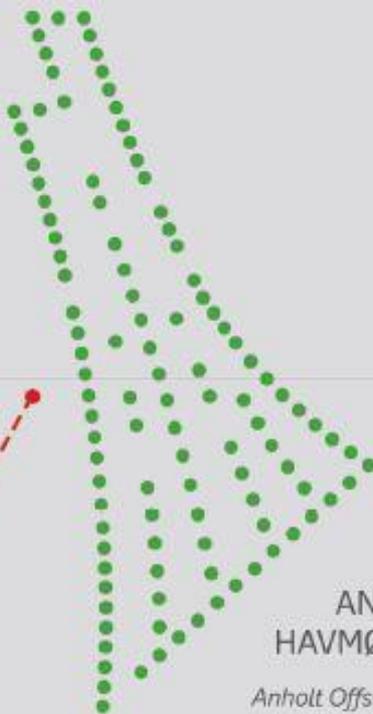


1. Sharing best practice on park layout



Park layout considerations

- Site area allocation
- Seabed conditions
- Yield optimisation
 - Concentrated outer edge layout



ANHOLT
HAVMØLLEPARK
Anholt Offshore Wind Farm

DJURSLAND



1. Sharing best practice on park layout

ISSUE

- Technological shift will naturally increase spacing
- Optimised layout can increase energy yield and save installation costs

RECOMMENDATION

- Avoid line of sight and turbine spacing requirements

UPDATE

- **UK** – MGN 543 (Safety of Navigation in OREIs)
 - Annex 2 – (3) d, e – Spacing and concentrated outer ring considered case-by-case

4. Project Certification and Standards

ISSUE

- Markets that require certification normally adopt IEC, however Germany has adopted DIN Eurocode as highest tier its *hierarchy of standards*.
- Eurocode isn't made for offshore wind
- Requires double application of standards, and lengthening the route to market.

RECOMMENDATION

- Harmonise across markets and adopt a single, international standard
- European industry to work on gaining prominence in defining IEC standards

5. Unexploded Ordnance (UXOs)

ISSUE

- Disposal of UXOs is currently not open to competition

RECOMMENDATION

- Where the developer pays, the industry recommends opening up process to free markets
- Handling of UXOs should follow [CIRIA guidelines](#)
 - Cooper and Cooke (2015). *Assessment and management of unexploded ordnance (UXO) risk in the marine environment (C754)*, September 2015, pp. 180, CIRIA, ISBN 978-0-86017-760-9.
 - Guideline development involved government (HSE, UKHO, MCA, MMO) and industry

6. Crew and Vessel requirements

ISSUE

- Classification of offshore wind technicians differs per market and limits supply of crews and vessels, most notably in Denmark
- Interpretation of current ISPS codes is not uniform
- IMO in the middle of creating third technician class

RECOMMENDATION and **UPDATE**

- Apply [IMO Update](#) – Resolution MSC.418(97) – 25 November 2016
 - *Interim Recommendations on the safe carriage of more than 12 industrial personnel on board vessels engaged on international voyages among others.*

7. Aviation markings and lights

ISSUE

- Differing rules on markings and placement of lights. Placement of lights in particular require new structural designs of blade and tower.
- Requirements for lights in the periphery vs inside of the OWF differ in markets.

RECOMMENDATION

- Alignment to one common standard would allow for enhanced serial design and production

7a. Aviation markings and lights

Spots.



7a. Aviation markings and lights

Stripes.

8. Shipping Markings

ISSUE - Germany

- According to WSV Marking and Lighting guidelines (Kennzeichnungsrichtlinie 2014 und Rahmenvorgabe 2016)
- Visibility requirements in Germany of transition pieces require constant re-certification where certification processes have not existed in the past.
- Failure to comply potentially results in repainting the entire offshore wind farm
- No paint guarantee is currently available

Treatment between territorial waters and EEZ

WindEurope's Offshore Wind Ports Platform best suited to forming industry views:

- Customs duties from O&M vessels going out into EEZ but returning to same port
- Cross-border procedures (e.g. Port leaving DK/NL to service DE OWFs)
- Emissions management vs other maritime industries
- Waste management vs other maritime industries



Thank you

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