

Connecting German Offshore Windfarms – Current Issues and Perspectives

Marius Backhaus

Stiftung Offshore-Windenergie

German Offshore Wind Energy Foundation

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German Offshore Wind Energy Foundation

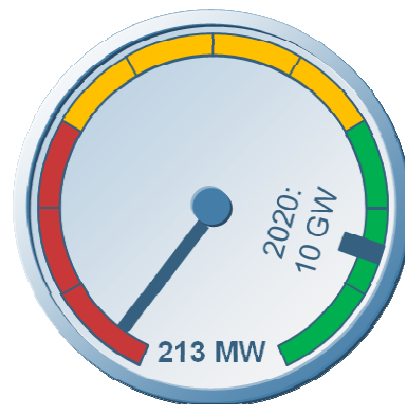


- Independent institution to support the development of offshore wind energy
- Owner of *alpha ventus* permit
- Committees include a very broad range of industry-, policy-, and research-oriented stakeholders



Status Quo Offshore - Germany

Generation capacity

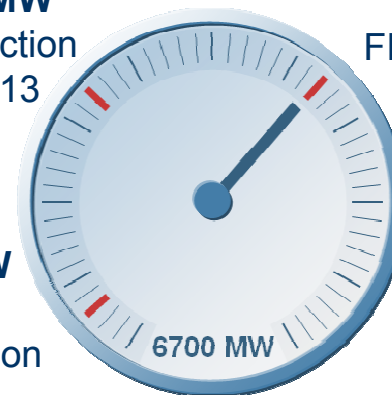


Installed capacity

2700 MW
Construction
2012/13

3500 MW
FID expected
2012/13

500 MW
Under
construction



Pipeline

Offshore transmission capacity



Offshore Transmission Frame

Technology

- HVDC cluster connections for most North Sea projects; only Baltic Sea and few nearshore sites directly AC-connected

Offshore transmission regime

- OWF grid connection legally defined part of the transmission grid, TSO required to provide timely connection (since 2006)
- OWF has to fulfill criteria/milestones defined by regulatory authority to trigger TSO realisation of grid connection
- TSO's investment costs are recovered via grid usage fees paid by electricity consumers, controlled by regulatory authority

North Sea Connections Delayed

- Current regime works for Baltic Sea and nearshore connections, but North Sea HVDC connections are delayed by 15-20 months
- TenneT TSO announced inability to continue current practice of grid connection (11/2011)

→ **Significant delays and planning insecurities for OWFs**



‘Working Group Acceleration‘

- Federal Minister of Economics initiated working group in 01/2012
- Participants from ministries, authorities, industry; moderated by German Offshore Wind Energy Foundation
- WG presented recommendations to Federal Ministers of Economics and of the Environment in 03/2012



Liability - Insurability

- Study by MARSH identified 80 potential grid-failure scenarios and analysed frequency, downtime and amount of damage
- 27 scenarios covered; 13 un-insurable; 40 could be fixed within 3 months (=excess)
- Potential losses can amount to € 200-1,400 million

→ **Develop a legal solution for liability issue**



Meshed Grid – Risk Mitigation

- Study by BET on meshed offshore grid's potential for minimising grid-failure risks
 - Cost-benefit analysis of AC-connections between converters
 - Connections within clusters yield economic benefits for all cases
- Consider meshed grid & provide necessary foundations



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Offshore Grid Plan - Standards

- Offshore grid sectoral plan, designed by Federal Maritime and Hydrographic Agency (BSH)
 - Sets standards, positions cable routes & converter stations
 - Provides basis for a more coordinated grid approach
- **Develop a new offshore transmission regime based on offshore grid sectoral plan**





Thank you!

Marius Backhaus

m.backhaus@offshore-stiftung.de

+49-30-27595-218

German Offshore Wind Energy Foundation

Berlin Office

Schiffbauerdamm 19, 10117 Berlin, Germany

berlin@offshore-stiftung.de

Varel Office

Oldenburger Str. 65, 26316 Varel, Germany

info@offshore-stiftung.de

www.offshore-stiftung.de www.offshore-windenergie.net