Steps towards meshed offshore grid development in the Baltic Sea

Berlin, 26 February 2019
Policy and regulation: research within the project

Why policy and regulation?

- Legal framework (EU/national): makes projects possible
- Policy / regulatory incentives: makes projects realistic

Research outputs

- Main report: Establishing a meshed offshore grid policy and regulatory aspects and barriers
- European and national offshore wind energy policy in the Baltic Sea Region – a regional status report
- Paving the way to a meshed offshore grid – Recommendations for an efficient policy and regulatory framework
- Institutional framework for the development of OWP projects investment
- Economic considerations – regulatory framework for offshore wind investments
- International cooperation on the expansion of offshore wind generation
Identified challenges

Policy aspects
• Scepticism and lack of political will
• Lack of acceptance
• Lack of suitable instruments: OWE targets, MSP...

Legal framework
• Lack of legal definitions
• Lack of suitable operation rules
• Lack of / unreliable economic incentives
First step: defining the features of a meshed offshore grid

Hybrid project:

- Any offshore wind project which is not connected radially to the shore, or any offshore cable which does not solely act as an interconnector; that is, any project in which cables act simultaneously or alternately as interconnectors or export cables. The multiplication of hybrid projects in the Baltic Sea is expected to ultimately lead to the emergence of a meshed offshore grid.

Meshed offshore grid:

- In a meshed offshore grid, offshore wind farms are connected to more than one national transmission system. A characteristic of this grid architecture is the dual-purpose use of sea cables, which can serve alternately or simultaneously as interconnectors and export cables, and the possible routing of power from a given offshore wind farm to two or more national grids.

Dual-purpose cable:

- Transmission cable which can alternatively or simultaneously act as interconnector or export cable.
Towards meshed offshore grid development in the Baltic Sea

Architecture of a meshed offshore grid: an example

Characteristics

• Several hybrid projects
• OWFs connected to more than one country
• Dual-purpose use of sea cables

Source: IKEM (2019)
Recommendations

Provide an adequate regulatory framework for investments

• In OWFs
• In grid projects

Provide an adequate legal framework

• Development of projects
• Operation of the MOG

The MOG and its environment

• Ensure environmental protection
• Increase public acceptance
Provide an adequate regulatory framework for investments

Investments in OWFs

• Harmonised super-shallow allocation of connection costs

• Task force with various stakeholders to optimise OW siting and connect development areas for OWE with grid development plans

• Determine OWE expansion targets at national level and provide reliable remuneration for OW generators

Investments in (meshed) grid projects

• Incentivise TSOs to invest in hybrid/meshed grid projects

• Encourage cooperation among TSOs and regulatory authorities in the BSR to share good practices

• Provide an investment framework for multilateral grid projects
Provide an adequate legal framework

Legal feasibility of hybrid projects

• Ensure legal feasibility and set specific definitions and provisions for dual-purpose cables at EU level

Harmonise the signals sent by grid access tariffs

• Harmonise the signal sent by grid access tariffs in the BSR
• The tariff should reflect the variable costs incurred by OW generators

Rules for the operation of a meshed grid

• Provide clear meshed grid operation rules at EU level, including capacity-allocation rules for OWFs connected to dual-purpose cables
• Create an overarching regulatory authority/TSO at EU or regional level?
The MOG and its environment

Balance project developers’ interests and environmental protection

• Accurate and comprehensive SEAs at MSP / spatial planning stage
• Fair and transparent EIAs for OW and grid projects
• Reduce the administrative burden by limiting the number of needed permits and environmental assessments

Increase public acceptance for offshore wind projects

• Encourage early public participation (MSP/spatial planning)
• Show the community benefits offered by MOG/OW developments
• Adopt mechanisms to involve local communities and share benefits
Conclusion: what a MOG needs...

Concrete political action

• At all levels: EU/BSR/national/local

• Especially: a concrete framework at EU level is needed. Lead the way!

• Concrete targets and action plan:

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- Adopt regional and national offshore wind energy targets
- Adept rules for the operation of meshed offshore grids at EU level
- Develop an EU framework for the transnational coordination of OW planning
- Set targets and provide incentives for hybrid and meshed offshore grid projects, in line with interconnection and renewable targets
- Develop harmonized CBA guidelines and cost allocation methods for meshed offshore grid connections
- Create regional socio-economic benefits by incentivising developers to establish local service, maintenance and training centres

Revise and update targets to reflect new technological possibilities

Evaluate and adjust the targets

Reevaluate and adjust the targets

Stakeholder cooperation

• OW developers and grid operators

• Governments and public authorities (energy regulatory authorities, MSP)
Thank you for your attention!