



**Baltic
InteGrid**
Integrated Baltic Offshore
Wind Electricity Grid Development

Steps towards meshed offshore grid development in the Baltic Sea

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EUROPEAN
REGIONAL
DEVELOPMENT
FUND

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
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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*

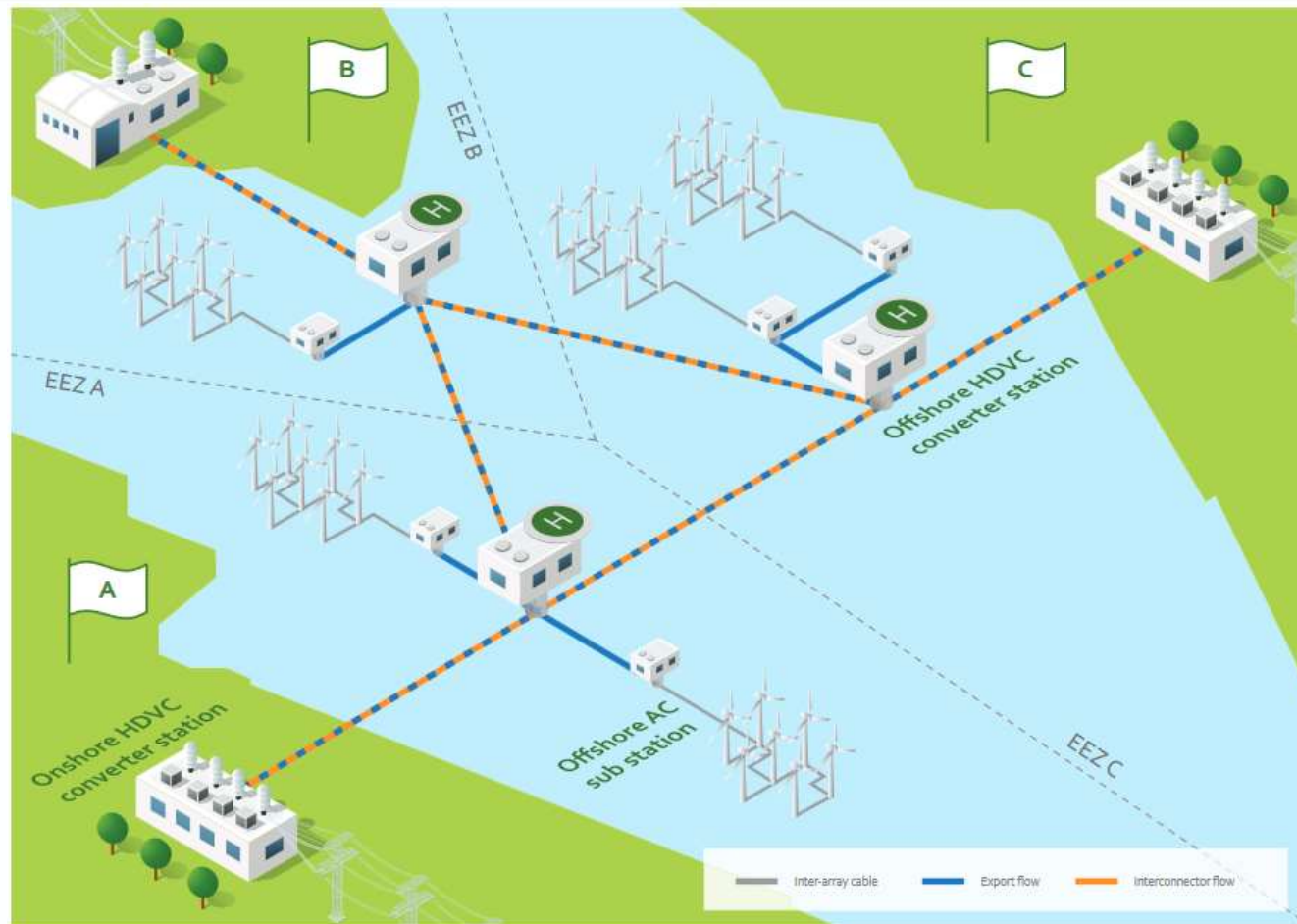
Meshed offshore grid:

- *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.*

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:

2021 - 2030										2031 - 2040										2041 - 2050									
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Adopt regional and national offshore wind energy targets					Revise and update targets to reflect new technological possibilities										Revise and update targets to reflect new technological possibilities														
Adopt rules for the operation of meshed offshore grids at EU level																													
Develop an EU framework for the transnational coordination of OWE planning																													
Set targets and provide incentives for hybrid and meshed offshore grid projects, in line with interconnection and renewable targets										Evaluate and adjust the targets										Reevaluate and adjust the 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																													



Policy & regulation

Stakeholder cooperation

- OW developers and grid operators
- Governments and public authorities (energy regulatory authorities, MSP)

Thank you for your attention!
