PROMOTioN – Future Scenarios for the Offshore Grid

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Introduction

• About PROMOTioN

• Maritime Spatial Planning – Future outlook for grid development
  • GIS Scenarios for different timeframes

• The regulatory side of offshore wind and grid development
  • Locational/temporal planning of OWFs
  • Locational/temporal planning of the grid
  • Dual use of offshore wind areas

• Conclusion
Political Context

Political Declaration on energy cooperation between the North Seas Countries

• Aim: Create good conditions for offshore wind energy to ensure sustainable, secure and affordable energy supply in the North Seas Countries

• Facilitate the building of energy links and allow more trading of energy and further integration of energy markets

• Reinforcing regional cooperation will help reduce greenhouse gas emissions and enhance security of supply in the region

• Declaration’s action plan focuses on four main areas:
  • Maritime spatial planning
  • Development and regulation of offshore grids and other offshore infrastructure
  • Support framework and finance for offshore wind projects
  • Standards, technical rules and regulations in the offshore wind sector

• Signed by energy ministers from BE, DK, FR, DE, IE, LU, NL, NO, SE,
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Political Context

Regional cooperation in the energy Union – MEP manifesto

• Increase of regional cooperation as a way to realize the full potential of the Northern Seas energy system
• Use and build upon existing cooperation structures (e.g. NSCOGI)
• Large scale deployment of offshore wind farms and completion of a meshed electricity grid
• Proposal of a 7-step action plan, to call for strong political support and endorsement of the North Seas Offshore Grid as a key step to build an effective energy union
• Signed by MEP from BE, DK, FR, DE, IE, LU, NL, SE, GB
National Wind Associations Statement

• EU’s Energy ministers strive for a **renewed regional cooperation** in the North Sea, supported by major wind industry associations in Europe

• **Close collaboration** between government authorities, industry stakeholders and national associations **as a success factor**

• **Coordinated political processes** in combination with **aligned technical requirements** lead to reduced costs and increased framework stability

• Estimate by European Commission: **offshore** wind from the North Seas can **cover up to 12 percent** of the EU’s power demand

• Singed by national wind associations from DK, ES, IE, NL, NO, UK, DE
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Objectives

• Identify technical requirements and investigate possible topologies for meshed HVAC/DC offshore grids

• Develop protection components and schemes for offshore grids

• Establish components interoperability and initiate standardisation

• Develop recommendations for a coherent EU and national regulatory framework for DC offshore grids

• Develop recommendations for financing mechanism of offshore grid infrastructure deployment

• Demonstrate cost-effective Offshore HVDC equipment

• Develop a deployment plan for HVDC grid implementation
Future Outlook for Grid Development
Future Outlook for Grid Development

4 scenarios:

• Business as Usual
The regulatory side of offshore wind and grid development
Three possible systems:
• Open Door
• Zonal Approach
• Specific location

• Long term ‘pipeline’ or different rounds, or open door

• Efficient use of space
• Strategic grid development
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Locational/temporal planning offshore grid

• Offshore grid develops where OWFs are located
  vs.
• OWFs are planned where offshore grid hubs are located

• Offshore grid development plans
• Anticipatory investments: “stepping stones”
  More efficiency but risk of stranded assets

• Offshore grid development may involve construction of offshore islands as “hubs”
Future Scenarios: Dual Use of OWF areas

- Many possibilities
  - Ecosystem development
  - Aquaculture
  - Routes for small vessels (tourism)
  - Floating solar panels
  - Power to gas/ Power to x

- Regulatory requirements
  - Safety zones
  - Liability for damages
  - Ownership
  - Remuneration
Conclusion
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Conclusion

• PROMOTioN analyses what the grid looks like in 2050 and how we get there

• Future scenarios offshore grid: difficult to project, depends on many variables

• Regulatory framework shapes OWF development: depends on who takes the initiative

• Regulatory framework offshore grid: important role network development plans

• Future scenario: important role for dual use of OWF areas
APPENDIX

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