



# Securing Energy Supply through Developing Offshore Energy Infrastructure: The North Sea Electricity Grid

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# Overview

- The current situation
- Options for grid infrastructure in the North Sea
- Challenging the European regulatory framework
- Meeting the offshore challenge

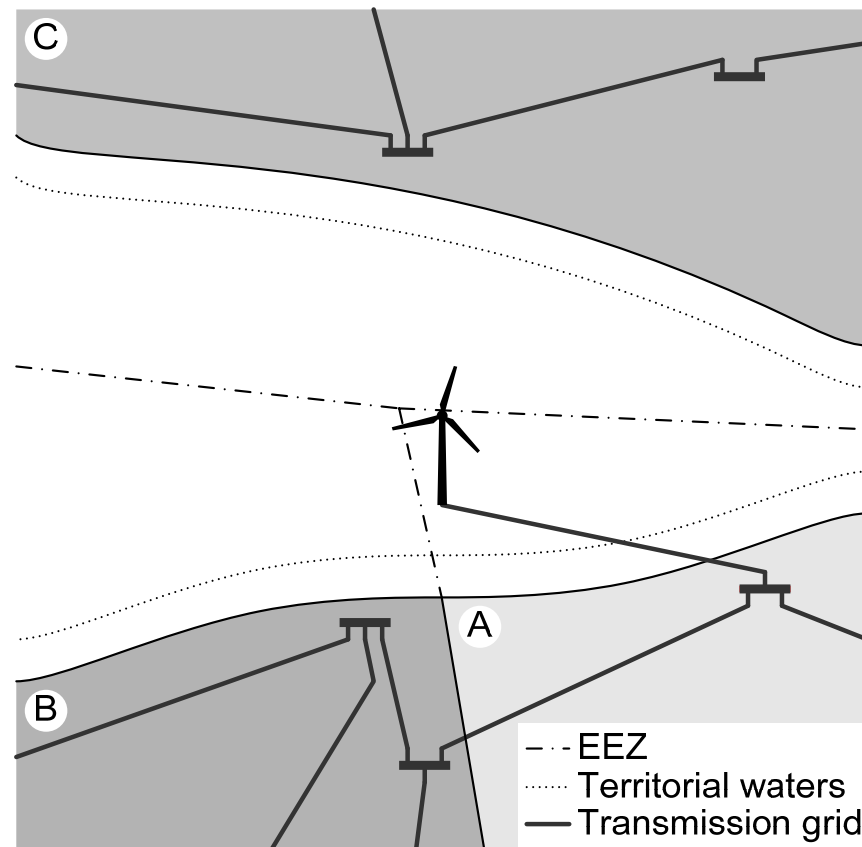


# The current situation

- Drivers for a North Sea grid
  - Offshore Wind Energy (20% share of renewable energy in EU energy consumption by 2020)
  - Market Integration
  - Energy Security
- The North Seas Countries Offshore Grid Initiative
- An EU energy infrastructure priority
- Political Uncertainties

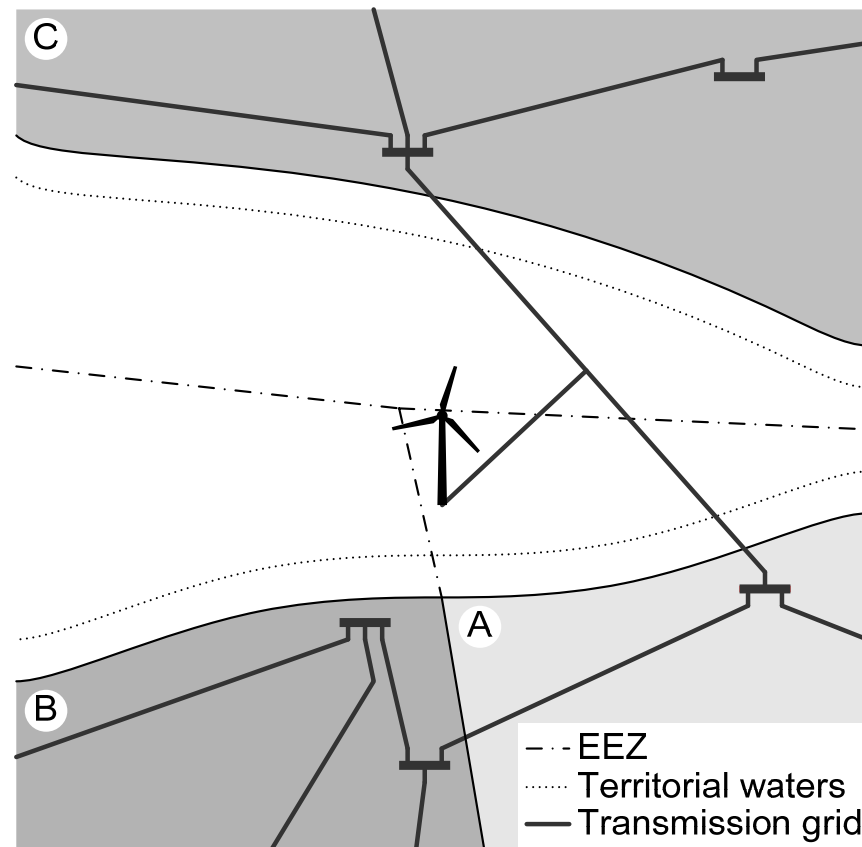


# National Development



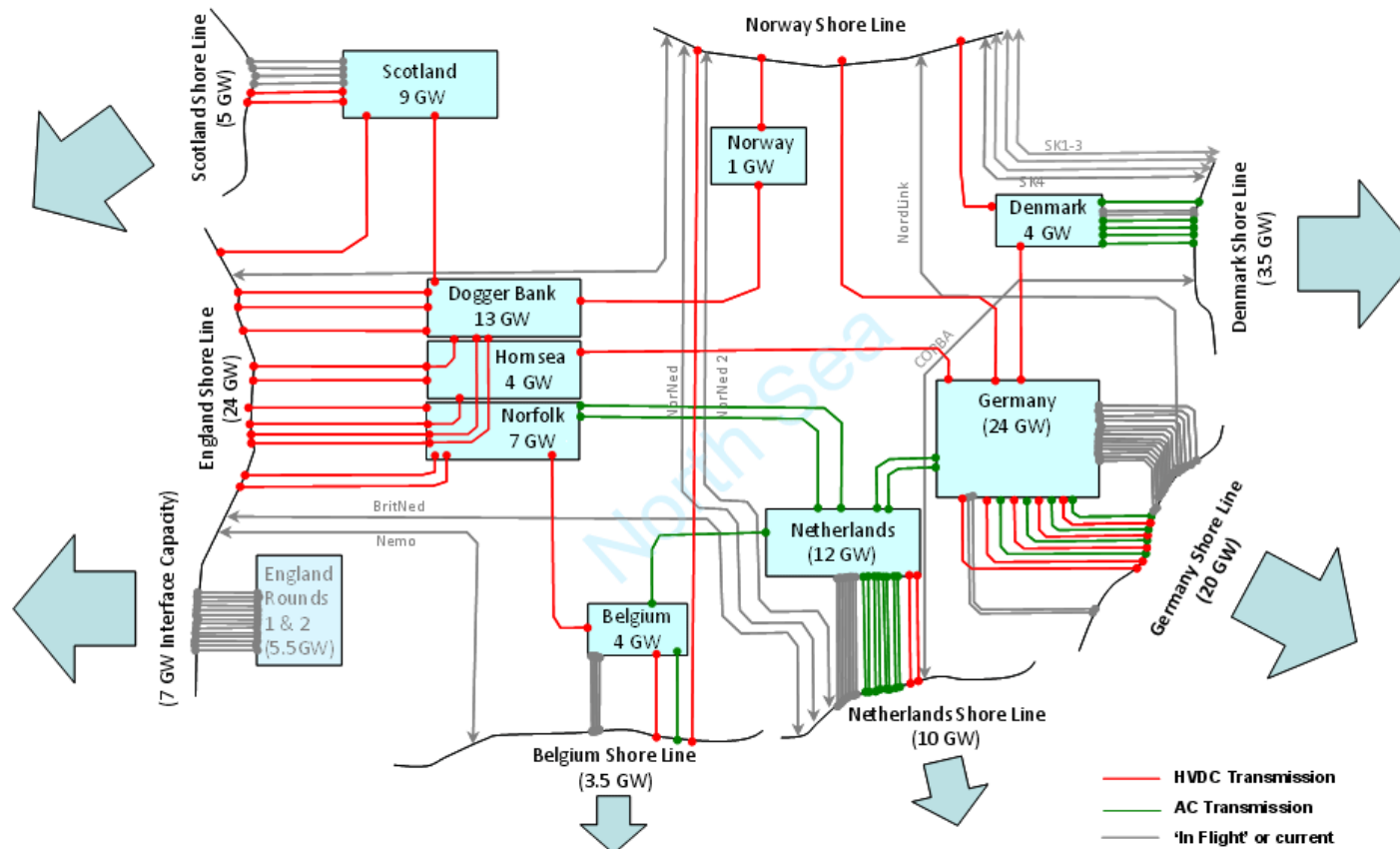


# Modular Development





# A North Sea Grid





## Challenging the European regulatory framework

- Transmission and the development and maintenance of transmission networks are regulated by existing European laws for the electricity sector, and by national laws enacted under, or modified in accordance with, European legal direction.
- The resulting regulatory framework has been applied to the few offshore interconnector projects that have been built to date.
- However, it should not be assumed automatically either that the current European regulatory framework or national laws made under it provide a sufficient or an appropriate legal platform for the major offshore infrastructure projects that are now being contemplated.
- The construction of offshore infrastructure may present challenges for the European regulatory architecture, and particularly if a North Sea grid or multistate interconnectors are developed.



# Challenging the European regulatory framework

## Infrastructure Challenges

•**Assumption:** The European interconnected transmission system consists of:

- Transmission systems lying within national borders;
- Cross-border interconnectors that link national transmission systems and which serve the exclusive purpose of providing capacity for the transboundary trade of electricity.

•**Challenge:** North Sea offshore grid development may involve:

- The construction of a grid and/or interconnectors that span national borders and connect the transmission systems of several states;
- The combined use of cables for transporting wind energy and for interconnecting transmission systems;
- The development of new infrastructure on a scale that is not contemplated under the European regulatory framework.





# Challenging the European regulatory framework

## Financial Challenges

- **Assumption:** That the costs of grid development will be recovered primarily through regulated tariffs at levels set by national regulators.
- **Challenge:** Strong doubt over whether a cost recovery model based on nationally regulated tariffs alone is appropriate for transboundary projects or could attract sufficient investment to support a North Sea grid project.

## Developmental Challenges

- **Assumption:** Grid upgrades will be planned, developed and owned primarily by existing transmission system operators.
- **Challenge:** Should the involvement of non-TSO parties with the development and ownership of capital intensive offshore grid projects be encouraged (or, in the case of generators, permitted)?
- In any event, the disconnect between transmission and generation planning should be addressed.



# Challenging the European regulatory framework

## Operational Challenges

- **Assumption:** Transmission systems are operated by national system operators.
- **Challenge:** Is it realistic that a transboundary grid could be operated by several TSOs in collaboration? Would a preferable alternative to appoint and confer operational responsibilities on a single grid operator?
- Who should be responsible for planning the development of/maintaining the new infrastructure?

## Regulatory Challenges

- **Assumption:** National transmission systems are operated under the scrutiny of national regulators.
- **Challenge:** How to regulate infrastructure that spans national boundaries: regulation by collaboration; appointing a single regulator; appointing an arbiter for collaborative regulation?



## Meeting the Offshore Challenge

- Action may be required at several levels of governance (not only the European) to establish a supportive legal framework for offshore grid infrastructure:
  - **National** – to develop common regulatory regimes and network codes for shared offshore infrastructure;
  - **European** – to promote and/or remove possible restraints on developing offshore transboundary infrastructure, n.b. the legislative proposal for a new European energy security and infrastructure instrument which is due in October 2011;
  - **ENTSO-E/ACER/NSCOGI** – cooperation between TSOs/national regulators through new governance arrangements for the European electricity market. See also the collaboration between states, national regulators, ACER, ENTSO-E and the Commission under NSCOGI;
  - **International** – interstate treaties may also be required in order to bind participants to political commitments, to provide legal certainty for investors, to address security concerns, and to provide clarity on (a) who will exercise jurisdiction over grid development and operation; and (b) how disputes between participating parties will be resolved.



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Date 13-05-2011 | 12

# Thank you for your attention

