

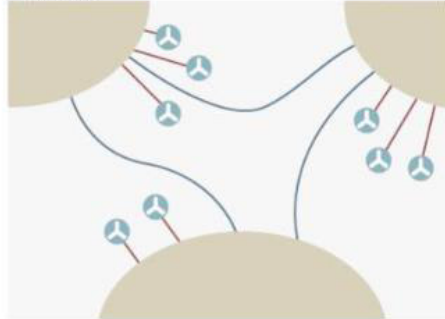
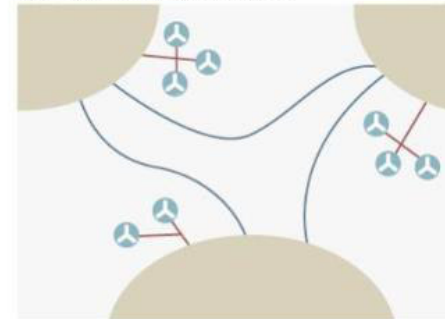
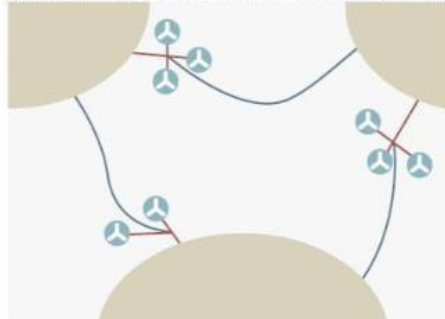
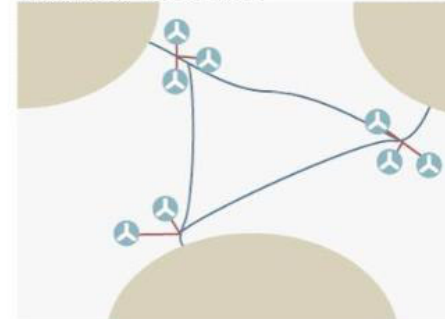


**Baltic
InteGrid**
Integrated Baltic Offshore
Wind Electricity Grid Development

The next level: Meshed grids and a
transnational TSO
Doctoral candidate, LL.M. Kanerva Sunila
Aalto University



- A meshed grid ?
- What are the identified legal challenges related to the meshed grid?
- The model of operation?
- A transnational TSO

Radial**Local coordination****International coordination****Meshed solution**

North Sea Grid Initiative, Initial Findings, 16 Nov 2012:

http://www.benelux.int/files/1414/0923/4478/North_Seas_Grid_Study.pdf

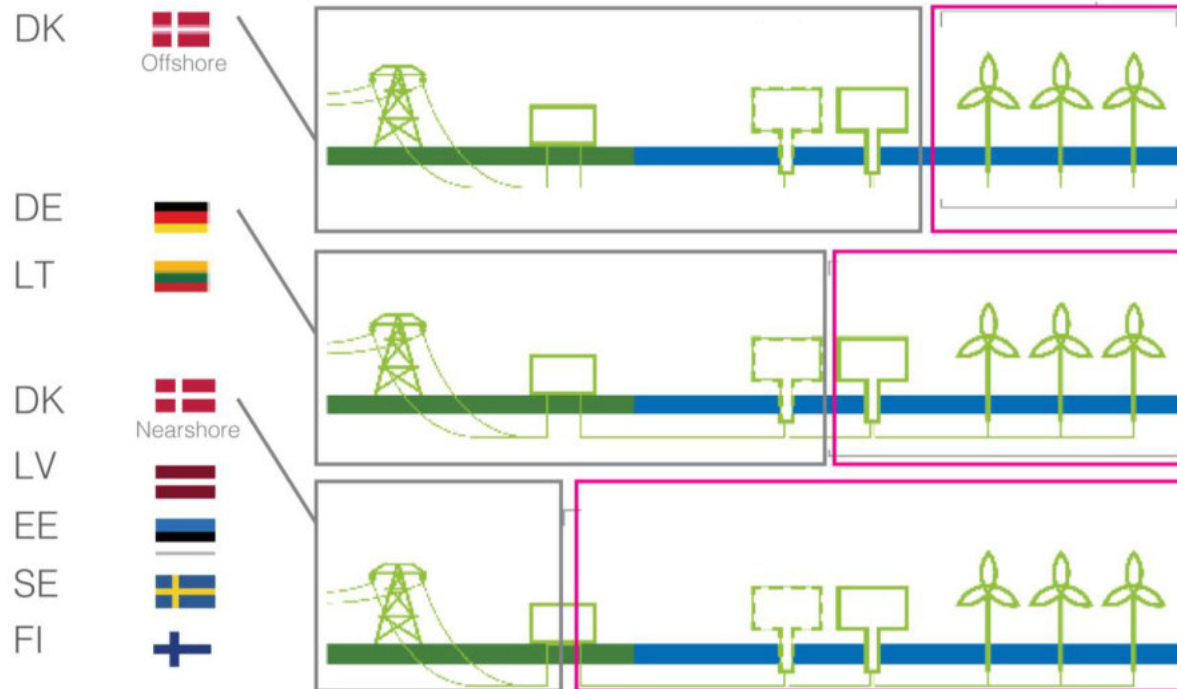
- Under which regime the grid and the connected wind farms are governed?
- What is a meshed grid in legal terms?
 - Interconnectors, connection cables, a transmission system?
- Connection of wind farm to nearest transmission system/ bidding to the coastal state?
- Priority access for wind power or not?
- Which requirements for the system operation or wind farms?
- The coordination between different permitting systems?
- Financing of the grid and transnational cooperation?
- ...

- **System operation**
 - Development of the grid
 - Technical control of the system
 - Connecting of generation (HVDC)
- **Market-related tasks**
 - Capacity allocation and congestion management
 - Balancing
 - ...

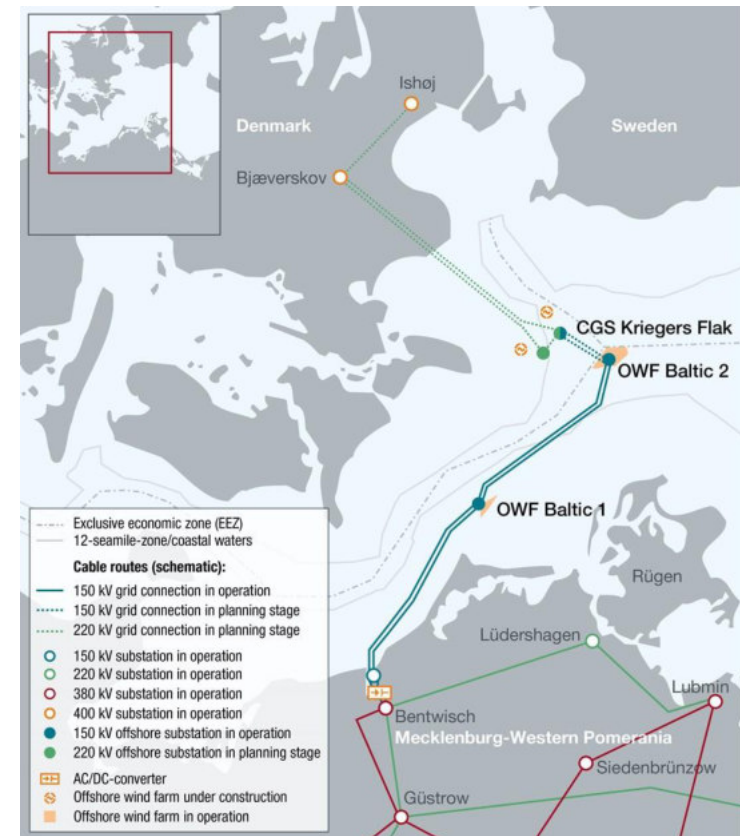
Who builds what?

Construction by TSO

Construction by project developer



- Kriegers Flak Combined Grid Solution
- Two TSOs, 50Hertz and Energinet.dk, cooperating



Source: 50Hertz

<http://www.50hertz.com/en/Grid-Extension/Offshore-projects/Projects/Combined-Grid-Solution>

- What about the “dual-purpose cables”?
 - Unbundling rules > a transmission system operated by a transmission system operator
 - Merchant exemption under Art 17 of the Electricity Market Regulation No. 714/2009?

- If the whole offshore grid was considered as a transmission system?
 - the division to connection cables and interconnectors would become less relevant
- One TSO to operate the whole offshore grid?
- The area of operation would extend to several countries
 - Established by a treaty or EU law?

- Baltic Cable AB operates only one interconnector
- Both Swedish and German NRAs have considered the company as a TSO



Source: ABB

<http://new.abb.com/systems/hvdc/references/baltic-cable>

- EU legislation implemented to national legislation
 - Harmonised EU legislation?
- NRAs' monitoring and supervision and the potential certification?
- A transmission grid > ex ante approved methodologies or tariffs and terms?
 - How to finance the operation? Congestion incomes, network tariffs?

- The current legal frameworks not planned for meshed grids
- Identified need for cooperation in meshed projects
- Some interesting examples from the Baltic Sea
- If a transnational TSO is stipulated under EU law, a new cross-border regime seems to be needed

Thank you!

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