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Integrated Baltic Offshore Wind Electricity Grid Development

Interreg Baltic Sea Region

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Cost-benefit analysis of a meshed grid in the Baltic Sea


IKEM

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Offshore wind in the Baltic Sea region

- OWE capacity of 15,8 GW in Europe
- Vast majority of EU OWE capacity is in the North Sea
- Good conditions in the BSR for OWE
- OWE market in BSR smaller & earlier stage

Knowledge transfer potential from North Sea

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Meshed offshore grid

- High initial investment
- Highly complex regulatory, legal, market, policy & tech obstacles to navigate

+ Annual savings compensate
+ Resilience for operators
+ RES & market integration
+ Coordination has already begun

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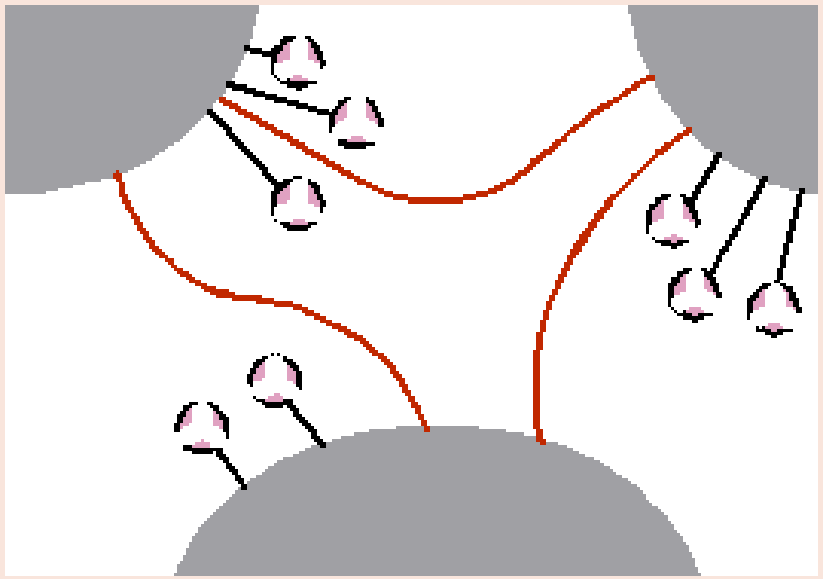
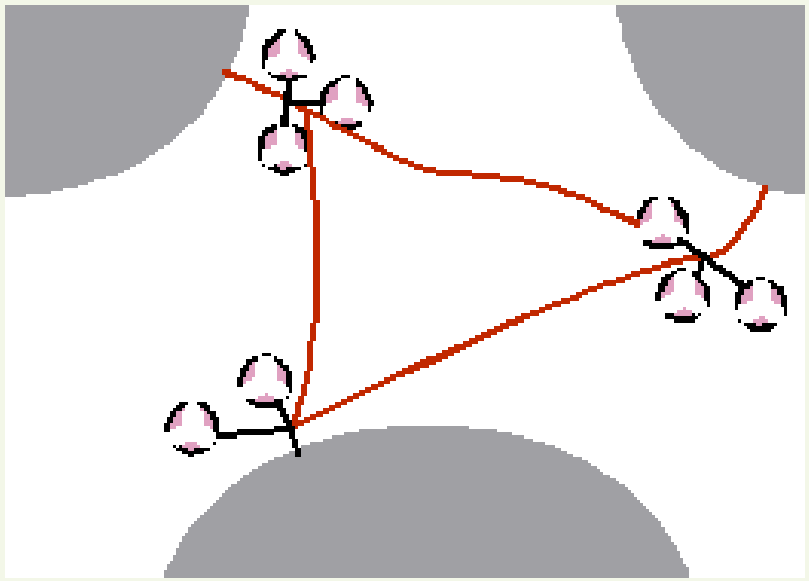
Radial approach



Meshed approach



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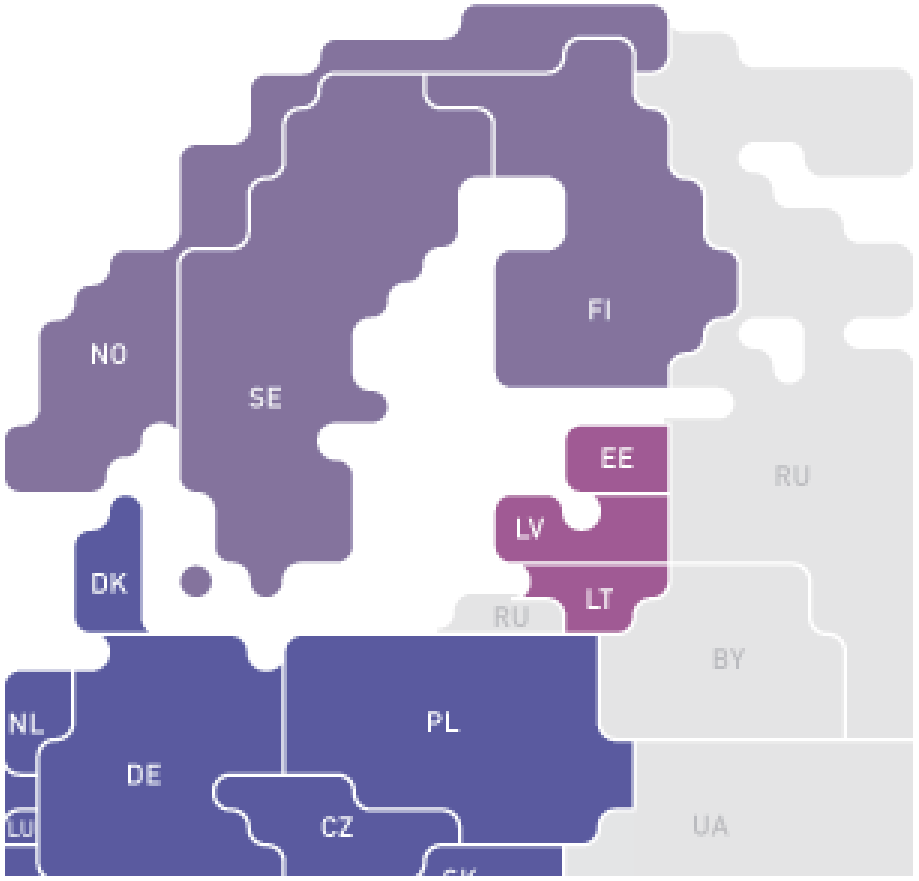
Electricity market integration

- Energy Union
- Baltic States in need of more interconnection



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Regional ambition
OWF development

Regional need for electricity market integration

Meshed grid

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Core pillars of the Baltic InteGrid

Baltic Offshore Grid Forum	► Network & conference platform
Baltic Offshore Grid Concept	► Interdisciplinary research
Pre-feasibility studies	► In-depth perspective on 2 cases

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The Baltic Offshore Grid Forum

12

Thematic Working Groups

1. Policy & regulation (2)
2. Market & supply (2)
3. Technology & grid (2)
4. Environment & society (2)
5. Spatial planning (2)
6. Cost-benefit analysis (2)

- Disciplinary in scope
- Focus: Region-wide

6

Country workshop

- Latvia
- Poland (2)
- Germany
- Finland
- Lithuania

- Interdisciplinary in scope
- Focus: national

4

Key events

- Kick-off conference
- First results conference
- PL-SE case study
- Final conference

- Interdisciplinary
- Focus: Region-wide

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The Baltic Offshore Grid Concept: Research study

Interdisciplinary research on meshed grid development from 6 angles:

1. Policy & regulation: Inventory, obstacles, regional TSO
2. Market & supply: Trends and opportunities (SME)
3. Technology & grid: State-of-the-art, LCOE model
4. Environment & society: Impact mitigation
5. Spatial planning: MSP OWE & grids
6. Cost-benefit analysis: Quantitative and qualitative

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Pre-feasibility Studies

2 case-studies on offshore wind farm interconnectors

1) Interconnector via OWFs between SE, PL and LT

2) Interconnector via OWFs between DE and SE

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The partners

14 partners from the 8 EU Member States

1. IKEM | Germany
2. Foundation for Sustainable Energy | Poland
3. Rostock Business and Technology Development
4. Technical University of Denmark | Denmark
5. Energy Agency for Southeast Sweden | Sweden
6. Deutsche WindGuard | Germany
7. Maritime Institute in Gdansk | Poland
8. Stiftung OFFSHORE-WINDENERGIE | Germany
9. Latvian Association of Local and Regional Governments | Latvia
10. Aalto University | Finland
11. University of Tartu | Estonia
12. Klaipeda University Coastal Research and Planning Institute | Lithuania
13. Lund University | Sweden
14. Aarhus University | Denmark

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The AO's

Germany

- Siemens AG
- BMUB (Ministry for the Environment, Nature Conservation, Building and Nuclear Safety of Germany)
- Ministry of Energy, Infrastructure and State Development of Mecklenburg- Vorpommern
- 50Hertz Transmission GmbH
- Ecologic Institute
- Kisters AG
- Becker Büttner Held
- Eclareon

Denmark

- Danish Energy Association
- Energinet.dk
- Danish Wind Industry Association

Latvia

- Ministry of Economics

Finland

- Finnish Wind Power Association

Estonia

- Elering-generating opportunities

Lithuania

- The Ministry of Energy
- Litgrid AB

Poland

- Inwestycje Infrastrukturalne Sp. Z O.O
- Maritime Office in Gdynia
- PGE Energia Odnawialna S.A.
- Polish Offshore Industry Association
- PSE S.A. Polskie Sieci Elektroenergetyczne
- Baltex Energia i Górnictwo Morskie SA SKA

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6. **Cost-benefit analysis: Quantitative & qualitative**

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Agenda: Costs & benefits of a meshed grid in the BSR

Benefits of a meshed grid in the Baltic Sea: Design and result of the regional market model

Dr. Clemens Gerbaulet | Research Associate | IKEM | Technical University of Berlin

From costs to net present benefit: The added value of a meshed offshore grid

Anna-Kathrin Wallasch | Head of Markets & Politics | Deutsche Windguard

Coffee break

Perspectives from the North Sea: Challenges in comparing offshore grid solutions

Carmen Wouters Ph.D. | DNV GL Energy Advisory Benelux | PROMOTION project

Challenges and drivers towards further offshore grid integration: A TSO perspective

Jonas Kraeusel | Expert | Interconnectors | 50 Hertz

Fostering offshore wind in the European Union: The role of policy instruments on the cost of capital

Elizabeth Côté | Research associate | IKEM

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Newsletters, conferences and latest project developments


Thank you!