



Baltic InteGrid

Integrated Baltic Offshore
Wind Electricity Grid Development



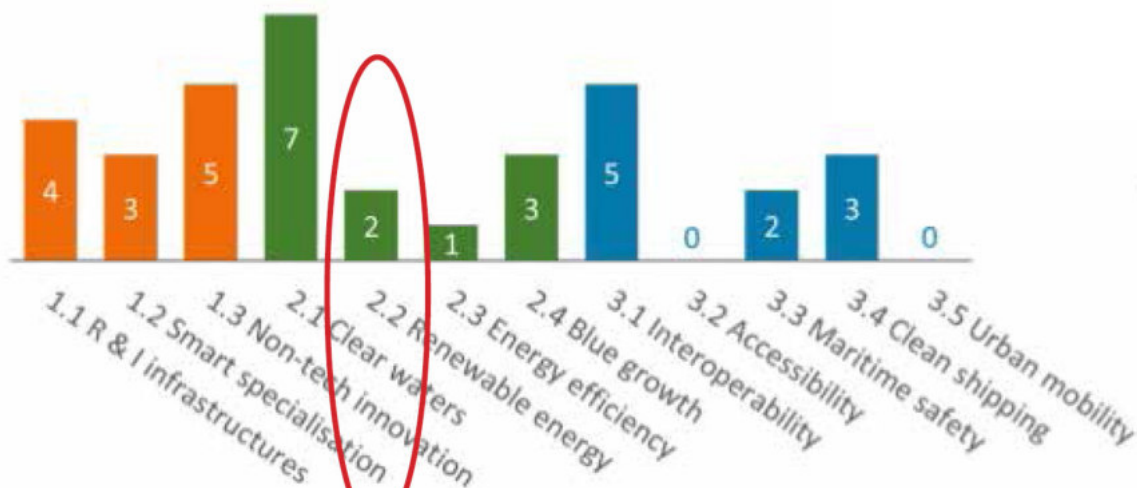
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- Baltic InteGrid among 35 selected out of 300 concept notes
- Priority area: Management of Natural Resources
- EUSBSR Flagship project; running until 2019

35 projects approved
to create change for a better region





Offshore wind in the Baltic Sea region

- BASREC: 40 GW OWE capacity in BSR
- Only about 1,5 GW actually installed
- Vast majority of EU OWE capacity is in the North Sea
- OWE market in BSR smaller & earlier stage

Knowledge transfer potential from North Sea



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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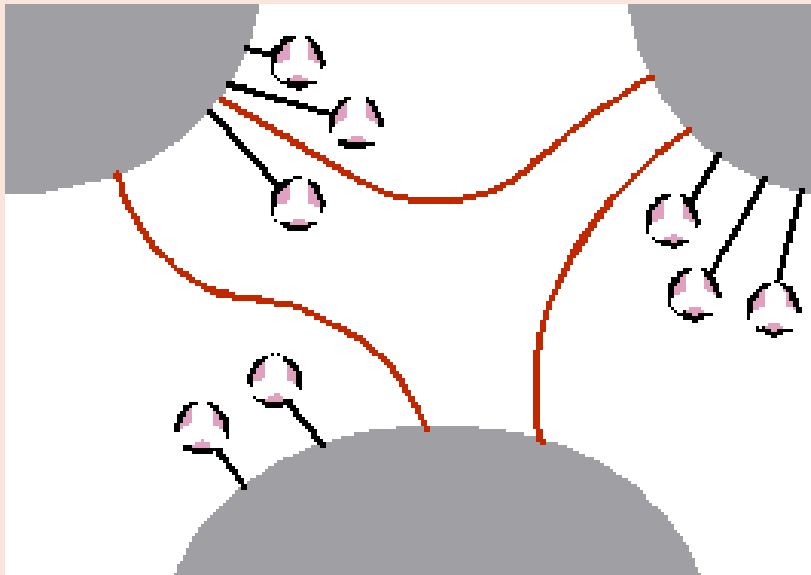
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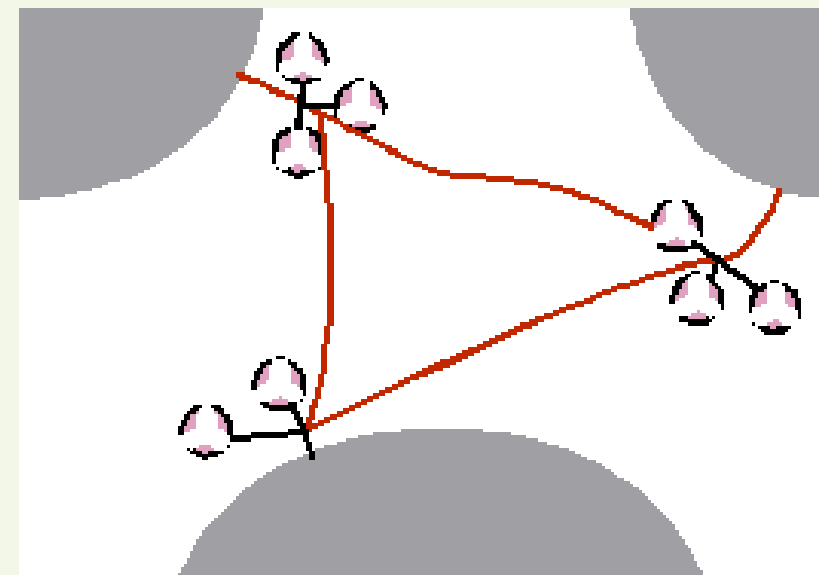
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Radial approach



Meshed approach





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Baltic InteGrid

Coordinated
OWF development

Regional electricity
market integration



Meshed grid in BSR

Policy and Strategic Alignment

- EU Energy Union
- EU Energy and Climate Policy
20-20-20 Targets
- Regulation No 347/2013 on trans-European energy infrastructure
- Directive 2014/89/EU: framework for maritime spatial planning
- EU BSR Strategy: subobjective Reliable Energy Markets
- BEMIP (Baltic Energy Market Interconnection Plan)



Core pillars of the Baltic InteGrid

- Baltic Offshore Grid Concept
 - Pre-feasibility studies
 - Baltic Offshore Grid Forum
- ▶ 6 thematic research packages
 - ▶ In-depth perspective on 2 cases
 - ▶ Network & conference platform



Core pillars of the Baltic InteGrid

Baltic Offshore Grid Concept

Pre-feasibility studies

Baltic Offshore Grid Forum

- ▶ 6 thematic research packages
- ▶ In-depth perspective on 2 cases
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The Baltic Offshore Grid Concept

- Status quo
- Drivers forward/trends
- Challenges
- Recommendations

6 thematic fields
affecting OWE/
meshed grids



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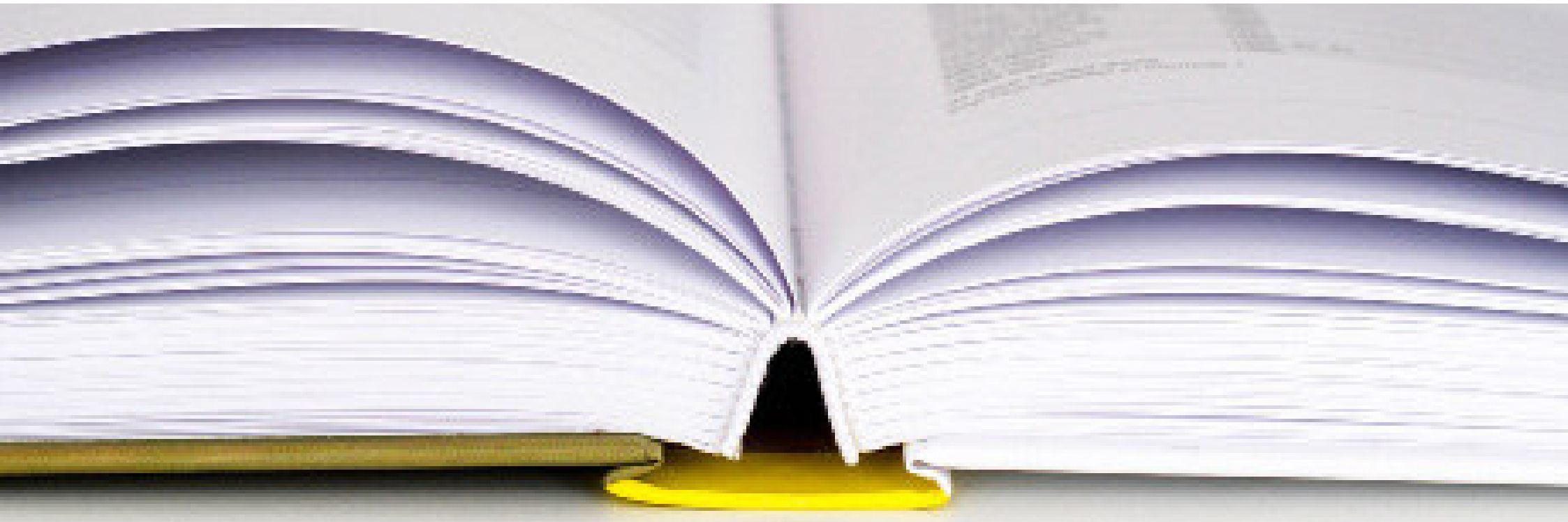


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Policy, law and regulation

Inventory re. OWE & grids, compatibility/conflict, recommendations





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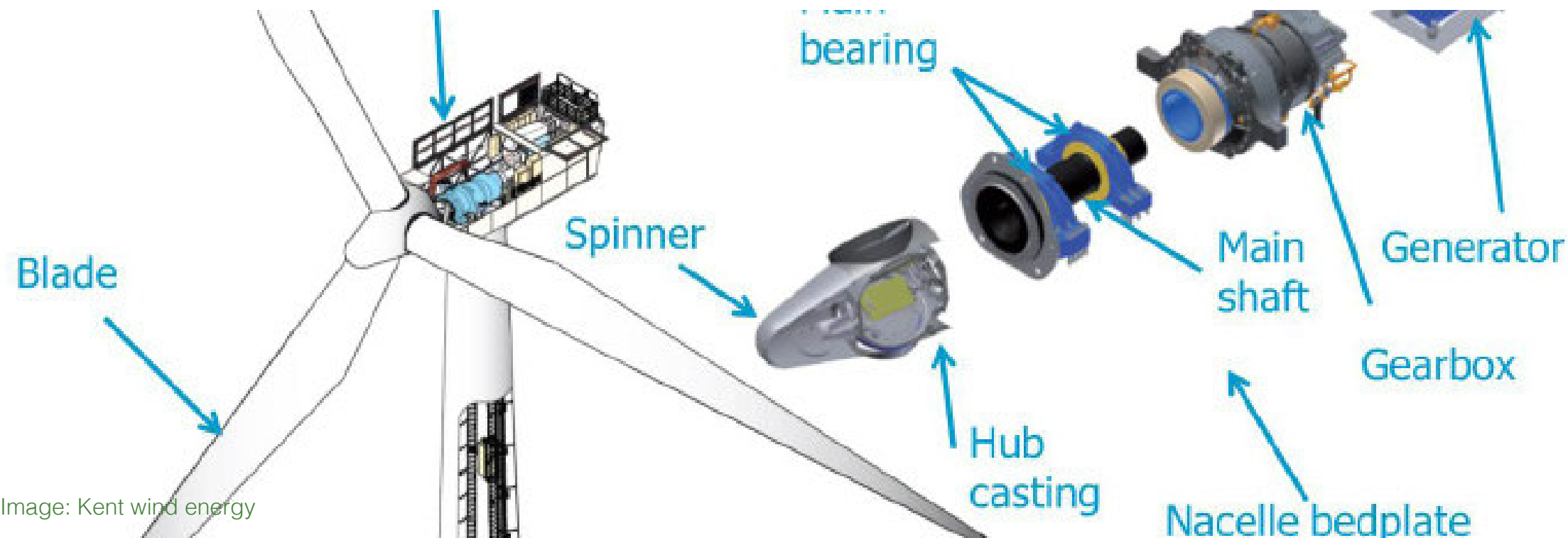
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Market and supply chain

Trends in OWE/cable supply chain, ramifications for the BSR market





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Technology & grid

State and outlook on offshore wind and grid design in the BSR, LCOE for HVDC connected wind clusters



Image: Subsea World News
(JDR cable system selected
by DONG energy for Gun-
fleet Sands OWF)



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Environment & society

Impact assessment environment and sea users + mitigation strategy





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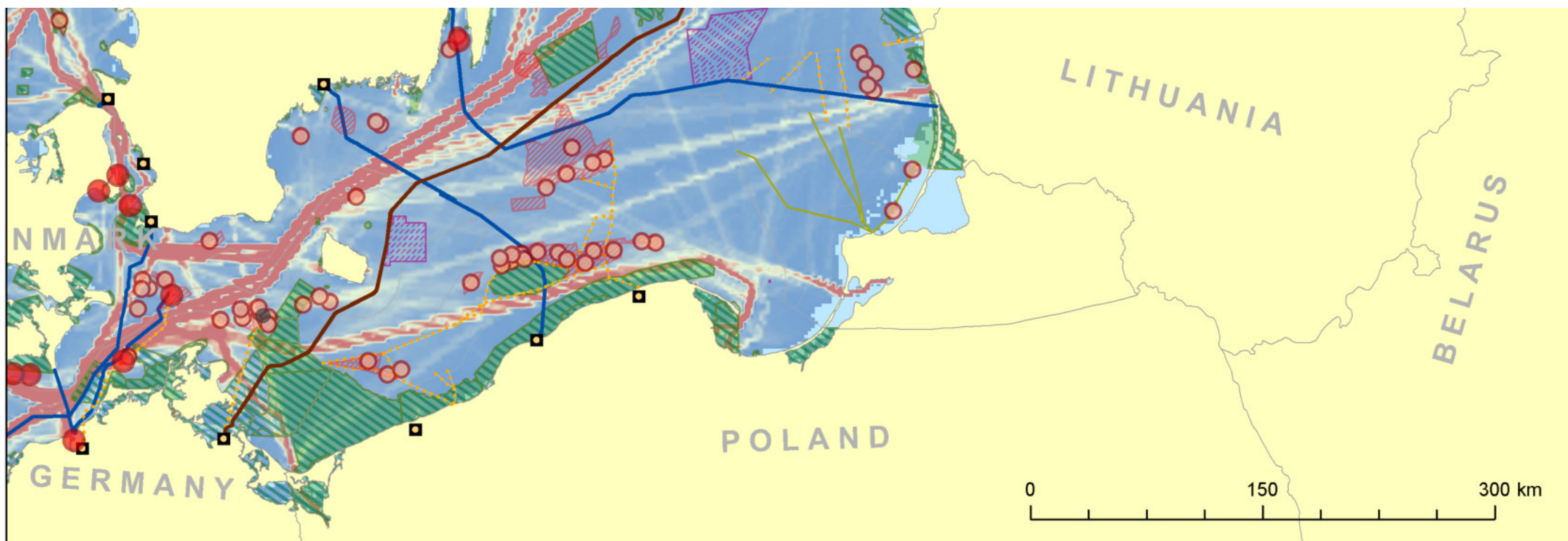


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Maritime spatial planning

Identification / mapping grid corridors based on new MSP data





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Cost-Benefit Analysis

Quantitative (elect. prices, CO2 emissions) & qualitative analysis





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Results:

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

Baltic
Grid
Concept

Core pillars of the Baltic InteGrid

- Baltic Offshore Grid Concept
 - Pre-feasibility studies
 - Baltic Offshore Grid Forum
- ▶ 6 thematic research packages
 - ▶ In-depth perspective on 2 cases
 - ▶ Network & conference platform



Pre-feasibility Studies

2 case-studies on offshore wind farm interconnectors

1) Polish - Swedish connection (extending to Lithuania)

2) Swedish - German connection

Address the option of a South Baltic transmission grid ring



Core pillars of the Baltic InteGrid

Baltic Offshore Grid Concept

Pre-feasibility studies

[Baltic Offshore Grid Forum](#)

- ▶ Interdisciplinary research
- ▶ In-depth perspective on 2 cases
- ▶ Network & conference platform



The Baltic Offshore Grid Forum

- Expert interdisciplinary network platform
- Connect with target groups to ensure relevance & uptake
- 22 events during the project lifetime



12

Thematic Working Groups

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

- Thematic focus
- Focus: Region-wide

6

Country workshop

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

- Interdisciplinary
- Focus: national

4

Key events

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

- Interdisciplinary
- Focus: Region-wide

Timeline

2017

Thematic Working Groups

- Market & supply
- Technology & grid
- Cost-Benefit analysis
- Environment & society
- Maritime spatial planning

Country Workshops

- Lithuania

2018

Thematic Working Groups

- Policy & regulation
- Market & supply (April-May)
- Technology & grid
- Cost-benefit analysis

Country Workshops

- Poland
- Finland
- Germany

Key event

- PL-SE Case study

2019

Key event

- Final conference



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Recommendations and outputs

- Environmental impact study & mitigation strategy
- Cost-benefit analysis and quantitative model
- Business cases of Market & Supply Chain
- Policy inventory & recommendations (roadmap)
- MSP maps and technology catalogue



First reports spring 2018

Target groups

- TSOs
- Policy-makers
- OWE industry
- Investors
- Research
- Academia
- Civil society
- (Maritime) spatial planners
- Environmental organisations

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



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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www.baltic-integrid.eu

Newsletters, conferences and latest project developments



Thank you!

