Baltic InteGrid
Integrated Baltic Offshore Wind Electricity Grid Development
About

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

- BASREC: 40 GW OWE capacity in BSR
- Only about 1,45 GW actually installed
- Vast majority of EU OWE capacity is in the North Sea
- OWE market in BSR 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
Radial approach

Meshed approach
Core pillars of the Baltic InteGrid

Baltic Offshore Grid Concept
Pre-feasibility studies
Baltic Offshore Grid Forum

- 6 Thematic Research Packages
- 2 detailed Case Studies
- Conference & network platform
Core pillars of the Baltic InteGrid

**Baltic Offshore Grid Concept**
- 6 thematic research packages

**Pre-feasibility studies**
- In-depth perspective on 2 cases

**Baltic Offshore Grid Forum**
- Conference & network platform
Policy, law and regulation

Best-practice / legal instrument toolbox OWE & interconnected grids

- Inventory each BSR country:
  - Diversity in RE targets & policy framework
- Targeted research
  - Interconnectors
  - Environmental permitting
  - Regulatory analysis OWE & grids
  - Visual comparative draft
- Intermediary report (March 2018)
- Move towards ROC / super TSO?
- Best-practice toolbox
Market and supply chain

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

- Supply chain analysis: No bottlenecks!
- Market overview
- Regional added value: SME's
  - OWE set to increase in BSR
  - Local value for SME in services
  - Job creation potential for BSR
- Overview paper (March 2018)
- Conclusions
Technology & grid

Technology status quo, LCOE model

- Technology Catalogue
  - Components for OG available today
  - Main uncertainty: Price of DC breakers
  - DC breakers tested & operated by 2030

- LCOE model in development
- Conclusions
Environment and society

*Impact assessment environment and sea users + mitigation strategy*

- Guidelines strategic environmental impact assessment
- Current natural state of BSR
  - Environmentally protected areas
  - Flora and fauna
  - Other sea users
- Identification impacts of BOG
- Impact mitigation strategy
- Conclusions
Maritime spatial planning

*Identification / mapping grid corridors based on new MSP data*

- Implementation EU Directive (2014/89/EU) for maritime spatial planning ongoing in BSR
- Collection of MSP data regarding (a.o.)
  - Military zones  
  - Pipelines  
  - Sea bed  
  - Shipping routes  
  - Cables  
  - Slope  
  - Protected areas  
  - OWE parks / plans  
  - Dump sites  
- Identification of maritime space open for OWE and BOG
- With other GoA‘s: ID Strategic Development Corridor
Cost-Benefit Analysis

Quantitative & qualitative analysis of offshore meshed grid in the BSR

- Model dynELMOD (TU Berlin)
- Numerous variables:
  - Electricity generation capacities
  - Offshore wind scenarios BSR
  - CO2 decarbonisation target (2050)
- Simulate impact on electricity prices, CO2 emissions etc
- Cost-calculations for three scenarios
- Conclusions
Results:

1. Policy & regulation
2. Market & supply
3. Technology & grid
4. Environment & society
5. Spatial planning
6. Cost-benefit analysis
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
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
▶ Conference & network platform
The Baltic Offshore Grid Forum

- Expert interdisciplinary network platform
- Connect with target groups to ensure relevance & uptake
- 22 events during the project lifetime
2017

Thematic Working Groups
- Maritime spatial planning
- Market & supply
- Technology & grid

Country Workshops
- Lithuania

2018

Thematic Working Groups
- Policy & regulation
- Market & supply
- Technology & grid
- Cost-benefit analysis (2)
- Environment & society

Country Workshops
- Poland
- Finland
- Germany

Key event
- PL-SE Case study

2019

Key event
- Final conference
Key outputs

I. Baltic Grid Concept (conclusion thematic studies)
II. Case studies (PL/SE/LT and DE/SE/DK)
III. Recommendations:
    a. Policy
    b. MSP
    c. Grid / TYNDP

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

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

Latvia
- Ministry of Economics
www.baltic-integrid.eu
Newsletters, conferences and latest project developments
Thank you!