

# A meshed offshore wind grid in the Baltic Sea: Opportunities and obstacles in the policy, legal and regulatory framework

9:00 - 16:00 | 16 March 2018



An aerial photograph of a white wind turbine in a lush green landscape. The turbine's three blades are visible, extending across the frame. The background shows rolling green hills, a small town, and a blue sky with scattered white clouds. The word "IKEM" is overlaid in large, white, bold, sans-serif capital letters in the center of the image.

IKEM

## Table of content

### I. Baltic InteGrid - Context

### II. Baltic InteGrid - Activities

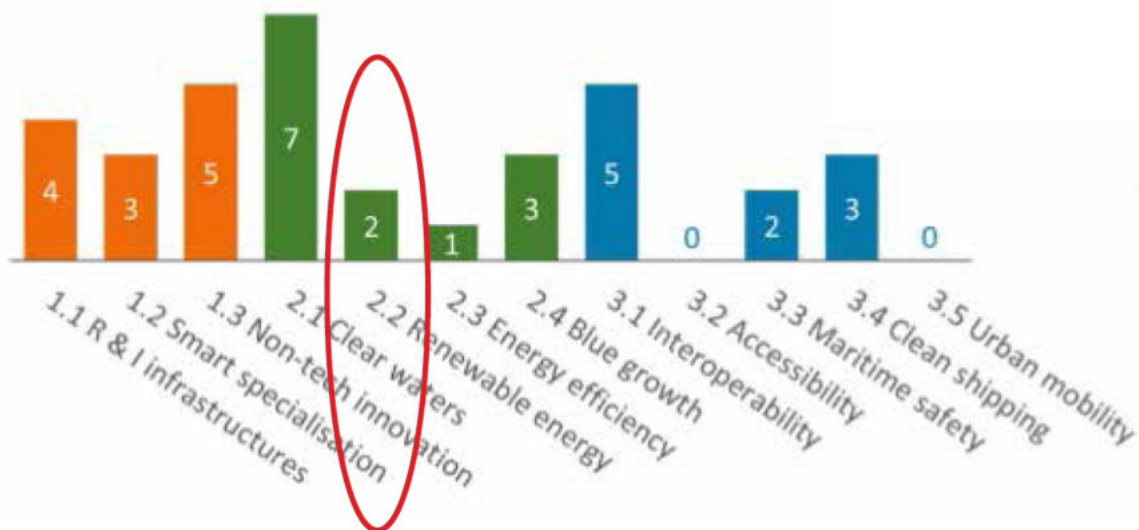
1. Baltic Offshore Grid Forum
2. Baltic Grid Concept
3. Case Studies

### III. Agenda for today



- Funded by Interreg BSR
- Subfield: Renewable energy
- EUSBSR Flagship project; running until 2019

**35** projects approved  
to create change for a better region





## 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

# 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



Baltic  
InteGrid

Integrated Baltic Offshore  
Wind Electricity Grid Development

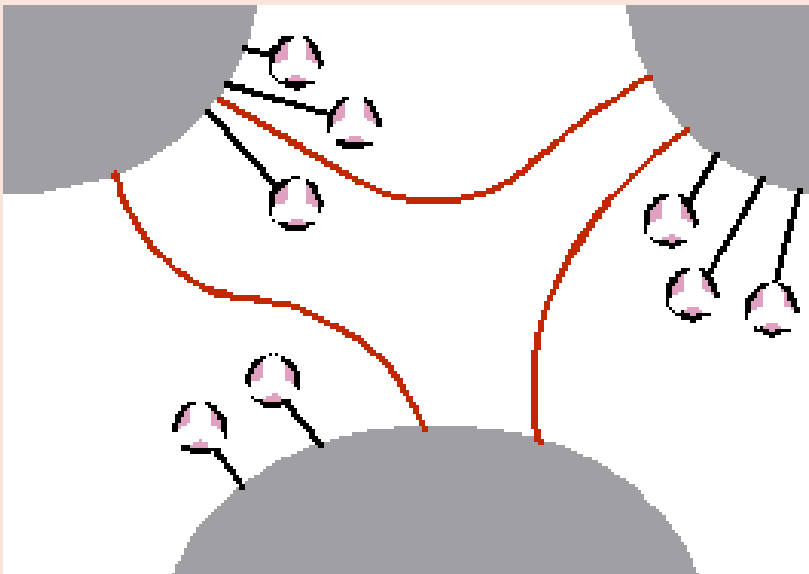
Interreg  
Baltic Sea Region



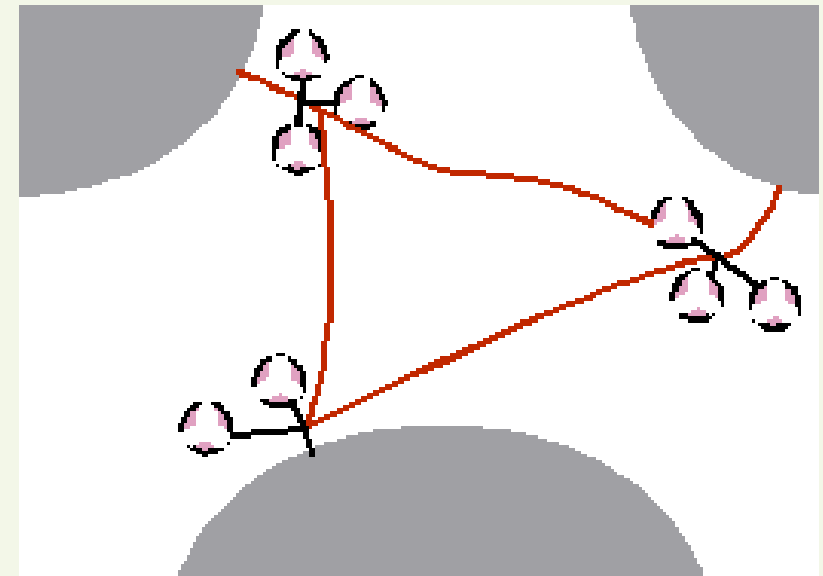
EUROPEAN UNION

EUROPEAN  
REGIONAL  
DEVELOPMENT  
FUND

## Radial approach

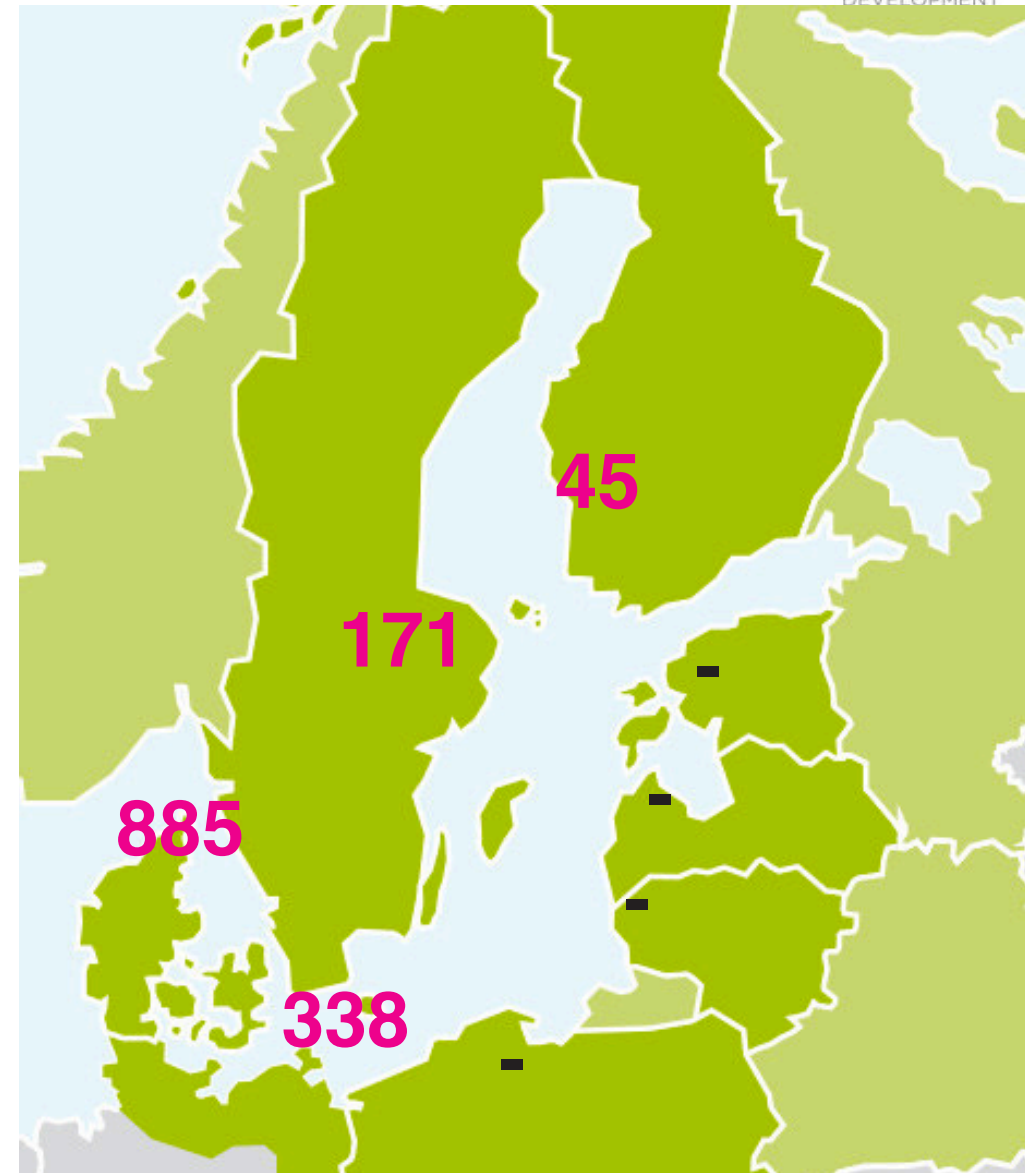


## Meshed approach

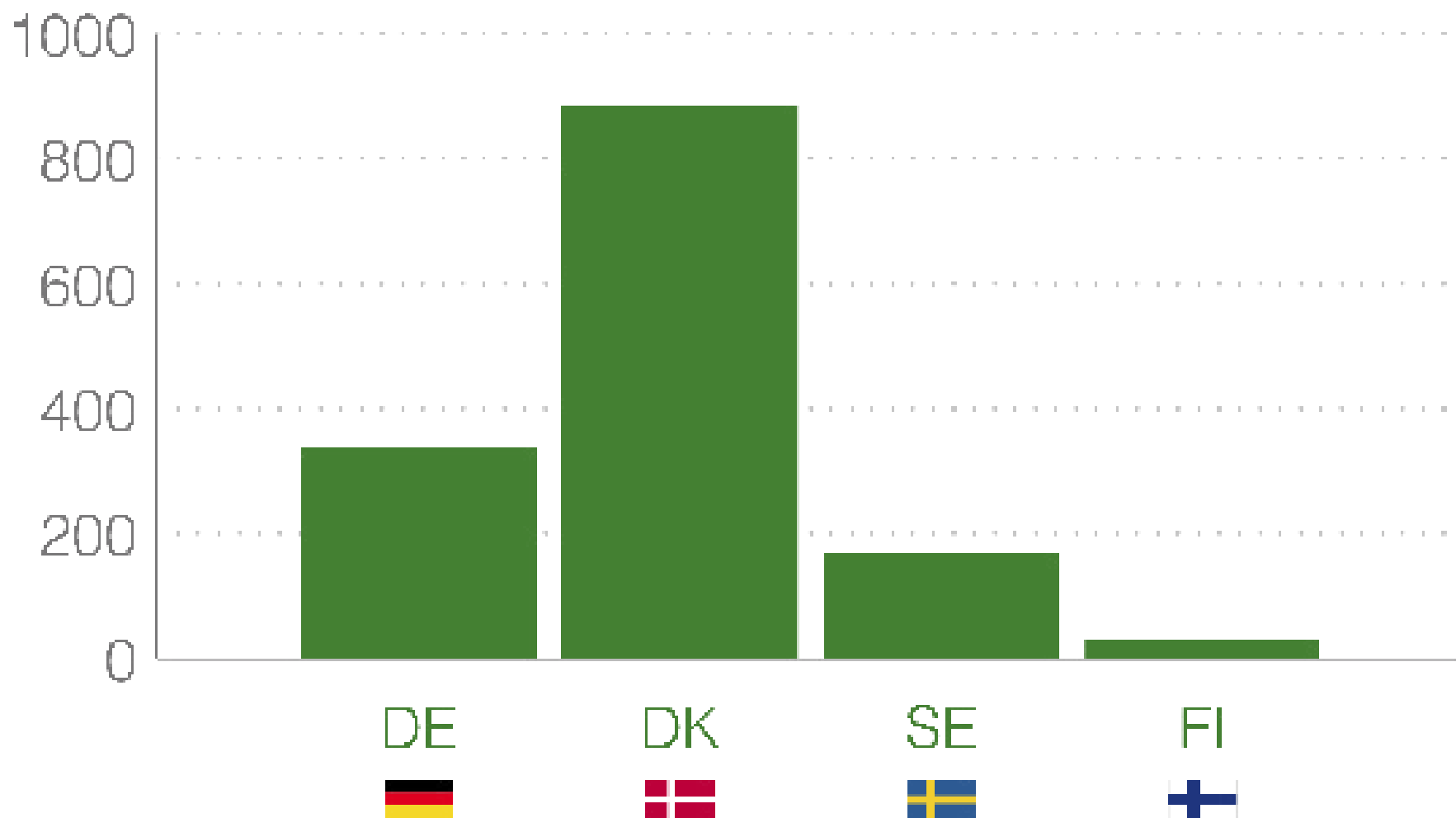


## BSR: Offshore wind (MW)

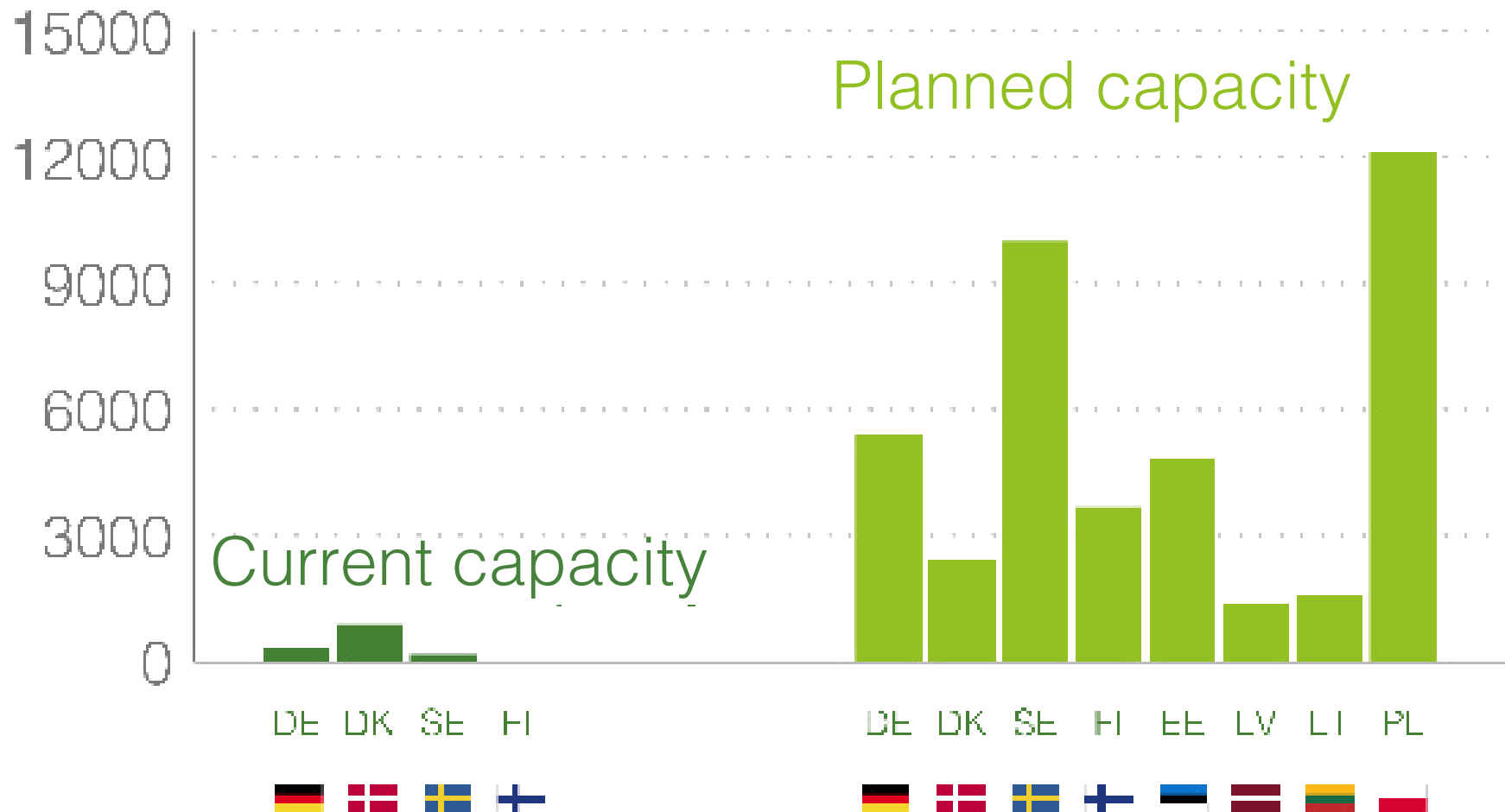
	Installed	Construction	Planned
Germany	338,8	350	5391
Denmark	885		
Sweden	171		10,009
Finland	44,5	42	3687
Estonia			4816
Latvia			1375
Lithuania			1559
Poland			12,807



## Current OWE capacity in the BSR (MW)



# Current vs. planned capacity



## Electricity market integration in the Baltic Sea region

- Need for enhanced coordination of grid planning
- Regional electricity exchange to increase to 2030 min.
- Need for more interconnectors

\*BASREC Study “Electricity Grid Expansion in the Context of Renewables Integration in the Baltic Sea“





# Baltic InteGrid

Regional ambition  
OWF development

Regional need for  
electricity market  
integration



Meshed grid

## 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 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

## Core pillars of the Baltic InteGrid

Baltic Offshore Grid Forum

▶ Network & conference platform

Baltic Offshore Grid Concept

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Pre-feasibility studies

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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: Spatial integration OWE & grids
6. Cost-benefit analysis: Quantitative and qualitative



## Core pillars of the Baltic InteGrid

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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



## Recommendations and outputs

- Legal, regulatory inventory, focus studies, recommendations
- Environmental impact study & mitigation strategy
- Cost-benefit analysis and quantitative benefits model
- Market & supply chain trends and business opportunities
- 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



# Agenda

## **Legal, regulatory and policy questions: Perspectives on offshore grid integration in the Baltic Sea**

*Bénédicte Martin | IKEM*

## **The next level: Meshed grids and a transnational TSO**

*Kanerva Sunila | Aalto University*

## **Offshore grid infrastructure as a Project of Common Interest: Advancing renewable energy and regional interconnections**

*Catharina Sikow-Magny | Head of Networks and Regional Initiatives | DG Energy*

## **European TSO cooperation and legal considerations**

*Elina Hautakangas | ENTSO-E*

## **Legal and regulatory challenges towards offshore wind development: Insights from Estonia**

*Tuuliki Kasonen | General manager | Estonian Wind Power Association*

## **Tapping into the full potential of offshore wind: A policy and regulatory wishlist**

*Diletta Zeni | Advisor - Energy & Climate Change | WindEurope*

## **Regional Operation Centers: Evolving electricity grids in the Energy Union**

*Jan Kostevc | ACER*

Impulse talk for the panel discussion

## **Scaling up: Drivers and stakes towards an offshore grid and transnational TSO**

*Claire Bergaentzlé | Technical University of Denmark*

Discussion panel (all speakers and participants)



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Baltic Sea Region



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FUND

# [www.baltic-integrid.eu](http://www.baltic-integrid.eu)

Newsletters, conferences and latest project developments

