



Baltic InteGrid

Integrated Baltic Offshore
Wind Electricity Grid Development



EUROPEAN UNION

EUROPEAN
REGIONAL
DEVELOPMENT
FUND





Berlin



Greifswald



Climate policy



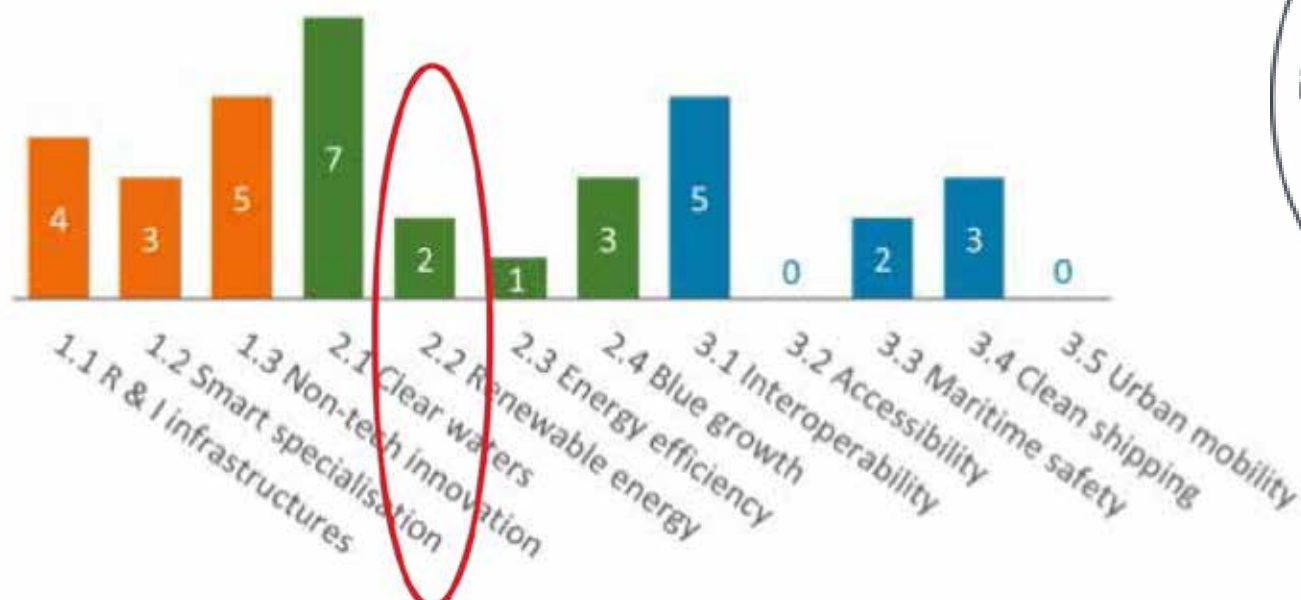
Renewable energy,
energy efficiency



Electric / driverless /
shared vehicles

- Baltic InteGrid among 35 selected out of 300 concept notes
- Priority area: Management of Natural Resources

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
- + Coordination has already begun
- + Resilience for operators
- + RES & market integration



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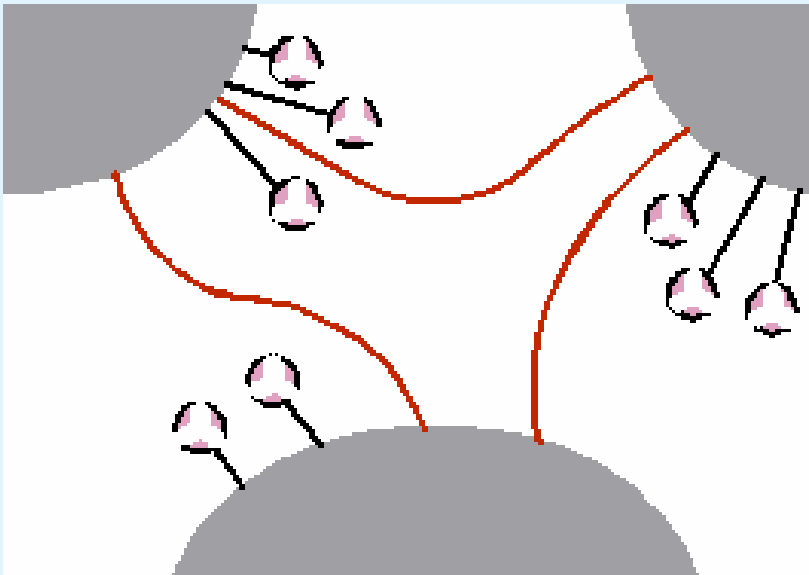
Interreg
Baltic Sea Region



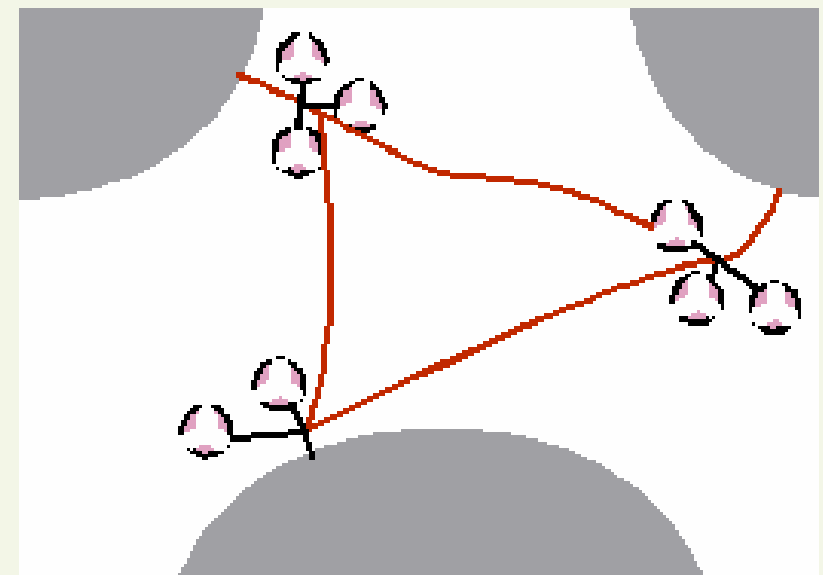
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Radial approach



Meshed approach

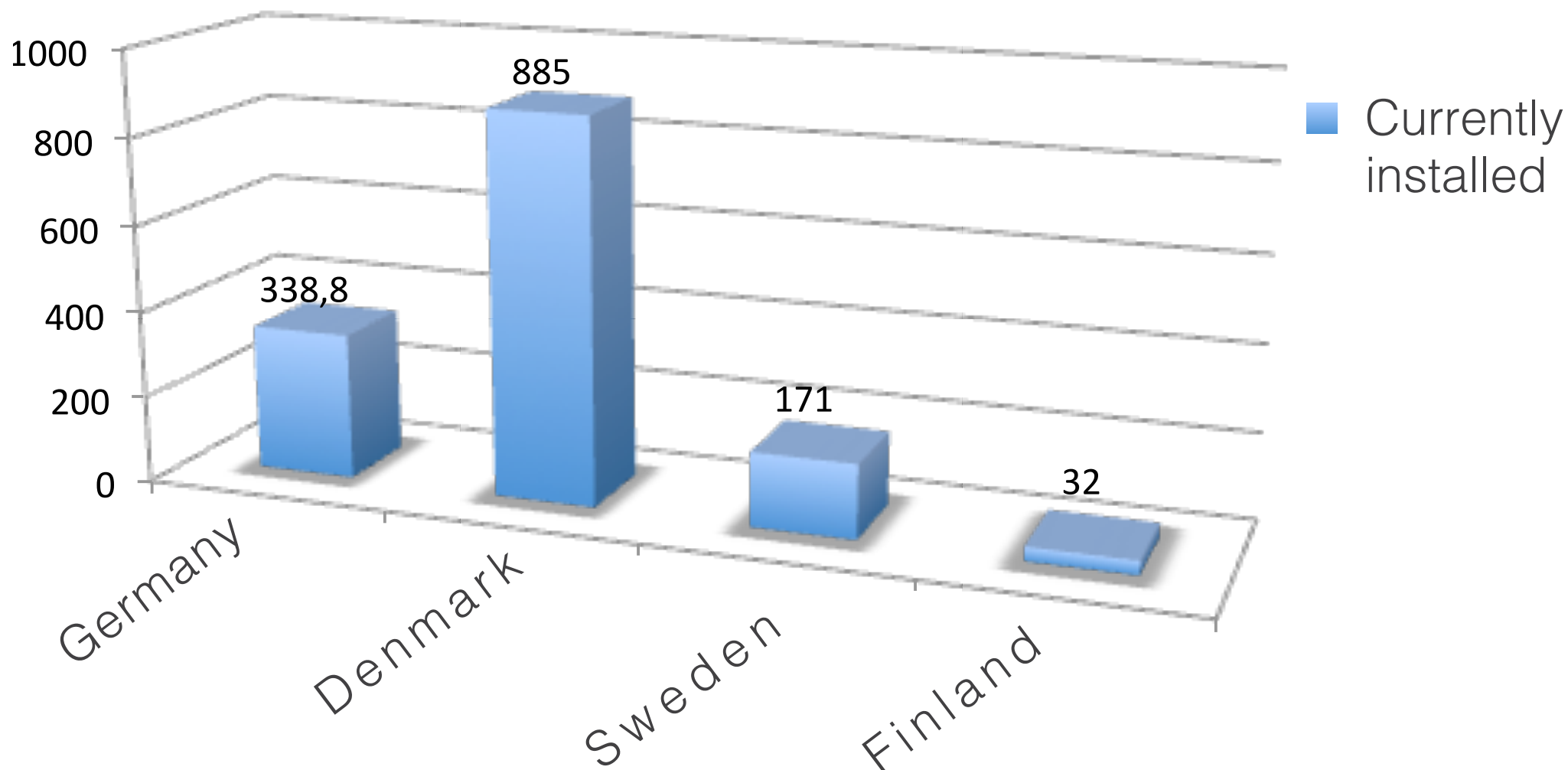


BSR: Offshore wind (MW)

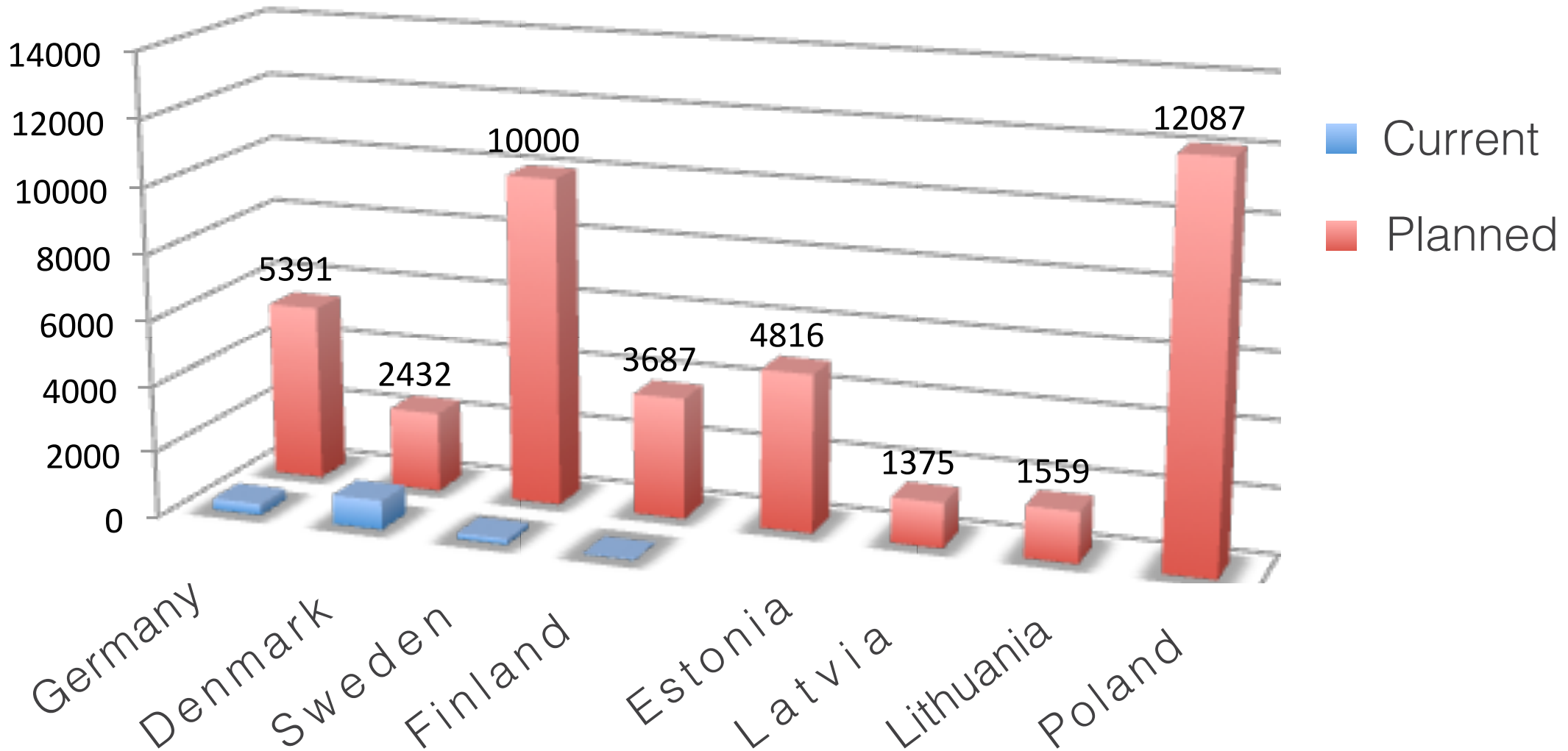
	Installed	Construction	Planned
Germany	338,8	350	5391
Denmark	885		
Sweden	171		10,009
Finland	32	42	3687
Estonia			4816
Latvia			1375
Lithuania			1559
Poland			12,807



OWE in the BSR (in MW)



Current and planned OWE (MW)



BSR: Electricity market integration

- Need for enhanced coordination OWE & grid planning
- Regional electricity exchange increase
- Need for more interconnectors

*BASREC' Study "Electricity Grid Expansion in the Context of Renewables Integration in the Baltic Sea





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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 Forum ▶ Network & conference platform
- Baltic Offshore Grid Concept ▶ Interdisciplinary research
- Connection case studies ▶ In-depth perspective on 2 cases



Research groups (each hosting 2 events)

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

Target groups

- TSOs
- Policy-makers
- OWE industry
- Investors
- Research
- Academia
- Civil society
- Spatial planners
- Environmental institutes

Baltic InteGrid: Outputs and Recommendations

- Policy/regulation roadmap & recommendations
- Business cases (Market & Supply Chain)
- Technology catalogue
- Environmental impact study & mitigation strategy
- Maps outlining variants for grid location
- Cost-benefit analysis and quantitative model
 - + In-depth case studies on connection points (WP4)

Baltic InteGrid: Outputs and Recommendations

- **Policy/regulation roadmap & recommendations**
- Business cases of Market & Supply Chain
- Technology catalogue
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From the inventory to the analysis

Status quo

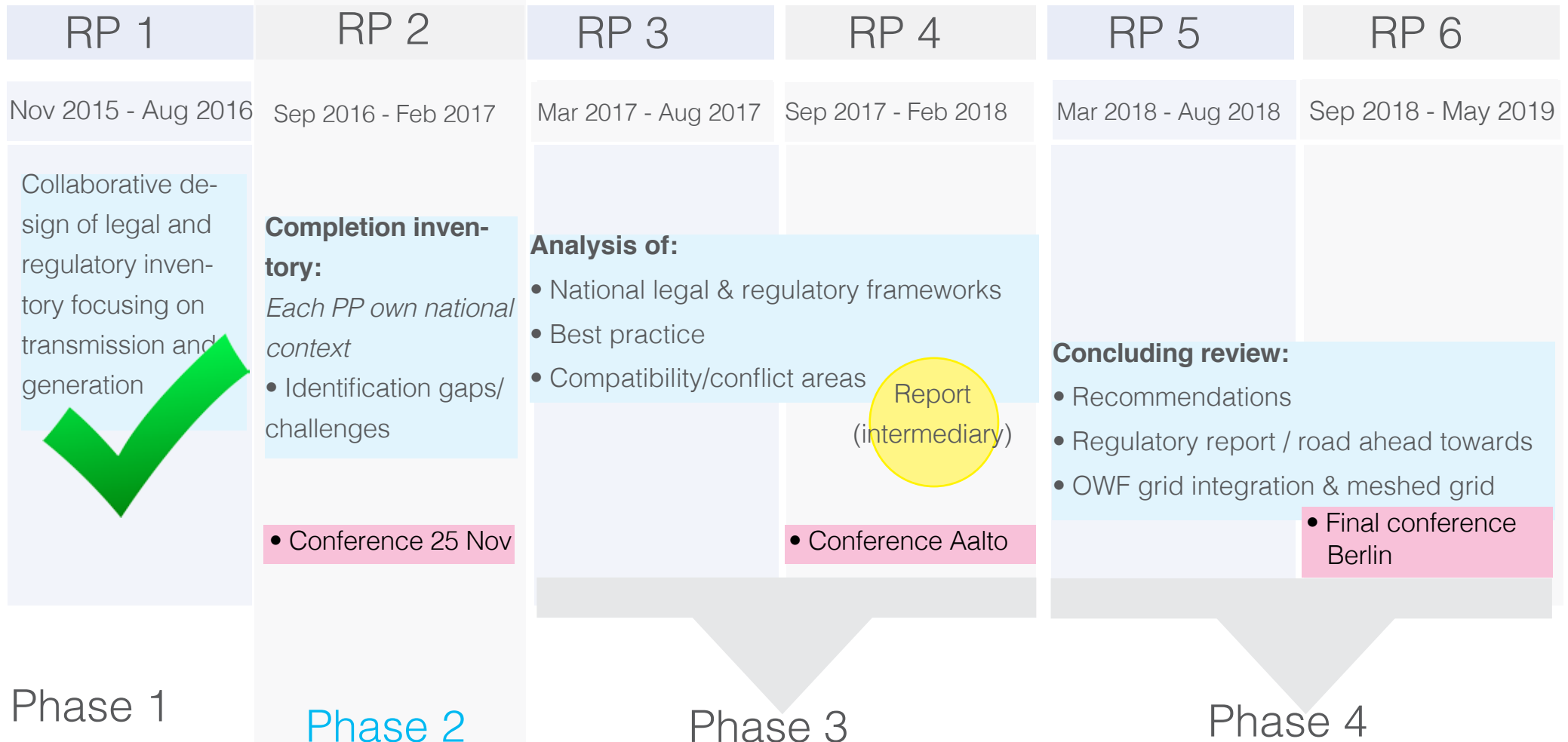
- Grid Infrastructure
- Actors & Stakeholders

Legal framework

- Grid development plan
- Public Participation
- Authorisation
- Construction & Financing

Possibilities

- Results of the Analysis





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 **Interreg**
Baltic Sea Region



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Inventory legal / regulatory framework

Transmission



Generation



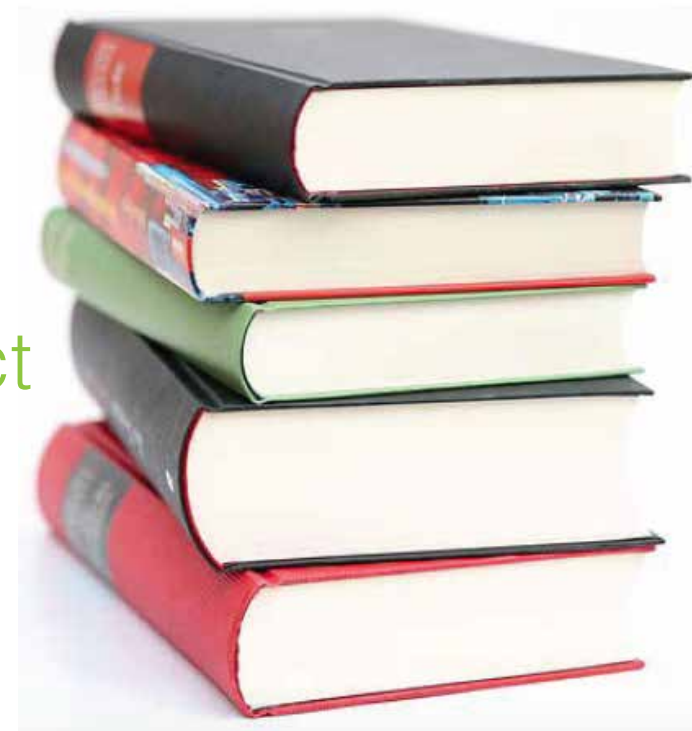


I. Legal framework



Legal framework: Germany

- Renewable Energy Act
- Wind Energy on Sea Act
- Energy Industry Act
- Environmental Impact Assessment Act
- Marine Facilities Ordinance





1. Scenario Framework



2. Network Development Plan
and Environmental Assessment



3. Federal Requirement Plan



4. Federal Sectoral Planning



5. Planning Approval Procedure

Program

- 9:30 - 10:15 Power bridges between Germany and Scandinavia –
Interconnector Projects in the 50Hertz Area
[Jonas Kraeusel | 50Hertz](#)
- 10:15 - 10:30 Coffee
- 10:30 - 11:15 From Planning to Operating: The Legal and Regulatory Road for
Offshore Wind Farm Development
[Lasse Sundahl | DONG Energy Denmark](#)
- 11:15 - 12:00 The EEG 2017: Germany's New Renewable Energy Act and
Impacts on Offshore Wind
[Andreas Wagner | German Offshore Wind Energy Foundation](#)
- 12:00 - 13:00 Lunch

- 13:00 - 13:45 The Approval Process of an Offshore Wind Farm in Germany:
The Point of View of a Technical Inspection Organization
[Dr. Ralf Kotte | TÜV Nord](#)
- 13:45 - 14:30 Meshed Offshore Grids:
Legal and Regulatory Perspectives from the North Sea
[Ceciel Nieuwenhout | Groningen Centre of Energy Law](#)
- 14:30 - 15:00 Coffee
- 15:00 - 15:45 Lightning Round: Offshore Wind and Interconnectors: National Perspectives
- Denmark: [Prof Birgitte Egelund Olsen | Aarhus University](#)
 - Sweden: [Pierre Ståhl | Energikontorsydost](#)
 - Finland: [Kanerva Sunila | Aalto University](#)
 - Estonia: [Prof. Hannes Veinla | Tartu University](#)
- 15:45 - 16:30 Discussion panel: Towards an Integrated Offshore Grid in the Baltic Sea?

Thank you!

