

# European TSO cooperation

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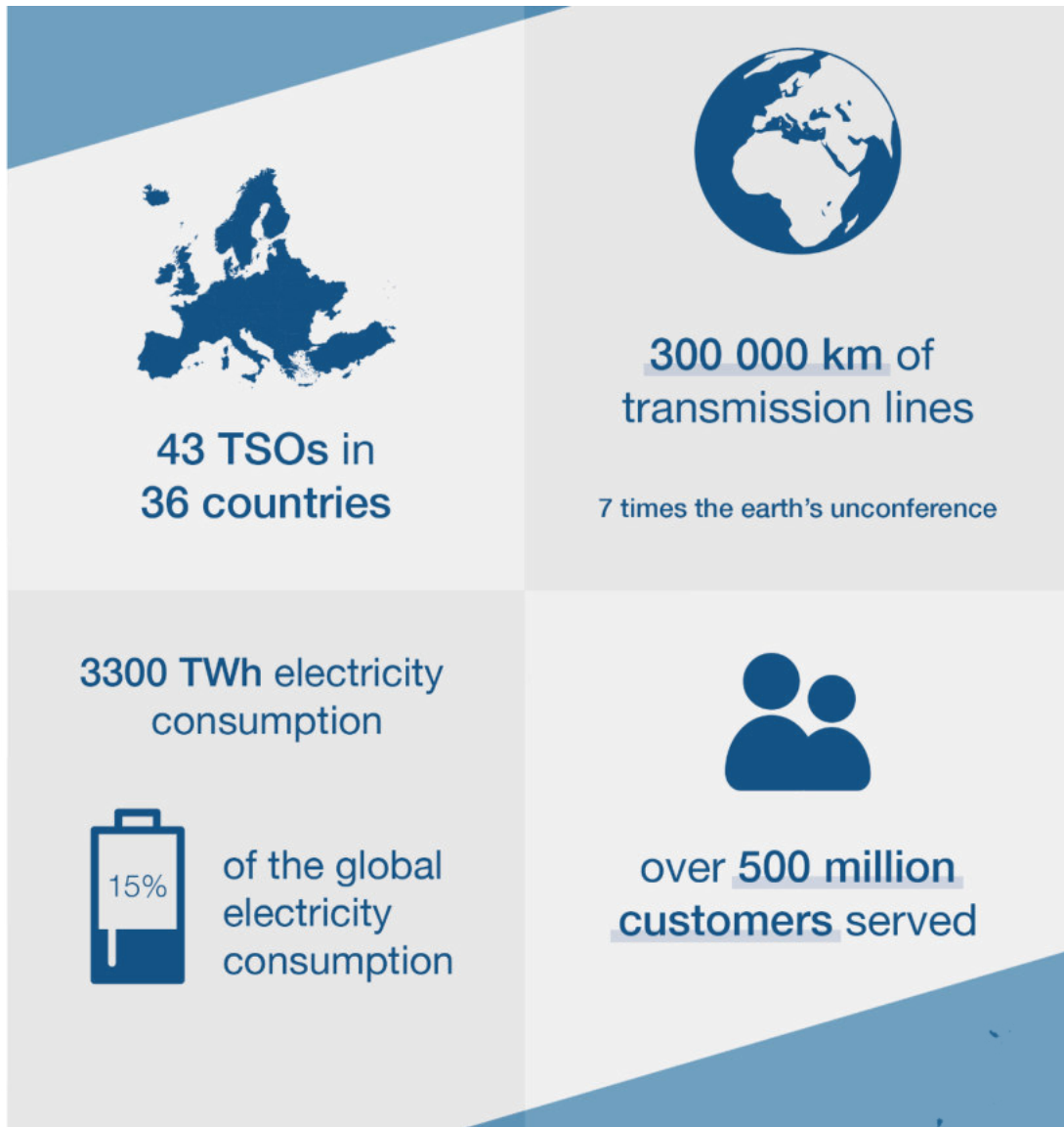
A Meshed offshore wind grid in the Baltic Sea: Opportunities and  
Obstacles in the policy, legal and regulatory framework

16 March 2018

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# Agenda

- **ENTSO-E – Who we are**
- **Energy Transition challenging TSOs**
- **Drivers of grid development in the region**
  - **Development in the Baltic Sea Region**
  - **Regional cooperation and governance**
- **Consideration on meshed regional offshore grid**

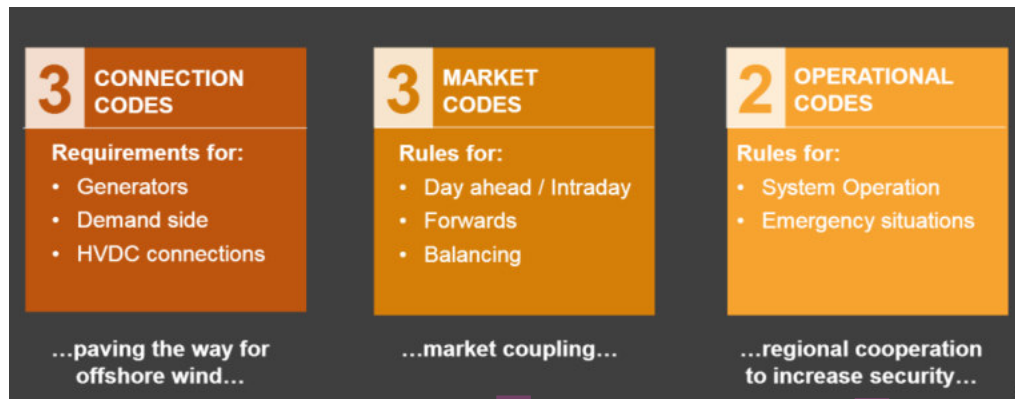


# Who we are?



# Energy Transition challenging TSOs

## Implement the EU codes



Enabling more RES & demand response connections

flow based bidding zones review

Regional security coordinators

## Strengthen the grid



Including links inside countries

## Enhance existing cooperation at all levels



# ENTSO-E Tasks – Regional aspect

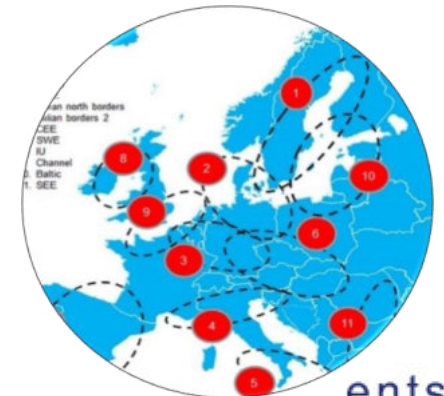
## PLANNING

Regional investment plans in the 10 year network development plan



## OPERATIONS

Regional Security Coordinators established functions supporting TSOs



## MARKET

Internal Energy Market started regional: DA, ID, Balancing. Voluntary projects now in CACM, FCA and Balancing implementation

# What are the drivers of grid development in the region?

There are several drivers for grid development within the Baltic Sea region. Some relate to the current trends in the European energy markets and some to the specific characteristics of the region

## 1. Further integration between Nordics and the Continent

- Annual energy surplus by 2030

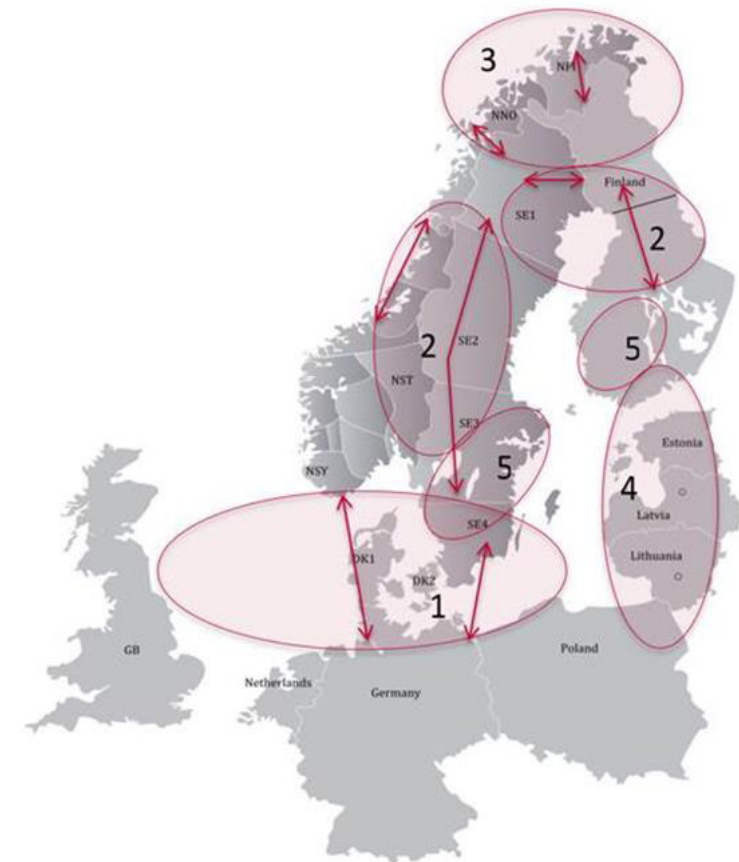
## 2. North south flows

- Planned new interconnectors
- New renewable production in the northern parts

## 3. Arctic consumption

## 4. Baltic integration

## 5. Nuclear and thermal decommissioning



# Beyond the network codes: study on enhancing cooperation

## Enhanced operational planning

- Coordination of actions to maintain system security
- Regional capacity calculation
- Short-term generation adequacy assessment

## Balancing

- Capacity calculation for balancing
- Regional analyses on sharing reserves
- Regional procurement of balancing reserve

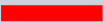

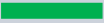






## Generation adequacy

- Regional adequacy assessment
- Analysis on need for capacity mechanisms and on their parameters

## Network planning

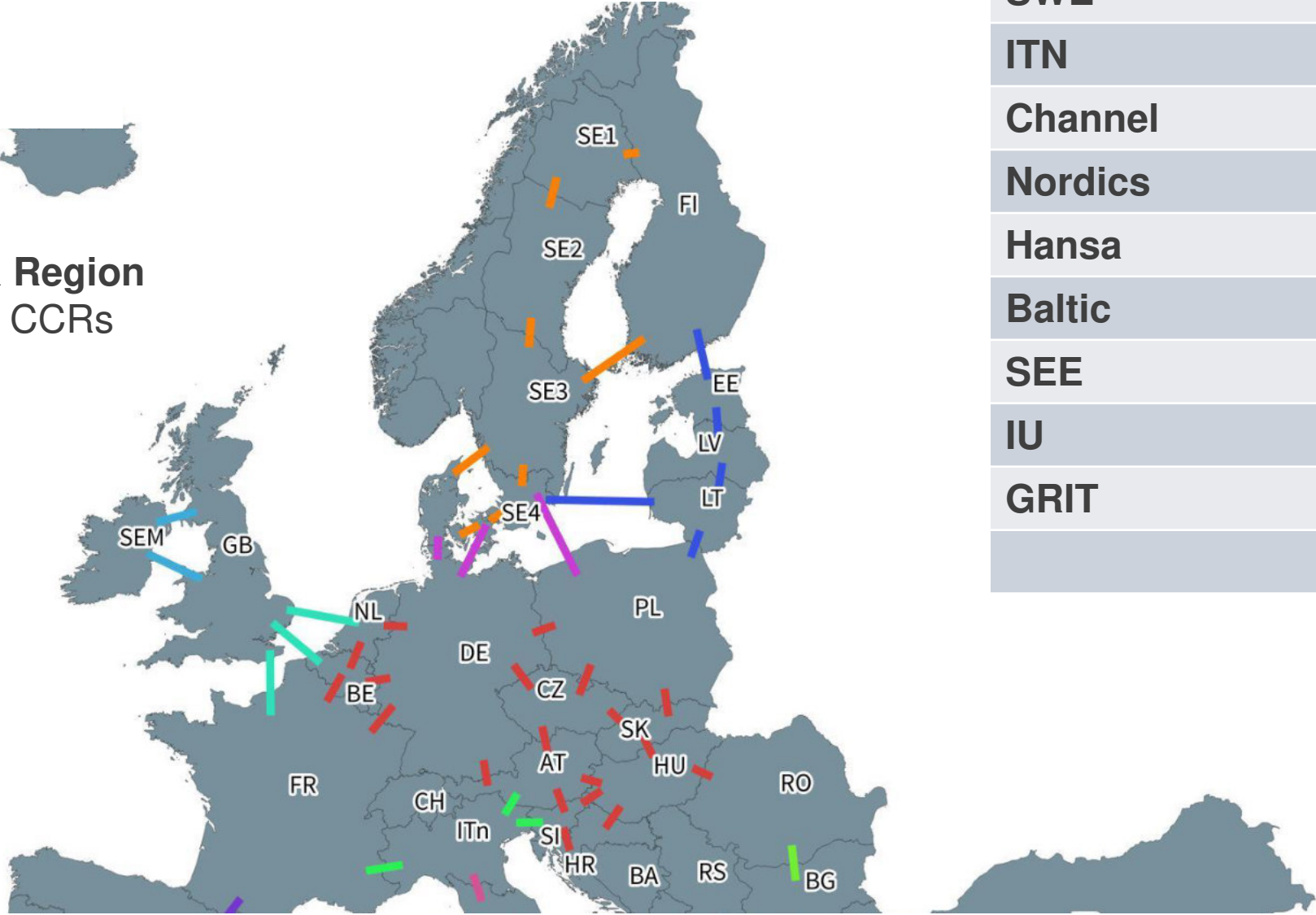
- Cost-benefit analysis for regional projects
- Identify investment needs with a regional perspective

# Capacity Calculation Regions

CCRs	
CWE/CORE	
SWE	
ITN	
Channel	
Nordics	
Hansa	
Baltic	
SEE	
IU	
GRIT	

## The Baltic Sea Region

- covers three CCRs
  - Hansa
  - Baltic
  - Nordics

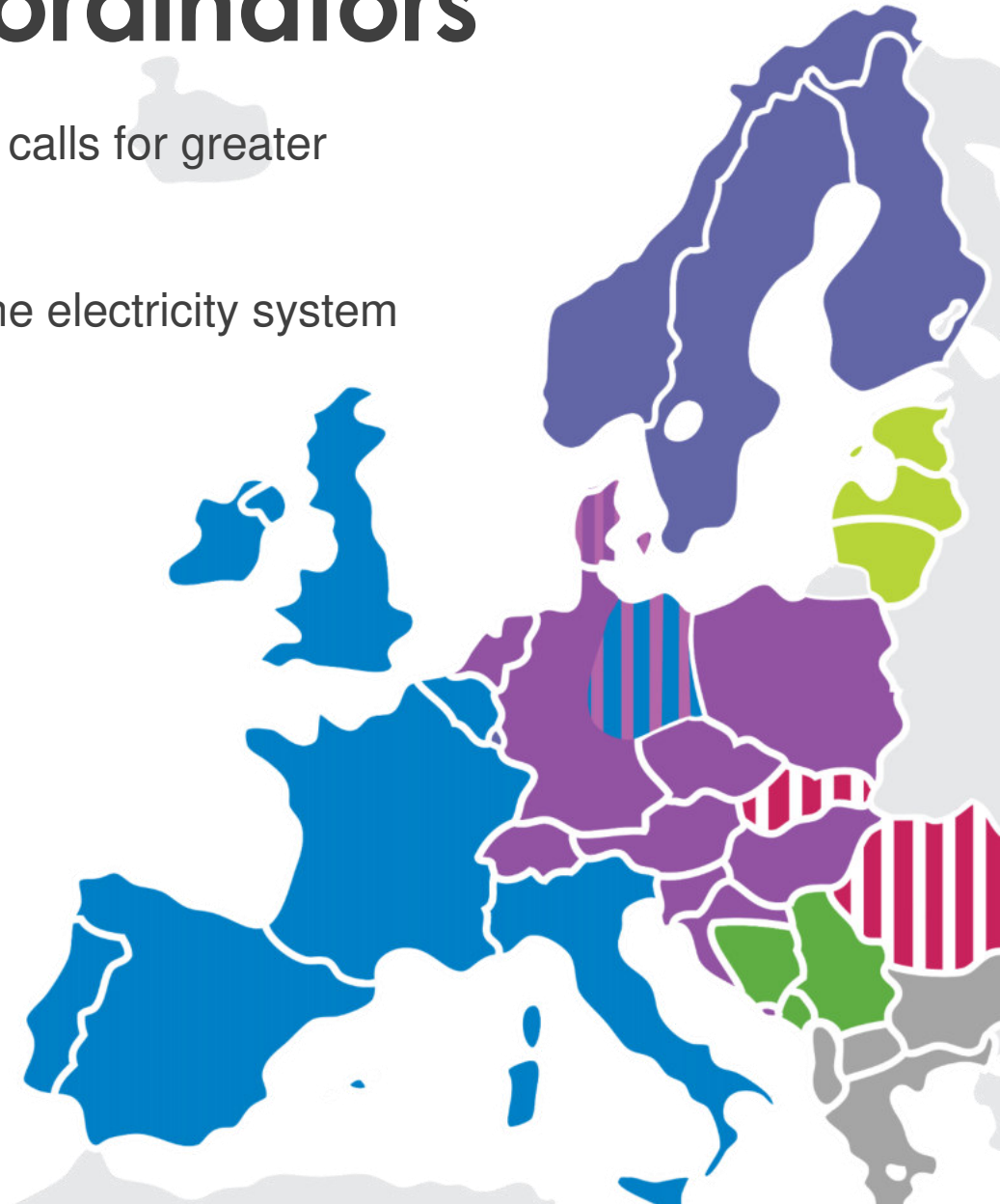


# Regional security coordinators

- Variable generation and the rise of cross-national power flows calls for greater cooperation between national TSOs
- RSCs assist TSOs in maintaining the operational security of the electricity system

## Main tasks

- Operational planning security analysis
- Outage planning coordination
- Coordinated capacity calculation
- Maximise the capacity offered to the market
- Common Grid Model



# EU Network Codes:

## From voluntary to Mandatory Cooperation

### MANDATORY ROLE FOR RSCS

The **System Operation Guideline** makes operational coordination mandatory through RSCs but TSOs remain responsible for security in their area

### COORDINATED SYSTEM OPERATIONS

RSCs do **regional security assessment** & propose a list of coordinated actions (SOGL Art 78)

### MONITORING AND REPORTING

ENTSO-E publishes an **Annual Report on Regional Coordination** (SOGL Art 17)

### COORDINATED EMERGENCY PREPAREDNESS

RSCs **assess the consistency of measures** taken by TSOs in emergency situations (E&R Art 6)

# Regional Group Baltic Sea

## Tasks

- Drafting regional plans
- Participate drafting of TYNDP-publications
- Regional sensitivity analysis (wet/dry, nuclear, high/low prices, high/low wind etc.)
- Qualifying studies/analysis made by MST and NST (TYNDP, CBA, PCI, MAF, WOR)
- Deliver CBA-results (losses+qualitative indicators)
- Analysis/studies. E.g. Baltic synchronization, Nordic dynamic study.
- BEMIP



# Dynamic Study on Interconnecting the Baltic States and Baltic Frequency Stability Study

## Dynamic Study

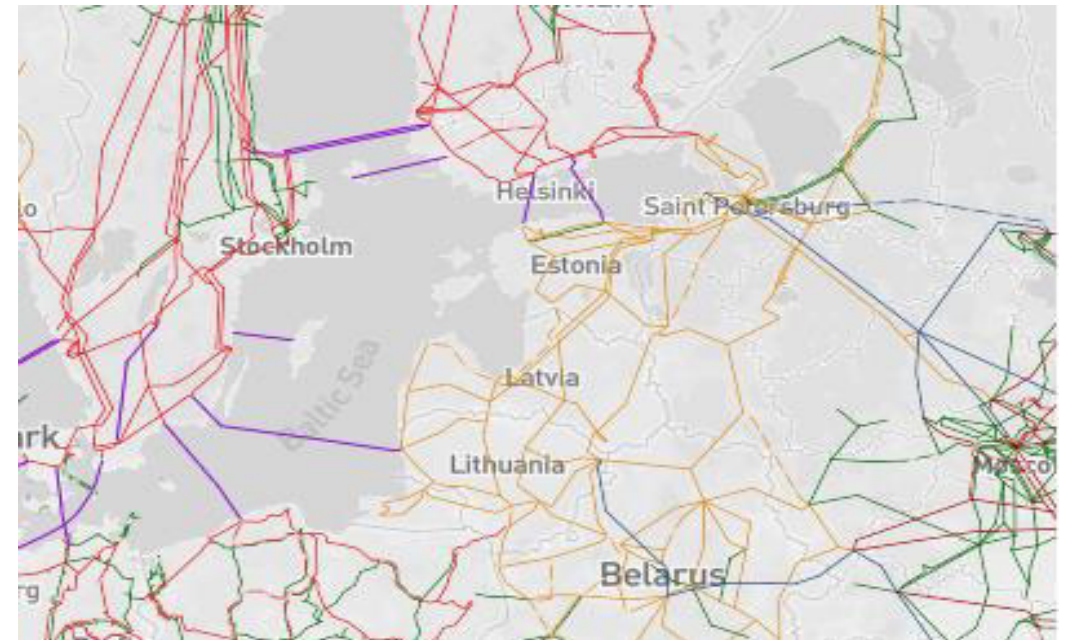
- started in January 2018 with a workshop
- results are expected by May 2018

## Baltic Frequency Stability Study

- conducted by a consultant (Consentec)
- results are expected by the end of March 2018

## Connection arrangements

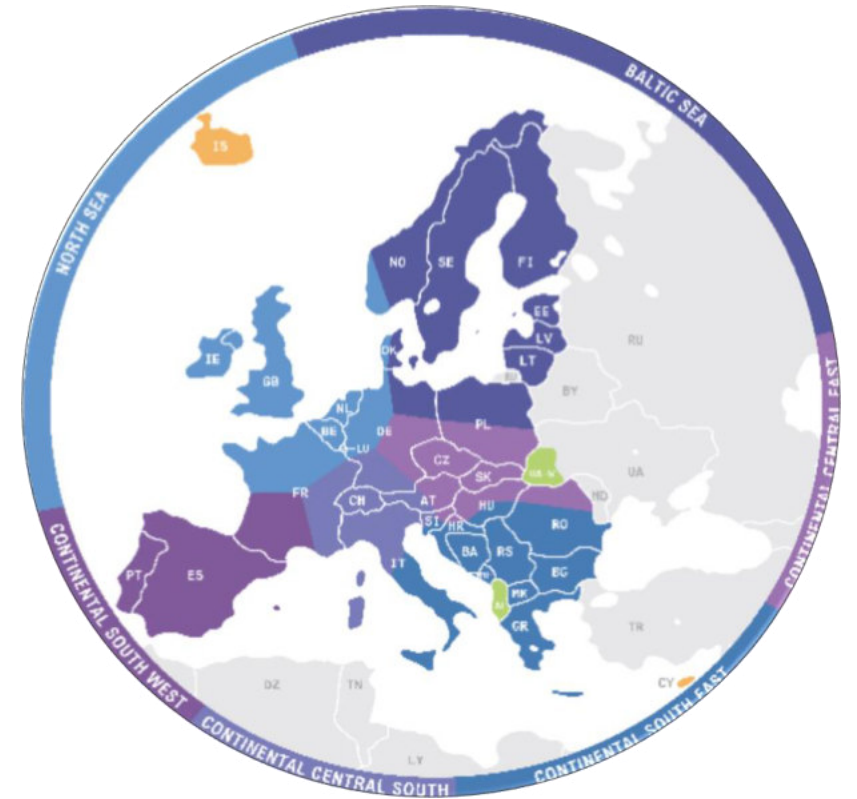
- subject to Regional Group Continental Europe (RG CE) decision in October 2018



# PCI projects evaluation and regionality

## Projects of Common Interest (347/2013)

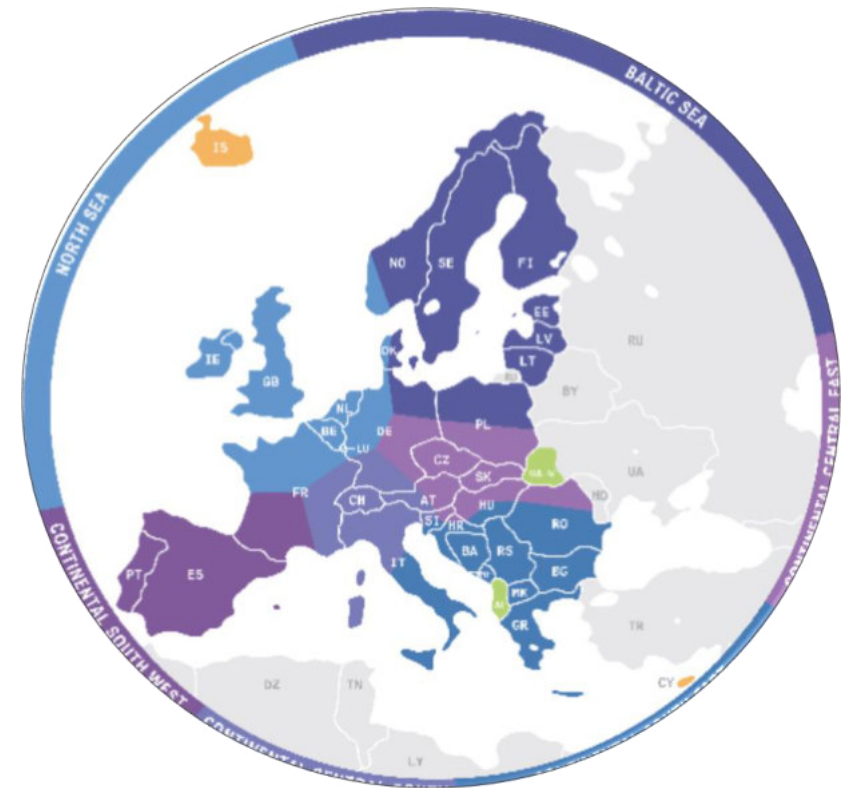
- **BEMIP**
  - Regional group establishes the regional list
  - Proposes and reviews projects
  - Commission adopts the regional list
- **Energy system wide cost-benefit analysis**
  - Methodologies (including on network and market modelling) for a energy system-wide CBA at Union level



# PCI projects evaluation and regionality

## Projects of Common Interest (347/2013)

- **PCI Project**
  - Project specific cost-benefit analysis
  - Approved project eligible for Union financing in the form of grants for studies and financial instruments
- **Incentives**
  - National risk-related incentives for projects of common interest (e.g. RAB)
    - development, construction, operation or maintenance
    - Compared to the risks normally incurred by a comparable infrastructure project
    - regional or Union-wide positive externalities generated by the project



# Meshed regional offshore grid

- **TSO perspective**

- Meshed grid are a new concept and are likely result in higher risks and potentially costs
  - Need for reduction of risks (e.g. PCI status)
  - The scope of TSO responsibility
- Shared risk with multiple TSOs from the system perspective
- Few incentives for TSOs to invest in off-shore grid connections
- Merchant lines have a different revenue generation model

- **Network regulation**

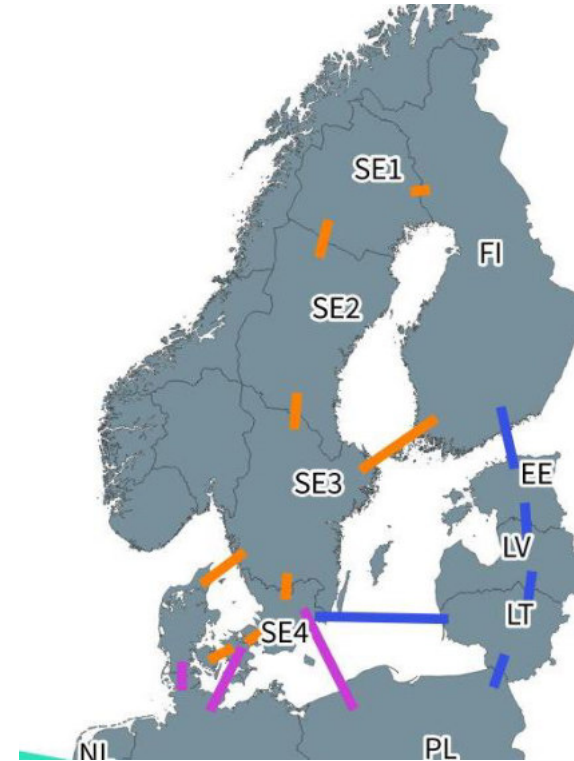
- National regulatory frames for offshore transmission
- The difficulty to set additional incentives in the national framework (RAB)
  - State aid rules
- Need for further harmonization (CEP)

**How to align the policy target and the TSO incentives to build the meshed offshore grid?**



# Meshed regional offshore grid

- **Market perspective**
  - Three **CCRs** in the Baltic Sea area
    - each interconnector needs to be part of one CCR
  - Production connected to a bidding zone
    - Market split
- **RES support schemes**
  - Current priority access for RES (Germany, Denmark and Lithuania)
  - Negative effect on markets
- **RSCs** a way for the TSOs to cooperate on regional level
  - Three RSCs performing the coordinated capacity calculation
  - How to determine capacity?



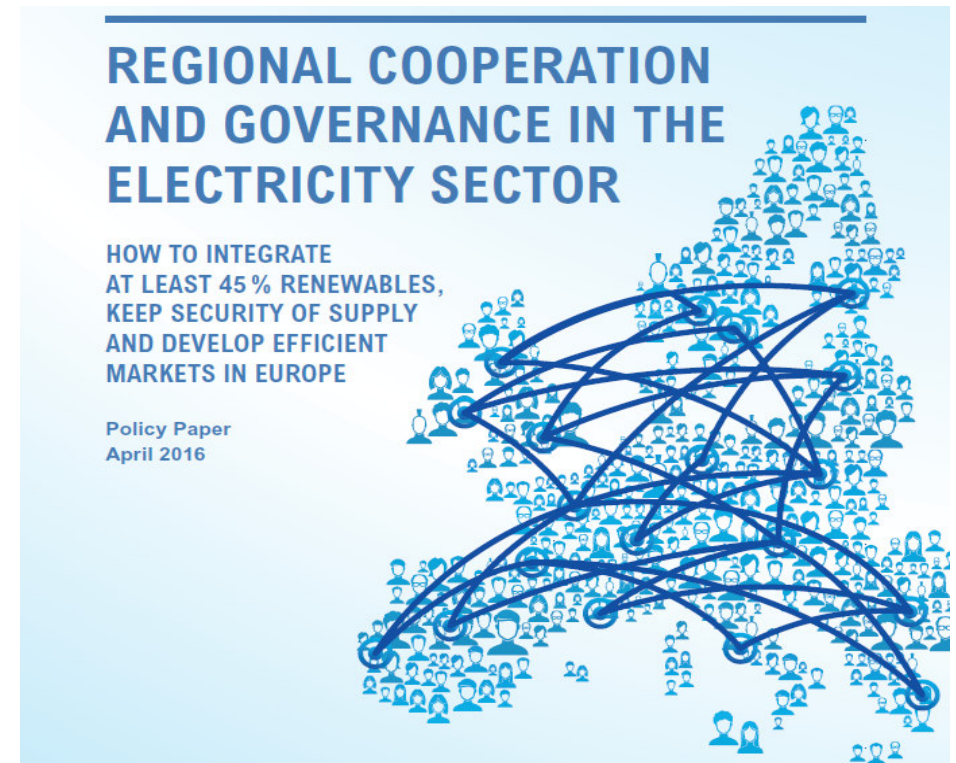


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Thank you

# Regional cooperation and governance in the electricity sector

- Regional cooperation requires stable political framework
- EC, MS, NRAs, TSOs and others working together with regional focus
  - Regional Energy Forum proposal
- "bottom up" on voluntary basis (e.g. Nordics, PLEF, ...)
- Topics for policy regions could be:
  - ❖ Market development and capacity mechanisms
  - ❖ RES support schemes and energy mix
  - ❖ Market integration of RES
  - ❖ Adequacy
  - ❖ Risk Preparedness



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