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

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Why do we need a Trans-European Energy Infrastructure (TEN-E) policy?

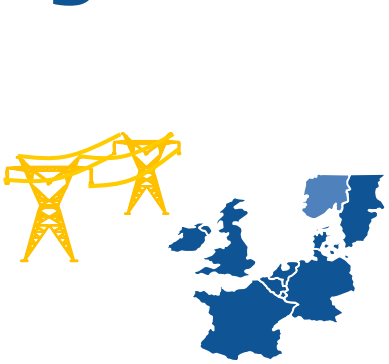
- European Union's overarching energy and climate policy objectives:
  - Decarbonisation of the energy system in line with the Paris agreement
  - 2020 and 2030 energy and climate targets
  - 2020 and 2030 electricity interconnection targets
- **An interconnected European grid** will help meet these targets and ensure affordable, secure and sustainable energy to all Europeans.
- **To accelerate the work on the interconnections, the Union has adopted in 2013 the Trans-European Energy (TEN-E) policy and custom-made instruments:**
  - The **TEN-E policy**, its legislative instrument - **Regulation 347/2013** and the **Projects of Common Interest (PCIs)** represent an effective tool to ensure that the Union respects its commitments under the Paris agreement and the Member States meet their obligations under the 2020 and 2030 Energy and Climate Framework.

How does the TEN-E policy improve EU energy infrastructure development?

- **Effective working method**; 12 priority corridors where regional groups decide and work on implementing PCIs that address specific needs on these corridors.

- **Comprehensive toolbox** with measures aimed at:
  - accelerating and facilitating the permit granting process,
  - enhancing early public engagement,
  - improving regulatory frameworks/treatment of PCIs,
  - providing financial support to PCIs.

TEN-E policy in action: the 12 Regional Groups



Northern Seas Offshore Grid

North-South interconnections West

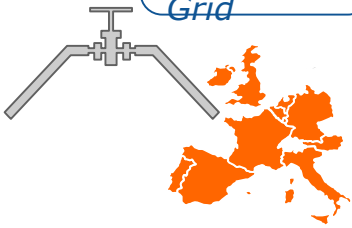
Smart grids

Electricity highways

CO2

North-South interconnections East

BEMIP



North-South interconnections West

North-South interconnections East

Oil

BEMIP

Southern Gas Corridor

What are Projects of Common Interest (PCIs)?

How does an energy infrastructure project become a PCI?

For a project to become a PCI, it should be an energy network infrastructure that:

a) has a significant impact on at least two EU Member States,

b) enhances market integration and contributes to the integration of Member States' networks,

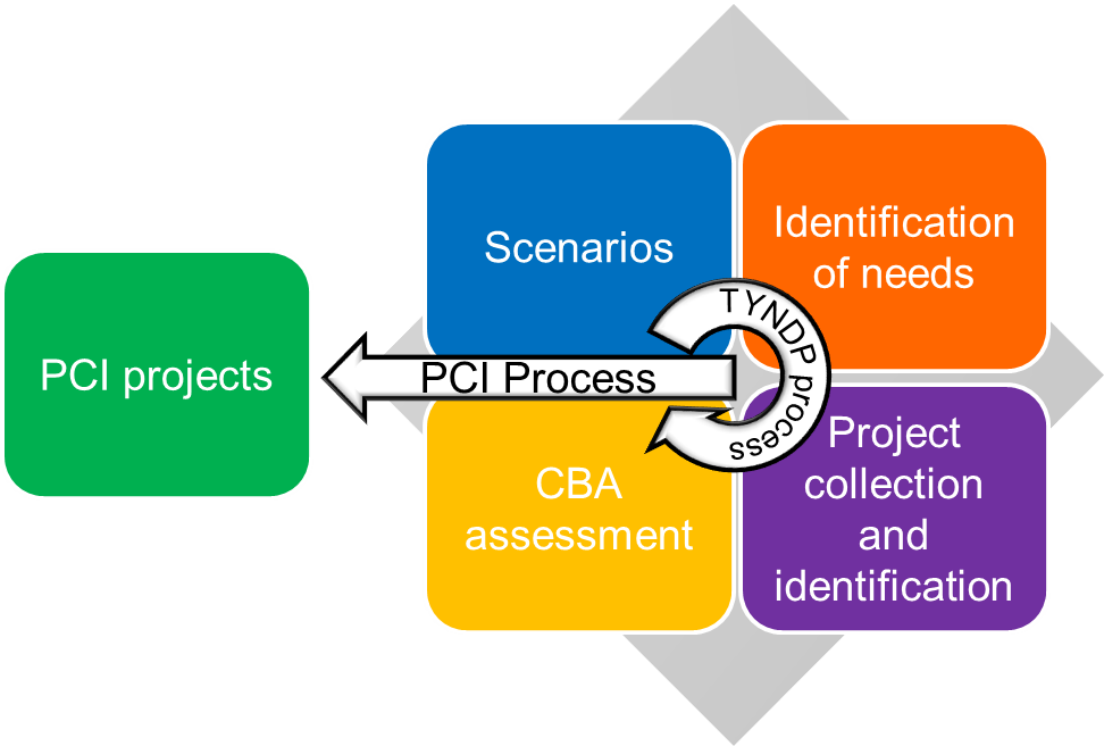
c) increases competition on energy markets by offering alternatives to consumers,

d) enhances security of supply,

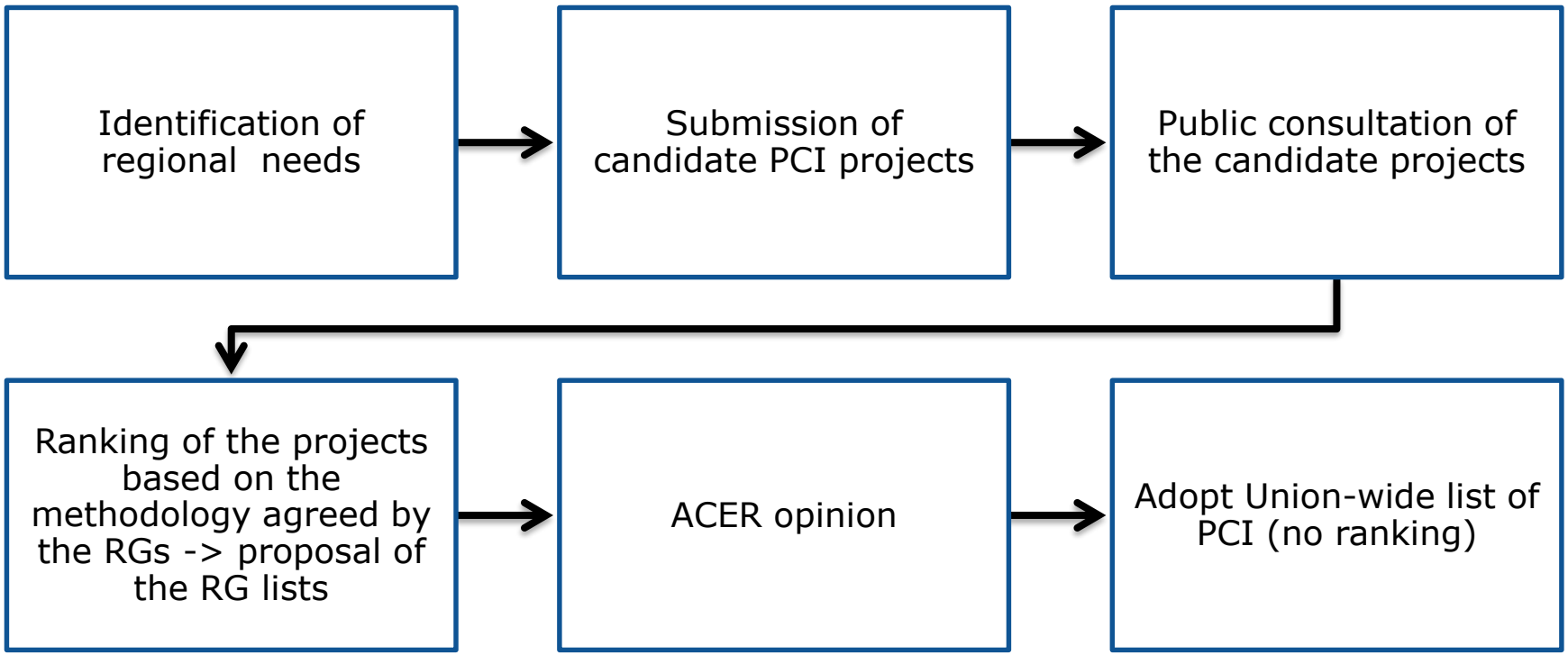
e) contributes to the sustainability objective, e.g. by supporting renewable generation.

Only those electricity and gas projects included in the latest Ten-Year-Network Development Plans prepared by the European Network of Transmission System Operators for gas and for electricity (ENTSOG and ENTSO-E) are allowed to become PCIs, as these Plans highlight the projects' socioeconomic benefits on the EU energy system.

The PCI process – from TYNDP to PCI (1/2)



The PCI process – from TYNDP to PCI (2/2)

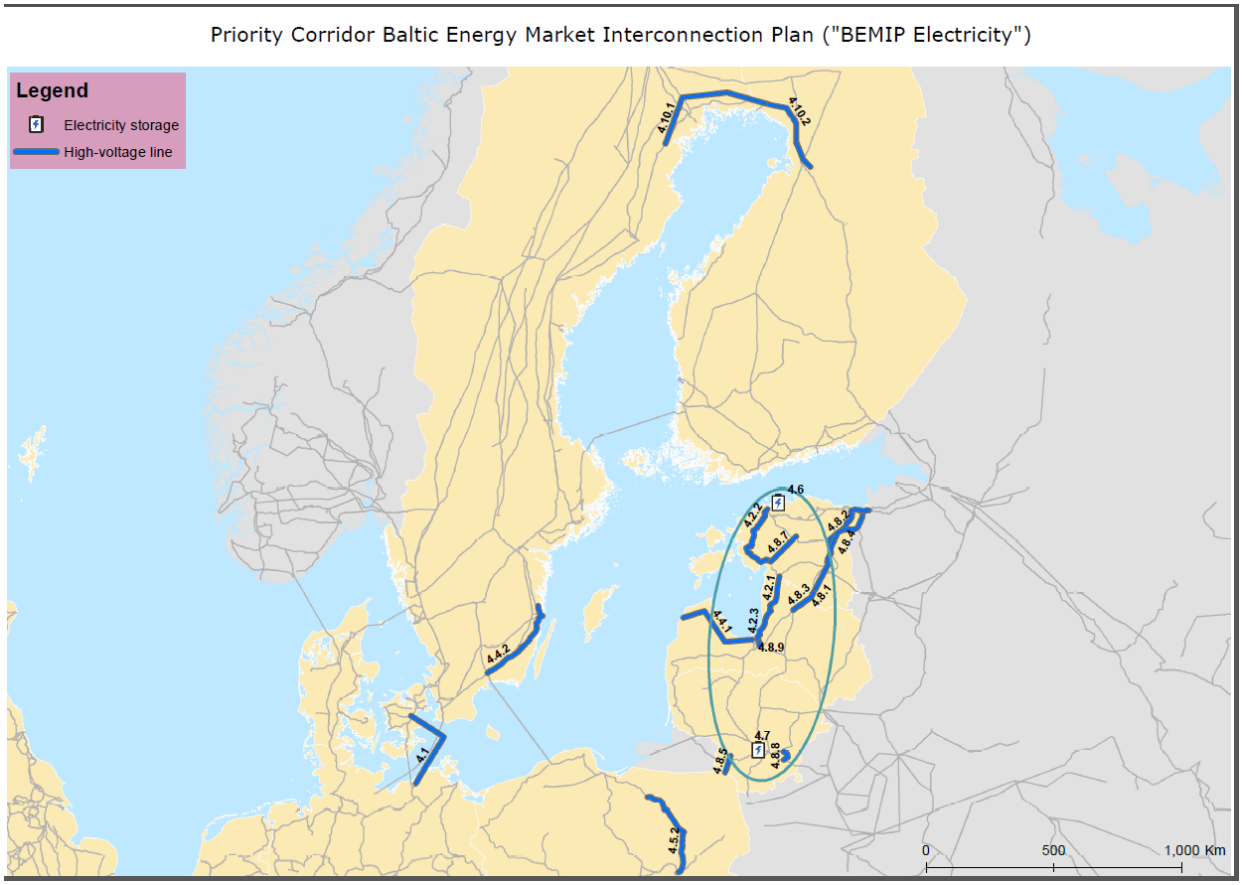


The infrastructure package and the 3rd Union list of PCIs

- On November 23rd 2017, the Commission adopted an Infrastructure package: **Communication on strengthening Europe's energy networks** accompanied by **the 3rd Union List of PCIs**
- The new (3rd) Union list of PCIs identifies **173 projects,** out of which:
  - **106** electricity transmission and storage
  - **4** smart grids deployment
  - **53** gas
  - **6** oil
  - **4** cross-border carbon dioxide network (for the first time)
- **The current list reflects the Union's decarbonisation agenda, the agreed 2020 and 2030 energy and climate objectives**, and the need to reach the **interconnection targets.**

BEMIP: at the heart of the TEN-E policy (1/2)

Annex I of the TEN-E Reg. 347/ 2013: The BEMIP electricity corridor covers interconnections between Member States in the Baltic region and reinforcing internal grid infrastructures accordingly, to end isolation of the Baltic States and to foster market integration inter alia by working towards the integration of renewable energy in the region.



BEMIP: at the heart of the TEN-E policy (2/2)

The selected electricity PCIs aim to address major corridor-specific objectives:

- The synchronisation of Baltic States' electricity network with European networks
  - Cluster 4.8 Integration and synchronisation of the Baltic States' electricity system with the European networks
- Further integration of RES and accommodation of North-South flows
- Adequacy issues due to significant changes in generation mix

Union financial assistance :

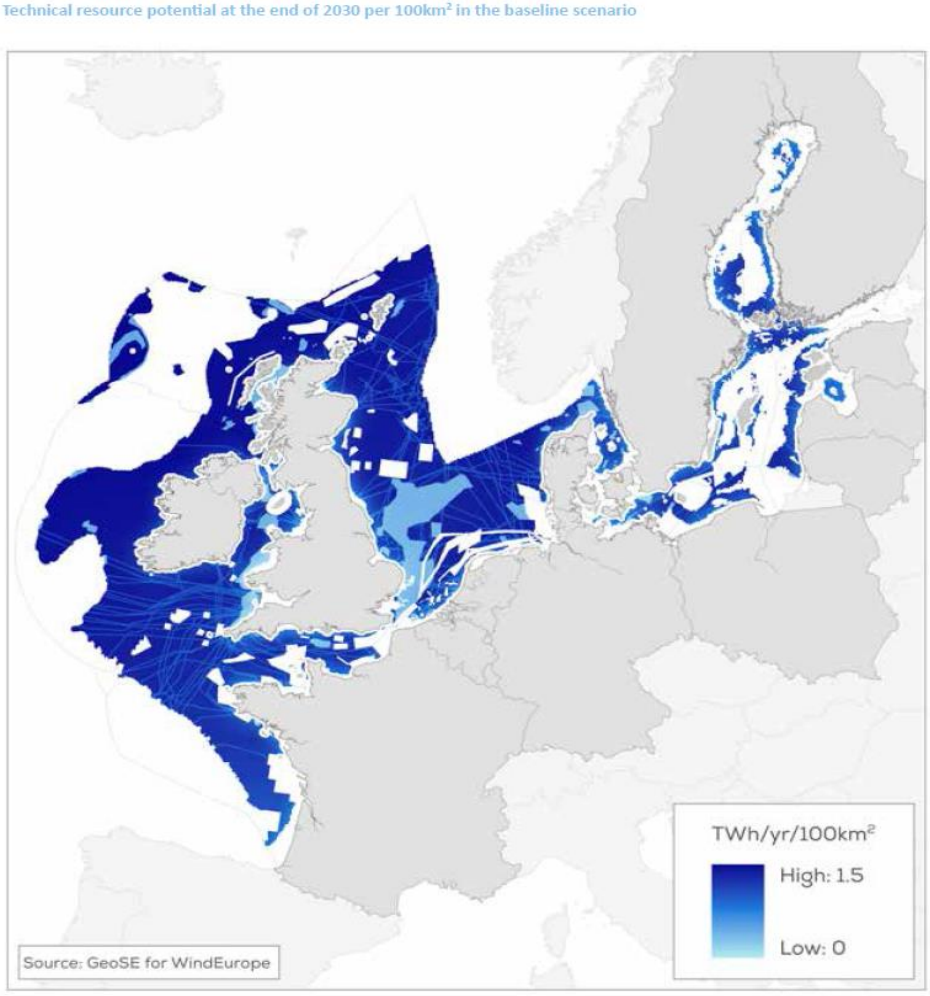
So far, BEMIP electricity received EUR 205 million under CEF (largest share of funding)

Article 4(2)(a)	Problem as identified at RG meeting	Market integration	SoS	Sustainability	Need	Countries affected
Problems that can be addressed through infrastructure needs	Integration of RES and accommodation of flows	•		•	Infrastructure to mitigate RES curtailment and improve accommodation of flows	Germany, Denmark Norway
	High price differentials	•			Infrastructure to enable the reduction of price differentials (by adding capacity) across the EU	Sweden, Finland, Latvia, Lithuania, Poland, Germany
	System flexibility and stability	•	•		Infrastructure to improve system flexibility and stability	Germany, Finland
	10% target not met	•			Infrastructure to achieve an interconnection level of 10%.	Germany, Poland
	Address adequacy issues due to significant changes in generation mix				Infrastructure to address system adequacy deficiencies	Finland
	Dependence of the Baltic States on the Russian/Belarusian system - in terms of system operation and balancing reserves		•		Infrastructure to allow for synchronisation of the Baltic States with the rest of the EU network (option pending Member States' decision)	Estonia, Latvia, Lithuania

Offshore wind, a game changer (1/2)

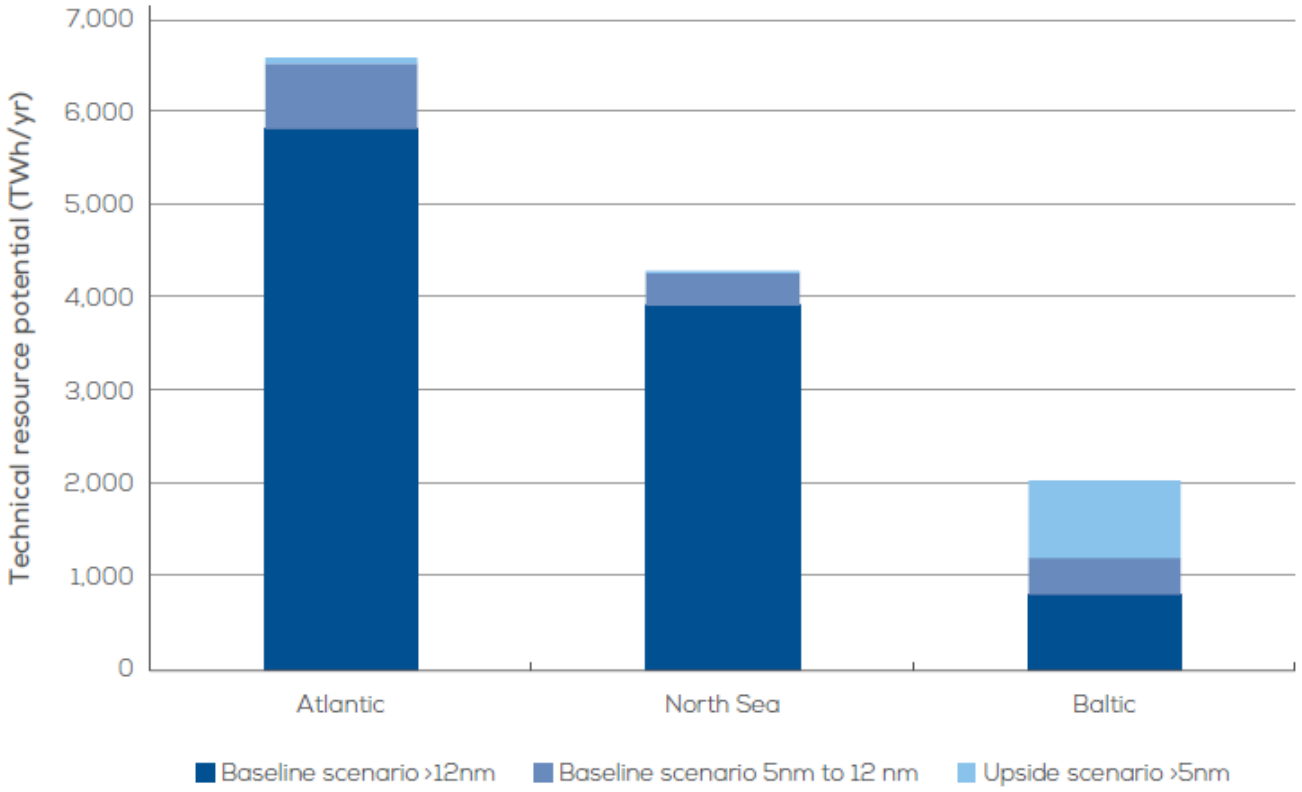
Over the last two years the costs of offshore wind have shown a steep decline with recent auctions in The Netherlands, Denmark and the UK awarded at record low prices of around 6 Eurocents per kilowatt-hour (kWh).

Offshore wind could also become a large player by 2030, with 72 GW installed capacity. *(Irena, February 2018)*



Offshore wind, a game changer (2/2)

Technical resource potential at the end of 2030 by sea basin



Source: BVG Associates for WindEurope

Baltic Sea Region: Offshore wind potential under BEMIP HLG (1)

On 8 June 2015, a reinforced MoU for BEMIP initiative was signed giving new impetus to initiative and extending its scope to security of supply, energy efficiency, renewable energy and the synchronisation of the Baltic States' electricity network with the continental European network.

Offshore wind – attractive resource for the Baltic Sea Region whose potential has not yet been sufficiently tapped in.

Based on the successful Northern Seas Offshore Grid Initiative, the Commission recently launched a study to support the set-up of a Baltic Sea Off-shore Wind Cooperation initiative.

Baltic Sea Region: Offshore wind potential under BEMIP HLG (2)

The study aims to:

- Identify offshore wind energy potential and possible offshore wind generation sites;
- Identify the bottlenecks in terms of grid connection, grid interconnection and grid integration of offshore wind;
- Analyse costs and benefits of grid reinforcement and expansion needs and the according grid investments and configuration needs;

The results of the Baltic InteGRID project will be considered in the analysis of current authorisation and permitting regimes for offshore wind and related grid infrastructure in the Baltic Sea Region.

The objective? To build a roadmap and a work programme for an offshore wind development initiative under BEMIP.

Best practices form North-Sea Energy Cooperation

In 2016, countries in the North Sea signed a **Political Declaration** committing:

- to facilitating the cost-effective deployment of offshore renewable energy, in particular wind
- and promoting interconnection between the countries in the region.

A three-year work programme is developed and implemented focusing on the following work streams:

- Maritime spatial planning
- Development and regulation of offshore grids and other offshore infrastructure
- Support framework and finance for offshore wind
- Standards, technical rules and regulations in the offshore wind sector

The practice of **"cluster approach"** for the development of **"hybrid projects"** which combine offshore generation and interconnections.

The lessons learned so far?

Cooperation brings cost savings!

Regulatory issues are key!

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