Offshore network development plans 2024: Atlantic Offshore Grid

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Offshore Network Development Plans 2024: Atlantic Offshore Grid

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Introduction

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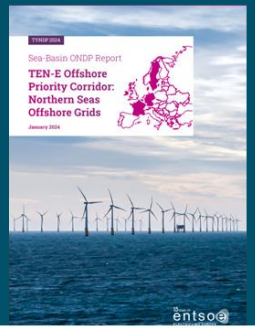
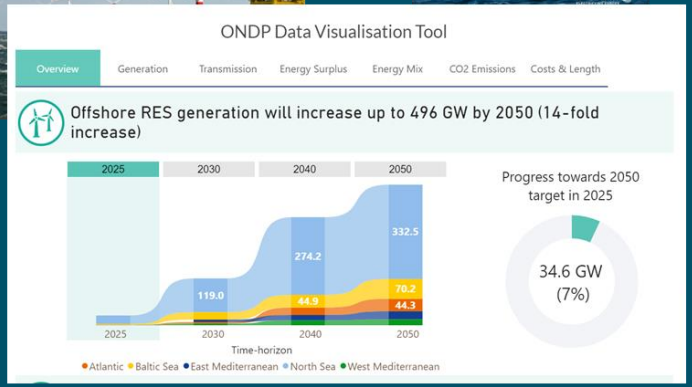
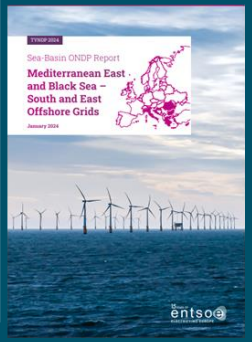
ONPD launch







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The ONPD in the TYNDP

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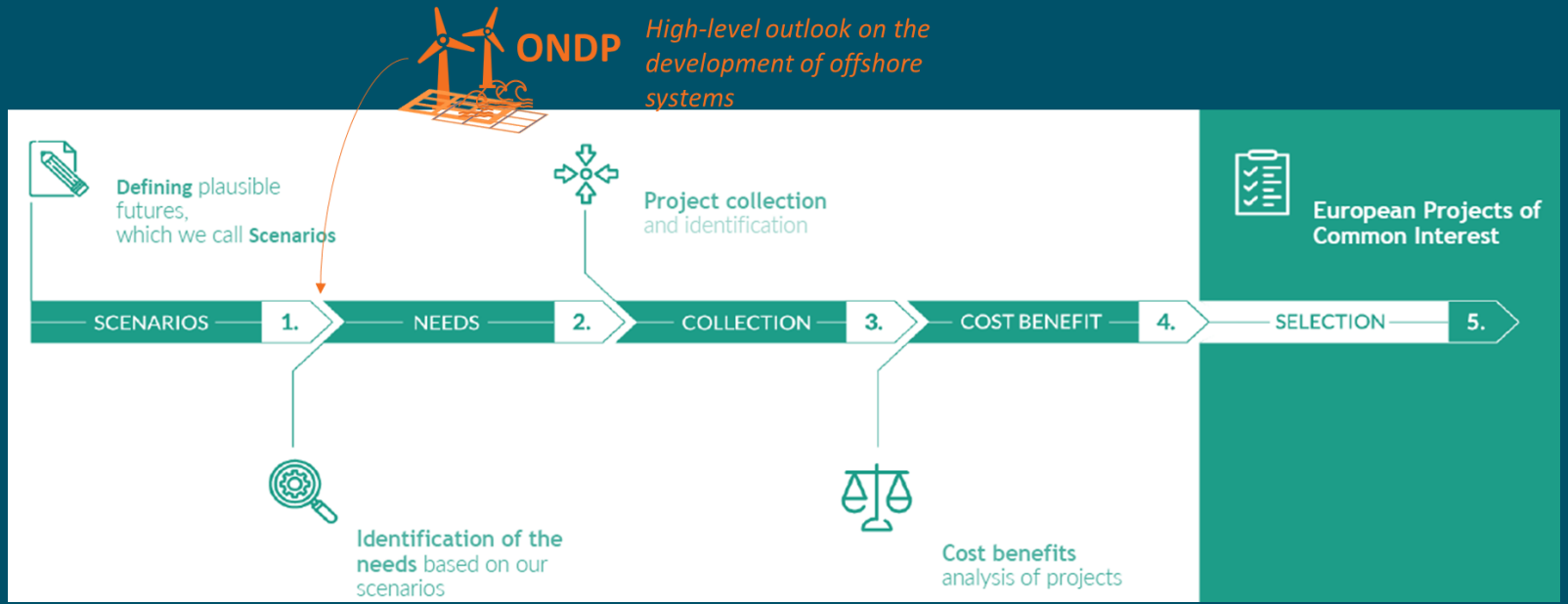
Offshore Network Development Plans (ONDPs) in the TYNDP



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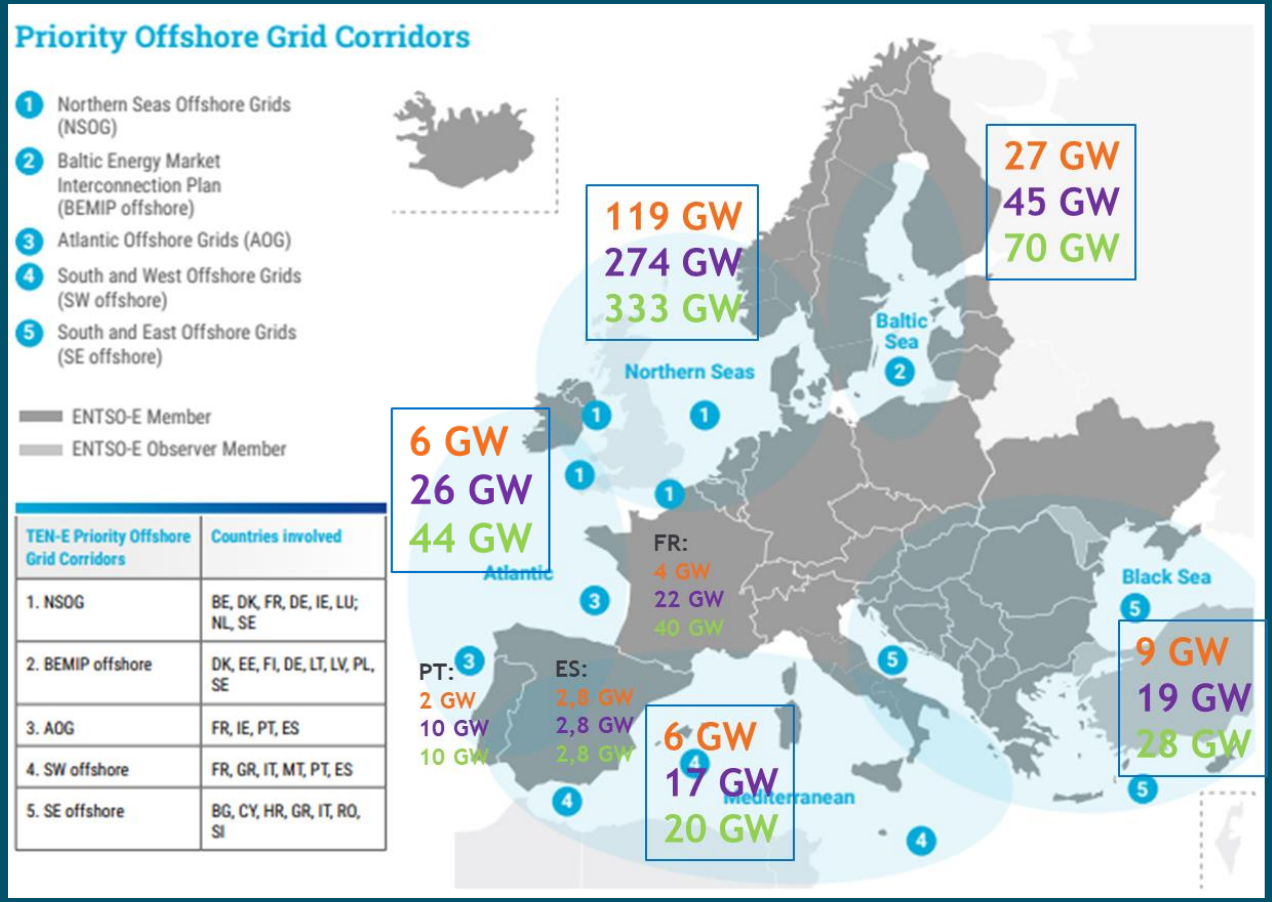
2030-2040-2050 offshore MS's non-binding targets

2030
2040
2050



TEN-E Priority Offshore Grid Corridors	Countries involved
1. NSOG	BE, DK, FR, DE, IE, LU; NL, SE
2. BEMIP offshore	DK, EE, FI, DE, LT, LV, PL, SE
3. AOG	FR, IE, PT, ES
4. SW offshore	FR, GR, IT, MT, PT, ES
5. SE offshore	BG, CY, HR, GR, IT, RO, SI

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The ONPD Approach and Main Findings

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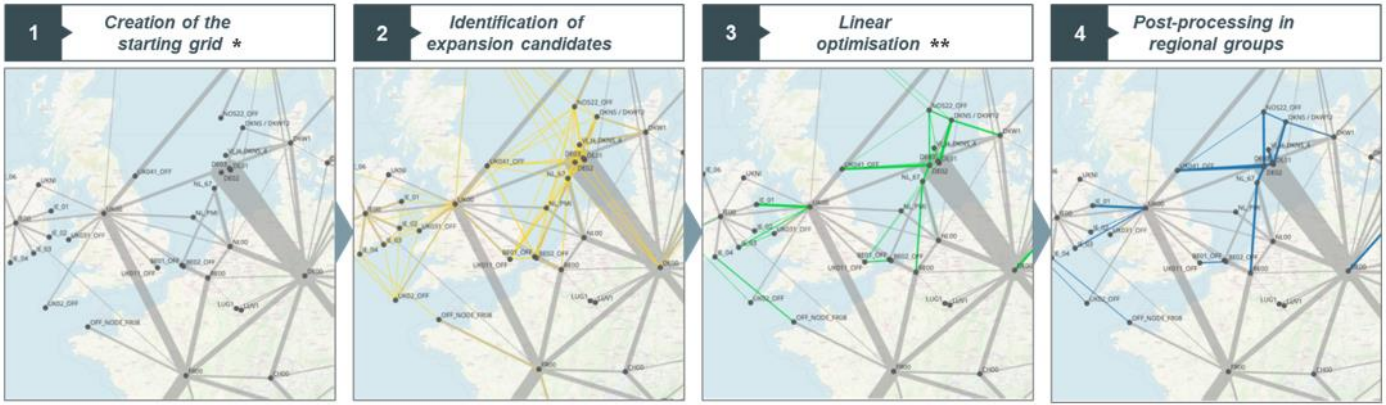
The ONDP Approach, summarized in four steps

Schematic Visualisation:



* 2030 for 2040
2040 for 2050

** minimize TOTEX

*** check plausibility and adjust

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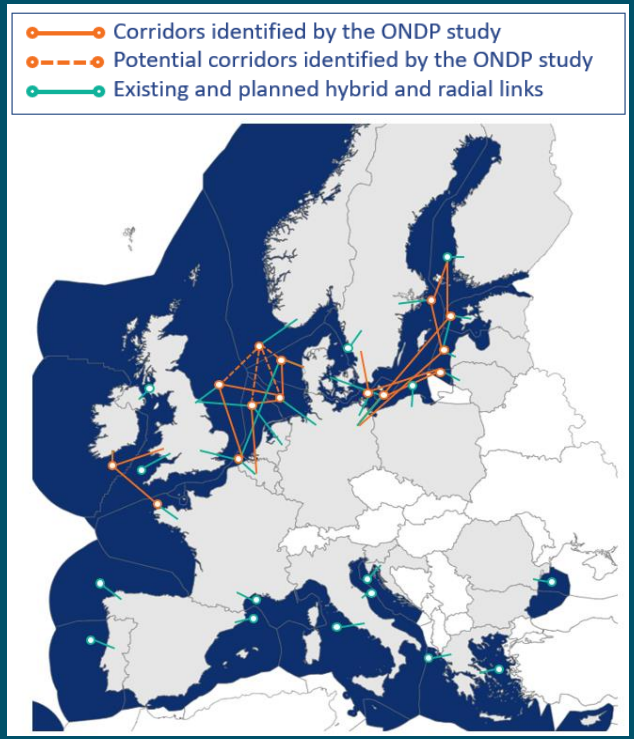
Up to 1 out of 7 GW will be connected via Offshore Hybrid Corridors

The future European offshore transmission system will be a combination of radial offshore RES connections, classical point-to-point interconnections, offshore hybrid projects combining both functions and multi-purpose solutions integrating energy sectors

Hybrid corridors will progressively grow to link to up to 14% of offshore RES in 2050



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Benefits and challenges of offshore corridor development

Energy Security Increase

Resulting from cross-border interconnections and increased redundancy

Price-convergence

Hybrid corridors would contribute to reduce price difference between market nodes

Better utilisation of offshore RES

Hybrid corridors reduce green energy surplus and help to avoid up to 5 to 8 Mton CO_2

System risk

e.g. comply with reference incident measures as stated in network codes and guidelines

Operational challenges

No experience yet with operation of HVDC systems.

Offshore RES development

is at risk in case coordination across multiple actors fails - complex coordination is decisive

& General challenges with

- Infrastructure supply chain (incl. workforce)
- Ports availability
- Environmental impact
- Flexibility

entsoe

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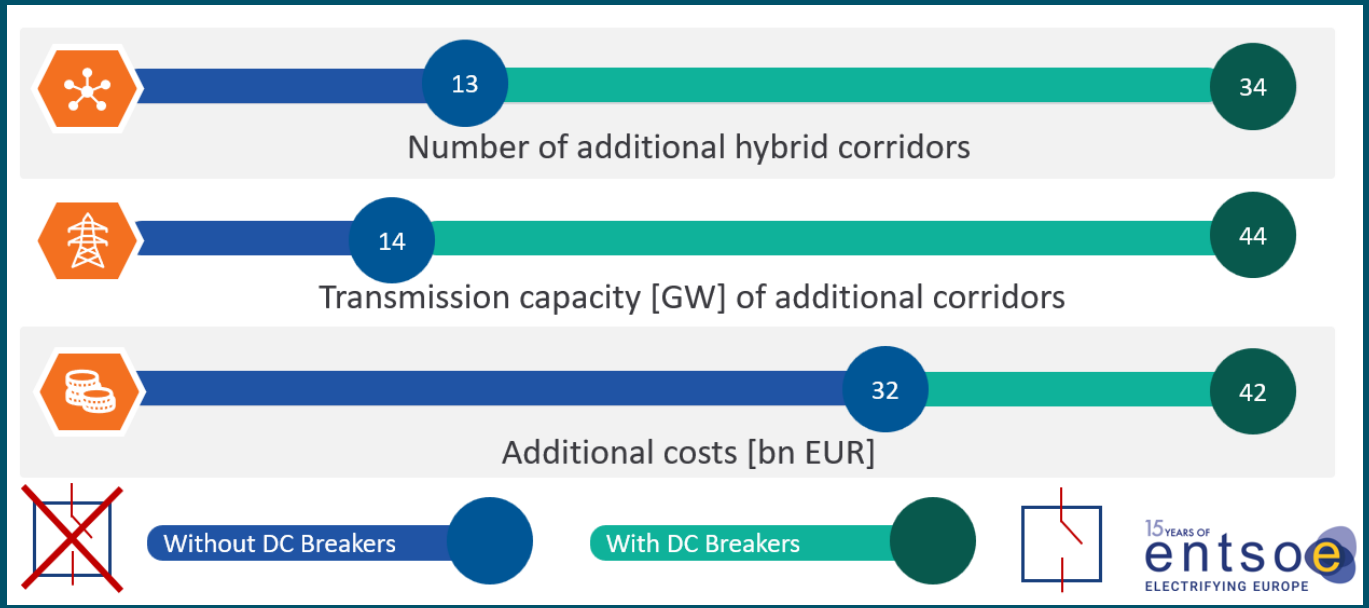
DC Circuit Breakers: A major technological Breakthrough

With a total cost increase of only 3%, DC breakers allow to address the equivalent of 50% of the interconnection needs identified in TYNDP 2022 (up from 16% without DC breakers).



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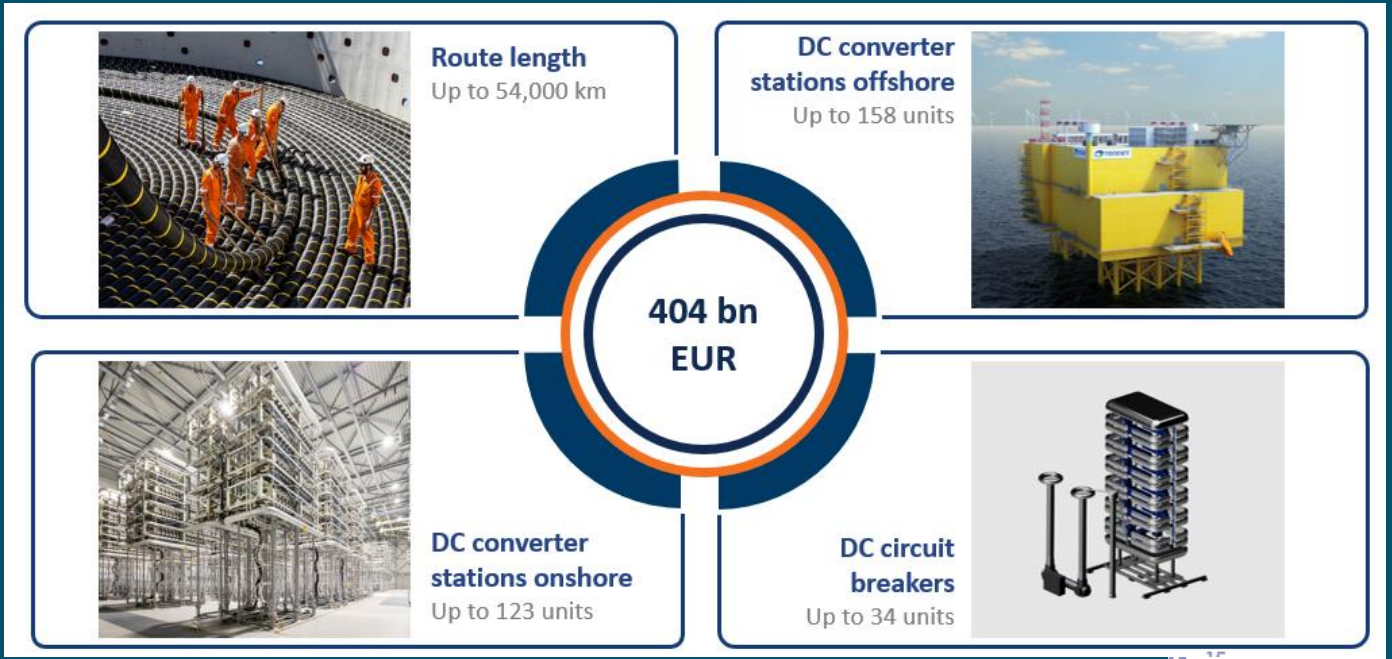
TSOs need to invest 404bn EUR by 2050



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15 YEARS OF entsoe ELECTRIFYING EUROPE

AOG – Atlantic Offshore Grid

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Sea Basin ONDP – Atlantic Offshore Grids – Corridor

Who we are

TEN-E Priority Offshore Grid Corridors	Countries involved
1. NSOG	BE, DK, FR, DE, IE, LU, NL, SE
2. BEMIP offshore	DK, EE, FI, DE, LT, LV, PL, SE
3. Atlantic offshore grid	FR, IE, PT, ES
4. South & West offshore Grid	FR, GR, IT, MT, PT, ES
5. South & East offshore Grid	BG, CY, HR, GR, IT, RO, SI

Applying upper limits				TSO data status 6.4.2023			
MS 20.1.2023 (GW)	2030	2040	2050	ONDP Data [GW]	2030	2040	2050
ES	1.56	1.56	1.56	ES	1.40	1.40	1.40
FR	1.70	7.50	16.50	FR	1.76	7.86	17.86
IE	0.5 – 1	7.00	15.00	IE	0.50	7.00	15.00
PT	10.00	10.00	10.00	PT	2.00	10.00	10.00
Total	14.26	26.06	43.06	Total	5.66	26.26	44.26

Name	TSO
Aaron Keyes	Eirgrid
Ana Clavero	Red Eléctrica
Belén Segura	Red Eléctrica
Fernando Batista	REN
Fernando Postigo	Red Eléctrica
Guillaume Malingue	RTE
John West	EirGrid
Ricardo Pereira	REN
Simon Deschanvres	RTE

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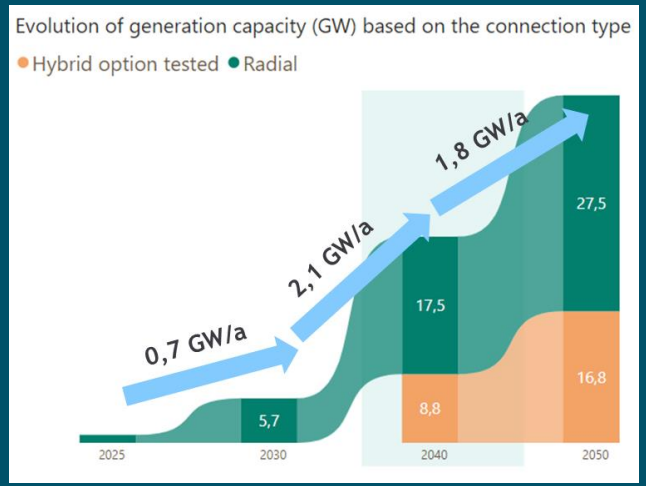
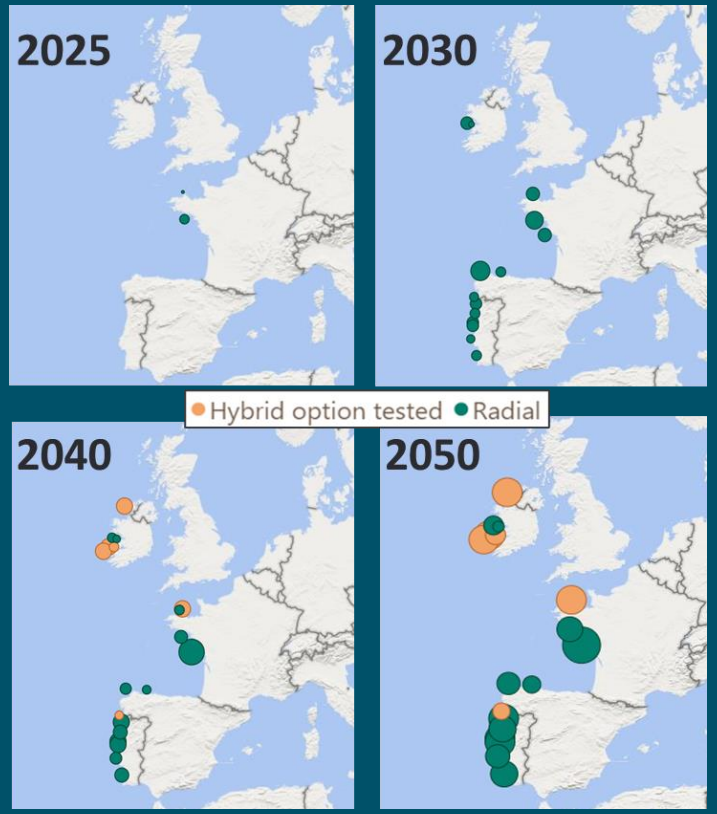
Evolution of offshore wind capacity in the Atlantic sea basin

Capacities based on the Non-binding targets from the EU Member States.

From radial connections in 2030 to first hybrid projects by 2040 and 2050.





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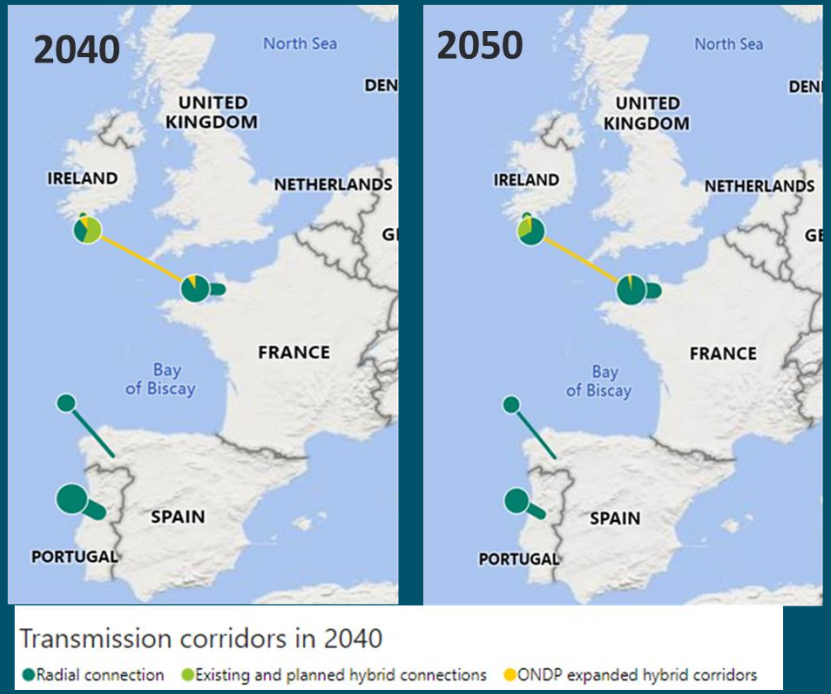
Main findings

- One hybrid corridor between Ireland and France, (500 km, and 700 MW) located in north Britany in France and Celtic Sea in Ireland.
- Only a small number of candidates in the Atlantic offshore grids corridor has been tested, so other corridors may emerge in future studies.
- Floating technology represents an alternative for the Atlantic offshore grids corridor which often features deep water sites.
- The importance of Maritime Spatial Planning: allows a more optimal use of maritime space, reducing conflicts, as well as enhancing coexistence and synergies.



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Marine Spatial Planning -> Environmental Impact and Other Use

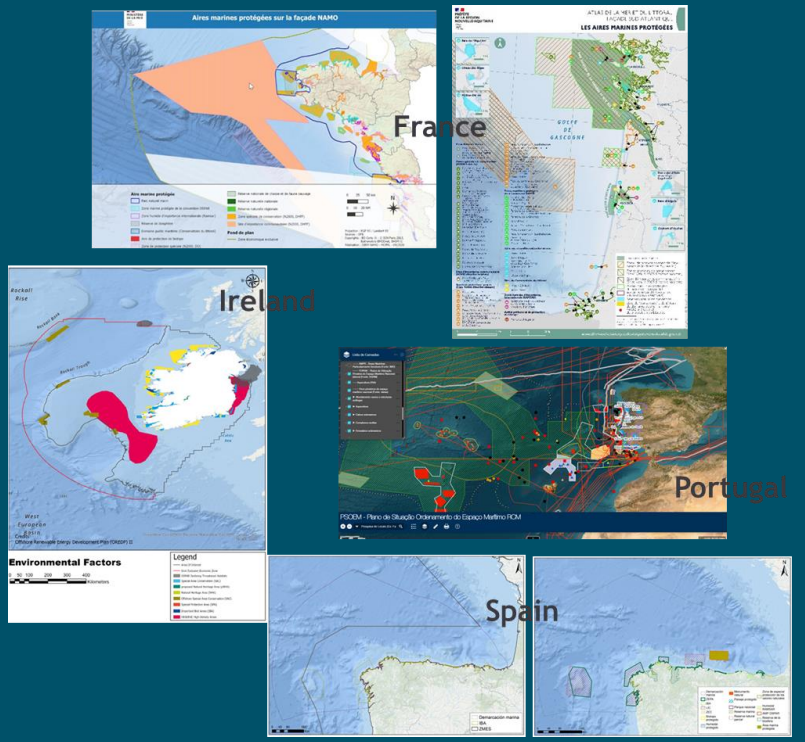
Two chapters dedicated to Marine Spatial Planning

France: South Atlantic and North Atlantic Basin Strategy documents approved in 2019 -> will be updated in 2024

Ireland: NSEC study -> to be published in Autumn 2023. National Marine Planning Framework (NMPF), was approved by the Government of Ireland in 2021

Portugal: adopted its Maritime Spatial Plan, the “Plano de Situacão do Ordenamento do Espaço Maritimo Nacional (PSOEM)”, corresponding to the subdivision of the mainland, the subdivision of Madeira and the subdivision of the Extended Continental Shelf in December 2019

Spain: adopted its maritime spatial plan, the Planes de Ordenación del Espacio Marítimo (POEM), in February 2023.



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Marine Spatial Planning -> Environmental Impact and Other Use

- Offshore wind development must be done without affecting the landscape and cultural heritage integrity -> protection of the marine environment and recognising the potential for co-existence with other maritime activities.

- Offshore development needs to take into account protected areas -> environmental impact assessment (birdlife, wildlife studies, characterization of the marine habitats affected by the project acoustic study, analysis of the fishing activity and tourism).

- The routes to land for generation, will be designed to minimise the marine space occupied, using whenever possible existing wiring traces or other pre-existing infrastructures on the seabed, avoiding affecting habitats of community interest and respecting the environmental and terrestrial plans.

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Obrigado!
Thank you!