

# OFFSHORE NETWORK DEVELOPMENT PLANS 2024 – GUIDANCE DOCUMENT

Final version 6 September 2022

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## Disclaimer

This paper does not present any ENTSO-E or member-TSO position, is not part of the next TYNDP or ONDP itself and should be seen as guidance related to data collection developed jointly with the European Commission, to provide to TEN-E corridors and high-level groups for the cooperation of Member States.

## EXECUTIVE SUMMARY

The new TEN-E regulation requires Member States, the European Commission and TSOs to collaborate on the development of Offshore Network Development Plans. In this framework, ENTSO-E and the European Commission have jointly elaborated this brief guidance document, aiming to support Member States to deliver the input information needed by ENTSO-E for the infrastructure planning task.

For each sea basin, the information needed includes:

- Offshore RES capacities in the relevant time horizons (2030, 2040, 2050).
- Locations dedicated to host this offshore generation and transmission infrastructure.

## 1. INTRODUCTION

On 3<sup>rd</sup> June 2022, a revised version of the Trans-European Networks for Energy Regulation (TEN-E) (EU) 2022/869 has been published in the Official Journal and entered into force on 23<sup>rd</sup> June<sup>1</sup>.

Articles 14 and 15 of the TEN-E Regulation set out the legal framework for ENTSO-E's legal mandate related to the development of offshore systems. These articles state that ENTSO-E, with the involvement of the relevant TSOs, the national regulatory authorities, the Member States and the Commission, must develop the first sea-basin (SB) related offshore network development plans (SB-ONDPs) by 24/01/2024<sup>2</sup>, based on the goals developed by the Member States' governments and as included in the joint non-binding agreements<sup>3</sup>, which Member States must conclude by 24/01/2023, taking into account environmental protection and other uses of the sea.

The second ENTSO-E deliverable is expected by 24/06/2025; namely "*the results of the application of the cost-benefit and cost-sharing to the priority offshore grid corridors*"<sup>4</sup>.

The **objective** of this document is to **describe the input information that ENTSO-E needs from Member States** to develop quality Offshore Network Development Plans.

As foreseen in the revised TEN-E Regulation Article 14(2), SB-ONDPs should be "*separate reports part of the Union-wide TYNDP, high-level strategic integrated offshore network development plans, for each sea basin, in line with the priority offshore grid corridors*"<sup>5</sup>, they should be based on

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<sup>1</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R0869&from=EN>

<sup>2</sup> Art. 14 (2) TEN-E regulation EU 2022/869 ([link](#))

<sup>3</sup> Art. 14 (1) TEN-E regulation EU 2022/869 ([link](#))

<sup>4</sup> Art. 15 (2) TEN-E regulation EU 2022/869 ([link](#))

<sup>5</sup> Art. 14(2) TEN-E Regulation EU 2022/869 ([link](#))

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Member States’ goals for offshore RES by 2050, with interim steps in 2030 and 2040; be in line with the National Energy and Climate Plans (NECPs) and Member States’ agreements related to sea basins, taking into account environmental protection and other uses of the sea. These strategic plans shall be updated every 2 years and provide:

- “A high-level outlook on offshore generation capacities potential and
- resulting offshore grid needs, including potential needs for
  - interconnectors, hybrid<sup>6</sup> projects, radial connections, reinforcements and
  - hydrogen infrastructure.”<sup>7</sup>.

The legal requirements call for an efficient collaboration between Member States, the national regulatory authorities, the European Commission (EC) and ENTSO-E. The TEN-E Regulation defines five priority offshore grid corridors in its Annex I, see also table below.

Table 1 – Priority offshore grid corridors as per the new TEN-E

Priority Offshore Grid Corridors	MSS concerned	Waters
1. NSOG	BE, DK, FR, DE, IE, LU, NL, SE	North Sea, the Irish Sea, the Celtic Sea, the English Channel and neighbouring waters
2. BEMIP offshore	DK, EE, FI, DE, LT, LV, PL, SE	Baltic Sea and neighbouring waters
3. Atlantic offshore grid:	FR, IE, PT, ES	North Atlantic Ocean waters
4. South & West offshore Grid	FR, GR, IT, MT, PT, ES	the Mediterranean Sea (including Cadiz Gulf), [ ] and neighbouring waters
5. South & East offshore Grid	BG, HR, GR, IT, CY, RO, SI	Mediterranean Sea, Black Sea and neighbouring waters

Beyond the Member States mentioned in the above table reflecting the TEN-E priority offshore corridors, Norway has plans related to offshore RES development as well and has a close relationship with the European Union (EU), including through its participation in the NSEC High-Level Group. Related information might be important for the NSOG priority corridor and will be considered where available.

Where Member States can deliver their updates by late autumn 2022, the input will be taken on board for the TYNDP 2024 as well; if later, the input will be used exclusively for the first edition of the ONDPs.

<sup>6</sup> In ENTSO-E offshore position papers distinction is made between several types of offshore hybrid projects: namely i) “dual purpose” offshore hybrid projects = combining functionalities of offshore RES connection-to-shore and interconnection of countries or bidding zones; and ii) “multi-purpose” offshore hybrid projects – additionally crossing energy sectors.

<sup>7</sup> TEN-E regulation, Art. 14 (2), ([link](#))

## 1. OFFSHORE RENEWABLES: CAPACITIES, LOCATIONAL INFORMATION AND FURTHER OFFSHORE DEVELOPMENT

Offshore renewable capacities should as much as possible be separated per generation type (e.g. offshore wind, tidal, wave, PV, etc.) and technology (e.g. floating, bottom-fixed) per sea basins for the 2030, 2040 and 2050 time horizons. Where offshore renewable capacity is not planned to be connected to the electricity network (e. g. when there are decided intentions to have offshore electrolyzers, producing green hydrogen offshore or other types of P2X), this needs to be reported separately, since it will affect the network planning exercise.

Locational information is requested as well, to facilitate consideration of line lengths.

Member States are asked to deliver (in prioritized order):

- A. their offshore RES capacity targets [MW] per time horizon (2030-2040-2050) and its location [GPS data].
- B. areas of the sea of Member States' Maritime Spatial Plans (MSPs) in [km<sup>2</sup>] that are designated for offshore RES development and specific generation targets in those areas [MW].
- C. The portion of offshore RES capacity which is not planned be electricity-grid-connected and its location [MW, location].

*Where available, they are also asked to provide:*

- D. expected energy produced [GWh] or
- E. energy densities [MW /km<sup>2</sup>] in the specific areas of their Exclusive Economic Zone (EEZ) where offshore renewable production is expected, where available.
- F. Identified potential routes for offshore transmission infrastructure; in case not available, then
- G. Indication of any rules for multi-use (meaning different sectors sharing the same maritime area) purposes for maritime areas

Information on the location of offshore RES in the EEZs and eventually also space available for transmission infrastructure (both cables and offshore substations) is information Member states are asked to deliver. This locational information is an important input for ENTSO-E's work, as cable and/or pipeline lengths will be longer than a direct line between offshore generation and onshore connection point. ENTSO-E will use the information as provided by the Member States according to the TEN-E regulation to develop the ONDPs. In case there is a lack of information on targets from Member States, assumptions might be necessary.

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Member states are responsible for maritime spatial planning (MSP) and could explore increasing further MSP coordination in sea basins, as is already taking place in some high-level groups, such as NSEC and BEMIP. Beyond users related to energy production and transportation, multiple further users of the sea-basins are shown on the EC’s MSP homepage<sup>8</sup>.

The practical planning exercise will be executed by the ENTSO-E Regions involving the TEN-E priority offshore grid corridors including Member States and the European Commission. National TSOs collaborate in ENTSO-E Regions. Consistency across European Regions is ensured via the joint guidelines of this document being shared across all offshore corridors and application of the same planning methodology within ENTSO-E.

## 2. TABLES OF REQUESTED DATA

Below, the information requested is summarized. In general, capacities and locations of offshore generation per generation type (offshore wind, tidal, wave, PV) and technology (fixed-bottom, floating), per sea basin and time horizon (2030, 2040, 2050) is needed, also separated according to grid-connected or non-grid connected offshore RES. Per time horizon and sea basin one table should be filled. Below table only includes mandatory information. Beyond that, additional information as described in Chapter 1 can be provided voluntarily.

One table for each time horizon (2030, 2040, 2050) and each corridor as listed in Table 1

Country and sea basin <sup>9</sup>	Offshore RES Capacity target (MW)	GPS coordinates or a map	Type (wind/wave / Tidal/PV)	Technology (bottom-fixed / Floating) (BF / FLO)	eI-Grid Connection (Y/N)	Sea Area designated for offshore RES [km <sup>2</sup> ] ...	...and targets in those areas [MW]

<sup>8</sup> See link: [The European Maritime Spatial Planning Platform | \(europa.eu\)](https://european-council.europa.eu/media/en/press-operations/infographic-117336.pdf)

<sup>9</sup> In case a country has several sea basins, the information should be provided for each sea basin separately.