

STAKEHOLDER CONSULTATION PROCESS OFFSHORE GRID NL

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Table of Contents

1. BACKGROUND MATERIAL.....2

2. SCOPE AND CONSIDERATIONS.....2

3. HELIDECK & CREW TRANSFER/ACCOMMODATION.....3

 3.1 HELIDECK..... 3

 3.2 CREW TRANSFER & ACCOMMODATION 3

4. ACCESS TO PLATFORM.....4

5. PROPOSED PLATFORM DESIGN ASPECTS4

6. POSITION TENNET5

1. Background Material

LITERATURE USED:

- Roadmap offshore wind 2030 (routekaart windenergie op zee 2010)

2. Scope and Considerations

For the roadmap offshore wind 2030 (routekaart windenergie op zee 2030) TenneT is tasked with the connection of several offshore wind farms up to 2030. The wind farm zones 'Hollandse kust West' and 'Ten Noorden van de Waddeneilanden' will be connected with TenneT's previously established and consulted standardized 700 MW grid connection concept. Due to its size and distance to shore, a new grid connection concept has been established for the wind farm zone IJmuiden Ver. The figure below shows a schematic cross-section of this new grid connection concept. Wind turbines are connected through 66 kV "inter-array" cables (in orange) to an offshore (HVDC) converter station. Using 2 GW high voltage (525 kV) export cables (in green) the electricity is transported to shore. TenneT will be responsible for the offshore grid, from the onshore substation up to and including, the offshore substation. TenneT intends to create a new standard HVDC grid connection concept for both connections to IJmuiden Ver and potential future far shore wind farms.

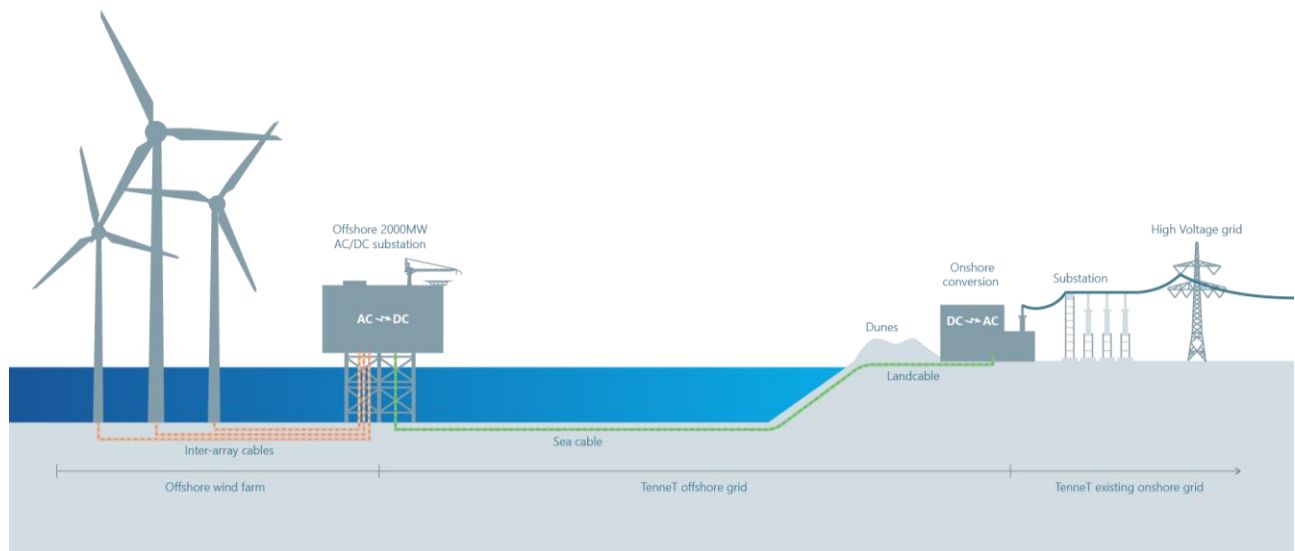


Figure 1 - HVDC grid connection concept

This position paper describes TenneT's position regarding platform related logistics, access and egress to and from the IJmuiden Ver offshore HVDC platforms.

3. Helideck & Crew transfer/accommodation

TenneT has carried out comprehensive studies into the aspects of offshore logistics, access to and egress from its (future) offshore platforms. It includes a full parametric analysis considering all relevant variables such as offshore scope for planned and unplanned maintenance, means of transport, number of crew and distance from (heli)ports.

Although the exact location of the IJmuiden Ver platforms is not yet defined it can be stated that the scope of the IJmuiden Ver platforms falls within the range covered by the referenced study. Key parameters for IJmuiden Ver are (approximately):

- Sailing distance from the Port of IJmuiden 45 NM
- Flying distance from Den Helder heliport 45 NM

Using this study, TenneT has determined the optimal design parameters for helideck and personnel transfer/accommodation, as described and explained in the paragraphs below

3.1 Helideck

TenneT intends to install a helideck on the platforms in IJmuiden Ver. The helideck will mainly be used for unplanned outages and urgent maintenance activities. A helideck enables quick repair times resulting in minimal loss of transported energy. The additional costs of a helideck are in this case outweighed by a higher availability. This is a different approach than the 700MW AC Net op Zee platforms, because of the following reasons:

1. An HVDC platform can expect more frequent and larger outages than an HVAC platform. Therefore, the costs related to time to repair increase. A helideck facilitates a quick response and is less weather dependent than transport by ship.
2. IJmuiden Ver is located further from shore, so therefore the usage of a crew transfer vessel (CTV) becomes less apparent. TenneT intends to use a Walk to work (WTW) vessels for planned maintenance. These are however not suitable (cost effective) for unplanned and urgent maintenance activities.

3.2 Crew transfer & accommodation

TenneT proposes the following approach for personnel transfer during different phases of commissioning and operation, all based on the parameters of IJmuiden Ver and the comprehensive study:

1. During the offshore commissioning phase of the platforms as well as during the first period of operation either temporary living quarters will be installed on the platform, or a jack-up barge placed next to it. In this period personnel will be transported by helicopter or ship and stay overnight on the temporary living quarter or on the jack-up barge.
2. Once both platforms are fully operational and tuned for long-time unmanned operation the living quarters or jack-up barge will be removed. From that time onwards transport and accommodation for planned maintenance activities will be based on the use of W2W vessels. Unplanned maintenance and activities with limited scope might be executed by helicopter. For more extensive repair campaigns (paint/revisions) a jack-up barge might be considered.

4. Access to platform

Providing access to the platform and the helideck to OWF-developers might enable possible optimisations for OWF-operators. TenneT intends to not allow the use of platform and helideck, because of the following reasons:

1. Contrary to the current 700 MW AC platforms the OWF developer will not install equipment on the platform¹. This eliminates the need for the OWF developer to access the platform for maintenance purposes. Additionally, TenneT aims to have a clear separation of scope and responsibilities.
2. From a safety perspective TenneT aims to minimize the hours spent on the platform, including minimizing or eliminating third party access to the platform. Correspondingly no permanent living quarters and subsequent auxiliary system will be installed.
3. Providing access or usage of the helideck for WTG-maintenance might require additional investments in a separate canteen, refuelling equipment etc, while it is not certain the OWF-operator will be using this facility.
4. The current trend in offshore wind is moving towards the use of service operation vessels for maintenance purposes. TenneT expects this to be the predominant maintenance strategy by OWF operators. This limits or eliminates the need for OWF operators to use the platform helideck.

These four aspects determine TenneT's position that the IJmuiden Ver platforms will not be designed or equipped to serve as logistic hubs for other stakeholders in the area.

5. Proposed platform design aspects

For the design of the platform this implies the following:

- include provisions for the application of temporary living quarters for TenneT crew during commissioning and trial
- include a helicopter deck to be used by TenneT
- include a canteen with basic facilities for TenneT crew and emergency shelter for short term visits
- include W2W landing stages (suitable for all available systems)
- include a jack-up barge parking area next to the platform (for commissioning and longer duration planned maintenance)

Although not directly a requirement resulting from the referenced study, TenneT will also include CTV boat landings, e.g. to facilitate transport of personnel between the platform and service vessels.

¹ Reference is made to position paper ONL TTB-05440_T12 Technical interfaces and facilities for OWF

6. Position TenneT

Based on the aforementioned argumentation TenneT's position will be as follows:

TenneT will install a helideck to allow for quick repairs and reduce downtime of the offshore grid connection system

TenneT will opt for a two-stage crew transfer and accommodation strategy:

1. During the offshore commissioning phase of the platforms as well as during the first period of operation either temporary living quarters will be installed on the platform, or a jack-up barge placed next to it.
2. When both platforms are fully operational and tuned for long-time unmanned operation the living quarters or jack-up barge will be removed.

TenneT will not allow access to the platform and helideck, so the platforms will not be designed or equipped to serve as logistic hubs for other stakeholders in the area.
