

Incoming questions on wind tender Hollandse Kust (west)

This document contains answers to the questions TenneT has received related to the wind tender Hollandse Kust (west).

Total of questions and answers:

Last update: 25th August 2022

First set of questions and answers published on 14th April 2022:

QUESTION 1

<i>Please clarify the maximum allowed exported power at any given moment in time.</i>
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Please refer to article 3.6 of the Connection and Transmission Agreement. The Platform is connected to the onshore grid with two grid connection systems with a continuous capacity of 350 MW each. Hence, annex 2 to the Realisation Agreement and Connection and Transmission Agreement stipulates the Feed-in Transmission Capacity as two times 350 MW. In addition, the export cable (through dynamic rating) and the main transformers (onshore and offshore) allow for a dynamic transmission capacity up to 380 MW per grid connection system. Therefore, two times 380 MW is the limit that needs to be respected despite the amount of installed power.

QUESTION 2

<i>Please clarify the maximum overplanting capacity to be installed by the Connected Party and if load can be connected as well.</i>

TenneT does see some possibilities for allowing extra overplanting and/or connecting loads to the offshore 66 kV grid. TenneT will include additional wording on these topics in the annexes to the Realisation Agreement and Connection and Transmission Agreement along the following lines:

Given TenneT's experiences with other offshore windfarms, it is TenneT's obligation to warn the OWF that especially extra overplanting might very well lead violation of grid requirements like for instance short circuit levels, harmonic emission limits and insulation coordination, since those other windfarms are already very close to the limits with overplanting up to 380 MW per export system (export cable and transformer).

In addition to the compliancy requirements for insulation coordination, the OWF shall also calculate and evaluate the overvoltages in the TenneT system up to the 66 kV transformer windings and the OWF shall also consider and respect the (transient) limits of TenneT's equipment.

All-inclusive technical requirements for extra overplanting and/or loads cannot be given. The following indicative statements may provide guidance:

- $\cos(\phi)$ of loads shall be equal to 1 at all times;
- installed power shall not be more than 250 MW per transformer winding (66 kV busbar);
- installed power shall not be more than 500 MW per transformer in total;
- loads shall not be more than 100 MW per transformer winding (66 kV busbar);
- load difference between the two transformer windings (66 kV busbars) shall not be more than 50 MW;
- and last but not least: all other RfG, netcode and CTA requirements shall be respected at all times (e.g. short circuit level, harmonics, insulation coordination, etc.)

Fulfilling these statements still does not give any guaranty that a specific amount of extra overplanting and/or load is feasible for a specific grid connection system. The onshore connection point (onshore substation and grid) must be also taken into account.

TenneT shall only assess the final feasibility of the cases of the winners of the HKW wind site tenders.

QUESTION 3***Which ancillary services could be provided by the Connected Party to TenneT?***

Please refer to <https://www.tennet.eu/electricity-market/dutch-ancillary-services/> for more information on ancillary services that TenneT procures and the requirements for these.

QUESTION 4***Which ecological measures does TenneT take on the offshore grid?***

TenneT applies a set of Nature Inclusive Design measures, described in the [offshore grid investment plan](#).

QUESTION 5***What are the possibilities to use the TenneT platform for ecological innovations?***

The offshore wind farm developer may propose to install information systems in line with paragraph 9 and 10 of annex 3 to the Realisation Agreement and Connection and Transmission Agreement. TenneT will analyse for each proposed innovation to what extent it can be allowed on the platform. This analysis will take into account applicable laws and regulations, technical impact and safety. Alignment with Rijkswaterstaat may also be required depending on whether the Connected Party proposes to use shared information systems.

QUESTION 6***The Wind Farm Site Decisions specifies that the windfarms are requested to shut down in case of bird migrations. A 48-hours' notice period will be applicable. What possibilities exist for other curtailments?***

A slidedeck that explains the relevant processes that TenneT applies to guarantee safe transport of electricity is available on request at netopzee@tennet.eu

QUESTION 7***Could you elaborate on any costs associated with connection to the offshore grid, also in relation to works during installation, use of fibre optics and electricity consumption?***

There are no grid connection costs (Dutch: aansluitdienst/transportdienst) charged to producers connected to the offshore grid (except for the electricity consumption on the platform). Annex 2 of the Realisation Agreement and Connection and Transmission Agreement contains the relevant provisions on fibre optics and annex 7 on applicable costs for offshore services. Electricity consumption would have to be agreed and settled with your electricity supplier.

QUESTION 8***Could you elaborate on any cost that would be required for the bell mouth after bid award?***

For HKW Alpha (Site VI) all IAC J-tubes will be installed offshore with a cover plate only. The Connected Party shall procure and install their own bell mouths. The costs for the bell mouths will depend on the CPS supplier and will be outweighed by the costs for the CPS itself, which is in scope of the Connected Party. The total costs for the bell mouths will however be determined by the offshore installation, which is for HKW

Alpha in scope of the Connected Party.

QUESTION 9

<i>Is the fibre optic network of HKW Alpha ready for usage from the delivery of the grid connection systems onwards?</i>

The fibre optic network will be ready from delivery of the grid connection system onwards. Please refer to the annexes of the REA and CTA for the rules on usage of the fibre optics. Use by Connected Party for its own purposes is allowed, subletting to third parties or commercial use is not.

QUESTION 10

<i>Can we install cameras on the TenneT platform?</i>
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The Connected Party can install CCTV's on the roof deck directed to the wind farm site. Connected Party can also install CCTV's in the Connected Party's rooms.

Newly added questions and answers on 25th August:

Planning*

* Please note all timing indications in the answers relate to Hollandse Kust (west) Alpha only. TenneT will share the schedule for Hollandse Kust (west) Beta with the Connected Party following permit award by RVO

QUESTION 11
<i>What are the key deadlines/milestones relevant for the Connected Party?</i>

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|---|---|
| • Installation of cabinets land station: | <i>as of signature CTA/REA</i> |
| • Installation of bell mouths on jacket: | <i>as of signature CTA/REA</i> |
| • Installation of cabinets OHVS: | <i>as of signature CTA/REA</i> |
| • Installation of protection relays OHVS: | <i>as of signature CTA/REA</i> |
| • SIT Platform: | <i>February – May 2023</i> |
| • Antennas on site in Stellendam: | <i>Interface with RWS</i> |
| • Antenna mast outfitting: | <i>December 22 – February 2023</i> |
| • Sail out jacket: | <i>August 2022</i> |
| • Sail out topside: | <i>July 2023</i> |
| • Grid connection ready (access to platform for cable pull-in): | <i>31.03.2024</i> |

QUESTION 12
<i>Onshore Access: When can the Connected Party have access to the OWF rooms and what is the cut off for sail out?</i>

Access to the OWF rooms while the platform is in the yard: as of signature CTA/REA. The Connected Party will have access until two weeks before load out.

QUESTION 13
<i>Offshore Access: When can the Connected Party have access to the OWF rooms offshore?</i>

Access to the OWF rooms while the platform is offshore under construction; to be aligned with TenneT and EFI (platform contractor). As of 31.03.2024 the Connected Party has access to the Platform when required (in alignment with TenneT).

QUESTION 14
<i>What are the key dates for the Testing programme?</i>

SIT for the platform is scheduled for February - May 2023. Overall testing and commissioning of the complete grid connection is scheduled Q4 2023 – Q1 2024.

QUESTION 15
<i>How and when will the Bell Mouth be installed?</i>

The Hollandse Kust (west) Alpha jacket is not provided with bell mouths and is already installed offshore. Bell mouth procurement, delivery and offshore installation is the responsibility of Connected Party.

For Hollandse Kust (west) Beta, the Connected Party is also responsible for bell mouth procurement but there will be time to align on this with TenneT following permit award by RVO. Also refer to the interface table in paragraph 3.2.1 of the annexes to the REA/CTA.

QUESTION 16

Please can Tennet supply the following schedule information to input into our programme:

- a. OSS - WPO equipment (SCADA, Telecoms, Metering) FAT, SAT, installation, commissioning, etc. prior OSS sail-away***
- b. LSS – WPO equipment (FAT, SAT, installation, commissioning, etc.)***
- c. Programme for OSS and LSS works (FAT, SAT, installation, commissioning, etc.)***

Schedules will be shared with the Connected Party in the Project Working Group (PWG) after signature of the REA/CTA.

QUESTION 17

Can TenneT provide the typical timescales for entering into the agreements (both Realisation Agreement and Transmission & Connection Agreement)?

The discussions related to entering into the agreements start shortly after permit award by RVO. From experience, those discussions take several months.

QUESTION 18

When does Connected Party need to provide requirements for HV cable trays?

For Hollandse Kust (west) Alpha, the HV cable trays will probably be in place at contract signing. The design includes cable ladders for 16 strings (in accordance with paragraph 3.7.1 of the [Development Framework for Offshore Wind Energy](#)). The Connected Party may not need this amount of cable ladders, any changes shall be accommodated by a variation towards the Platform contractor.

QUESTION 19

Can TenneT provide indicative timelines for grid compliance testing such as test durations and the split of responsibilities between TenneT and the Connected Party?

The discussions related to entering into the agreements start shortly after permit award by RVO. From experience, those discussions take several months.

Available space and measurements

QUESTION 20

What space is available in the OWF room?

The OWF rooms (2 per Connected Party) at the onshore land station are approximately 48m² (8m x 6m), the OWF rooms at the Platform (2 per Connected Party) are approximately 24 m² (8m x 3m).

QUESTION 21

What is the available space for the Connected Party to use for their communication systems?

For Hollandse Kust (west) Alpha, the Connected Party can use the antenna mast for communication systems that are currently in the antenna plan of Rijkswaterstaat (RWS). The Connected Party needs to align with RWS in case it wishes to use other systems.

QUESTION 22

What is the Height of the mast (above top deck and with respect to LAT)?

For Hollandse Kust (west) Alpha the highest platform of the antenna mast is 16 meters above the roof deck:

Platform number	Description		Elevation in mm
0	Truss mast base	0.0m	+44.000
1	Truss mast platform	3.1m	+47.100
2	Truss mast platform	6.1m	+50.100
3	Truss mast platform	8.6m	+52.600
4	Truss mast platform	11.1m	+55.100
5	Truss mast platform	13.6m	+57.600
6	Truss mast platform	16.1m	+60.100

QUESTION 23

What is the size of the landstation?

The complete area of the land station Wijk aan Zee is 13,3 hectare (providing for grid connections systems of Hollandse Kust (noord), Hollandse Kust (west) Alpha and Hollandse Kust (west) Beta).

QUESTION 24

Roof deck - only available area for SOV to place equipment on top side?

At both Hollandse Kust (west) Alpha and Hollandse Kust (west) Beta, the main crane (20mT) could be used to place equipment and containers on the roof deck.

Communication equipment

QUESTION 25

What is the access arrangements for installation of communication equipment, is it provided by TenneT or needs to be provided by the Connected Party .

The Connected Party will need to align these access arrangements with RWS and TenneT's Platform Contractor EFI.

QUESTION 26

What are the arrangements for cable routing between the mast and the OWF room? Are trays provided by TenneT, can details be provided on the length of the cable run to the OWF room?

Cable trays, site runs and cable routing will be provided by TenneT (Platform contractor) as variation. Lengths depend on the room (Connected Party will have two rooms at the control deck) and the height of the sensor.

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What are the arrangements for cable routing between the mast and the OWF room? Are trays provided by TenneT, can details be provided on the length of the cable run to the OWF room?

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QUESTION 28

Will the mast be folded down during T&I?

No.

QUESTION 29

Where is the mast positioned on the topside - in which corner? or centrally?

The antenna mast is located in south west corner of the platform.

QUESTION 30

How does TenneT see the testing of the communications system should be undertaken? Does TenneT require any information on the test?

The Connected Party will need to align the testing arrangements with RWS.

QUESTION 31

Is TenneT aware of any current restrictions on frequencies - from any other users?

The Connected Party will need to align such restrictions with RWS.

QUESTION 32

For communication equipment installation - what safety equipment/training/procedure is required?

To be discussed between Connected Party and TenneT following permit award by RVO. Generally, the required safety training depends on the moment of installation; onshore in the yard (yard trainings, VCA, Working at heights) or offshore (VCA, GWO).

QUESTION 33

Is there any power on the topside prior to grid connection being made? Can this be used by the Connected Party?

To be discussed between Connected Party and TenneT following permit award by RVO.

QUESTION 34

Will there be an AIS base station installed on the OSS and will the data be shared with the windfarm owners like in other windfarms with a similar setup?

The Connected Party will need to align such requests with RWS.

QUESTION 35

If "mobile communication", listed on the table of shared maritime equipment, is referring to LTE/5G, will this be public or private? Do we know what provider? / Can you provide details on the wireless communications systems that will already be installed on the OHVS (e.g. 4G mast)?

The Platform will not be provided with 4G. The model version of the CTA/REA will be amended on this topic.

QUESTION 36

How many Export fibers are allocated to the Connected Party? / is there opportunity to increase the quantity of fiber optic cables within the export cable to support bidders innovation requirements?

Each 220 kV export cable will contain a maximum amount of 48 optical fibers. Therefore, in total the Connected Party will have 96 optical fibers at its disposal. The number of fiber optics will not be increased.

QUESTION 37

What power is available for the radar unit (roof)?

To be discussed between Connected Party and TenneT following signature of the CTA/REA.

QUESTION 38

Can ADLS be installed offshore after sailaway?

To be discussed between Connected Party, TenneT and RWS following signature of the CTA/REA.

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To be discussed between Connected Party, TenneT and RWS following signature of the CTA/REA.

QUESTION 40

<i>Where can the Connected Party place monitoring equipment/instruments - e.g. antennae, radars?</i>

To be discussed between Connected Party, TenneT and RWS following signature of the CTA/REA.

QUESTION 41

<i>Will it be possible for Connected Party to connect to TenneT VHF Maritime radio on the substation? Connected party would like to extend VHF coverage via IP to Connected Party's remote operations centre which will require interfacing this radio with networking equipment.</i>
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No, this is not possible. However, the Connected Party can install its own VHF on the antenna mast.

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No, this is not possible. However, the Connected Party can install its own VHF on the antenna mast.

QUESTION 43

<i>What kind of PTT radio will TenneT use (DMR/Tetra)? And will it be possible for Connected Party to use/interface with this system?</i>
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No, this is not possible. The Connected Party will have to use its own systems.

QUESTION 44

<i>Will Connected Party be allowed to install antenna's on the telecom tower, if recommended by a radio coverage study?</i>
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Yes this is possible for certain systems, the Connected Party will have to align this with RWS.

Other

QUESTION 45

Does Tennet have a Nomenclature specification?

- a. HV & LV nomenclature requirements for the WPO scope***
- b. RDSPP requirements for WPO scope***

- a. TenneT uses RDSPP.
- b. The Connected Party does not have to follow the TenneT RDSPP code, therefore no requirements from TenneT.

QUESTION 46

Please can Tennet supply the following information to inform our design & scope:

- a. Onshore substation details***
 - i. Control building drawings***
 - ii. WPO room layout & interface drawings***
 - iii. WPO metering room layout & interface drawings***
 - iv. Interface matrix for WPO equipment***
 - v. Telecommunications and leased line information (dedicated to WPO)***
- b. Offshore substation***
 - i. WPO room drawings***
 - ii. WPO interface drawings***
 - iii. Interface matrix for WPO equipment***
- c. SCADA FAT***
 - i. Specification or Scope of the Integration FAT (OSS & LSS)***
- d. Energy usage metering details***
 - a. Metering topology / diagram for OSS and LSS metering (WPO)HV & LV nomenclature requirements for the WPO scope***

Drawings, Interface matrices and other required information shall be shared with the Connected Party in the Project Working Group (PWG) after signature of the REA/CTA.

QUESTION 47

Can TeneT provide or refer us to a list of switchgear equipment TeneT will install on the offshore platform?

The platform is equipped with two 66 kV GIS (GE).

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The platform is equipped with two 66 kV GIS (GE).

QUESTION 49

Can TeneT confirm if the export cable specification has been fixed or is there opportunity for bidders to provide any feedback/requirements on the specification?

TenneT procured the export cables according to the TenneT specifications. There is no opportunity for bidders to provide feedback to these specifications.

QUESTION 50

"PU-AMT_21-287v2_-_Overplanting_-_versie_HKW_-_v2_-_final" [Offshore Grid Hollandse Kust (west) - Documentatie (tennet.eu)] does not describe the final cable design for Hollandse Kust (west) Beta. Can TenneT provide final information for the cables and route?

A consortium of Jan de Nul and LS Cable are currently working on the installation of the HKWA export cables. TenneT has awarded the Hollandse Kust (west) Beta export cable contract to Boskalis, in consortium with Orient Cables (NBO). The final cable routes and data sheets will be shared with the Connected Party.

QUESTION 51

The answer to question 2 above indicates that " installed power shall not be more than 500 MW per transformer in total;". Can TenneT clarify which changes/upgrades will be realised to enable this capacity addition in comparison to the previous planning?

TenneT has reviewed the possibilities of the current grid connection concept, no changes will be made in that respect save for minor control and protection adjustments.