

# Offshore grid connection Wind Farm Sites III & IV



15-november-2018

Jaarsma, Saskia

# Phase I: 2019 – 2023

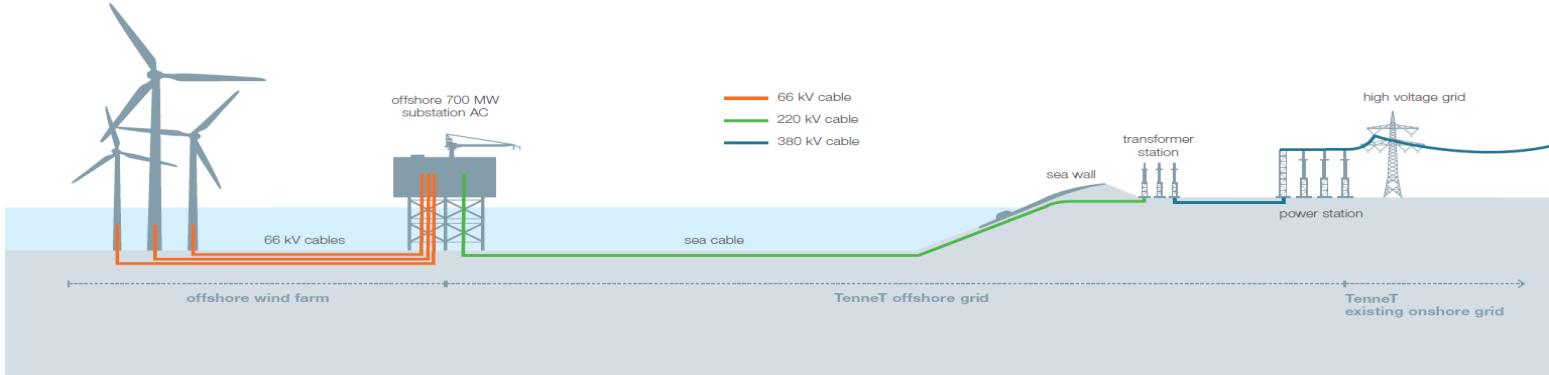
- 3.500 MW: 5 x 700 MW
- Standardised AC concept
- Lean design
- Lowest possible LCOE





# Net op zee Hollandse Kust (zuid)

- 2 x 700MW Hollandse Kust (zuid) Alpha and Beta
- The offshore grid connection ‘net op zee Hollandse Kust (zuid)’ is part of the *Rijkscoördinatieregeling* (RCR) (coordination licenses and spatial planning. plan by Ministry of Economic Affairs and Climate Policy)
- Permits irrevocable, working plans seachable part of RCR.
- Delivery date HKZ Beta established by Ministry at 31 March 2022.

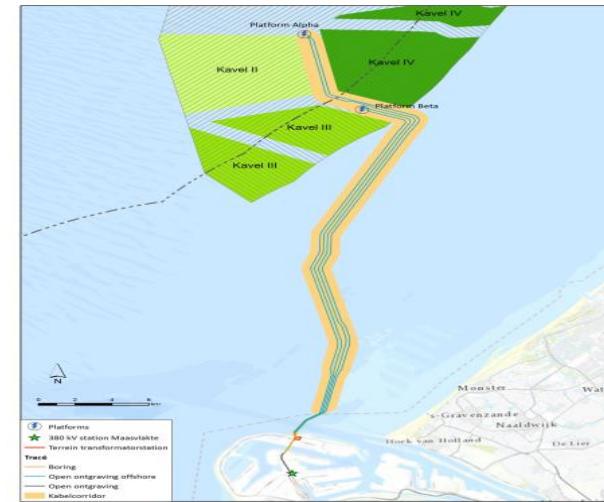




# Net op zee Hollandse Kust (zuid)

## Project updates:

- I. Substation contractor awarded. Petrofac from Dubai will construct substation Alpha with an option for Beta.
- II. Offshore cable awarded to Van Oord & Hellenic cables (2x220 kV & 66 kV interlink cable).
- III. HDD sea Defense awarded to LMR drilling.
- IV. UXO Certifier awarded to RPS, UXO campaign awarded to Fugro.





# TenneT's offshore legal framework

Min. Economic Affairs: Electricity Act, Wind Energy Act



## TenneT: offshore agreements

- Realization agreement
- Connection & Transmission agreement
- General terms & conditions

## ACM: offshore code

- Technical requirements to the offshore grid included in Grid Code

## TenneT: cooperation agreement

- With RWS for shared maritime information services
- OWF to agree with RWS

<https://www.tennet.eu/our-grid/offshore-projects-netherlands/net-op-zee-hollandse-kust-zuid/>



# Net op zee Hollandse Kust (zuid) specific information by TenneT

TenneT will publish the following information:

- Model Realization agreement
- Model Connection & Transmission agreement
- General terms & conditions
- Update overplanting
- Q&A file (anonimised format)
- Memo on route optimisation and Model cable crossing agreement
- Existing information

The screenshot shows the TenneT website with a banner featuring a blue sky and power lines. The main heading is "Net op zee Hollandse Kust (zuid)". Below it, a sub-headline states: "The future grid connection 'Hollandse Kust (zuid)' consists of two connections of 1,400 megawatts (MW) in total. The connections will be operational in respectively 2021 and 2022." Navigation links at the top include Home, Our key tasks, Our grid, Electricity market, and E-

## About the grid connection

From the platforms there will be a total of four alternating current cables that run to the high-voltage substation De Maasvlakte on the mainland.

Onshore they will be connected to the Randstad 380 kV South Ring.. Hollandse Kust (zuid) Alpha will go into service in 2021 and Hollandse Kust (zuid) Beta in 2022.

TenneT has officially been appointed as offshore grid operator in the Netherlands, and will develop -as contribution to the Energy Agreement- at least 3,500 MW of offshore-connections until 2023; all with a standardised concept of 700 MW per connection.

Visit our [website](#) for more information.

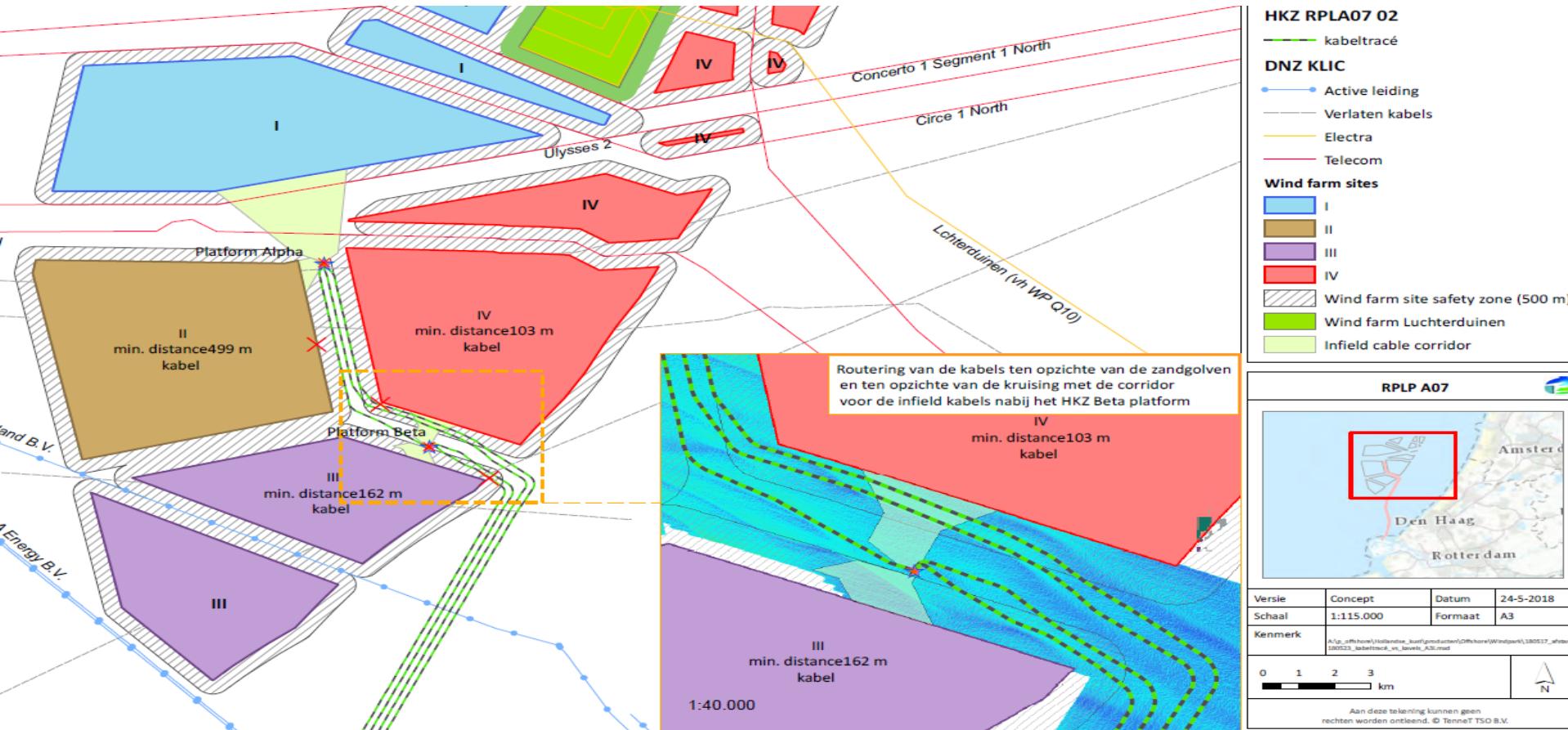
# Clarification in models

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- Both the same clarifications in Realisation Agreement and Connection and Transmission Agreement
- Wording REA and CTA: Adjustment to subsidy free tender
- REA, art. 5.3 / CTA, art. 8.2: Connected Party shall bear the cost of compliance activities by third parties and cost related to access to the offshore Platform. The Project Working Group will align on these topics prior to the execution of the activities.
- Considering HKZ local conditions, cable crossing and / or proximity agreement may be required. An addition to the General Terms and Conditions, art. 4, is proposed via REA, art. 12 and CTA, art. 15, to include, when applicable, necessity of a proximity agreement.

# Route optimisation 220 kV export cables



# Clarification in Annexes



- Both the same clarifications in Realisation Agreement and Connection and Transmission Agreement

## Annex 3 Technical terms and conditions for the Platform

- Section 2. Number of J-tubes and bays

Further requirement to balance the use of offshore grid assets:

- Minimum power (P) per 66 kV GIS bay: 45 MW

- Section 11. Curtailment Principles for Overplanting Capacity

Update of overplanting calculation by TenneT and procedure elaborated.

## Annex 4 Technical requirements applicable for the connection of offshore power park modules

- Section 5. Harmonic emission limits

Memo on root loci for HKZ remains unchanged.



# TenneT's approach

TenneT foresees the following steps to initiate the cooperation:

1. Kick-off to communicate process steps and timeline to finalise the REA/CTA
2. Signing CTA/REA agreements by top management representatives from both parties  
Both REA and CTA Agreement, per site
3. Establish Project Working Group governance, signed by senior management from both parties
4. Present and finalise Working Arrangements



# Interface OWF – TenneT during project realisation

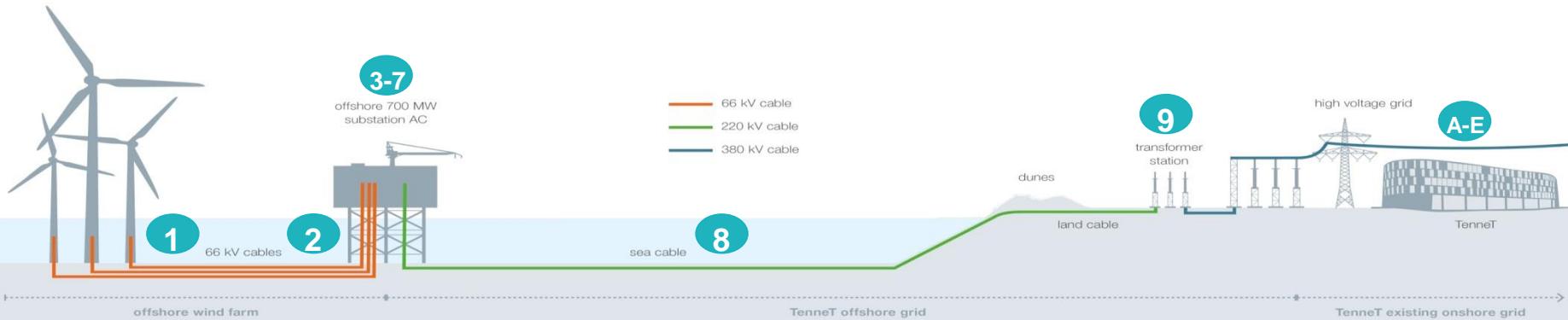
After signing REA/CTA, key activities will be aligned via the PWG and laid down in “Working Arrangements” in order to facilitate cooperation:

Process topics:

- A Project Working Group
- B Administrative Process
- C SHE Management
- D Planning
- E Coordination of Works

Technical topics:

- 1 Inter Array Cables
- 2 J-tubes
- 3 Grid Compliance
- 4 66 kV Technical Installation
- 5 OWF Room on Platform
- 6 Shared Services
- 7 Offshore Station Commissioning
- 8 Export Cable
- 9 OWF Room Onshore Station



# Offshore Wind energy in the Netherlands



- Questions?
- Please feel free to contact us prior to opening of the wind tender via [netopzee\(at\)tennet.eu](mailto:netopzee(at)tennet.eu)

# Disclaimer

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[www.tennet.eu](http://www.tennet.eu)

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