

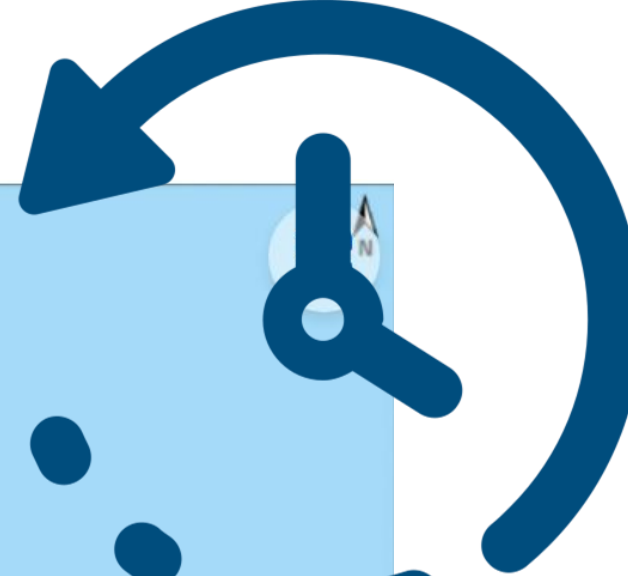
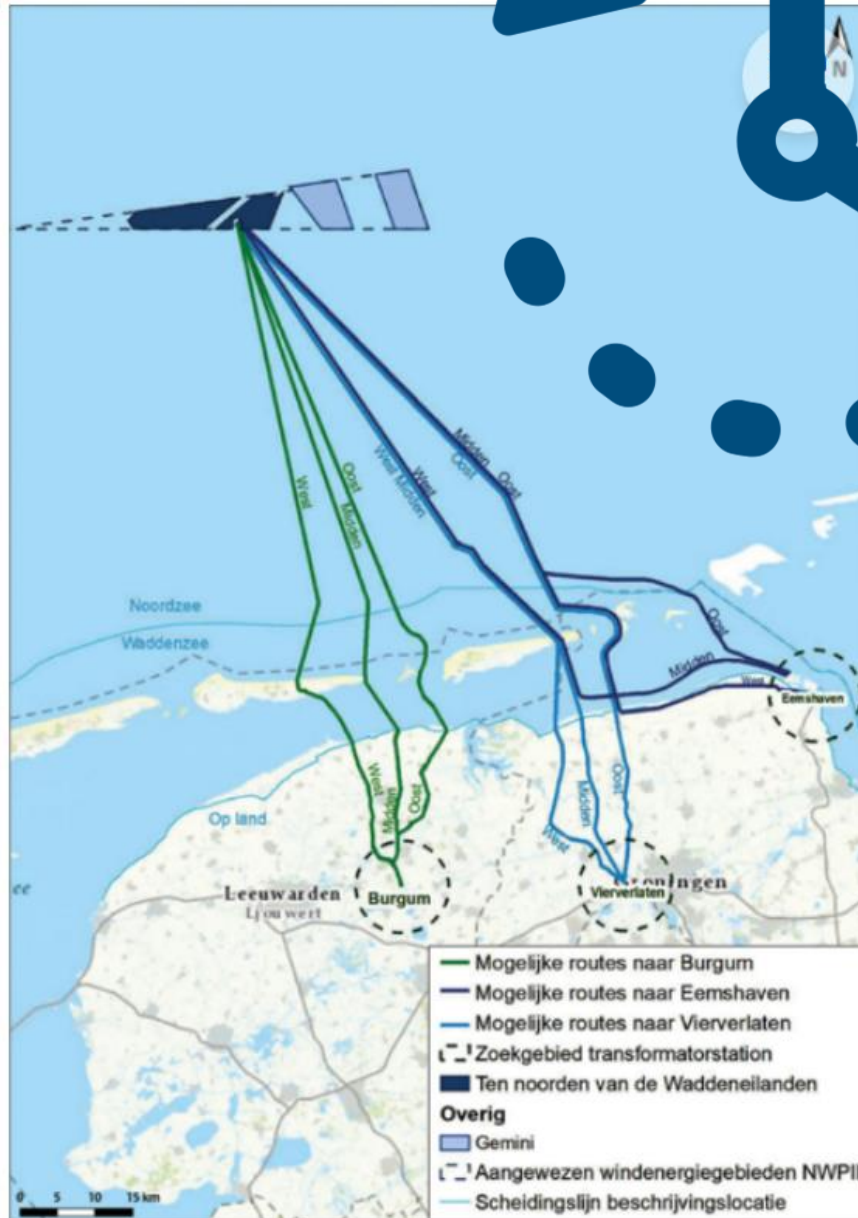
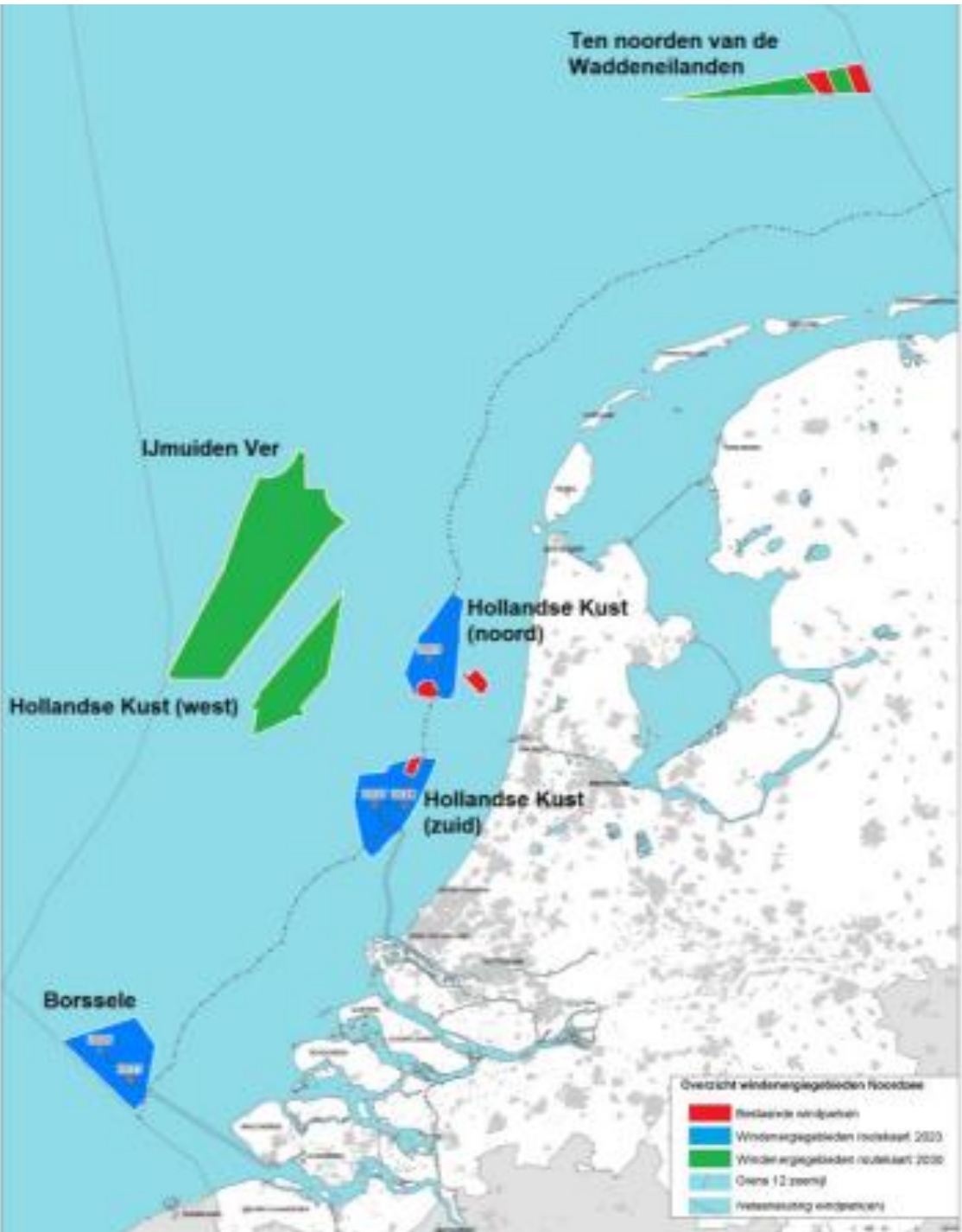


# Spatial planning considerations for the Offshore Wind Connection Programme – Eemshaven (PAWOZ-Eemshaven)

29th August 2024



Ten noorden van de Waddeneilanden











# PAWOZ-Eemshaven



## Newly assigned wind-farm areas



Legenda

-  Eerder aangewezen windenergiegebieden
-  Nieuwe windenergiegebieden

### Routes for new windfarms:

- > Doordewind 4 GW
  - Electricity cables
- > Ten noorden van de Waddeneilanden 0.7 GW
  - Preference area for H2 demonstration project
  - Introduction of pipeline scope
- > Cables and pipeline for future wind-farm areas (to be assigned - areas 6 & 7)

### Programme principles:

- > Within the environmental framework (UNESCO, N2000);
- > Mitigate impact on shipping (safety) and other interests (societal, agriculture, nature and tourism).
- > Efficient use of space – holistic review.
- > In line with newly introduced spatial planning law in NL (Omgevingswet).

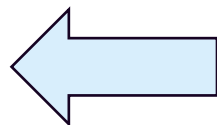




## Deliverables of the programme:

- ✓ An integrated approach with a future focus: The framework for future project decisions.
- ✓ One or more routes identified for the wind-farm connections.
- ✓ Identification of future routes, after 2032.

The programme provides the input for the Ministerial decision to preliminary assign space for the preferred routes.

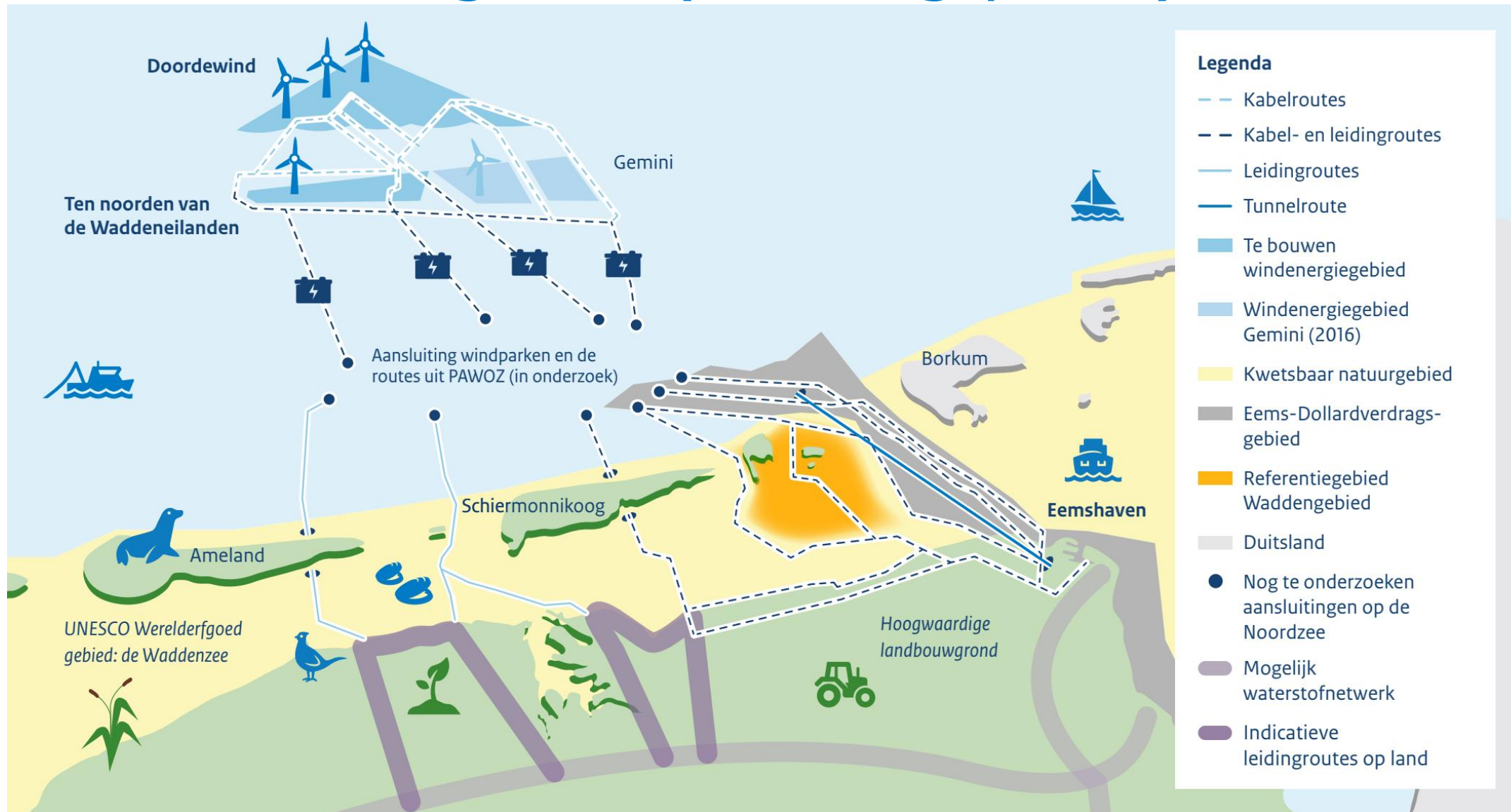


## Products

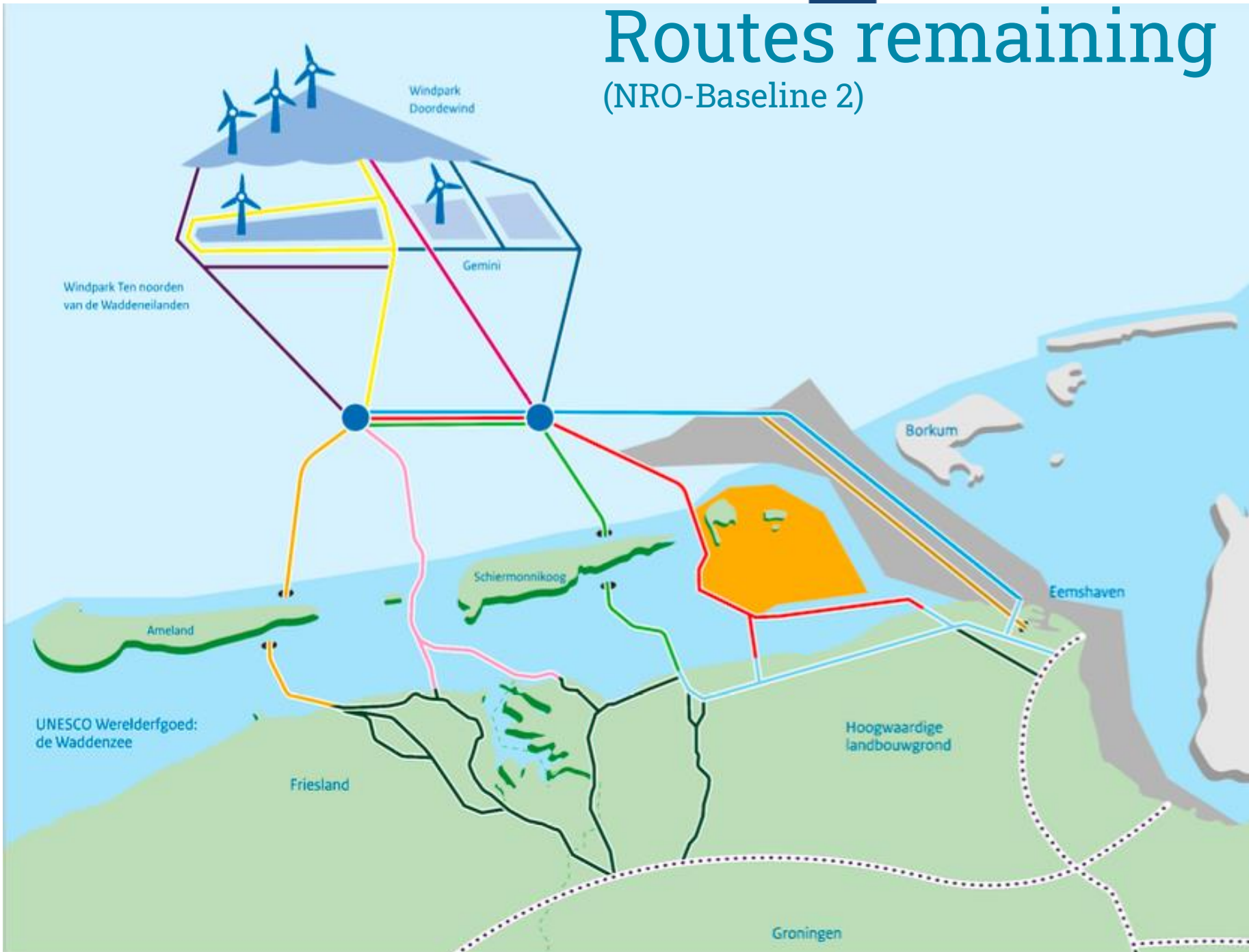
- ✓ **Scope of memorandum (Notitie Reikwijdte & Detailniveau (NRD))**: what will be assessed?
- ✓ **Environmental Impact Assessment (Plan milieu-effect rapport (PlanMER))**:
- ✓ **Integrated Effect Analysis (IEA)**: impact on society, maritime security, agriculture, futureproof, technique, costs
- ✓ **HIA** – Heritage Impact Assessment (UNESCO)
- ✓ **Programme**: the outcome is a map with conclusions and choices based on the Plan Mer and IEA.



# Routes investigated (starting point)



# Routes remaining (NRO-Baseline 2)



## Legenda

### Routes die verder onderzocht worden

#### Routes in de Noordzee

- A: Parallel aan Gemini kabels ⚡
- B: Parallel aan verlaten telecomkabel ⚡
- C: Direct naar TNW ⚡ H<sub>2</sub>
- D: Parallel aan bestaande gasleiding ⚡ H<sub>2</sub>

#### Routes in de Waddenzee

- II: De oude Westereemsroute ⚡ H<sub>2</sub>
- V: Boschgat route ⚡
- VII: Schiermonnikoog Wantijroute ⚡ H<sub>2</sub>
- VIII: Ameland Wantijroute H<sub>2</sub>
- IX: Zoutkamperlaag H<sub>2</sub>
- Eemshaven tunnelroute H<sub>2</sub> ⚡

#### Routes op land

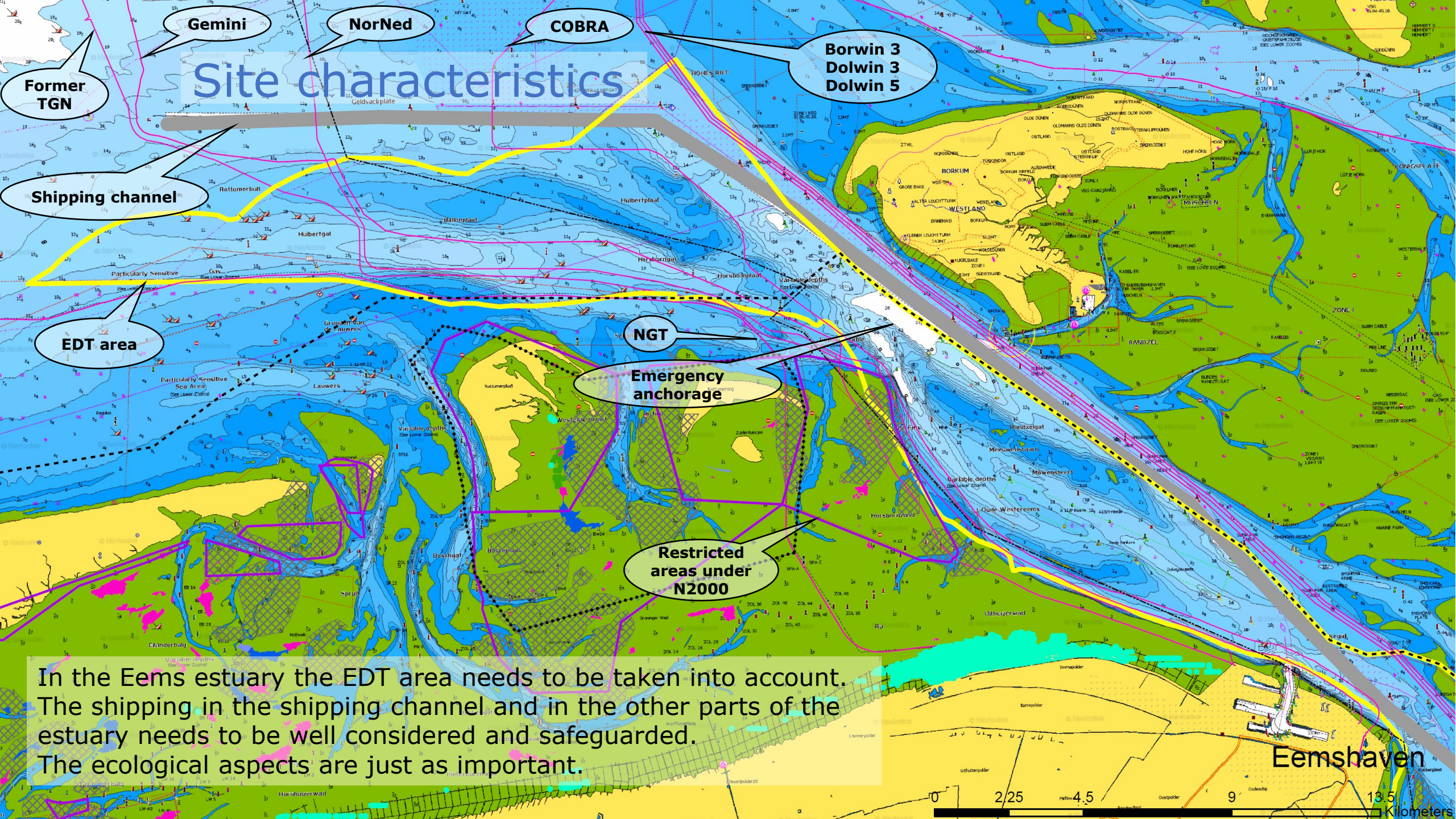
- Landroutes voor zowel waterstof als stroom ⚡ H<sub>2</sub>
- Landroutes alleen voor waterstof H<sub>2</sub>

#### Overig

- Mogelijk waterstofnetwerk na 2031
- Te bouwen windenergiegebied
- Kwetsbaar natuurgebied
- Eems-Dollardverdragsgebied
- Referentiegebied Waddengebied
- Koppeling Waddenzee en Noordzeeroutes
- ⚡ Stroomkabels
- H<sub>2</sub> Waterstoffleidingen



# Site characteristics



In the Eems estuary the EDT area needs to be taken into account. The shipping in the shipping channel and in the other parts of the estuary needs to be well considered and safeguarded. The ecological aspects are just as important.

Eemshaven







# Tunnel-System Eemshaven- Ballonplaat

## Advantages:

- Limited effects on morphology and ecology in Waddensea.
- No agricultural land will be crossed.
- Space for multiple HV-circuits (up to 5 x 2GW cable bundles)
- Possibility for H2 pipelines (2 -3).



## Risks/Complexities Tunnel-System

- Not done before in NL at this scale.
- Mechanics of the Tunnel Boring Machines (TBM's): lifespan parts.
- Challenging Logistics due to long drilling & multiple TBM's.
- Costs of maritime works are high and dependent on a limited number of qualified contractors.
- Regulations (permitting, work-climate, etc.).
- Potential damage to or influence on vulnerable nature (emergencies, island, limited subsidence).
- Operational and security of supply issues in combining H2 pipeline and cables.
- Security considerations given high concentration of energy carriers.
- Formation of a consortium to build will be required.





# Back-up



## Declaration of Wilhemshaven



26. Urge the Wadden Sea Board to explore the multi usage of space and how different interests, such as ecological, shipping, energy and economic interests can be combined and specifically to explore, in collaboration with the shipping authorities, the double usage of fairways for both shipping as well as for cables and pipelines with the purpose of mitigating negative ecological impact on some of the most vulnerable and unique elements of the World Heritage Site between islands and shore;





# Ems-Dollard Treaty Area

