

**ADDITIONAL MEMORANDUM OF UNDERSTANDING (MoU)**

**BETWEEN**

**THE MINISTER OF ECONOMIC AFFAIRS AND CLIMATE POLICY OF THE KINGDOM  
OF THE NETHERLANDS**

**AND**

**THE MINISTER OF CLIMATE, ENERGY AND UTILITIES OF  
THE KINGDOM OF DENMARK**

**ON COOPERATION ON OFFSHORE ENERGY INFRASTRUCTURE**

The Minister of Economic Affairs and Climate Policy of the Netherlands and the Minister of Climate, Energy and Utilities of the Kingdom of Denmark (hereinafter referred to individually as a “Participant” and collectively as the “Participants”);

Welcoming the ambition of EU climate neutrality by 2050, the European Green Deal and the emphasis of offshore renewable energy as a key part of delivering climate neutrality;

Considering the importance of strengthening energy security and diversifying the energy supply in Europe;

Emphasising the need for the European Union to play a leading role in the transition towards a low carbon economy;

Wishing to promote mutually beneficial cooperation on clean energy production and efficient use of energy;

Bearing in mind that this MoU provides a general framework for cooperation and to express the cooperative intent of the Participants;

Have accepted the need for an additional MoU on *Cooperation On Offshore Energy Infrastructure* following the initial and still very relevant MoU on *Cooperation in the Energy Transition* signed on June 19<sup>th</sup>, 2020 and have thus accepted the following:

*Section 1 – Objective*

The objective of this MoU is to initiate cooperation on the planning of possibly one or more offshore energy hubs with one or more interconnectors for mutual benefit of the two countries. This could improve security of supply, bring diversification of energy sources, and facilitate energy system integration of wind power across sectors (e.g. energy, transport and industry).

*Section 2 – Cooperation*

The cooperation between the Participants under this MoU will be operationalized through the operators of the national power and gas system. Transmission System Operators (TSOs) will be responsible for the analyses to be carried out, referring regularly to relevant ministries and agencies.

The cooperation of the TSOs takes place under the existing term sheet of the North Sea Wind Power Hub programme.

With a view to provide a solid foundation for decisions, TSOs could in particular consider the following:

- a. Cooperation in the form of a joint working group established by the ministries, energy authorities and TSOs.
- b. A jointly developed analysis, as specified in Annex, that clarifies technical and economic aspects such as technology, capacity, connection points, land falls, internal grid reinforcements, ownership, financing, socio-economic implications as well as a first high level ecological impact assessment.
- c. Preparation of a joint recommendation from the joint working group by second half of 2021 on whether or not to continue with the next phase towards realization of a project. This recommendation is based on the analysis mentioned under section 2.b above and will describe which configuration would be most suited for the cooperation and can act as basis for further design and development of the joint project with a view towards realisation in 2030 or as soon as possible thereafter;
- d. Exchange between members of the working group of all necessary information and data about the national power and gas grid including the power and gas markets and decide on a common long-term forecast for grid development;
- e. Other forms of cooperation, which are necessary for analysis of the interconnector.

### *Section 3 – Arrangements of the Participants*

This MoU does not create any rights and obligations under international law and does not impose any financial obligations on the Participants.

All costs resulting from cooperation under this MoU are to be borne by the Participant that incurs them, unless otherwise mutually jointly decided/consented.

### *Section 4 – Amendment Procedures and Dispute Resolution*

This MoU may be amended at any time by jointly written consent of the Participants.

At any time, the Participants will consult, at the request of any of them, on any matter relating to this MoU, in the spirit of cooperation, good faith and mutual trust, to resolve quickly any difficulties or misunderstanding that may arise. In case of misunderstanding or insufficient progress between the TSO's the ministers will be informed.

### *Section 5 – Final Provisions*

This MoU will come into effect upon signature and remain effective until six months after the joint recommendation from the joint working group (as described in section 2.c). The MoU may continue to have effect after this initial period if the Participants so jointly decide at least three (3) months prior to the end of the initial period.

This MoU will be jointly reviewed upon written request of one of the Participants.

This MoU may be terminated by either Participant giving three (3) month's written notice to the other Participant.

The termination of this MoU will not affect any on-going activities under this MoU, unless otherwise decided by the Participants.

Signed in duplicate at Copenhagen and The Hague on the ...th of December 2020 each in the English language.).

*The Minister of Economic Affairs and Climate  
Policy of the Kingdom of the Netherlands*

*Eric Wiebes*

*The Minister of Climate, Energy and Utilities of  
the Kingdom of Denmark*

*Dan Jørgensen*

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## **ANNEX**

### **Analyses by the Dutch and Danish transmission system operators (TSOs)**

The national Dutch and Danish TSOs, Gasunie, TenneT and Energinet will analyse socio-economic, technical, environmental, energy system integration and planning perspectives for potential joint projects concerning large-scale deployment of offshore wind in combination with interconnectors between countries via one or more offshore energy hubs.

The analyses will be anchored in the existing cooperation between the TSOs under the North Sea Wind Power Hub Programme, with a view towards realisation of a first joint project in 2030 or as soon as possible thereafter, and cover the following (not exhaustive) list of topics:

#### **Capacity development and timing**

- National offshore wind arrangements and targets and offshore wind designated areas and developments zones
- Power-to-X conversion capacity and arrangements and targets
- Interconnector capacity
- Optimisation of the energy hub capacity, including phasing/modularity where the hub is gradually expanded to meet increased demand.

#### **Technology**

- The hub-and-spoke concept
  - o General concept
  - o Hub type
  - o Concentrated vs. integrated distributed hub system
- Power-to-X
  - o Facilities (e.g. electrolyzers) to convert wind power into other energy carriers (P2X)
  - o Location of P2X facilities (offshore or onshore)
- Interconnectors and grid connection technology choices
- Interoperability of high voltage direct current (HVDC) technologies
- Technology readiness levels and supply chain challenges

#### **Grid integration**

- Capacity of power & gas (green hydrogen) connections to the shore
- Possible onshore power & gas (green hydrogen) connection points
- Effects on onshore power & gas transmission grids and potential needed grid reinforcements

#### **Economic feasibility**

- High level cost estimates of different configurations
- Cost benefit methodology and analysis (CBA)

## **Environmental and permitting**

- Environmental assessment methodology
- Environmental baseline sensitivity mapping
- Possible route corridors for cables
- Overview of permitting processes for hub and its connections to shore

## **Market set-up and regulatory framework**

- Market design options and consequences
- Anticipatory investments
- Commercial framework for offshore wind farms and (on/offshore) P2X
- Other regulatory challenges and potential mitigation

## **Governance, deliverables and timelines**

- The above analytical framework will be anchored in the existing cooperation between the TSOs under the North Sea Wind Power Hub Programme.
- To explore and further develop the opportunities, limitations, risks and requirements of potential joint projects to connect and integrate large scale offshore wind energy, a joint working group will be established with representation from the Dutch and Danish governments, as well the National TSOs (Gasunie, TenneT and Energinet) as organised in the North Sea Wind Power Hub consortium.
- Where possible, studies and investigation will be anchored in the CEF Action (n° 1.19-0001-NLDE-S-M-20), executed by the NSWPH programme and co-financed by the European Commission.
- The joint working group will establish a work plan for the afore mentioned investigations, including required governmental and TSO resources, planning and deliverables including a recommendation from the joint working group by second half of 2021 on whether or not to continue with the next phase towards realization of a project.
- A first draft of this work plan will be developed by the NSWPH consortium for discussion in the working group by 15 January 2021.
- Realising the complexities and interdependencies of the topics that will be analysed, the TSOs will provide regular status updates to, and seek advice from, the Dutch and Danish ministries.