



**MINISTERIAL ENDORSEMENT
OF JOINT RECOMMENDATIONS
BASED UPON
MEMORANDUM OF UNDERSTANDING (MoU)
BETWEEN**

**THE MINISTER FOR CLIMATE AND ENERGY POLICY OF THE NETHERLANDS
AND**

**THE MINISTER OF CLIMATE, ENERGY AND UTILITIES OF
THE KINGDOM OF DENMARK
ON COOPERATION ON OFFSHORE ENERGY INFRASTRUCTURE**

The Memorandum of Understanding signed on 14 December 2020 between the Minister of Economic Affairs and Climate Policy of the Netherlands and the Minister of Climate, Energy and Utilities of Denmark initiated cooperation on the planning of possibly one or more offshore energy hubs with one or more interconnectors for mutual benefit of the two countries.

With a view towards realization of a first joint hybrid project, combining integration of offshore wind and interconnection between the countries, the transmission system operators (TSOs) under the consortium North Sea Wind Power Hub (NSWPH) have carried out analyses in areas such as capacity development and timing, technology, grid integration, economic feasibility and regulatory framework. Several case studies were analysed to illustrate possible configurations in different future scenarios. These analyses are important as they aid future decision-making about the configuration of possible joint projects.

Based on the results of the work done in 2021 by the involved ministries and TSOs, a joint working group has made recommendations on whether or not to continue with the next phase towards realization of a project. This recommendation describes which project setup could be suitable for further analysis by the TSOs and the ministries.

The joint working group has also been used to share knowledge about national processes in relation to development of offshore wind farms, marine spatial planning and the potential for future energy hubs in the North Sea. This has contributed to a valuable mutual understanding of national plans and developments that need to be considered in a potential joint project.

Project specification and next phase of cooperation

The work completed under the MoU has created a shared foundation for further cooperation which aims to concretise, and analyse in more detail, a specific setup for a possible joint hybrid project between the Netherlands and Denmark in relation to the energy island in the Danish North Sea and a potential energy hub in the Dutch North Sea. This section summarizes the recommendations, based on this last year's work, from the joint working group to the Energy Ministers.

The joint working group has recommended to continue the cooperation with the involvement of NSWPH for the purpose of analysing the potential for a joint hybrid project. In this next phase, the cooperation is recommended to focus on a specific project configuration for further analysis by the TSOs.

Based on perceived political priorities in the Netherlands and Denmark and the potential of power-to-X, the joint working group has recommended that the continued cooperation focuses on a possible setup with an interconnector (either electricity or hydrogen) between the energy island in the Danish North Sea and an energy hub in the northern part of the Dutch North Sea. This setup will include an electricity cable from the Danish island to the Danish shore, offshore hydrogen production on the Dutch hub and both a hydrogen pipeline and an electricity cable from the Dutch hub to the Dutch shore. Based on these assumptions, three different configurations will be analysed:

- The first one will include an electricity interconnector between the Danish island and the Dutch hub.
- The second consists of a hydrogen pipeline between the Danish island and the Dutch hub including offshore hydrogen production as part of the Danish energy island project.
- The third will be based on the first configuration, but with an electricity interconnector from the Danish island to Norway added on and also with an electricity interconnector from the Dutch hub to the UK added on. The additional connections to Norway and UK will be assessed individually.

All configurations will be analysed by using sensitivities, including e.g. overplanting of offshore wind, changes in electrolysis capacity (both onshore and offshore), higher and lower electricity demand or supply scenarios, import prices for hydrogen and the relation with onshore grid reinforcements.

The configurations can act as a basis for further design and development with a view towards realization in 2035. It is recommended that the analyses will focus not just on cost-efficiency but also on other, non-monetary aspects such as security of supply and efficient use of space, and that the analyses will conclude in a feasibility report jointly developed by the TSOs.

The joint working group has acknowledged that the planning of a Dutch energy hub is at an early stage which means that a specific interconnector project cannot be definitively decided on yet. Therefore, the configurations under focus are to be viewed as a set of working assumptions for the analyses and may evolve during the cooperation.

The content of these recommendations is hereby endorsed by:

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

**The Minister for Climate and Energy Policy
of the Netherlands**

Dan Jørgensen

Rob Jetten

Signed in duplicate in Denmark on 18 May 2022 in the English language.