

## 【欧州】 【海事】

# Maritime Issues - Renewable energy including offshore wind power generation: North Seas countries Ministerial Meeting and the wind power working programme

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### 【概要 : Summary】

Based on the European Green Deal (COM (2019) 640 final) with its climate neutrality goal in 2050 and based on the EU' s commitments under the 2015 Paris Agreement, the development of offshore wind is becoming a crucial tool for the EU to meet its climate targets. It will require a decisive restructuring of the EU' s energy system, based on renewable energy sources including the massive expansion of the utilisation of wind power.

Currently, the North Seas region is the leading region in Europe for deployed capacity and expertise in offshore wind power generation, and it holds a great potential for delivering large amounts of renewable energy in the future, including wind energy but also other renewable energies like wave or tidal energy, thanks to its shallow waters. However, the offshore wind energy is by far the most advanced technology.

Starting in the EU' s North Sea about 30 years ago, all EU waters also including the Baltic, Mediterranean and Black Seas, the Atlantic Ocean and the waters in the outermost regions and overseas territories, are considered to being suitable for one of the two types of offshore wind energy installations, bottom fixed or floating types. However, the construction of offshore wind farms will have to be decisively accelerated in quantity, size, and power capacity

at all maritime locations suitable in the EU. Considering the potential of expanding offshore wind power generation and other renewable energies in the North Sea towards achieving the 2030 and the 2050 targets, the North Seas neighbouring countries within the North Seas Energy Cooperation (NSEC) have renewed their political declaration to updating and aligning their regional cooperation. The set-up of support groups within the NSEC is seen as an important step to improve cooperation in the offshore wind generation deployment, the electricity grids development, as well as hybrid projects. Regarding the optimisation of investments in wind energy, other renewable energy projects, and the investments in electricity grids, the cooperation within the NSEC could help to lower overall costs of projects and facilitate a more efficient use of maritime space in the North Sea.

### 【記事 : Article】

#### 1. The EU' s offshore wind power generation

The European Green Deal (COM (2019) 640 final) is the EU' s long-term plan to achieve its net-zero GHG emissions target by 2050. To achieve the 2050 carbon neutrality target, to fulfil the commitments under the 2015 Paris Agreement, and at the same time to meet its energy needs, the EU will have to significantly increase the

utilisation of renewable energies in its energy mix. This electricity consumption might be located close to the coast, but it will also be likely to be placed in some of the existing industrial clusters, where there will be a high need for renewable based hydrogen and other e-fuels (NSEC 2020c).

Wind power comes as a clean, free, and abundant energy source for generating electricity and most importantly, besides the onshore wind energy exploitation, the offshore wind energy production is considered being one of the key renewable energy sources. According to the European Commission's European Green Deal, "…increasing offshore wind production will be essential, building on regional cooperation between Member States" (COM (2019) 640 final). To cover the future demand, European Commission estimates that between 240 and 450 GW of offshore wind power is needed by 2050 (European Commission n.y.).

The EU strategy on offshore renewable energy (COM(2020)741) covers several renewable energy sources and various technologies. These offshore energy sources come with their own set of challenges and opportunities for European energy systems, sea-users, industrial actors, and civil society. Currently, out of all offshore renewable energy sources, the offshore wind exploitation is the most developed. In contrast to onshore wind parks, the EU's offshore wind power generation has benefits from the utilisation of the stronger and steadier winds at sea and less space restrictions, as onshore wind farms (European Commission 2021a). The EU has contributed significantly to wind power development so far, through ambitious policies and investments.

Europe's first offshore wind farm was installed in Vindeby, Denmark, in 1991, and until today, Europe has become a global leader in manufacturing wind turbines, particularly for the offshore market. Three out of the top five global turbine manufacturers on the offshore market are based in Europe. Currently, European companies

represent about 90% of the offshore global market (European Commission n.y.). To bring offshore wind into deeper waters and explore sites with higher and more constant wind speeds, several European developers work on floating offshore wind turbines. The first pilot projects are in operation and the deployment is expected to accelerate towards the end of this decade.

To cover the future electricity demand with an estimate of at least 50% of the total energy mix in 2050, the EU is committed to significantly increase offshore wind development and explore the potential of offshore wind in Europe's seas.

## 2. Main elements of the EU's renewable energy strategy

The new EU strategy on offshore renewable energy and follow-up actions (COM(2020)741) contains suggestions regarding the investment, regional cooperation, predictable legal framework, and measures to strengthen the supply chains and to support continuous innovation.

The strategy assesses its potential contribution and proposes ways forward to support the long-term sustainable development. To maximise its impact, the EU strategy goes beyond a narrow definition of the factors of energy production and addresses broader issues, including access to sea-space, industrial and employment dimensions, regional and international cooperation, and the technological transfer of research projects from the laboratory into practice (COM(2020)741).

The strategy intends to encourage the necessary investment to effectively develop offshore renewable technologies - estimated at almost €800 billion between now and 2050. It also intends to increase certainty for investors and to ease bottlenecks, and to find the best combination of public and private finance.

The strategy also promotes regional cooperation, including cross-border cooperation, in particular, in the North Sea, Baltic Sea, Mediterranean Sea,

Black Sea, Atlantic Ocean, and outermost regions and overseas territories. It is intended to facilitate multi-use planning of sea space, cost-efficient development of offshore and onshore grids and joint renewable offshore projects between countries”.

The strategy promotes a pan-European supply chain that involves multiple regions, in coastal and inland areas. It also is intended to enhance maritime spatial planning for a successful large-scale deployment of offshore renewable energy and the sustainable use of the EU’s sea space and resources. According to the EU Blue Economy Report 2021, offshore wind energy is currently the only commercial deployment of a marine renewable energy with wide-scale adoption (European Commission 2021b). Other promising ocean technologies, including wave energy, tidal energy, salinity gradient energy and ocean thermal energy conversion (OTEC), are still at the research and development stage and not yet commercially available.

While reinforcing the role of offshore energy in the energy mix, the strategy underlines that sustainability and, more specifically, the protection of the environment and biodiversity will be key principles for all dimensions concerned to achieve the 2050 climate neutrality target (COM(2020) 741 final).

The strategy addresses topics directly relevant for the North Seas Energy Cooperation, (NSEC), which was established in 2016 to facilitate the cost-effective deployment of offshore renewable energy, in particular wind, and to promote interconnection between the countries in the region (NSEC 2016). The strategy also announced a scheme for joint long-term commitments per sea basin for the deployment of offshore renewable energy as well as a framework for long-term offshore grid planning to be proposed under the revised TEN-E Regulation.

### 3. The EU’s offshore wind farm locations

In 2018, the EU’s total offshore wind power generation capacity reached 22.1 GW from 5,047 grid-connected wind turbines across 12 countries (European Commission 2021b). In 2019, 502 new offshore wind turbines of 10 projects were connected to the grid across. In 2020, 2.4 GW of new capacity were added to the grid (European Commission 2021b). The EU’s main producers of offshore wind energy are Germany, the Netherlands, Belgium, and Denmark. Considering the sometimes difficult permission process for installing wind farms in some EU Member States, which can represent an obstacle to renewable energy projects in general, the revised Renewable Energy Directive (2018/2001/EU) includes provisions that simplify the permitting processes. It is expected to help setting in motion more renewable energy projects, while considering legitimate concerns of citizens and respecting environmental standards (European Commission n.y.).

Since the EU has already extensive experience with offshore wind, which has led to a significant fall in costs and bid price for offshore wind energy projects, it will also support the acceleration of the development of a green hydrogen production (European Commission 2021a). The North Sea has a high and widespread natural potential for offshore wind energy thanks to shallow waters and localised potential for wave and tidal energy. The North Sea is currently the leading region for deployed capacity and expertise in offshore wind (COM/2020/741 final). However, also the Baltic Sea, the EU’s Atlantic Ocean as well as the Black Sea offer a good natural potential for both, offshore bottom-fixed and floating wind energy, while the Mediterranean Sea shows potential for floating offshore wind energy (COM/2020/741 final). Moreover, the EU islands have large potential in marine energies and can play important role in the EU’s offshore energy development. Finally, many European outermost regions and overseas countries and

territories have a good potential for offshore renewable energy (COM/2020/741 final).

Besides bottom-fixed wind turbines, with a total installed capacity of 45 MW in 2019, Europe's floating wind farms will open the possibility to harvest the most resourceful wind energy sites in Europe (European Commission 2021c). The uptake of floating offshore wind technology is expected to open the market for more offshore wind farms in the deep-sea areas of more than 60 metres in the EU waters, allowing for the deployment of wind technology to take place in particular in the Atlantic and Mediterranean Sea.

The utilisation of floating offshore wind farms in deeper waters would allow an expansion of the utilisation of the up to 80% of offshore wind resources in deep water areas, which cannot be utilised by conventional bottom fixed structures (European Commission 2021c). The projects will lead to the installation of 350 MW of floating capacity in European waters by 2024 (European Commission 2021b).

#### 4. The North Seas Energy Cooperation (NSEC)

Since its establishment in 2016, the North Seas Countries established the North Seas Energy Cooperation (NSEC) aims at facilitating the cost-effective deployment of offshore renewable energy, in particular wind energy, and promotes interconnection between the countries in the region (NSEC 2016). The declaration emphasises the importance of voluntary cooperation, with the aim of securing a sustainable and affordable energy supply for the North Seas countries (European Commission 2021d). The NSEC supports and facilitates the development of the offshore grid and the large renewable energy potential in the region. The NSEC members include Belgium, Denmark, France, Germany, Ireland, Luxembourg, the Netherlands, Norway, Sweden, and the European Commission. While the EU is also part of the NSEC to harness the full energy potential of offshore wind in the North Seas and to foster cooperation

between the countries in the region, the UK withdrew from the NSEC on 31 January 2020 (European Commission 2021d).

The North Seas countries took account of the need to reduce costs in the offshore wind sector, by exploiting the potential of regional cooperation offers for reducing transaction costs and exploiting benefits of scale. There is also the need for stable and transparent framework conditions for project developers and their supply chains, including having a steady pipeline of offshore wind projects to avoid periods of industry idling. Furthermore, there is the need to cost-effectively integrate offshore wind energy into the existing and future energy system, including the strengthening of the onshore electricity grid, among others (NSEC 2016). At the NSEC ministerial meeting on 4 December 2019, the NSEC countries and the Commission agreed that the NSEC should continue and reinforce the cooperation under the new 3-year work programme for 2020–2023. The new structure put a particular emphasis on developing concrete cross-border offshore wind and grid projects (hybrid projects), with the potential to reduce costs and space of offshore developments. The NSEC issued another joint statement with the European Commission in July 2020, calling for a European enabling framework for offshore wind energy. All work under this work programme will be undertaken in line with existing obligations under international law as well as relevant EU legislation and subject to available resources (NSEC 2020c).

This joint statement and further work of the NSEC in 2020 provided valuable input to the EU strategy on offshore renewable energy, published on 19 November 2020 (NSEC 2020a). At the Ministerial Meeting of the North Seas Energy Cooperation under the 2020 German NSEC Presidency on 14 December 2020, the Energy Ministers and the European Commissioner for Energy agreed on key initiatives to be undertaken from 2021 onward to

foster the deployment of offshore renewable energy. This includes the realisation of cross-border offshore wind projects that are interconnected among North Seas EU Member States and Norway (joint and hybrid projects) and the use of cooperation mechanisms including by landlocked countries (NSEC 2020b). In 2021, Belgium took over chair of the NSEC.

## 5. The NSEC' s renewed Political Declaration and its 2020–2023 work programme

At the North Seas countries Ministerial Meeting on 2 December 2021, NSEC countries and the European Commission signed a renewed Political Declaration, updating and aligning the objectives of the regional cooperation to the evolution of the political context since 2016 (European Commission 2021e). The renewed Political Declaration of the NSEC underlines the political intent of the countries participating in the NSEC, while it does not establish any new or replace or modify existing legal commitments.

They also intend to deepen their cooperation to meet the ambitious offshore wind 2030 – 2050 target. The ministers of Energy of Belgium, Denmark, France, Germany, Ireland, Luxembourg, the Netherlands, Norway, Sweden, and the European Commissioner of Energy on behalf of the EU considered the important role of offshore wind energies in achieving their individual and common European renewable energy and the 2050 target of reaching net-zero GHG emissions in the EU, among others (NSEC 2021). They also considered the vast potential the North Seas hold in delivering large amounts of offshore renewable energies, building on the Council Conclusion of 14 December 2020 on Fostering European Cooperation in Offshore and other renewable energies, the cross-border and relevant national renewable energy projects as well as the EU Strategy on Offshore renewable Energy to harness the potential of offshore renewable energy for a climate neutral future, and the Joint Statements of the North Seas Energy

Cooperation in 2019 and 2020. Furthermore, they took also into account the required investments into the offshore wind sector, and the need to cost-efficiently integrate offshore wind energy into the existing and future energy systems, as well as the need for a concrete NSEC work programme (NSEC 2021).

The Energy Ministers and the Commissioner outlined their intention to harness the potential of offshore renewable energy in the North Seas for achieving the objective of installing a capacity of at least 60 GW of offshore wind energy and at least 1 GW of ocean energy by 2030, followed by 300 GW of offshore wind energy and 40 GW of ocean energy by 2050. This will play a key role in delivering on the Paris Agreement and COP26 commitments (European Commission 2021e).

Another important objective is to cooperate on maritime spatial plans, including wind energy deployment and grid development also including the cross-border networks (NSEC 2021). Considering the onshore grid planning, the NSEC countries plan to work together towards a more coordinated offshore grid planning in line with maritime spatial planning. They plan to exchange best practices on national support schemes and respective cooperation models and support the implementation of innovative wind projects and to discuss EU financing instruments (NSEC 2021).

According to the Belgian Minister Tinne Van der Straeten, to meet Europe's climate neutrality targets, close regional collaboration and synergetic partnerships in the North Sea is indispensable (European Commission 2021e). With the engagements of developing offshore renewable energy, improving marine spatial plans, and sharing valuable ecological knowledge, the North Seas Energy Cooperation proves to be an important frontrunner in setting and achieving those ambitions. Finally, Belgian Minister Tinne Van der Straeten officially handed over the NSEC' s Presidency for the year 2022 to Ireland (European Commission 2021e).

The governance structure for the years 2020–2023 consists of a high-level group, ministerial meetings, and the coordinators committee. The former support groups have been transformed into four new support groups including Hybrid and joint projects, Maritime spatial planning, Support framework and finance and delivering on the 2050 targets. Regarding the 2020–2023 work programme, the participating countries acknowledge the progress and deliverables made by the four original Support Groups of the North Seas Energy Cooperation (2016–2019) and call for taking forward the work carried out so far to further promote offshore wind, the development of offshore grids, interconnectors, offshore hybrid assets, joint projects, and system integration within the framework of the cooperation (NSEC 2020c).

Support Group 1 will work on assessing and specifying concrete plans for developing potential hybrid projects, including by regular exchanges with key actors from regulators, R&D, offshore wind industry and others. It will assess the regulatory framework and market arrangements for specific hybrid assets, including elements related to cross-border support (joint project dimension) when relevant, and identify options for overcoming identified obstacles. Support Group 1 will also work on general questions, such as options for potential offshore bidding zone configurations and other regulatory aspects and ways to overcome barriers to hybrid projects. The support group will also discuss elements of an EU regulatory framework for hybrid and joint projects that facilitates the implementation of such projects (NSEC 2020c).

The Support Group 2 will work on developing concepts for coordinated planning and development of offshore wind of the North Seas and focus on Maritime Spatial Planning to designate further areas for offshore renewable energies (NSEC 2020c).

The Support Group 3 is focusing on the support framework and finance for offering the offshore wind sector long-term prospects, to facilitate long-term investments and to reduce further costs. At the Ministerial meeting in Esbjerg in 2019, North Seas countries agreed to work together to achieve an indicative aggregate installed capacity of EU Member States of the North Seas Energy Cooperation of at least 70 GW by 2030, based on their current national plans for offshore wind deployment (NSEC 2020c). The Support Group 3 will coordinate the offshore tenders by means of sharing information regarding the national tender schedules as well as exchanging best practices on tender design, including zero-subsidy support design elements as well as looking into aspects of decommissioning, lifetime extension and repowering of wind farms (NSEC 2020c). In addition, the group will investigate new financing opportunities under the new Connecting Europe Facility and the Union Renewable Energy Financing mechanism.

The Support Group 4 is expected to deliver on the 2050 target of net-zero GHG emissions. This group will look ahead on the way to 2050 and the overall challenges for how to absorb the increased amount of energy produced in the North Seas, regarding onshore grid connection as well as visionary concepts such as a hub-and-spoke model for the North Seas. Support Group 4 will also work on the exchange of best practice on onshore grid planning of the North Seas countries to facilitate the increased deployment of offshore wind generation capacities until 2050, including regular exchanges with relevant key actors from research and industry (NSEC 2020c).

The Ad hoc working group will focus on the alignment of rules, regulation, and technical standards, which holds great potential for contributing to cost reduction for the offshore industry, including offshore wind farms in the North Seas (NSEC 2020c).

## 6. Conclusion

The development of offshore renewable energy resources will play an important role to reach decarbonisation goals in the EU. The renewed Political Declaration of the NSEC of December 2021 underlines the political intent of the North Seas neighbouring countries in the NSEC to cooperate in the conventional development for offshore wind generation and the grids development, as well as hybrid projects, which are important to optimise the electricity generation. The cooperation is considered important for lowering overall costs and facilitating a more efficient use of maritime space in the North Sea.

By establishing a project-based support group for hybrid assets and joint projects, the North Seas Energy Cooperation creates a platform for the relevant countries participating in a hybrid and/or joint project to bring forward joint solutions and thereby delivering results that can benefit all North Seas countries (NSEC 2020c).

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