

POLICY BRIEF

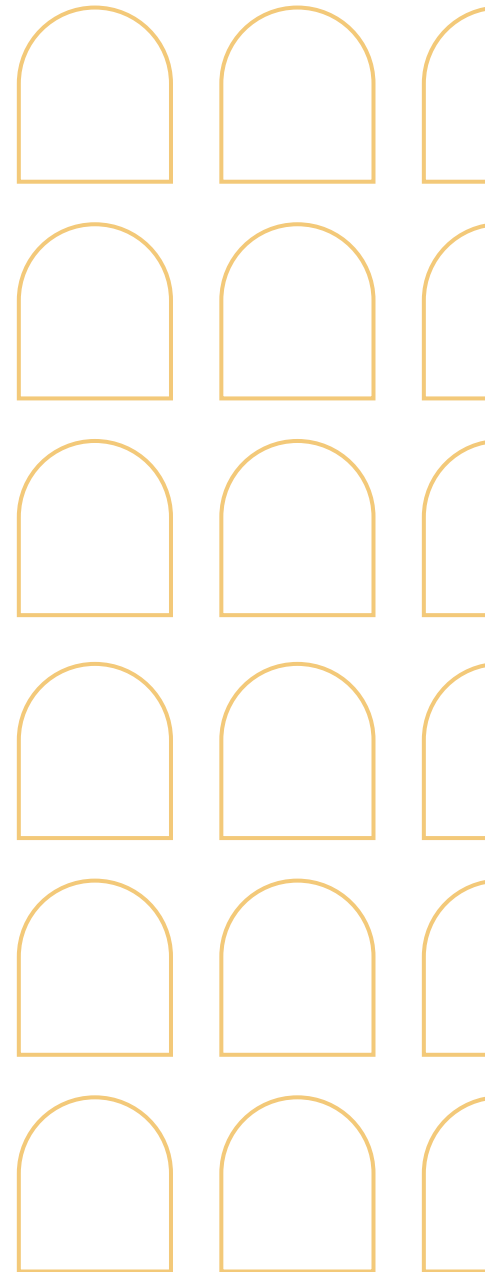
Offshore wind energy in the North Seas: crafting collaboration and navigating governance

Highlights

- In the North Seas region, a coalition of 9 countries expressed the ambition to quadruple their offshore wind capacity from 30 GW to 120 GW by 2030, and to then more than double the capacity between 2030 and 2050 to reach 300 GW.
- Regional cooperation to achieve these ambitions can be organized in different ways: regional cooperation within the EU governance framework; Member State driven regional cooperation; and multilateral pilot projects leading by example.
- Depending on the type of benefits that are being pursued, the scope of regional cooperation can consist of: regional grid planning and regional grid cost sharing principles; non-domestic offshore wind development; and new approaches to funding and financing.
- Will these regional solutions emerge under the existing EU framework for regional cooperation in the North Seas? Not necessarily. A Member State led initiative with multilateral pilot projects is probably needed to unlock the full benefits of regional grid planning and cost sharing, and the benefits of nondomestic offshore wind developments.
- This could entail the creation of a new regional secretariat, an office, a facility, or an entity, possibly in combination with a regional coordinator. Next steps could also be taken in the governance of the Offshore TSO Collaboration (OTC), and new multilateral joint ventures could be setup to drive regional investments forward.

Author

Leonardo Meeus, EUI.



Issue 2025/02

January 2025

Introduction¹

In the North Seas region, a coalition of 9 countries (Belgium, Denmark, France, Germany, Ireland, Luxembourg, Netherlands, Norway, United Kingdom) expressed the ambition to quadruple their offshore wind capacity from 30 GW to 120 GW by 2030, and to then more than double the capacity between 2030 and 2050 to reach 300 GW. After declaring these ambitions in Ostend in 2023², the heads of state will meet again in Hamburg in 2025.

It is in this context that regional cooperation is being discussed for offshore wind energy investments and the associated network investments. Many proposals have already been made, they typically focus on different types of benefits that can be pursued in combination with a certain type of governance. In this brief, we will try to disentangle the two.

The brief is organized into three steps:

- We will first introduce the three ways in which regional cooperation can be organized: regional cooperation within the EU governance framework; Member State driven regional cooperation; and multilateral pilot projects leading by example.
- We will then outline the possible scope of regional cooperation, which can allow us to tap into different types of benefits: regional grid planning and regional grid cost sharing principles; non-domestic offshore wind development; and new approaches to funding and financing.
- We will finally ask the question, what governance do we need to achieve these benefits and solutions? Will the EU framework for regional cooperation in the North Seas be enough to unlock the benefits, or do we also need Member States and project promoters to step up?

Organization of regional cooperation in the North Seas

First, regional cooperation is partly organized within the EU governance framework. Second, regional cooperation can also be Member States driven. Third, multilateral pilot projects can lead the way, in which case governance will follow.

First perspective: regional cooperation within the EU governance framework

The main argument for this viewpoint is to count on the ongoing EU processes to avoid creating more specific structures for offshore wind energy in the North Seas.

Following the Trans-European Networks for Energy (TEN-E) Regulation, the first Offshore Network Development Plans (ONDP) were published in 2024. This will be followed by a Cost Benefit Analysis and Cross-Border Cost Sharing exercise for each Sea Basin, including the North Seas. This exercise will be updated every two years, and will be integrated into the Ten Year Network Development process (TYNDP). As applying these instruments in this context is relatively new, there is a lot of room for improvement in these processes.

The European Commission, together with the ministries of the North Seas countries, are already organizing meetings to discuss issues and solutions in the North Seas Energy Cooperation (NSEC). There are also NSEC meetings at Ministerial level to sign Memoranda of Understanding (MoUs) for specific projects, develop joint statements, and interact with stakeholders. NSEC is one of the regional High Level Groups setup under the framework of the TEN-E Regulation.

The implementation of the EU framework can be improved. As argued in a previous FSR brief,³ the regional High Level Groups can be reinforced.

1 The research has been funded by Tennet. The findings are inspired by interviews with the Ministries, Regulators, Transmission System Operators (TSOs), Wind developers, and other stakeholders. Thanks to FSR colleagues Ronnie Belmans, Jean-Michel Glachant, Alberto Pototschnig, and Catharina Sikow Magny for their feedback on an earlier version of this text.

2 The Ostend Declaration was signed at the <https://northseasummit23.be/en>

3 Catharina Sikow Magny, 2024. Making TEN-E into a truly European project, FSR Policy brief. <https://hdl.handle.net/1814/77413>

The European Commission could dedicate more resources and/or a European coordinator⁴ could be assigned to NSEC to facilitate the discussions among Member States.

The EU framework can also evolve. The FSR brief for the next Commission⁵ included several ideas to improve the EU framework for networks, such as: a top-down EU networks vision; more EU funding and more powers for EU entities to allocate costs among Member States. The next EU Multi Annual Financial Framework 2028-2034 is an opportunity to increase EU funding for infrastructure. The European Investment Bank (EIB) could increase its role to derisk grid investments.

Second perspective: Member State driven regional cooperation

The main argument for this viewpoint is that the North Seas countries could voluntarily go for a level of cooperation that is more ambitious than foreseen within the EU governance framework.

Member State driven regional cooperation can complement NSEC in at least two ways. First, the scope of the cooperation could be broader or more targeted. Second, the number of countries involved could be different. There are countries in the region that seem to be more willing than others to collaborate multilaterally as opposed to bilaterally. They could form a coalition of the willing with an agenda that is more ambitious. Inspiration for the governance of a Member State driven regional cooperation can come from the experiences with the Nordic grid plan, the Benelux secretariat, the Pentilateral forum, and the Regional Security Co-ordinators (i.e. the voluntary predecessors of the Regional Coordination Centers in EU legislation) or the pioneer roles of the Benelux countries plus France for first steps towards market coupling. This could entail the creation of a new regional

secretariat, an office, a facility, or an entity, possibly in combination with a regional coordinator.

Note also that it might be easier to involve the UK in a Member State led regional initiative. The UK is the country with the highest offshore wind energy potential in Europe.

Third perspective: multilateral pilot projects will lead by example, and governance will follow

The main argument for this viewpoint is that improving the governance of regional cooperation in the North Seas will take time, a project based approach can be faster. A group of “friends of the North Seas” could get together in limited number of multilateral pilot projects. The solutions they come up with could become a template for others.

Transmission System Operators (TSOs) of the North Seas started a voluntary collaboration, which is called the Offshore TSO Collaboration (OTC).⁶ They presented joint papers at Ostend North Sea Summit 2023 and at the offshore wind energy summit in Bruges organized under the Belgian EU Presidency in 2024. A follow-up analysis is expected for the summit in Hamburg in 2025. To complement their EU and national grid planning, they are considering a portfolio of grid projects and options that have not yet been analyzed in the ONDP of 2024, and they are also paying more attention to the interaction between projects.

Offshore grid projects that received limited attention in national and EU planning include hybrid projects and cross-border radial projects. In a cross-border radial project connects, the offshore wind farm located in the waters of one country is directly connected to the electricity system of another country. In a hybrid project, offshore wind farms are connected to an interconnector that also enables cross-border exchanges. This implies that the assets can be used more efficiently, but it also implies more risks for the offshore wind farms whose connection

4 The selection and subsequent appointment of the European Coordinator is based on the provisions of Article 6 of the TEN-E Regulation

5 Meeus, L., Conti, I., de Almeida, L., Glachant, J.M., Hancher, L. Münchmeyer, M., Piebalgs, A., Pototschnig, A., 2023. Energy policy ideas for the next European Commission: from targets to investments, FSR Policy Brief. <https://hdl.handle.net/1814/75989>

6 Offshore TSO Collaboration: <https://www.tennet.eu/offshore-tso-collaboration>.

access might be constrained⁷. Kriegers Flak is the first hybrid project, combining the connection of offshore wind farms with interconnection capacity for cross-border exchanges. It involves Denmark, Germany and Sweden. This first pilot illustrates that it is not so easy to develop a project multilaterally, the Swedish part of the project is on hold, while the other two countries did implement their plans. The project also received an exemption from the transmission availability rule (“70%-rule”).

TSOs in the North Seas have also already started to incorporate some investments in interconnectors as separate entities or joint ventures (e.g. BritNed, NEMO link, and the Celtic Interconnector). This type of governance can be a way to attract new sources of financing at the level of a project, to jointly procure equipment, etc. For the moment, this is typically done bilaterally for one project, while it could also be considered for multilateral regional cooperation.

Scope of regional cooperation in the North Seas

First, regional cooperation could be focused on regional grid planning and regional grid cost sharing principles. Second, regional cooperation could also include non-domestic offshore wind energy development. Third, regional cooperation could also encompass new approaches to funding and financing.

First perspective: regional grid planning and regional grid cost sharing principles

Cross-border radial projects (connecting an offshore wind farm in the sea of one country to the electricity system of another country), hybrid projects (connecting offshore wind farms to interconnectors between countries), and meshed grids (interconnected offshore energy hubs) are known to be beneficial in some situations, but they require more coordination than the domestic radial solutions, and bilateral interconnectors.

The current situation in the North Seas region can be described as an “MoU beauty contest” with limited coordination. Almost everyone has a Memorandum of Understanding (MoU) with everyone, while it is unlikely that all MoUs will result in a project. Some projects are complementary, others are in competition. Instead of everyone trying to pursue their own projects bilaterally, the region could try to come up with a shortlist or portfolio of projects that work in combination.

If the region can agree on a regional grid plan, portfolio of projects, or priority list, cost sharing at regional level also becomes easier. For individual projects, there are always non-hosting countries who benefit and who could be asked to contribute to the costs. The hosting and also the non-hosting countries might however have competing projects they prefer. Agreeing on a regional list or portfolio can therefore be about reaching a compromise in which every country has at least one of their projects taken up in the package, but not necessarily all projects to deal with competing projects. If every country commits to hosting at least one project that is beneficial for the region, every country contributes to the costs, so that the need for additional compensation is likely to reduce

Agreeing on regional grid cost sharing principles based on scenarios with possible adjustments might also be opportune. First, to avoid endless discussions on scenarios, countries can agree on how to allocate the costs depending on which future unfolds. For instance, one country can bank on a nuclear renaissance in the national plans, another country might be more skeptical. Second, countries can also foresee adjustments to give incentives for complementary grid investments to be build. To keep it simple, adjustments could be limited to avoid big winners and losers, and could be limited to deal with a limited number of uncertainties.

We also know that all countries will benefit from being interconnected in expected and unexpected ways. When unprecedented problems emerged with the French nuclear fleet, France was saved

⁷ Hybrid interconnectors in combination with offshore bidding zones can expose offshore wind farms to price and curtailment risks. The latest electricity market reform foresees the development of a compensation mechanism.

by imports via the network infrastructure that was built to export nuclear energy. The same applies for instance to Norway, normally an exporter of hydro power, while the country might need imports during dry years. This means that everyone should also be willing to share some of the grid costs, independent of what scenario might unfold (as a kind of “insurance policy”).

Will these solutions emerge under the existing EU framework for regional cooperation in the North Seas? The EU grid planning (TYNDP and the regional ONDPs) has not yet been used to come up with multilateral alternatives for the projects considered at national level. Note that regulators did recently ask for a mandate to be able to suggest alternative projects to be analyzed in this process.⁸ The EU guidelines for offshore cross-border cost sharing lists the issues with the project-by-project discussions we currently have, and possible ways to come up with a more regional approach, but left it to the regions to choose where to go next.⁹

Second perspective: non-domestic offshore wind energy development

Offshore wind energy might still need to be supported by Contracts for Difference (CfDs).¹⁰ These two-way support schemes can become a benefit for the exporting country of offshore wind energy, or a cost, depending on the evolution of the market prices. If the exporting and importing countries do not find a way to share the risks and the benefits, the investments might not materialize. They could do that by developing cross-border CfDs. This could be done bilaterally for a specific project, or multilaterally for a cluster of projects.

There are at least two reasons why non-domestic offshore wind energy developments are beneficial.

First, some countries do not have enough potential domestically (e.g. Belgium and Germany, and landlocked countries like Luxemburg), and others have more potential than they need to cover their own future energy demand. Second, everyone benefits from spreading the wind farms in the broader sea area of the North Seas. If wind farms are located in the same narrow area, they all produce at the same time, and also stop producing at the same time. If they are located too close, they can even distort each other’s wind input (i.e. wake effect). By spreading, everyone achieves more output for the same level of investment.¹¹

Will these solutions emerge under the existing EU framework for regional cooperation in the North Seas? CfDs are mainly national instruments, with limited EU guidance, it seems more likely that cross-border CfDs will be developed regionally or at project level.

Third perspective: new approaches to funding and financing

The level of investment is such that anything we can do to reduce the cost of capital can be very beneficial. This applies to offshore grid investments, as well as, offshore wind energy investments. The impact of network investments on network tariffs is also increasingly seen as an issue for the competitiveness of the energy intensive industry.

An EU fund or a regional fund is often suggested, which implies that tax payers would pay rather than the network users. The Connecting Europe Facility could be used for that purpose if the funding would be increased. Other types of EU funding could also be redirected to these investments.

8 ACER-CEER Paper on Challenges of the Future Electricity System. <https://www.ceer.eu/publication/acer-ceer-paper-on-challenges-of-the-future-electricity-system>

9 EC guidance on collaborative investment frameworks for offshore energy projects. https://energy.ec.europa.eu/publications/guidance-collaborative-investment-frameworks-offshore-energy-projects_en

10 Lena Kitzing et al, 2024. Contracts-for-difference to support renewable energy technologies: considerations for design and implementation. <https://hdl.handle.net/1814/76700>

11 The Elia Group “going like the wind” paper calculated the benefits, which seem to be significant in the North Seas. https://www.elia.be/en/news/press-releases/2024/10/20241015_goinglikethewind

Ideas to attract new sources of financing, or to derisk the investments are also discussed. This can be to reduce the cost of capital, or to help overcome the financial constraints of some TSOs. Joint ventures between TSOs in combination with project financing, can also be a way to overcome some of these financial constraints.

Will these solutions emerge under the existing EU framework for regional cooperation in the North Seas? Ideas like the “offshore financing facility” or “offshore bank”¹², could be implemented as a Member State driven initiative, or as an EU initiative with a bigger role for the European Commission and the European Investment Bank.

Conclusion

The scope of regional cooperation can consist of different solutions to unlock different types of benefits. First, regional grid planning and regional cost sharing principles can be a way to overcome the current competition between network investments. It is also about considering investment options that do not necessarily emerge out of the current planning processes, such as cross-border radial connections for offshore wind farms, hybrid projects, or a meshed offshore grid. Second, non-domestic offshore wind developments with cross-border CfDs can be a way for exporting and importing countries to share the benefits and the risks associated with offshore wind energy production. Third, new approaches to funding and financing can help to reduce the capital costs of the investments, and to soften the impact on network tariffs.

Will these regional solutions emerge under the existing EU framework for regional cooperation in the North Seas? Not necessarily. A combination of three governance models is probably needed. First, regional cooperation within the EU governance framework. The implementation of that framework can be improved with a European Coordinator, and the framework itself can also be strengthened with

a bigger role for the European Investment Bank and more EU funding. Second, Member State driven regional cooperation. A “coalition of the willing” among Member States could accelerate regional cooperation by dedicating more resources to regional collaboration. This could entail the creation of a new regional secretariat, an office, a facility, or an entity, possibly in combination with a regional coordinator. Third, multilateral pilot projects can lead by example. A group of “friends of the North Seas” can join forces in a number of multilateral pilot projects. Next steps could also be taken in the governance of the Offshore TSO Collaboration (OTC), and new multilateral joint ventures could be setup to drive regional investments forward.

In conclusion, the next step for the region is to get more organized. EU funding might increase, but at least some of the grid costs (and offshore wind energy support costs) will have to be shared within the region, so developing regional cost sharing principles is unavoidable. The current project-by-project grid cost allocation with compensation by non-hosting countries based on scenarios has its limitations. The alternative with a portfolio of projects and possibilities for adjustments to avoid big winners and big losers, is appealing, but will need to be analyzed in more detail, and tested in practice. To what extent it can simplify negotiations, is an open question.

¹² Orsted and Elia presented the concept of the “offshore bank” in a joint paper in 2024: <https://orsted.com/en/what-we-do/insights/white-papers/making-hybrids-happen>. At the NSEC Ministerial Meeting in Odense 2024, the German Ministry BMWK referred to a similar concept, the “offshore financing facility”, prepared by Guidehouse and DTU.

The Florence School of Regulation

The Florence School of Regulation (FSR) was founded in 2004 as a partnership between the Council of the European Energy Regulators (CEER) and the European University Institute (EUI), and it works closely with the European Commission. The Florence School of Regulation, dealing with the main network industries, has developed a strong core of general regulatory topics and concepts as well as inter-sectoral discussion of regulatory practices and policies.

Complete information on our activities can be found online at: fsr.eui.eu

Robert Schuman Centre for Advanced Studies

The Robert Schuman Centre for Advanced Studies (RSCAS), created in 1992 and directed by Professor Erik Jones, aims to develop inter-disciplinary and comparative research on the major issues facing the process of European integration, European societies and Europe's place in 21st century global politics. The Centre is home to a large post-doctoral programme and hosts major research programmes, projects and data sets, in addition to a range of working groups and ad hoc initiatives. The research agenda is organised around a set of core themes and is continuously evolving, reflecting the changing agenda of European integration, the expanding membership of the European Union, developments in Europe's neighbourhood and the wider world.

www.eui/rsc



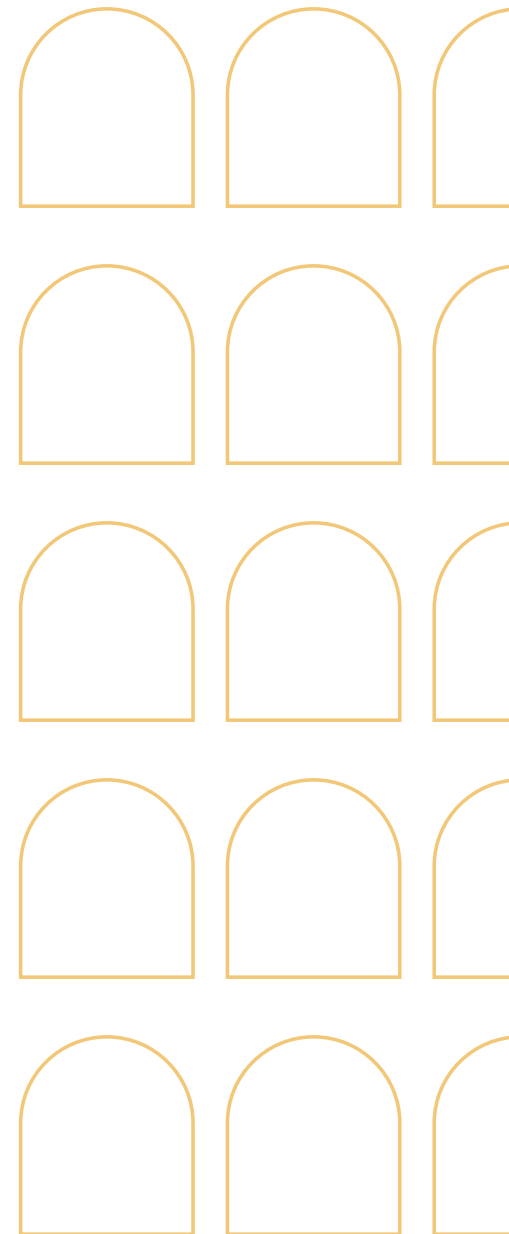
Co-funded by
the European Union

© European University Institute, 2025
Editorial matter and selection © Leonardo Meeus, 2025

This work is licensed under the [Creative Commons Attribution 4.0 \(CC-BY 4.0\) International license](https://creativecommons.org/licenses/by/4.0/) which governs the terms of access and reuse for this work. If cited or quoted, reference should be made to the full name of the author(s), editor(s), the title, the series and number, the year and the publisher.

Views expressed in this publication reflect the opinion of individual authors and not those of the European University Institute.

Published by
European University Institute (EUI)
Via dei Roccettini 9, I-50014
San Domenico di Fiesole (FI)
Italy



doi:10.2870/5837288
ISBN:978-92-9466-652-9
ISSN:2467-4540
QM-01-25-023-EN-N