

# Accelerating Offshore Wind in the Nordics

---

Review of policies, legal  
frameworks, and licensing  
processes across the region



# Contents

Foreword .....	3
Acknowledgements .....	4
Key findings and recommendations .....	6
Executive summary .....	7
List of abbreviations .....	16
1. Introduction and background .....	17
2. An overview of relevant EU regulations and directives .....	21
3. Current practices in the Nordic countries .....	30
4. Opportunities for accelerating the licensing processes .....	79
5. Opportunities in the Nordics .....	100
6. Catalogue of best practice and recommendations .....	105
References .....	111
Appendix .....	115
About this publication .....	117

This publication is also available online in a web-accessible version at:  
<https://pub.norden.org/nordicenergyresearch2025-04>

# Foreword

The Nordic region is aiming to be the world's most sustainable and integrated region by 2030. Delivering on that vision requires faster, cheaper and more predictable deployment of offshore wind. This report provides a practical basis for action. It maps current licensing regimes, identifies barriers and suggests specific best practices for accelerating deployment of offshore wind energy in the Nordic countries.

Offshore wind is rapidly developing in several countries, meaning that the report is assessing a moving target: policy is continuously being developed in the Nordic countries, and technological and policy developments outside the region are changing the conditions under which Nordic authorities and industry operate.

The main findings and suggestions are robust: credible targets backed by stable support frameworks, streamlined and sequenced permitting, earlier public data on sites and environment, and bankable grid solutions reduce risk and time-to-market. Nordic cooperation also adds value through aligned standards, shared data, and lessons from frontrunners.

Insights from the report can be used to support policymakers, system operators, as well as a wide range of stakeholders across the region. The aim is to shorten critical paths, cut uncertainty, and scale offshore wind in line with climate and security objectives.

**Klaus Skytte**

CEO, Nordic Energy Research

# Acknowledgements

*Accelerating Offshore Wind in the Nordics* is a collaborative project between Nordic Energy Research, which funded the project, and a Nordic team of researchers and consultants, led by Menon Economics, who carried out the analysis.

Torsten Schmidt and Astrid Bratli at Nordic Energy Research were the project coordinators. Øyvind Nystad Handberg (Menon Economics) was the overall project manager.

## **Team at Nordic Energy Research**

- Torsten Schmidt, Senior Adviser, [contact information](#)
- Astrid Bratli, Senior Adviser, [contact information](#)

## **Research and consultant team**

### **Menon**

Øyvind N. Handberg  
Even Winje  
Kjetil Mastad Vestergaard  
Aljoscha Schöpfer  
Markus Lund Andersen

### **NORCE**

Atle Blomgren  
Thomas Dahlgren

### **Brinckmann**

Carsten Brinck  
Deepak Chinnapa  
Frederik Overby Vinding  
Mathias Hetzel  
Alicia Schmidt

### **University of Bergen**

Siv Elén Årskog Vedvik

## Steering committee

The project steering committee charged with guiding this work was composed of:

- Anette Norling, Anja Lundberg and Tobias Grindsted, Danish Energy Agency, Denmark
- Sigrun Kavli Mindeberg and Anders Hekland, Norwegian Water Resources and Energy Directorate, Norway
- Dustin Siman, Filip Vestling and Matilda Lesse, Government Offices of Sweden, Ministry of Climate and Enterprise, Sweden
- Magnús Dige Baldursson, Ministry of the Environment, Energy and Climate, Iceland
- Stefan Fransman and Ralf Häggblom, Åland Government (*Landskapsregeringen*), Department of Infrastructure, Åland
- Katrin Haraldsdóttir Jensen, Environment Agency, Faroe Islands

The individuals and organisations that contributed to this study are not responsible for any opinions or judgements contained in this study.

## Contact

Comments and questions are welcome and should be addressed to: Torsten Schmidt, Nordic Energy Research, [contact information](#).

For enquiries regarding the presentation of results or distribution of the report, please contact Nordic Energy Research. Additional materials, press coverage, presentations etc. can be found at [nordicenergy.org](http://nordicenergy.org).

# Key findings and recommendations

This study examines how offshore wind deployment can be accelerated across the Nordic countries, while acknowledging that the policy landscape and industry conditions are in flux. The Nordic countries are also at different stages, and Denmark is a frontrunner with more developed targets and policy instruments than the others.

Across the Nordics, the main barriers relate to predictability and profitability. Binding national targets and long-term predictability are assessed as more significant barriers in Norway, Sweden and Finland than in Denmark. Profitability barriers, including the level of support and the design of support schemes, are most pronounced in Sweden and Finland. Regulatory framework design and the organisation of processes remain barriers across countries. Sweden stands out with a municipal veto risk. Defence interests are a notable barrier in Sweden and Finland. Iceland, Åland, the Faroe Islands and Greenland are at earlier stages in developing frameworks for offshore wind deployment.

The report makes 7 recommendations for accelerating offshore wind deployment:

1. **Clear and predictable targets:** Broad political agreement on offshore wind targets and willingness to support development will increase predictability for developers and reduce investment risk in national supply chains.
2. **Clear and stable regulatory framework:** Adopt a law-anchored, end-to-end regime with statutory timelines, efficient and robust tender design, and clear sequencing of key public processes.
3. **Support level that matches the targets:** Auctions and CfDs have become the gold standard. Align support with targets, and use full-package approaches and grid solutions to reduce risk.
4. **One-stop shops, centralised tendering and licensing:** Establish or strengthen a single point of contact across permitting and grid interfaces.
5. **Government data collection and sharing:** Government-led site surveys and data shared with bidders to reduce total cost and risk, and to speed up processes.
6. **MSP-anchored zoning and data framework:** If possible, active use of MSP that designates offshore wind areas, sets common standards for baseline surveys and open data, links to the one-stop shop and tender data rooms, and is revised on a fixed cycle.
7. **Early stakeholder consultation:** Stakeholder consultation in developing MSP and other strategic processes may identify conflicts and potential barriers for development early on.

# Executive summary



Image: iStock

This study examines how offshore wind energy deployment can be accelerated across the Nordic countries. It maps current practices and identifies key barriers in each country, draws lessons from international experience, and presents a set of recommendations for faster and more efficient deployment. While all Nordic countries share strong ambitions for offshore wind, their levels of deployment, regulatory maturity and policy frameworks vary significantly – with Denmark in a clear leading position. The main conclusion is that credible political commitment, predictable and transparent legal frameworks, support schemes that align with stated ambitions, well-sequenced licensing processes, and early government provision of site data together form the foundation for accelerated deployment. These factors reduce project time, uncertainty and cost, thus enabling faster expansion of offshore wind energy across the region.

## What holds back timely deployment in the Nordics?

Lack of **political ambition and predictability** is identified as a crucial barrier for all Nordic countries. Denmark is in the forefront of offshore wind development and has set an upcoming target of 3 GW offshore wind to be in operation by 2032 and 2033. The overall goal for the North Sea is 35 GW of offshore wind capacity by 2050, as part of the joint target of at least 150 GW set out in the Esbjerg Declaration. Norway has stated ambitions of allocating areas for 30 GW offshore wind by 2040, but the ambition is not binding and the political support for facilitating offshore wind development in Norway is uncertain. Sweden and Finland are also ambitious with regards to offshore wind development, but without establishing any quantitative targets. Åland, Iceland, the Faroe Islands and Greenland currently have no stated targets for offshore wind development. Åland is working actively with specific project initiatives and Iceland is in the process of developing an Energy Production Strategy and roadmap, which are expected to include all energy sources, including onshore and offshore wind.

Most offshore wind projects are still reliant on financial support to ensure profitability. As such, efficient and targeted subsidy schemes are vital, both in terms of the **subsidy level** and the **design**. Denmark was an early adopter of targeted support measures for offshore

wind, ensuring a steady build until the 2020s. Rising costs and changes in both design and support level in later years have introduced some long-term uncertainty. Even so, the political agreement following the no-bid auction in 2024 has confirmed the country's dedication to offshore wind, where, among other things, CfDs were reintroduced. The Norwegian design is more immature, with limited predictability for upcoming competitions. As of now, different designs have been chosen for floating and bottom-fixed technology, with changes being made to the former in the late stage of the tender process. Furthermore, financial support for new projects remains uncertain. Sweden, Finland, Åland, the Faroe Islands, Iceland and Greenland presently have no support schemes in place. Allowing for hybrid connections and facilitating the development of alternative fuel production *could*, all things being equal, reduce the need for financial support.

Lack of clear and supportive **regulations** may also be a barrier to the acceleration of offshore wind development. For the EU countries, implementation of EU regulations is not necessarily a barrier ([see chapter 2](#)), but implementation may be carried out more or less efficiently, and there are requirements for grid integration and interconnectivity that may slow processes somewhat. Denmark's licensing regime is comparatively mature after decades of refinement. Finland's framework is at an early stage, with one small operational offshore wind farm. Norway and Sweden sit between these. However, Sweden's developer-led process severely affects the project risk in the planning phase. This weakness is reflected in the number of projects that have been stopped by the government in recent years. Sweden and Finland also run distinct procedures for the Exclusive Economic Zone and territorial waters, increasing complexity and the number of authorities involved; Denmark and Norway do not, which reduces fragmentation.<sup>[1]</sup> Centralisation also differs: having DEA as the single point of contact in Denmark clarifies accountability, whereas Norway splits key decisions between the regulator (NVE) and the Ministry of Energy. In Sweden, the Land and Environmental Court licenses projects in territorial waters and the government decides in the EEZ, while municipalities retain strong influence – resulting in a more decentralised system. Finland's pathway is segmented, requiring a water permit from Regional State Administrative Agencies, EIA approval by government, Defence Forces clearance, and seabed leasing from Metsähallitus in territorial waters (with auctions there and, in the EEZ, auctions run by the Energy Authority). All Nordic countries except Sweden designate development areas and use tenders; Sweden presently relies on developer-initiated sites, though an auction system has been proposed.

**Stakeholder involvement** is a regulated necessity for balancing different interests, e.g. biodiversity, fisheries, marine traffic and defence interests. Still, in interviews, industry actors suggest that the number of consultations and the time required to facilitate them constitute somewhat of a barrier in Denmark and Norway. In Finland, and particularly in Sweden, less time is devoted to stakeholder involvement early in the process. However, projects in both countries face a greater risk that specific interests may intervene and

---

1. Norway distinguishes between which law applies to the licensing procedure and the approval of the detailed plan, but the processes are the same.

delay progress at a later stage. This illustrates a key dilemma: while limiting consultations might speed up early project development, insufficient stakeholder engagement can ultimately undermine progress and weaken acceptance for offshore wind projects. In Sweden, projects located within territorial waters also face the risk of a municipal veto in the later stages of planning, while in both Sweden and Finland, defence interests may still halt or significantly delay offshore wind projects.

Lack of **knowledge gathering and sharing** may be a barrier to offshore wind deployment, compared to a situation with full available information. Timing of knowledge gathering, and the sharing of that information between and within government and industry actors, may accelerate deployment in all Nordic countries. Our interviews reveal that these are likely more limited barriers than others we identified in the study.

**System and delivery capacity** matter. Access to specialist installation vessels, turbine availability (especially for floating) and availability of skilled personnel may slow processes. Nevertheless, the main lever under government control is port capacity. Outside Denmark, the lack of assembly and installation ports is a strong constraint on feasible build schedules. Similarly, **grid connection** is a necessity, and unclear allocation of scope, cost sharing and timing are sources of developer uncertainty.

The identified barriers and their assessed relevance for Denmark (DK), Norway (NO), Sweden (SE) and Finland (FI) are summarised in Table A, from high (highly relevant, a strong barrier to accelerated deployment, in expectation or as a driver for uncertainty) to low (somewhat a barrier, in expectation or as a driver for uncertainty), as well as N/R (not relevant for the specific country). Most barriers are also relevant for Iceland, the Faroe Islands, Greenland and Åland, but these countries have less developed policies and fewer plans for deployment of offshore wind. The chief barrier for these countries, therefore, is establishing the political conditions and the regulative framework for facilitating offshore wind developments.

**Table A: Overview of main identified barriers and relative score between countries**

Barrier	Sub-barrier	DK	NO	SE	FI
<b>Political ambitions and predictability</b>	Binding national targets	Medium	High	High	High
<b>Profitability for developer</b>	Subsidy level	Medium	Medium	High	High
	Support scheme design	Medium	High	High	High
	Electricity prices	Medium	Medium	Medium	Medium
<b>Regulations</b>	Implementation of EU reg.	Low	Medium	Low	Low
	Regulatory framework	Low	Medium	High	Medium
	Organisation of processes	Low	Medium	Medium	Medium
<b>Stakeholder engagement</b>	Timing and no. of consultations	Low	Low	Low	Low
	Municipal veto	N/R	N/R	High	Low
	Defence interests	Low	Low	High	High
<b>Knowledge sharing</b>	Seabed and water column data	Medium	Medium	Medium	Medium
	Impact assessment results	Medium	Medium	Medium	Medium
<b>Industrial barriers</b>	Vessel, turbine and infrastructure availability	Low	Medium	Medium	Medium
	Expert availability	Low	Low	Low	Low
<b>Grid connection</b>	Organisation	Medium	Medium	Medium	Medium

*We consider the barriers at three levels, in addition to “not relevant for the specific country (N/R): highly relevant and strong barrier for accelerated deployment, in expectation or as a driver for uncertainty (high); barrier, in expectation or as a driver for uncertainty (medium); somewhat a barrier, in expectation or as a driver for uncertainty (low).*

## What works elsewhere?

Learning from the experiences of other countries – particularly other European frontrunners – can inspire policy development in the Nordic countries. Aligned with the main barriers identified in the Nordics, we highlight relevant practices in the areas of political ambition and predictability, developer profitability, regulatory frameworks, stakeholder involvement, knowledge sharing, industrial capacity and grid connection. Key lessons are briefly summarised below, with further detail provided in the country review and in the synthesis in [Chapter 4.6](#).

**Political ambition and predictability:** Germany's three time-bound, legally binding targets drive steady build-out. The Netherlands pairs targets with a clear pathway and action plan to deliver them.

**Developer profitability:** The UK's CfD-based tendering ensures sufficient support while limiting the subsidy level, due to reduced risk exposure for developers/owners. The Netherlands awards "full-package" sites (pre-surveys, permits, grid substation/interconnection, long lease), cutting cost and early-stage risk.

**Regulation:** The UK is assessed to provide a predictable regime with time-bound approvals for Nationally Significant Infrastructure Projects. Scotland, Germany and the Netherlands operate one-stop shops, with Germany also centralising site allocation and tendering. Belgium's legally binding marine spatial plan enables early, effective spatial planning. With rising expectations on sustainability and local content, using non-price criteria in a pre-qualification (as in Germany and the Netherlands) may improve acceptability while preserving price competition.

**Stakeholder involvement:** Belgium embeds early stakeholder involvement through the marine spatial plan. Scotland mandates pre-application consultation with defined stakeholders, reducing later objections and litigation.

**Knowledge sharing:** The Netherlands and Belgium provide authoritative pre-tender site surveys and EIA materials to bidders, lowering risk, improving bid quality and speeding up permitting.

**Industrial constraints:** Turbine, vessel and many labour markets are largely European/global, so developers face similar supply-chain headwinds across countries; skills are relatively transferable.

**Grid connection:** TSOs manage connections in all countries. Germany's TSO-built, cost-socialised offshore links reduce developer risk and enable integrated planning; the UK's competitive OFTO model is an alternative model to lower transmission costs, though the effect on project complexity compared to a more centralised process could offset potential gains.

## Accelerating offshore wind deployment in the Nordic countries

Offshore wind policies and industries are evolving quickly across countries, meaning that we are assessing a moving target: we are seeking to link *changing* policies in other countries to *changing* policies in the Nordic countries. This is important to keep in mind as we present our “catalogue” for best practice.

We present seven recommendations for accelerating offshore wind deployment, as outlined below. Recommendations 1–3 build a solid foundation for policies, where the level of ambition and extent of government commitment determine the need for regulatory frameworks and support levels. Recommendations 4–6 centralise government organisation in one-stop shops, integrating grid planning, as well as centralising and frontloading information gathering. This reduces developer risk and costs, and likely also total costs. It may improve stakeholder consultation and front-load conflict resolution. Recommendation 7 more specifically addresses stakeholder involvement and acceptability through early and well-designed consultation processes. This may also reduce the risk of delays or cancellations and time spent on stakeholder consultation later in the process, and may increase local and regional acceptance for deployment.

The recommendations are relevant for all Nordic countries, although to different degrees and with a somewhat different cost of implementation. More country-specific, we point to the need to establish political conditions and regulatory frameworks for facilitating offshore wind developments in **Iceland**, **Åland** and the **Faroe Islands**. Åland is working on this structure in parallel with the Sunnavind project, while the other countries do not have any specific projects in the pipeline. In **Finland** and **Sweden**, early and formal compatibility checks with defence interests and municipalities will reduce developer risk. The developer-led process in Sweden also differs from most other countries, increasing risk in later stages. In **Norway**, greater predictability and assurance in the set targets, aligning grid licensing with site awards and clarifying TSO/developer roles, while maintaining bankable tender parameters, would lower bid premiums. The political commitment and ambition for offshore wind in Finland, Sweden and Norway is also somewhat unclear. **Denmark** is reintroducing revenue stabilisation and capping negative bidding where market conditions are volatile, which should keep Denmark on the map as the Nordic standard-setter in offshore wind. Nevertheless, the summary of our recommendations highlights that there is room for improvement across several categories, for all Nordic countries.

	Relevance	Ownership
	<p><b>1. Clear and predictable targets:</b> Broad political agreement on offshore wind targets and willingness to support development will increase predictability for developers and reduce investment risk in national supply chains. However, the time frame of the targets needs to be balanced against demand-side risk.</p>	DK NO SE FI IS FO AX
<b>Non-Nordic examples:</b> Germany and the UK		

	Relevance	Ownership
	<p><b>2. Clear and stable regulatory framework:</b> Adopt a law-anchored, end-to-end regime with statutory timelines, efficient and robust tender design, as well as alignment of tenders with data collection, MSP and grid planning.</p>	DK NO SE FI IS FO AX
<b>Non-Nordic examples:</b> The UK and the Netherlands		

	Relevance	Ownership
	<p><b>3. Support level that matches the targets:</b> Auctions and CfDs have become the gold standard, and use market mechanisms to reduce costs. Given lack of profitability, government support should align with stated targets and commitment. Full-package permits, hybrid connections and other infrastructure to support profitability and reduce risk should be considered.</p>	DK NO SE FI IS FO AX
<b>Non-Nordic examples:</b> The UK and the Netherlands		

	Relevance	Ownership
<p><b>4. One-stop shops, centralised tendering and licensing:</b> Establish or strengthen a single point of contact across permitting and grid interfaces. Where relevant, pair this with centralised tendering to reduce post-award uncertainty.</p>	<p>DK NO SE FI IS FO AX</p>	<p>Energy ministries and agencies; TSOs</p>
<p><b>Non-Nordic examples:</b> The UK and the Netherlands</p>		

	Relevance	Ownership
<p><b>5. Government data collection and sharing:</b> Government-led site surveys and data shared with bidders to reduce total cost and risk, which also may speed up the process. Costs may be reimbursed to authorities by bidders.</p>	<p>DK NO SE FI IS FO AX</p>	<p>Relevant agencies (One-Stop Shop)</p>
<p><b>Non-Nordic examples:</b> Scotland, Belgium and the Netherlands</p>		

	Relevance	Ownership
<p><b>6. MSP-anchored zoning and data framework:</b> If possible, active use of MSP that designates offshore wind areas, sets common standards for baseline surveys and open data (methods, metadata and release timelines), links to the one-stop shop and tender data rooms, and is revised on a fixed cycle.</p>	<p>DK NO SE FI IS FO AX</p>	<p>Relevant agencies (One-Stop Shop)</p>
<p><b>Non-Nordic example:</b> Belgium (MSP 2020–2026; Princess Elisabeth Zone)</p>		

<b>7. Early stakeholder consultation:</b>	<b>Relevance</b>	<b>Ownership</b>
Stakeholder consultation in developing MSP and other strategic processes may identify conflicts and potential barriers for development early on. This reduces risk for developers and governments, e.g. of municipal veto or conflict with national security interests, and may reduce total consultation time.	<b>DK</b> <b>NO</b> <b>SE</b> <b>FI</b> <b>IS</b> <b>FO</b> <b>AX</b>	Relevant agencies (One-Stop Shop)
<b>Non-Nordic example:</b> Belgium		

*Denmark is a frontrunner and has to a larger extent than the others already implemented recommendations 1–3 and is thus indicated as slightly less relevant than the other countries.*

# List of abbreviations

**AfL:** Agreement for Lease

**CES:** Crown Estate Scotland

**CfD:** Contracts for Difference

**DEA:** Danish Energy Agency

**DECC:** Department of Energy & Climate Change (UK)

**EIA:** Environmental Impact Assessment

**EEZ:** Exclusive Economic Zone

**ESA:** EFTA Surveillance Authority

**FID:** Final Investment Decision

**LCOE:** Levelised Cost of Energy

**MSFD:** Marine Strategy Framework Directive (2008/56/EC)

**MSP:** Marine Spatial Planning / Plan

**MSPD:** Marine Spatial Planning Directive (2014/89/EU)

**NSIP:** Nationally Significant Infrastructure Project(s)

**NVE:** Norwegian Water Resources and Energy Directorate

**NZIA:** The Net Zero Industry Act

**OFTO:** Offshore Transmission Owner

**Ofgem:** Office of Gas and Electricity Markets (UK)

**PPA:** Power Purchase Agreement

**ROC:** Renewables Obligation Certificate

**RVO:** Netherlands Enterprise Agency

**SEA:** Strategic Environmental Assessment

**TCE:** The Crown Estate

**TEN-E:** The Regulation on Energy Infrastructure (2022/869)

**TSO:** Transmission System Operator

# 1. Introduction and background

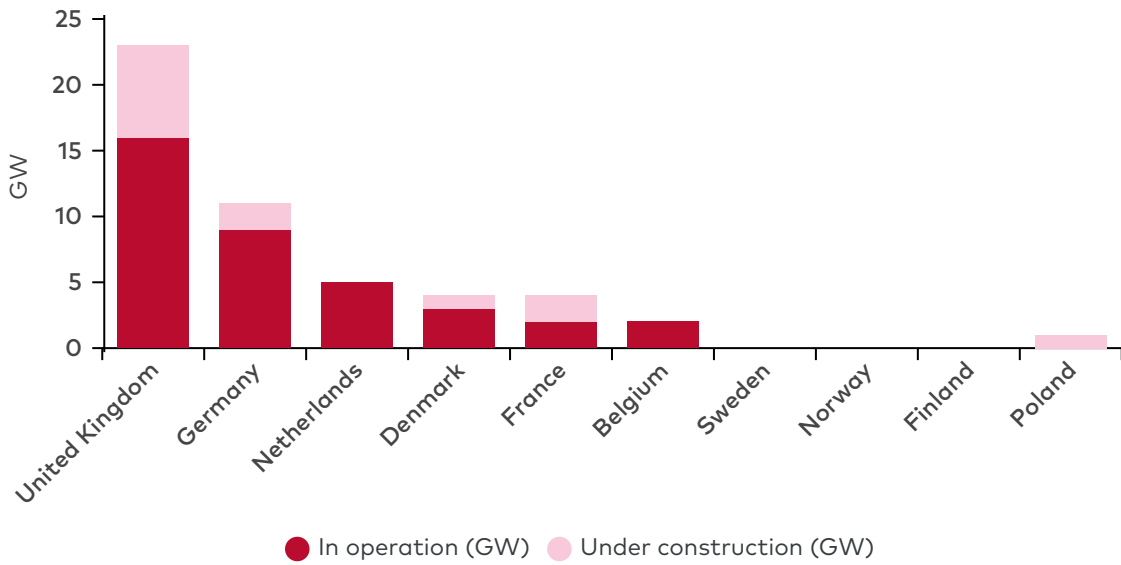


Image: iStock

Offshore wind energy is highlighted as crucial in the energy transition and for European security of energy supply (European Commission 2020). The European Commission's Offshore Renewable Energy Strategy sets long-term targets to expand EU offshore wind capacity to 60 GW by 2030 and 300 GW by 2050. [Member States have since expressed stronger ambitions for offshore renewable energy](#), giving cumulative EU offshore targets of 109–112 GW by 2030, 215–248 GW by 2040, and 281–354 GW by 2050. Recent analyses from Nordic Energy Research (2022, 2023) highlight the strong wind resource in the North and Baltic Seas and the scope for large-scale build-out when projects are well sited and designed to coexist with other sea users and biodiversity. Also highlighted is that Nordic cross-border cooperation on spatial planning, data and environmental monitoring can limit conflicts and improve outcomes.

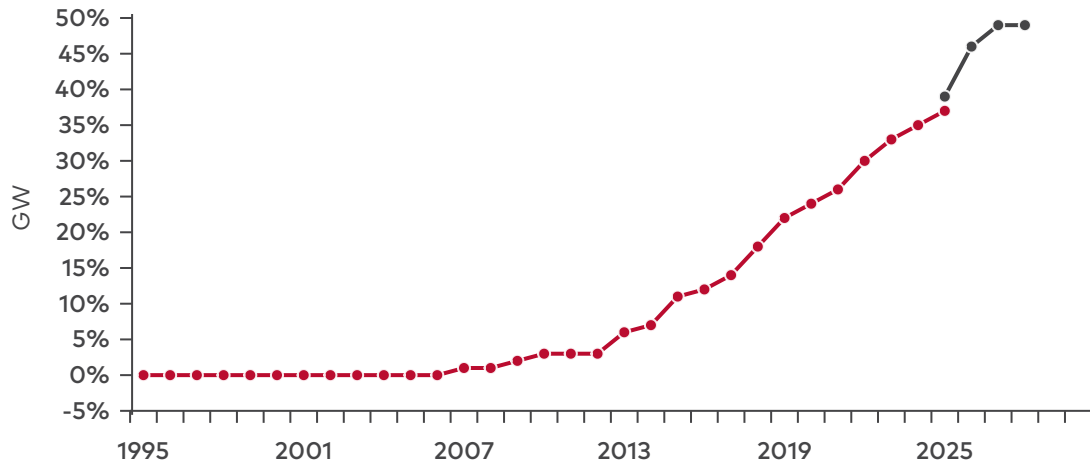
Current offshore wind energy capacity is about 20 GW in the EU and 36 GW in wider Europe, with another 13 GW under construction, see Figure 1.1. Current floating offshore wind energy capacity is about 300 MW (in operation and under construction). Over time, Figure 1.2. shows that deployment of offshore wind capacity appears to be accelerating.

**Figure 1.1: Offshore wind energy capacity in Europe, current and under construction**



Source: 4C offshore wind farms database

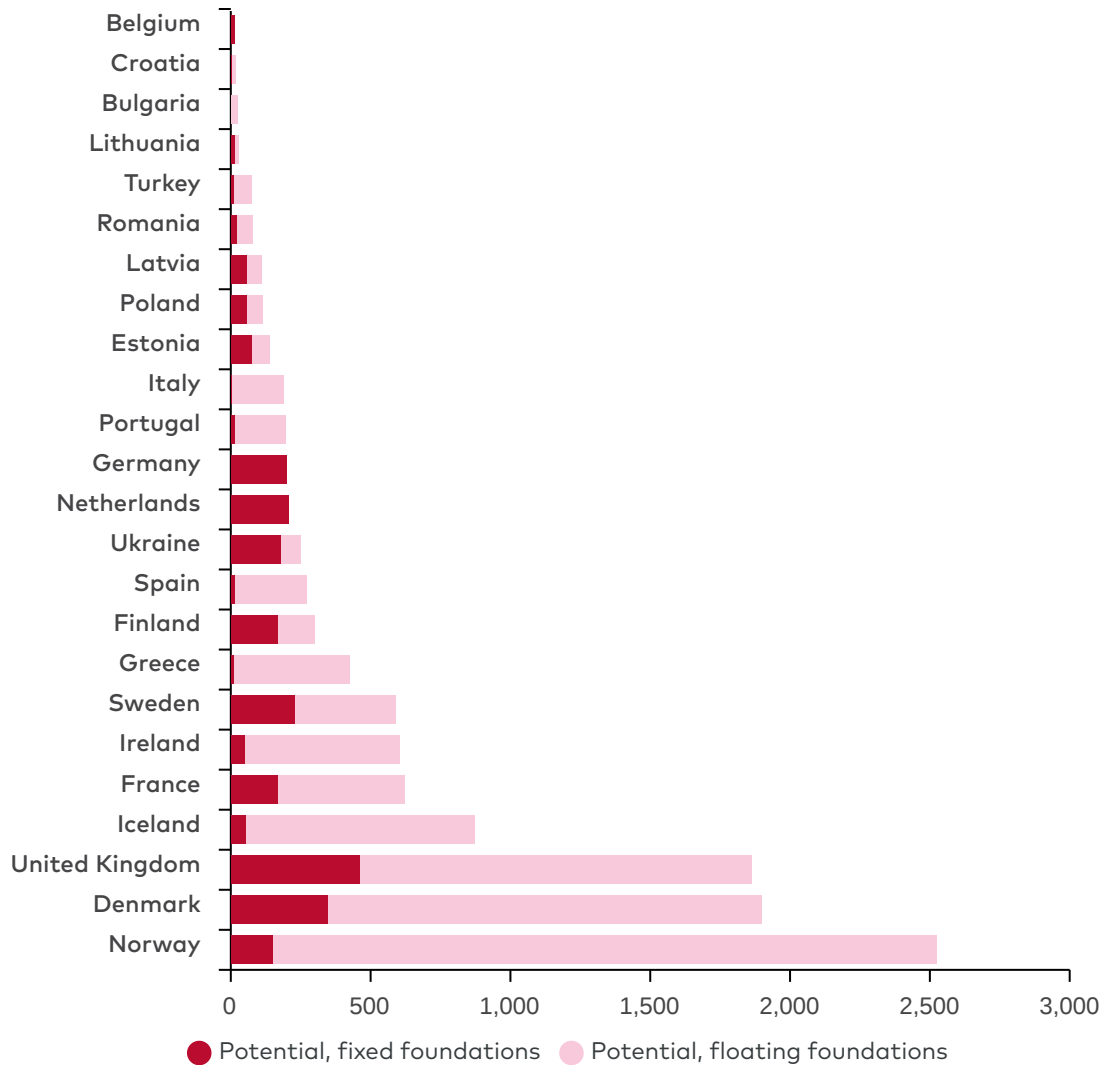
**Figure 1.2: Cumulative offshore wind energy capacity in Europe, in operation and under construction, 1995–2027**



Source: 4C offshore wind farms database

There is considerable technical potential for increased offshore wind energy in Europe, as indicated for selected European countries in Figure 1.3. In total, the technical potential across the countries is estimated at about 9,000 GW for floating and 2,500 GW for fixed-bottom offshore wind energy. Note that the technical potential is not necessarily feasible, economically, environmentally or considering other marine activities.

**Figure 1.3: Technical potential for offshore wind energy capacity in Europe, in GW**



Source: World Bank. Russia (13,700 GW), Albania (6 GW), Montenegro (1 GW) and Cyprus (0.004 GW) have been excluded. Not all countries are considered in the estimates by the World Bank, e.g., Åland, the Faroe Islands and Greenland.

Offshore wind development has potential consequences for the natural environment, land-use and various anthropogenic activities, thus requiring a governmental licence.<sup>[2]</sup> The requirements and processes for obtaining licences vary between jurisdictions. In addition, there are cases of wind farm impact crossing over between jurisdictions, where [international ocean treaties may have to be invoked](#).

Optimal offshore wind planning means minimising negative environmental impacts and potential conflicts with fisheries, marine traffic, national defences, aquaculture, tourism and others, and making thoroughly founded and transparent trade-offs between positive and negative impacts of the energy production and transmission. EU and national regulations, directives, guidelines and methodologies aim to facilitate optimal spatial planning, while climate and energy goals for the EU and the Nordic countries push for accelerated deployment.

This report maps Nordic countries' current practices, identifies and assesses barriers for accelerating deployment of offshore wind, identifies opportunities through practices in other selected countries, and suggests a catalogue of recommendations for accelerating licensing processes in the Nordic countries. The aim is to support accelerated deployment of offshore wind energy in the Nordics, with focus on the licensing processes.

[Chapter 2](#) gives an overview of relevant EU regulations and directives. [Chapter 3](#) describes current practices related to offshore wind licensing in each of the Nordic countries and assesses key barriers to accelerated offshore wind deployment. [Chapter 4](#) identifies measures or policies (opportunities) for accelerated offshore wind deployment, based particularly on practices in the UK, Germany, the Netherlands, and Belgium, in addition to a brief global review. Based on the review of and identified barriers in the Nordic countries and the identified opportunities in other countries, [chapter 5](#) assesses the relevance of the opportunities for the Nordic countries. Lastly, [chapter 6](#) presents our suggested catalogue of best practices in the Nordics.

---

2. In this report we use "licence" in a broad sense and interchangeably with "permit", unless clearly specified.

## 2. An overview of relevant EU regulations and directives



Image: Freepik

The EU has introduced a wide range of laws within the EU/EEA framework that regulate the licensing processes for offshore wind farm development. EU regulations affect Member States, and EU norms take precedence over national legislation, including constitutional provisions. For Norway, an EEA country, EU law must first be deemed EEA-relevant and then incorporated into the EEA Agreement before being transformed into national legislation. In the following we will go through selected directives and regulations deemed particularly relevant and make brief notes on the implementation status in the Nordic countries. When reviewing the Nordic countries' licensing frameworks for offshore wind in the chapters below, we will, when relevant, point out differences in how EU law is incorporated and whether these differences influence the efficiency of the offshore wind process.

**The Marine Spatial Planning Framework (2014/89/EU)** requires Member States to implement marine spatial planning. MSP is a tool designed to alleviate conflicts between different human uses/industries as well as between human uses and the marine environment, and thereby contribute to the effective management of marine activities.

The MSP Directive requires a marine plan with non-binding visions, strategies, planning concepts, or guidelines and management principles related to the use of marine areas. It is specified in the Preamble that "this Directive should not impose any other new obligations, notably in relation to the concrete choices of the Member States about how to pursue the sectoral policies in those areas but should rather aim to contribute to those policies through the planning process." However, the Directive is a minimum harmonisation directive, meaning that the states are free to go further than what is required and implement *binding* marine plans. This contributes to substantial differences in marine planning in the Nordic countries.

The MSP Directive is implemented in Denmark through law (*lov om maritim fysisk planlægning, lovbekendtgørelse, 2020-04-06 nr. 400*) and the adoption of a legally binding "*havplan*" (marine plan). The fact that the plan is legally binding means the authorities cannot adopt plans or make decisions on offshore wind licensing that are contrary to the marine spatial plan (or to a proposed new plan or amendments in the

plan). At the same time, the binding character of the plan means that marine areas designated for energy development in the marine spatial plan are afforded precedence over other activities: allocating area to development zones means that licences primarily can only be issued for the purposes in question.<sup>[3]</sup> In Sweden the directive is implemented in law (*lag 2014:861 om ändring i Miljöbalken 1998:808*) and through regulations (*havplaneringsförfordningen (2015:400)*). The plans are guiding, not legally binding. In Finland, the directive is implemented in law (*ändring 2016/284 i Lag om områdesanvändning, 1992/132*), with requirements for marine planning ("*havsplanering*"). The Finnish plans are also of a guiding character. The MSP directive does not apply to Norway, as it is not a part of the EEA Agreement. Politically adopted ocean governance plans and industry plans have established principles for sectoral decision making in the Norwegian Sea, but these are not spatial plans, and they are not legally binding.

**The Impact Assessment Directives (2011/92/EU; 2001/42/EC)** are legislative tools potentially requiring environmental impact assessments of offshore wind projects and others. Directive 2001/42/EC (Strategic Environmental Assessment – SEA Directive) requires assessments of the effects of certain plans and programmes on the environment, aiming to integrate environmental considerations into the preparation and adoption of these plans. Directive 2011/92/EU, as amended by 2014/52/EU, (Environmental Impact Assessment – EIA Directive) requires Member States to conduct detailed assessments of the environmental consequences of public and private projects before they are allowed to proceed. Both directives emphasise the need for assessment procedures which include public participation and consultation. The directives are minimum frameworks, meaning that the Member States can adopt stricter requirements in national legislation. Although the requirements and procedures that must be met under the two directives are similar in many respects, there are also important differences. Therefore, an investigation under one directive does not necessarily fulfil the requirements under the other directive.

Since the adoption of the directives, there has been extensive clarification of the directive requirements through the case law from the Court of Justice of the European Union (CJEU). One issue in relation to offshore wind licensing is the decision in *Delena Wells*, where the court concluded that when a licensing process consists of several stages (a principal licence decision followed by an implementing decision) the EIA must be conducted prior to *the principal* decision.

EIA Directive article 2(1) requires that impact assessments for projects "likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects on the environment". Offshore wind farms are not among the project types listed in the Directive's Annex I as always demanding impact assessments. They are listed in Annex II, which according to article 4(2) means that they must be subject to a *screening test* where it is determined whether the development is likely to have significant effects on the environment, either by virtue of a case-by-case examination or by thresholds or criteria set by the Member State. Criteria for determining whether the

---

3. Where spatial overlaps occur within a designated zone, conflicts are handled through interministerial coordination (*samråd*) ahead of permitting.

development will have "significant" effects are listed in Annex III. These criteria are formulated in a manner that leaves a considerable margin of appreciation to the Member States.

In Denmark, the directives are implemented in several laws, but in relation to offshore wind projects the relevant law is the environmental assessment law (*Miljøvurderingsloven, LBK 2023-01-03 nr. 4*). In Sweden, the directives are implemented through the Environmental Code (*Miljöbalken, 1998:808*). In Finland, the directives are implemented in a dedicated law (*lag om förfarandet vid miljökonsekvensbedömning, No. 252/2017*) and the governmental decree 2017/277 (*statsrådets förordning om förfarandet vid miljökonsekvensbedömning*). In Norway, the directives are implemented in regulations under *plan og bygningsloven*. It is however unclear whether the directives apply to Norway outside territorial waters (12 nautical miles), as the EEA Agreement applies only within "the territory" and not in the exclusive economic zone or on the continental shelf. It is also unclear whether Norway through the regulations has formally implemented the directives for plans and projects outside the territorial waters. The Offshore Energy Act does however demand both strategic and project-specific impact assessments, and in practice it has been stated that the environmental impact assessments shall comply with the EU directives. In fact, the Offshore Energy Act goes further than the minimum requirement in the EIA Directive concerning the demand to *screen* whether the proposed development is likely to have significant effects on the environment. According to the act, *all* offshore wind development must undergo a project-specific impact assessment. This requirement in Norwegian law may become a barrier for introducing fast tracks for licensing through "renewable acceleration areas", as prescribed in the Renewable Energy Directive III (see below).

**The Water Framework Directive and Marine Strategy Framework Directive (2000/60/EC; 2008/56/EC)** aim at protecting and improving water and marine environments across Member States, including the Nordic countries, through ecosystem-based management. The former directive addresses coastal waters while the latter addresses sea areas. While the MSP Directive introduced above is focused on the *spatial* considerations at sea, these directives are focused on the *environmental quality* in the waters and the sea. A core aim is for the Member States to achieve or maintain "good environmental status", and a mandatory tool is the adoption of marine management plans and strategies for all sea and water areas. The management plans can influence which types of measures/activities that can be approved and implemented.

These directives are also minimum harmonisation directives, meaning that the Member States can adopt stricter requirements in national law.

In Denmark, the directives are implemented in the Water Planning Act (*lov om vandplanlægning, Lbk. 2017-01-26 nr. 126*) and the Marine Strategy Act (*Havstrategiloven, Lbk. 2024-02-01 nr. 123*). In Sweden, the directives are integrated in national law through the Environmental Code (*Miljöbalken, 1998:808*) and the Marine Environment Ordinance (*Havsmiljöförordningen (2010:1341)*). In Finland, the directives are incorporated through national legislation by *Vattenlagen (2011:587)* and *Miljöskyddlagen (2014:527)*.

For Norway, the Water Framework Directive is part of the EEA Agreement, and the Directive is implemented by the Water Regulation (*vannforskriften*). As a result of the Norwegian government's position that the EEA Agreement only applies to the "territory", the Marine Strategy Framework Directive has not been included in the EEA Agreement and is thus not implemented.

**The Birds Directive and the Habitats Directive (92/43/EEC; 2009/147/EC)** impose requirements for the designation of protected areas and dictate processes for assessing and addressing potential negative impacts of planned activities within these areas. The Birds Directive provides a framework for the protection and management of human impact on birds in Europe, while the Habitats Directive requires Member States to implement measures to preserve or restore valuable habitats and listed species. The sites protected under the two directives are known as Natura 2000 sites and jointly they make up the Natura 2000 network.

Protection through Natura 2000 does not necessarily mean a total ban on new activities. In marine Natura 2000 areas, combined use – where protection is one of several purposes for the area – is often established. When a new plan or project is likely to have a significant negative effect on a Natura 2000 site, the national authorities and the developer must however follow a *specific procedure* described in the Habitats Directive to get it approved. To avoid duplication and ensure effective processes, assessments can however be coordinated and aligned with the requirements for impact assessments under the SEA and EIA Directives.

When it comes to the decision regarding the plan or the project, a core requirement is that permission can only be granted if it has been "ascertained" that the plan or project will not "adversely affect the integrity of the site concerned". The strict rules for making interventions in protected areas are however not without exceptions. There may be situations where protection must give way to other important societal goals. According to Article 6, paragraph 4, despite a "negative assessment of the implications for the site", and in the absence of alternatives, a plan or project may still be carried out "for imperative reasons of overriding public interest, including those of a social or economic nature".

For offshore wind, it is important to note that the Council adopted an Emergency Regulation 2022/2577 in late 2022 which *defined renewable energy as an overriding public interest*. In the latest version of the Renewable Energy Directive (RED III, see more below) renewable energy's status as an overriding public interest has been confirmed. RED III explicitly notes that the definition of overriding public interests applies to the Birds Directive and the Habitats Directives.

In Denmark, requirements for Natura 2000 planning are instituted through various laws, including the Environmental Objectives Act (*Miljømålsloven, LBKG 2023-05-26 no. 692*) and the Executive Order on the designation and administration of international nature protection areas (*BEK 2023-08-21 no. 1098*). Additionally, the Water Planning Act (*LBKG 2017-01-26 no. 126*) is relevant. Sector-specific laws may impose additional requirements for impact assessments of projects designated as Natura 2000 areas. In Sweden, the directives are implemented through the Environmental Code (*Miljöbalken*). In Finland, the

directives are implemented in the Environmental Protection Act (*Miljöskyddslagen*) and the Nature Conservation Act (*Naturvårdslagen*). Since the directives are not part of the EEA Agreement, they do not apply to Norway.

**The Regulation on Energy Infrastructure (2022/869)**, known as the TEN-E Regulation, establishes guidelines for trans-European energy infrastructure, emphasising the development of "cross-border" networks, including offshore transmission grids. As a regulation, it is directly applicable in EU Member States (including Denmark, Sweden and Finland) without the need for national transposition. The regulation demands that Member States take measures that facilitate an efficient process and prioritise projects of common European interest, and make non-binding agreements on cooperation. The regulation's applicability to the European Economic Area (EEA), and by extension Norway, has not yet been determined, and as such, it currently does not apply to Norway.

**The Renewable Energy Directives (RED)** aim at promoting renewable energy sources. RED I (2009/28/EC) established the foundational framework to advance the use of renewable energy sources throughout the EU. RED II (EU/2018/2001) set a target of achieving 32 per cent renewable energy consumption in the EU by 2030 and instituting measures to further foster renewable energy adoption across Member States. In July 2021, the European Commission proposed an amendment to the Renewable Energy Directive, aiming to increase the 2030 renewable energy target to 45 per cent.

RED III, Directive 2023/2413, includes measures to accelerate offshore renewable energy in the EU. These are particularly relevant to those involved in achieving the indicative targets for each sea basin, as outlined under Article 14 of Regulation (EU) 2022/869:

- **Publication of Offshore Energy Plans:** Member States must disclose their planned offshore renewable energy volumes, which they intend to achieve through tenders. This planning should account for both the technical and economic viability of the grid infrastructure, as well as any ongoing activities within the relevant sea basin.
- **Maritime Spatial Planning:** There is a requirement for Member States to designate appropriate spaces for renewable energy projects within their maritime spatial plans. This ensures that such developments are considered within broader spatial and environmental contexts.
- **Designation of Renewable Acceleration Areas:** Member States can in their planning point out either land or sea areas or both where the facilitation of renewable energy production is not expected to have significant environmental impacts and label them "Renewables Acceleration Areas". When designating a Renewables Acceleration Area, the state must introduce rules and mitigation measures for the development of the area. These mitigation measures will, when they are implemented, presume the fulfilment of certain environmental obligations under the Birds and Habitats Directives as well as the Water Framework Directive. RED III points out that these areas shall "benefit from the presumption of not having significant effects on the environment", meaning that there will not be a need for a project-specific impact assessment (EIA). The national authorities are nevertheless required to conduct a screening to identify

whether the proposed offshore wind farm is *highly likely to give rise to significant unforeseen adverse effects in view of the environmental sensitivity of the geographical areas where they are located, which were not identified during the environmental assessment of the plans designating renewables acceleration areas*. The specific procedures for the Renewables Acceleration Areas aim to make the process quicker and easier once the area is allocated to the developer but might at the same time be seen as adding to the national authorities' obligations.

- Permit-Granting Procedures: A significant enhancement introduced by RED III is the need for Member States to simplify and streamline the processes related to granting permits for offshore renewable energy projects. This involves reducing procedural complexities and enhancing both the efficiency and transparency of these processes, thereby facilitating smoother and faster project approvals.

EU Member States are required to implement RED III by 1 May 2025. Denmark has adopted amendments in *Lov om fremme af vedvarende energi (nr. 673 af 11/06/2024)* and has adopted regulations (*bekendtgørelse no. 773 of 20 June 2024*) related to contact points and licensing processes to comply with RED III. For Sweden, the process of assessing what measures need to be taken does not seem to be finished. Finland has amended the Nature Protection Act (*Naturvårdslag 422/2024*) and their Law on Water and Ocean Governance (*vattenvårds- och havsvårdsförvaltningen 1299/2024*). The Directive has not been incorporated into the EEA Agreement and does not apply to Norway.

The table below summarises the status of the selected relevant EU regulation and directives in each of Denmark, Norway, Sweden and Finland.

<b>DIRECTIVE/ REGULATION</b>	<b>DENMARK</b>	<b>NORWAY</b>	<b>SWEDEN</b>	<b>FINLAND</b>
<b>Marine Spatial Planning Framework (2014/89/EU)</b>	Implemented with binding maritime spatial plans	Not adopted, as it is not part of EEA	Implemented with non-binding spatial plans	Implemented with non-binding spatial plans
<b>Impact Assessment Directives (2011/92/EU; 2001/42/EC)</b>	Implemented in environmental assessment law	Aligned through regulations related to EEA agreements for certain sectors	Implemented in Environmental Code	Implemented through Environmental Protection Act
<b>Water Framework Directive and Marine Strategy Framework Directive (2000/60/EC; 2008/56/EC)</b>	Implemented for coastal and marine waters	Only the Water Framework is EEA-relevant	Integrated into Environmental Code	Implemented by environmental acts
<b>Birds Directive and Habitats Directive: "Natura 2000" (92/43/EEC; 2009/147/EC)</b>	Fully integrated with specific planning for Natura 2000 sites	Not applicable; uses national nature diversity law	Fully implemented with planning for Natura 2000 sites	Implemented focusing on conservation site designations
<b>Regulation on Energy Infrastructure (2022/869)</b>	Facilitation measures in place to support energy infrastructure development	Norway aligns through EEA where applicable, but slightly different focus	Supportive regulations are being developed within the national legal framework	Awaiting full development and implementation
<b>Renewable Energy Directive (RED I–III)</b>	Implemented with provisions for accelerating renewable areas	RED not yet fully integrated into EEA	Implementation status unclear	Adjustments made in environmental and sea governance acts

## Barriers for accelerating offshore wind?

Strictly speaking, legal requirements, whether imposed by EU or the national lawmaker, can always be seen as “barriers”, since they put obligations on authorities and/or developers. However, viewing EU law as a barrier simply because it requires impact assessments, spatial planning or environmental considerations, which take time, is not a productive approach. When discussing barriers to the acceleration of offshore wind, the focus should be on identifying processes and requirements that are either not necessary, or more time-consuming than what is necessary, to achieve the intended goals.

As the overview here has shown, important EU directives often come in the form of minimum harmonisation directives, which means there can be differences in how Member States implement these frameworks nationally. Minimum harmonisation itself is not necessarily a barrier, as flexibility is needed to adapt to different countries' jurisdictions and governance structures. However, the way a specific country chooses to implement a directive (or not implement it at all, as in the case of Norway) *can* be seen as a barrier to the acceleration of offshore wind development in that country. By closely examining the different countries' systems for planning and licensing offshore wind, as we will be doing later in this report, we can identify whether the perceived barriers are due to the country's licensing system, their specific implementation of EU law, *or* the EU law itself.

EU law requires assessments pursuant to the Environmental Impact Assessment Directives, the Marine Framework and Water Framework Directives and the Natura 2000 Directives. The SEA Directive and the EIA Directive both require impact assessments. SEA and EIA have different purposes: the former regulates plans and programmes, including preliminary assessment of potential risks, and the latter identifies and evaluates the environmental impacts of a specific project before it is carried out. SEA must be carried out before the tender deadline, and EIA before a construction permit for the farm can be granted. Increased focus on the relationship between SEA and project-specific EIA, as well as between these assessments and those required by the Natura 2000 Directives, and between marine spatial planning and offshore wind licensing, seems to be a productive approach for reducing **the barrier of duplicated assessments** and for accelerating the processes.

We also point out that EU regulations emphasise grid integration and interconnectivity, which require infrastructure planning and coordination across borders and with existing networks. This adds complexity, particularly for countries with differing national priorities and regulatory approaches. This complexity can also be a **barrier**.

Through RED III, the EU aims to accelerate the process for offshore wind development. One of the measures used is the classification of renewable energy development as an overriding public interest. This can particularly be significant to Natura 2000 sites and the Water Framework Directive. The requirement to designate “Renewables Acceleration Areas”, where there is a presumption that an EIA is not necessary, is another step that could accelerate offshore wind development. It is however yet to be seen how this works when being implemented into the Member States' processes for marine planning and licensing. The requirements in the Net Zero Industry Act for a “single point of contact” and

time limits for application processing, along with provisions aimed at accelerating procedures for certain strategic projects, are also intended to speed up processes for renewable energy.

EU and national regulations often aim to balance potentially conflicting interests, e.g. between biodiversity conservation and renewable energy production. The focus of this report is accelerating offshore wind energy production with minimal consequences for other interests.

## Textbox 2.1: The Net Zero Industry Act

**The Net Zero Industry Act (Regulation (EU) 2024/1735 (NZIA))** was adopted and entered into force in June 2024. The object of this regulation is to boost the competitiveness of EU industry and technology, including offshore renewable energy technologies. Some core elements regarding licensing:

- Requires a “single point of contact” (administrative coordinator) for the project promoter.
- Sets maximum time limits for the permit-granting procedures.
- Identifies certain projects as “net zero strategic projects” that the Member States, upon request from the project promoter, can grant priority status to ensure an even faster administrative process.
- Member-state consumer incentive schemes for net-zero products should use transparent, objective criteria and encourage sustainability and resilience across the supply chain.
- Public procurement procedures (that fall under the public procurement regulation) with offshore renewable technologies as part of their subject matter or contracts shall contribute to sustainability and resilience, through minimum requirements, technical specifications and contract performance clauses.
- For auctions to deploy renewable energy sources (not under the public procurement regulation), relevant authorities must apply specific non-price criteria in renewable energy auctions, to at least 30 per cent of the annual auctioned capacity or a minimum of 6 GW per year. Auctions must also include either pre-qualification or award criteria for assessing the contribution to sustainability and resilience. The requirements are specified and elaborated in the **Implementing Act** (Commission Implementing Regulation (EU) 2025/1176) that was adopted on 23 May 2025.

As a regulation, the NZIA has automatic effect in the Member States. The Member States are currently developing strategies to adjust to the regulation's requirements. The NZIA has been marked as EEA-relevant by the Commission, and the process of assessing its relevance is ongoing in Norway.

### 3. Current practices in the Nordic countries



Image: iStock

In this chapter, we briefly outline current practices relating to offshore wind licensing in each of the Nordic countries. We also provide some preliminary assessments on key barriers to accelerated offshore wind deployment. Each of the subchapters 3.1–3.8 addresses the individual countries: [Denmark](#), [Norway](#), [Sweden](#), [Finland](#), [Iceland](#), [Åland](#), [the Faroe Islands](#) and [Greenland](#). No offshore wind farms are currently in operation in the latter four countries.

Each subchapter is structured as follows:

1. **Background:** Brief account of installed capacity and the latest developments
2. **Licensing process:** Overview of the process for deploying offshore wind projects, including regulations, implementation in practice, subsidies and organisational considerations. "Licensing" is therefore understood broadly to encompass all aspects that influence deployment. The depiction is intended to be concise, yet specific regarding the policies that influence design and deployment timing.
3. **Barriers:** Our identified main barriers to increased and accelerated offshore wind deployment. We also briefly summarise interviews and desktop studies that suggest adjustments are needed to overcome existing barriers.

Finally, we summarise selected similarities and differences between the Nordic countries ([subchapter 3.9](#)) and discuss and compare the most important barriers to accelerated deployment ([subchapter 3.10](#)).

## 3.1. Denmark

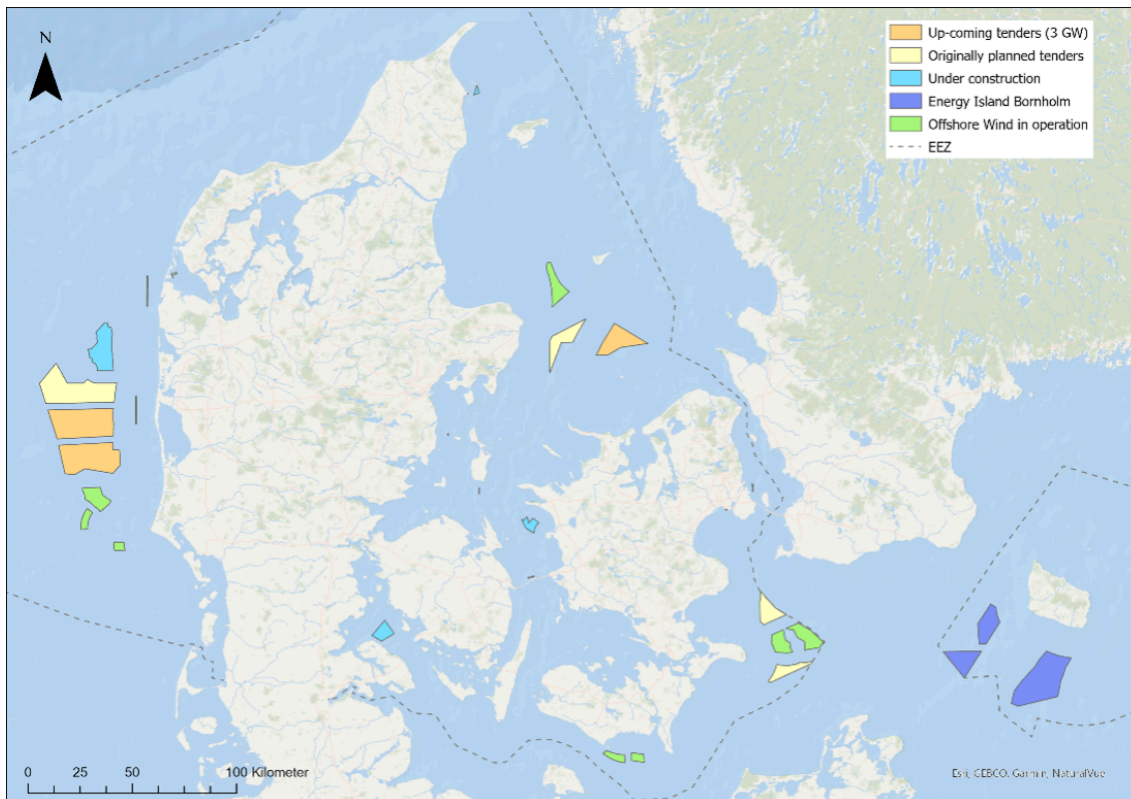
### Background

Denmark was the first country in the world to install offshore wind, and since 1991, the country has constructed 2.7 GW of offshore wind capacity, with 1.4 GW under construction. Offshore wind now covers approximately 25 per cent of the country's total electricity consumption. The country is committed to achieving its emission reduction targets (-70 per cent by 2030 vs. 1990) and aims to achieve climate neutrality by 2045. Offshore wind targets are decided by the Danish Parliament as part of its Energy Agreements, which, although binding, are not enacted in law. In addition, several informal offshore wind energy targets have been set in previous years through various agreements that act as drivers, including the signing of the Marienborg Declaration<sup>[4]</sup> and the Esbjerg Declaration<sup>[5]</sup> in 2022. Denmark and Germany have also entered into an Intergovernmental Agreement to develop the Bornholm Energy Island project, with a minimum deployment of 3 GW in the Danish Baltic Sea. This was the first binding European cooperation agreement on a joint offshore energy project.

While Denmark has spearheaded the development of offshore wind, the country has encountered significant challenges in its tendering process over the last few years. The Thor tender in 2021 marked the first instance where the successful bidder agreed to pay the state rather than receive a subsidy. The subsequent tender round in 2024, which offered no subsidies and included a requirement for state co-ownership, failed to attract any bids. The government is now preparing a new offshore wind tender for 3 GW of capacity, which includes a state subsidy.

- 
4. Finance Act (2022): Tender for 2 GW by 2030. *Klimaaf tale om grøn strøm og varme* [Climate Agreement on Green Electricity and Heat] (2022): Tender for at least 4 GW by 2030. *Tillægsaf tale om Energiø Bornholm* (2022): Tender at least 3 GW by 2030. Marienborg-Declaration (2022): Aims to develop 6.3 GW in Denmark by 2030.
  5. Esbjerg Declaration + Ostend Declaration: Aims to develop 35 GW in the Danish section of the North Sea by 2050.

**Figure 3.1: Danish offshore wind development sites**



Source: Danish Energy Agency, adapted by Brinckmann.

## Procedural framework

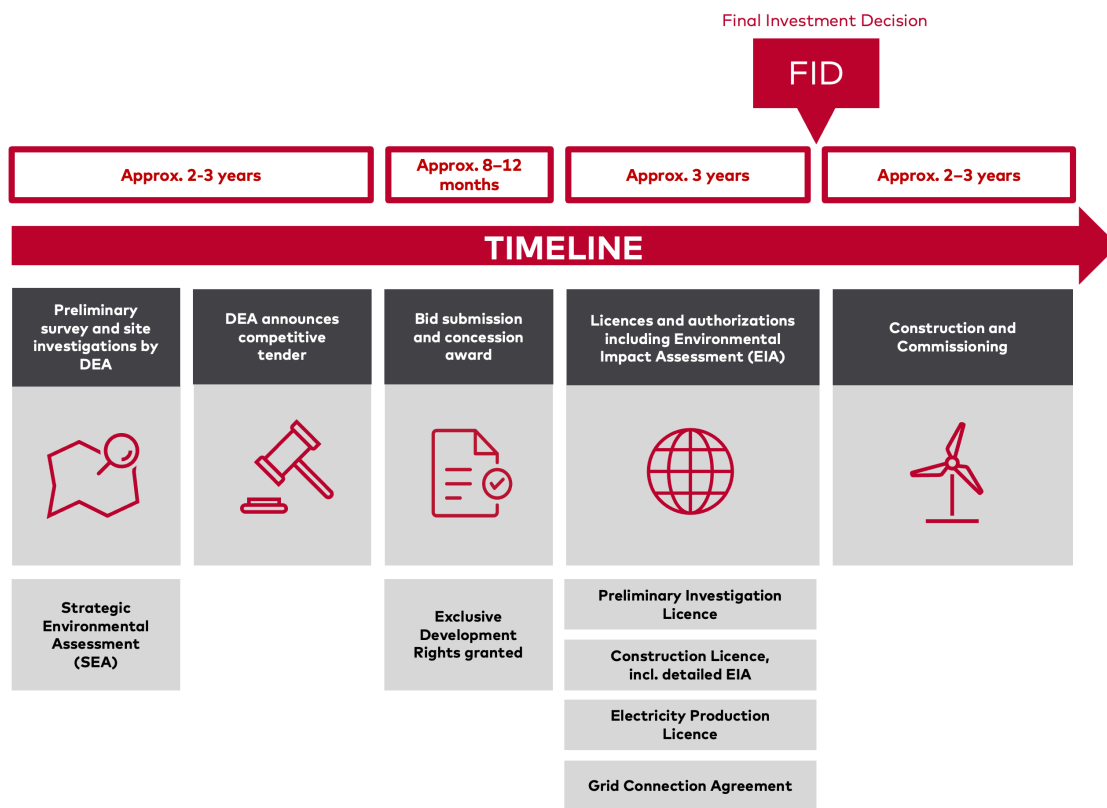
The Danish Energy Agency (DEA) serves as the primary point of contact for developers in the permitting process, as it issues the three main permits required to establish offshore wind projects. In addition to the three permits issued by the DEA, developers must obtain approvals from other authorities, for example, from the Danish Maritime Authority for the temporary and permanent marking and buoing of the work areas and the wind farm itself, and from the Danish Civil Aviation and Railway Authority for turbine lighting, among others. The DEA functions as the central contact point for the permitting process, facilitating coordination between developers and the relevant authorities.

Today, offshore wind project development in Denmark is driven through a competitive tendering procedure. In the past, offshore sites were also allocated via an open-door system, where developers could apply to build an offshore wind farm with a specific capacity at a location of their choosing, rather than the national government specifying both the capacity and area. In June 2023, the Danish Energy Agency rejected 24 open-door projects and subsequently cancelled the scheme due to concerns about its compliance with European Union (EU) state aid rules.<sup>[6]</sup>

6. Note that in May 2024, the Energy Appeals Board referred a number of previously rejected cases for re-evaluation. The outcome of this re-evaluation is still pending.

The Danish tender and permit process is illustrated in Figure 3.2. The figure shows the process for tenders prepared in 2024/25. It should be noted that several additional areas in Danish waters have been designated for offshore wind but have not yet been preliminarily assessed or included in development planning. The process is described in more detail below.

**Figure 3.2: Overview of the Danish permitting process for offshore wind**



Before a tender is issued, the DEA, through the Danish TSO Energinet, undertakes preliminary site investigations, including assessments of wind resources, seabed conditions and environmental factors such as marine mammals, birds, fish and fisheries for inclusion in the subsequent Environmental Impact Assessment (EIA). In addition, a Strategic Environmental Assessment (SEA) is conducted, covering potential environmental impacts at planning level (e.g. effects on marine biodiversity, fisheries, bird migration and ecosystems). The results from both the SEA and preliminary site investigations are made available to potential bidders in the tender.

The Danish TSO, Energinet, also prepares a potential point of grid connection onshore to be ready in time for the future wind farm owner, should they choose to connect the wind farm to the grid. The early preparation of the grid connection is intended to enable the developer to commission the wind farm in time to meet the deadline for completion of the facility. As part of this process, Energinet conducts an EIA of the onshore project, of both the point of connections (PoCs) that Energinet will own and operate, and the future wind

farm owner's portion of the onshore transmissions facilities for exporting the electricity from the offshore wind farm to the national electricity grid.

Preliminary site investigations are generally launched as soon as possible after the political decision designating the site or sites to be included in a new tender. The investigations are then conducted simultaneously with the preparation of the tender, with data and results published continuously once available. While every effort is made to finalise and make these available before the bid deadline, due to the timeline of the tender process, some results from the preliminary site investigations may only be available after the bid deadline.

The 2024 tender consists of open procedures, where any interested economic operator who can comply with the minimum requirements may submit a tender, meaning that the tenderers' financial and technical capabilities are assessed after the tender submission deadline. Before the tender is issued, the DEA conducts market dialogues with potential bidders and developers to collect feedback that may lead to adjustments in the final tender material.

After the final tender materials have been published, the potential bidders can still ask clarifying questions (Q&A) until relatively close to the bid deadline, but no major changes will be made after publication.

Once the tender submission deadline has passed, the DEA reviews and evaluates the bids. Before the concession is formally awarded and signed, regulatory screenings in accordance with the FSR and FDI frameworks are carried out. Once this has happened, the successful bidder is granted the exclusive right to develop the offshore wind farm at the specified site. Concessionaires who choose to connect the offshore wind farm to the grid must enter into a grid connection agreement with Energinet. The grid connection agreement is a standalone agreement and not an integral part of the concession, but is provided to the potential bidders to inform them of the terms of the grid connection. The concession includes obligations relating to areas such as completion milestones, guarantees and sustainability.

Following the concession award, the developer must obtain three main licences:

- Preliminary Investigation Licence: Facilitates detailed site investigations and starts the EIA process. If the project has to undergo an EIA assessment, the developer must submit an EIA report prior to applying for the construction licence. The EIA report will be subject to a public hearing.
- Construction Licence: Permits the actual construction of the wind farm.
- Electricity Production Licence: Authorises operation and electricity generation.

After obtaining the necessary licences and approvals, the developer makes the final investment decision (FID) and secures financing for the project. This step involves finalising contracts with suppliers and contractors. Lastly, the developer proceeds with the construction of the offshore wind farm, adhering to the approved project plan, the construction licence including any terms stemming from the EIA and other regulatory requirements. On completion, the wind farm undergoes testing and commissioning before commencing commercial operation.

## Textbox 3.1: Recent tenders in Denmark

The tender round held in 2024 encompassed three offshore wind sites, each with 1 GW capacity (Nordsøen I A1, A2 and A3). No form of subsidy was involved. In addition, the design included a state co-ownership of 20 per cent. The tender round closed in December 2024, after failing to attract any bids. Subsequently, the tender for the areas Kattegat (1 GW), Hesselø (0.8 GW) and Kriegers Flak II (1 GW), which was planned for April 2025, was cancelled.

In addition to the preparation of the 6 GW tenders, Germany and Denmark have entered into an Intergovernmental Agreement regarding the joint project relating to Bornholm Energy Island, involving a minimum deployment of 3 GW in the Danish Baltic Sea. This was the first legally binding cooperation agreement in Europe regulating the sharing of renewable energy target amounts. Following the zero-bid outcome of the Nordsøen I tender, the Danish government advised the parties to the political agreement that the legal framework for implementing the next phase of the Bornholm Energy Island project was not yet in place.

## Barriers

### Auction design

In Denmark, rights to build an offshore wind farm are awarded through a competitive tendering procedure. Following an attractive 2021 tender round for the Thor area that resulted in negative pricing, the Danish Energy Agency (DEA) revised the tender design. Combined with challenging market conditions, this led to no bids being submitted in 2024. The tender design resulted in higher uncertainty and an overall high investment risk due to various elements, including:

- A market-based revenue model offering no guaranteed revenue
- Uncapped negative bidding, where the developer pays for the right to build the wind farm
- Developer responsibility for grid connection and the costs for such
- A mandatory 20 per cent state co-ownership in each project
- Developer management of permitting and project-specific studies

The DEA held separate meetings with 17 companies following the failure to attract any bids for the three offshore wind farms with a combined capacity of 3 GW in the North Sea<sup>[7]</sup>. The companies acknowledged that although Denmark offers excellent wind and seabed conditions, they could not develop a viable business case. This was attributed to a combination of rising costs (CAPEX, OPEX and financing) and limited revenue prospects in the Danish electricity market (DK1), driven by low electricity prices, weak sales opportunities and uncertainties in the electricity and hydrogen markets. They emphasised that no single issue was to blame; rather, several interacting factors. Additionally, they

---

7. Danish Energy Agency (2025). Summary of market dialogue on 3 GW offshore wind in the North Sea.

noted that market uncertainties significantly increased risk premiums and return expectations.

Key proposals from market participants to increase the attractiveness and competitiveness of the tender process included:

- **Adopt a two-sided Contract for Difference (CfD):** Such a model would give developers financial support when market prices fall below the agreed benchmark, while paying the state when prices exceed it. This arrangement provides revenue stability and mitigates market price fluctuations.
- **Reduce and reallocate preliminary investigation costs:** High upfront costs relating to environmental surveys, military radar adjustments and grid connection are considered a significant burden. Proposals to tackle the cost challenges include government subsidies, spreading costs across the project period and granting developers the flexibility to conduct their own surveys to reduce costs.
- **Revenue and risk considerations:** Developers expressed concerns about low and volatile electricity prices in Denmark. Overplanting could lead to more instances of surplus energy production during low-demand periods, further depressing revenues and increasing financial risks for developers. However, without a supportive framework, overplanting might induce CAPEX/OPEX increases without assured returns.
- **Simplify and reduce project costs through targeted support:** In addition to CfDs, some developers highlighted that state funding of export cables or reductions in other costs (e.g. guarantees, penalties and radar-related expenses) would render projects more financially viable.
- **Address market risks and improve price dynamics:** Suggestions include boosting electricity demand in Denmark and enabling better integration with neighbouring markets to expand sales opportunities.
- **Develop the hydrogen market:** Addressing uncertainties in hydrogen market infrastructure and regulations (e.g. export opportunities to Germany) could improve project feasibility.

The DEA reworked the tender design to avoid a further no-bid scenario. Brinckmann's assessment of the failed 2024 tender prior to the 19 May 2025 agreement looked into the following key factors that could be considered to ensure a successful tender process<sup>[8]</sup>:

---

8. Brinckmann Report (2025). Assessment Of The Failed Offshore Wind Auction In Denmark.

- Adopt Contracts for Difference (CfDs): Provide developers with price guarantees, reducing exposure to volatile energy markets, similar to in the UK.
- Guaranteed floor prices: Establish minimum prices to enable developers to cover costs during periods of low electricity prices.
- Government-funded grid infrastructure: Transfer the responsibility for grid connections to the state or a state-owned operator.
- Cost-sharing model: Reduce the financial burden by splitting grid connection expenses between the state and developers, similar to in Germany.
- Make co-ownership optional: Give developers the choice, rather than require them, to include 20 per cent state ownership in their projects.

The 19 May 2025 political agreement addressed several of the above points by:

- introducing a support model with state-backed risk-sharing (CfDs)
- removing the requirement for state co-ownership
- introducing a new penalty regime including lower penalties for delays in the first two years, and the abolishment of double penalties
- stipulating requirements for sustainability and social responsibility (recyclable turbine blades)
- facilitating overplanting opportunities within two years of commissioning minimum capacity
- providing state support for preliminary studies and defence-related adjustments

## Limited electricity demand

Current electricity demand in Denmark, and its projected growth, remain relatively limited compared to larger nations. Renewable energy sources currently generate more than 80 per cent of the country's electricity.<sup>[9]</sup> Before the unsuccessful 2024 tender round, Denmark pursued offshore wind development for export, recognising that domestic demand was insufficient to match the significant renewable energy potential of Danish waters and their role in strengthening Europe's energy security. One key example is the Bornholm Energy Island project, which aimed to export some of its energy production to Germany. However, with shifting market conditions and renewed dependence on state aid, interest in expanding projects beyond domestic markets has cooled.

Challenging market conditions have also impacted proposed hydrogen infrastructure projects such as constructing a hydrogen pipeline from Esbjerg to the German border. Danish hydrogen exports have been a key driver of offshore wind developments as Germany could be established as a novel off-taker. However, hydrogen infrastructure construction has faced significant delays, due to factors such as regulatory and demand uncertainties, permitting processes and challenges in coordinating investments across the hydrogen value chain.

---

9. <https://www.iea.org/countries/denmark>

Overall, there is no definitive approach to promoting offshore wind development or to determining how segments of Denmark's offshore waters should be allocated for potential collaboration with neighbouring countries.

## Environmental impact assessment processes

For every new offshore wind project, a separate Environmental Impact Assessment (EIA) must be undertaken by the developer. The EIA assesses the current state of the environment to evaluate the projects' potential environmental impacts. If required, mitigation strategies are developed to ensure the offshore wind farm is developed sustainably while minimising negative environmental impacts. The Danish Environmental Protection Agency (EPA) and the DEA oversee and enforce EIA requirements for onshore and offshore projects, respectively. The following key challenges relating to the EIA process could potentially be improved to enhance offshore wind development in Denmark:

- **Knowledge-sharing:** Each new offshore wind project requires a separate Environmental Impact Assessment (EIA), based on the latest collected environmental data at the designated sites. One way in which efficiency could be improved is by highlighting available up-to-date studies and utilising real-world impact data from existing wind farms in close proximity to the planned project. Although EIAs must be based on the latest data, improving access to reusable datasets could increase process efficiency. Broader knowledge-sharing would also be beneficial, although existing data often does not sufficiently cover the specific project area.
- **Interface of the SEA and EIA:** The SEA is implemented before the tender bid deadline, in coordination with the overall maritime spatial plan and the planning of offshore wind leasing zones, while the EIA is carried out for a specific project. While both assessments fulfil their specific roles, industry experts suggested that they could be better aligned in order to reduce uncertainty and risk for developers. In particular, the SEA could define environmental mitigation measures at an earlier stage, so that developers know earlier in the process what they need to comply with.

## 3.2 Norway

### Background

The Norwegian offshore wind market is relatively immature, with an installed capacity just short of 100 MW. So far, development has been restricted to demonstration and pilot projects using floating substructures. Norway's focus on floating offshore wind reflects the country's relatively limited access to suitable shallow waters. This submarket is regarded as strategically important to the transition of the conventional oil and gas industry, which has decades of experience in designing and constructing floating substructures. The MET Centre has hosted several test turbines, and in 2023, Hywind Tampen, the world's largest floating offshore wind farm (88 MW), entered operation.

While deployment has been limited, the Norwegian government has set itself an ambitious long-term target of awarding a capacity of 30 GW by 2040. The country's first large-scale tender was completed in 2024 for Sørlige Nordsjø II, with Ventyr (Parkwind and Ingka group) emerging as the successful bidder. Sørlige Nordsjø II is a bottom-fixed project located in the North Sea with a capacity of 1,500 MW. The government also started the tendering process for three floating wind projects, each with capacity of 500 MW, at Utsira Nord. The tender was delayed due to challenges with the ESA approval process, which were clarified in April 2025. Completion of Utsira Nord is now scheduled for 2025. Although three sites will still be awarded, only one project (500 MW) will receive financial support in the initial auction, mainly due to escalating costs. (The initial plan was to award support for all three projects.)

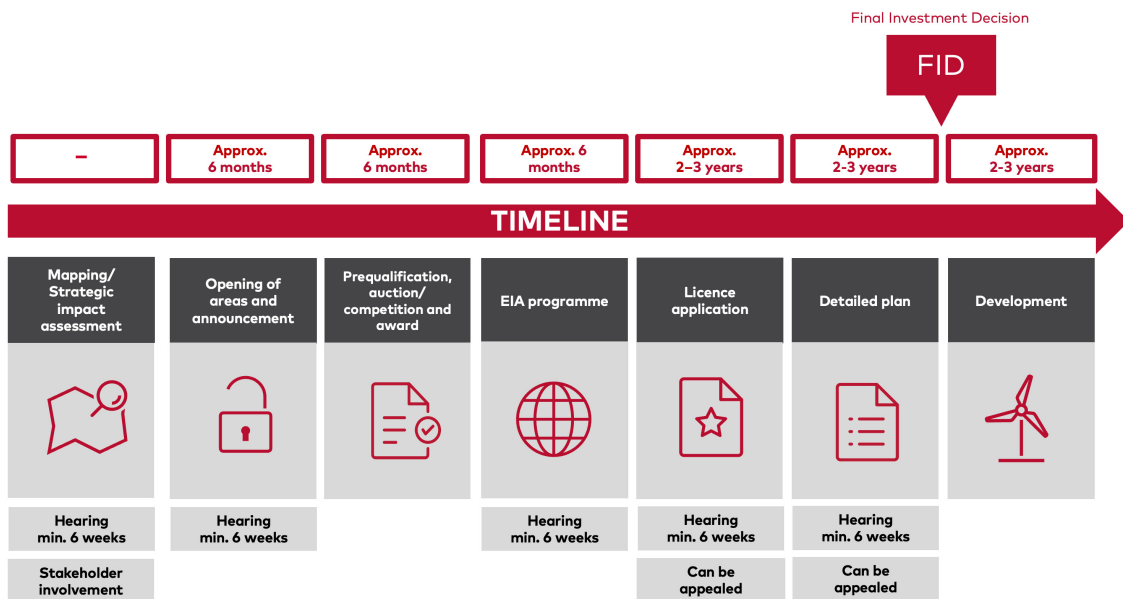
### Procedural framework

The licensing process for commercial offshore wind in Norway follows the same *procedure* whether projects are located within or outside the baseline. However, for installations outside the baseline, the authorities' decisions are made in accordance with the Offshore Energy Act (*Havenergilova*) and the Offshore Energy Regulations (*Havenergilovforskrifta*).<sup>[10]</sup> For installations within the baseline, as with onshore installations, decisions are based on the Energy Act (*Energiloven*). The main focus hereafter is on the process for installations beyond the baseline, as nearly all offshore developments in Norway are expected to occur outside this line. The figure below illustrates the Norwegian licensing process for offshore wind installations. It is important to note that there is a separate process for grid connection.

---

10. The baseline is defined as the line that follows the low-water mark along the coast of a state. You can find a map of the Norwegian baseline and offshore wind areas [here](#)

**Figure 3.3: Overview of the Norwegian licensing process for commercial bottom-fixed offshore wind**



Source: Menon Economics

In the Norwegian system, the Norwegian Water Resources and Energy Directorate (NVE) first identifies areas suitable for offshore wind deployment. After that, NVE conducts a strategic impact assessment. This assessment includes a preliminary evaluation of the potential wind farms' general and site-specific impacts. NVE also holds a dialogue with stakeholders. The goal of the strategic impact assessment is to provide a suitable basis for decision-making to determine whether it is acceptable to establish offshore wind in the relevant areas, considering environmental or other spatial and industry interests. The assessments also evaluate whether the areas are suitable for the establishment of offshore wind in light of prospects for profitable development, assessments of grid capacity and the need for any measures in the onshore grid. The assessment is conducted in cooperation with the Norwegian Offshore Directorate, the Directorate of Fisheries, the Norwegian Environment Agency, the Norwegian Coastal Administration, the Norwegian Defence Estates Agency, the Norwegian Water Resources and the Energy Directorate. Once the Ministry has decided which areas should be opened for development, the specific sites are then awarded through a competitive tender.

The Ministry can decide whether the tender should be awarded based on qualitative criteria or by auction, and whether participants need to prequalify to participate in the auction. Consequently, different types of competition may be used for different areas, as illustrated by Utsira Nord and Sørilige Nordsjø II, where the latter used prequalification before an auction was held.

The auction winner is awarded a time-limited exclusive right to carry out a project-specific impact assessment and apply for a licence. If the application is approved, developers can then make a final investment decision (FID)<sup>[11]</sup>.

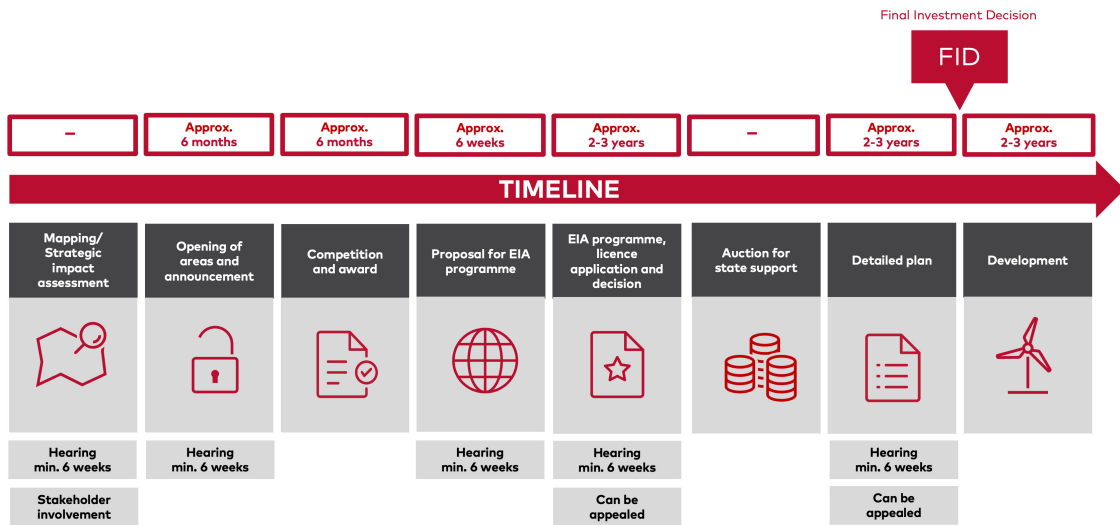
However, developers prefer to make the FID with as much information as possible. Detailed planning therefore often takes place before the FID. The detailed plan includes developers finalising concepts and submitting a detailed plan, outlining construction, transport and design specifications. Once the detailed plan has been approved and any appeals settled, construction can begin. The process includes five rounds of public hearings, which allows stakeholders to provide input. Additionally, both the licence award and the decision on the detailed plan can be appealed. Appeals against the licence award can potentially stop the whole development, whereas appeals against the detailed plan cannot overturn project approval, but may cause delays should additional information be required.

The proposed model for floating offshore wind in Utsira Nord is based on a two-stage model, where a competition for the right to develop specific sites is held first, based on qualitative criteria (see Figure 3.4). Up to three applicants will be awarded rights to one project area each: the highest-ranked "bidder" chooses first, the second-ranked chooses next, and the third is awarded the remaining area. Each winner must then propose and carry out an environmental impact assessment (EIA) for their project area and submit a concession application. Only projects with an approved concession application are eligible to compete in a subsequent auction for financial support, which is conducted as a sealed-bid process. In this auction, companies bid for the amount of state aid they require, and the project offering the lowest support per MW of installed capacity will be awarded the funding.

---

11. The timing of the FID varies among developers. According to our interviewees, the investment decision should be made after the licence has been granted, but before submitting a proposal for the detailed plan. Typically, an offshore wind developer prefers to delay the FID as much as possible. However, because the detailed plan must contain information that only becomes available once the FID has been completed, the FID must therefore be finalised before the detailed plan is submitted.

**Figure 3.4: Overview of the Norwegian licensing process for commercial floating offshore wind in Utsira Nord**



Source: Menon Economics, based on data from the Norwegian Ministry of Energy<sup>[12]</sup>

With regard to support schemes for SN II, the government has decided to use Contracts-for-Difference<sup>[13]</sup>, while Utsira Nord will use a CAPEX-based support scheme.

### Exemptions from the overarching regulations

While the general rule of the Offshore Energy Act (OEA) is that areas must have been opened for offshore wind development before licence applications can be considered, some exemptions are permitted. In "special cases", the Ministry can bypass the opening process, allowing projects to proceed directly to a project-specific impact assessment and licence application, in a kind of "open door" approach. This exemption is currently under consideration for GoliatVind, which has been characterised as a "fast-track" licensing project.<sup>[14]</sup> Similarly, the Hywind Tampen project applied the Petroleum Act as its regulatory framework, thereby avoiding a strategic impact assessment and a competitive process.

The Offshore Energy Act (OEA) also permits the detailed plan to be bypassed in "special cases", for instance where the licence application contains sufficient details about the project.

12. <https://www.regjeringen.no/contentassets/c6499948aa2a46e4bf66401e613df8e1/utlysning-utsira-nord.pdf> [20.08.25].

13. The Hywind Tampen offshore wind farm was developed to power offshore infrastructure with no cable to shore and was consequently developed in accordance with oil and gas legislation and attracted tax allowances of 78 per cent under the Norwegian oil and gas resource rent tax regime.

14. The decision on the exemption will be made together with the decision on the licence.

## Barriers

The main identified barriers to accelerating offshore wind development in Norway relate to the tender design and profitability under the current support scheme, long-term political uncertainty, procedural misalignment and inadequate data availability and sharing.

### Tender and support design

Our interviewees highlighted the political uncertainty associated with offshore wind projects in Norway as a main barrier to accelerating the development of offshore wind. To counteract the lack of profitability, the Norwegian government has introduced a support scheme based on Contracts-for-Difference, which is intended to increase the projects' profitability and mitigate the financial risks involved. However, the proposed support schemes for Sørlige Nordsjø II and Utsira Nord had to be approved by the ESA to ensure they complied with EU state aid rules. This process took longer for Sørlige Nordsjø II than initially anticipated, leading to development delays. Utsira Nord (FOW) initially planned to award areas in 2023 but did not receive ESA approval until April 2025. This led to several developers withdrawing early from the competition, as the prevailing uncertainty substantially increased project-specific risk.

Industry actors also point to the design of the support scheme itself. Norwegian CfDs include a cap on the total amount of government support available over the contract duration. Several industry stakeholders have noted that this limit creates uncertainty regarding revenue streams after the cap has been reached. This mirrors the findings in Menon Economics (2022) study on support design for offshore wind. Furthermore, as the CfD remains in force, concluding a Power Purchase Agreement (PPA) after contract signing becomes problematic, since prices above the strike price could require payments to both the government and the PPA buyer for the duration of the agreement.

It is important to note that the uncertainty surrounding the tender process should be mitigated for fixed-bottom installations and *could be* mitigated for floating offshore wind once the ESA process has been completed. This barrier should therefore be viewed as temporary.

### Political uncertainty

The Norwegian offshore wind market is also exposed to political risk, in both the short and long term. Public sentiment towards offshore wind has taken a negative turn, increasing political risk. In early September 2024, the floating offshore wind project Green Volt off the coast of Scotland acquired a CfD from the British government at a strike price of around 270 øre/kWh.

This corresponds to a Levelised Cost of Energy (LCOE) of about 210–230 øre/kWh<sup>[15]</sup>, which is significantly above the official LCOE estimate for floating offshore wind issued by NVE. This has had a significant impact on the debate on floating offshore wind in Norway.<sup>[16]</sup> Potential learning effects between Green Volt and Utsira Nord, as highlighted in several reports, and the significantly lower bids observed in the French market, have received less attention.

The short-term consequence of the cost increase, and the dwindling political support, are reflected in the tender design itself. For Utsira Nord, the government initially wanted to award financial support for three projects. Initially, the number of projects was reduced to two, a modification that could be interpreted as a design adjustment intended to ensure sufficient competition in the auction process<sup>[17]</sup>. However, in 2024 the government announced that only one project would be granted support. Even though the “losers” receive exclusive rights to develop the sites they are awarded, and will be able to apply for support in upcoming auctions, several developers decided to pull out of the competition.

Some developers have expressed concerns that they might not be able to reuse their applications if they lose a tender, as the terms and conditions for upcoming tenders have not yet been settled (irrespective of the ESA process). For instance, much of the work would need to be redone to submit a new application, which would be a costly process that adds uncertainty and risk. Moreover, both the timing and the amount of any potential award remain unclear. This uncertainty diminishes the value of the bidder's exclusive, site-specific development right, even if the bidder does not win the auction. In this way, short-term risks extend into the long term.

Increased risk with regard to long-term deployment also reduces the profitability of investments in the value chain. This barrier is especially important for floating offshore wind (Menon 2022/2024).<sup>[18]</sup> In order to leverage economies of scale during manufacture, assembly and installation, significant investments are needed, both in infrastructure and R&D. It is worth noting that this barrier also affects the European market as a whole. However, compared with the obstacles outlined in the textbox below, national policies have a greater influence on infrastructure development. This is especially true for floating offshore wind, which is still in an early development stage. If public support for offshore wind further deteriorates, political support for the Norwegian ambitions might vanish, potentially jeopardising Norwegian offshore wind endeavours as a whole.

---

15. This estimate is based on calculated expected revenue streams per kWh production. We assume an electricity price in the UK of 103 øre/kWh in 2030, 77 øre/kWh in 2040 and 70 øre/kWh in 2050. We also assume a discount rate of 6 per cent, a lifetime of 30 years, and 4,752 hours of full-capacity production per year. The capacity is 400 MW. Under these assumptions, the wind farm's income is 220 øre/kWh. To reach break-even, the LCOE cannot be higher than the expected income per kWh. Given the uncertainty of several parameters (e.g. future electricity prices), a LCOE of around 210–230 øre/kWh seems reasonable.

16. <https://energiwatch.no/nyheter/fornybar/article17950141.ece>

17. If all three sites were to receive financial support, the support would have to be granted based on a bilateral negotiation.

18. [Market development of floating and bott](#)

## Textbox 3.2: Market-related barriers to offshore wind in Norway

Several interviewees cite a potential scarcity of vessels, as well as bottlenecks in the supply chain of floating wind turbines, as important barriers to the deployment of offshore wind in Norway. The scarcity of vessels relates both to installation vessels for construction and vessels for conducting environmental impact assessments (EIA). Furthermore, there is a shortage of floating wind turbine suppliers in Europe. These turbines must withstand greater movement than bottom-fixed models and require R&D investment to be fully developed. However, uncertainty about the future market for floating offshore wind farms in Europe makes such investments in supply chain capacity unattractive for turbine manufacturers. Relying on suppliers outside Europe is risky for offshore wind developers due to geopolitical concerns.

### Procedural barriers

The process of obtaining all the required licences for developing an offshore wind farm is considered somewhat cumbersome, involving problems relating to several of the steps shown in Figure 3.3, and in particular grid connection and stakeholder involvement. While the NVE has proposed several adjustments to address many of the barriers mentioned in this section, we feel it important to highlight the impact of these barriers.

Firstly, the processes for obtaining a licence for **grid connection** and a licence for operating the wind farm are somewhat misaligned. For example, the location of the grid connection is not determined at the time of the tender. Additionally, Statnett and the developers' responsibilities are not clearly delineated. Statnett, as a transmission system operator, is not responsible for developing radial connections to offshore wind farms. As a result, developers must submit a separate licence application for grid connection when they submit a licence application for their wind farm. Finding the right route for the subsea cable and obtaining a licence for this is a time-consuming process, involving many uncertainties. The related risk is borne by the developer and many interviewees cited grid connection as the biggest uncertainty in the process.

Furthermore, our interviewees highlighted the **chronological sequencing** of different steps as a problem. This issue primarily concerns the detailed plan, which is expected to include information that becomes available only after the final investment decision (FID), for example, details about specific turbine models. From a company's perspective, it would be ideal to take the FID after the detailed plan has been accepted and potential appeals have been reviewed. This entails a significantly higher level of risk at the FID stage, reducing investors' willingness to proceed with wind farm construction and potentially slowing overall development.

Moreover, the project-specific EIA is conducted at a relatively late stage when limited data for the area is available. Several interviewees from different backgrounds pointed out that they would have liked more information to be collected and assessed as part of NVE's strategic impact assessment. Having more information at an earlier stage would

facilitate more detailed planning and reduce developer risk. With the lack of knowledge about local conditions, the risk of conducting the wrong type of assessments and encountering unexpected issues is higher. This could delay development and, in the worst case, discourage developers from submitting applications. Gaining more knowledge at an earlier stage would reduce the project's risk profile during the competition, thereby lowering the level of support required to secure adequate funding. However, collecting more data at an earlier stage entails higher costs, which must either be borne by the government or shared with prospective developers.

Another element that could delay the process is the extensive involvement of the public through five rounds of public hearings with two possibilities to appeal decisions. In particular, the public hearing of the detailed plan, and the possibility of appeals, is expected to pose a barrier due to the associated risk of delays. By this stage, the project should have gained sufficient acceptance from all stakeholders to render this round redundant. In Norway, the involvement of different authorities in the licensing process can also lead to delays in the process. Streamlining this process is regarded by the EU (and in RED III) as important to accelerate the processes.

## 3.3 Sweden

### Background

Sweden currently has four offshore wind power farms, comprising 79 fixed-bottom turbines with a total installed effect of 190 MW. This includes Lillgrund (110 MW), Kårehamn (48 MW) and Bockstigen (2.75 MW), as well as Vänern (30 MW), located in a lake. Four other offshore projects have received valid permits. The Swedish government has set a planning target for the national electricity system, aiming to meet a demand of at least 300 TWh by 2045.<sup>[19]</sup> However, Sweden has no specific national target for offshore wind production.<sup>[20]</sup>

In late 2024 and early 2025, the Swedish government carried out a substantial amount of work relating to offshore wind power. SOU (2024:89) aims to propose a more efficient and transparent system for environmental assessment of offshore wind power. The report recommends that Sweden establish an auction system where the government designates feasible, exclusive areas for offshore wind power. The proposal has been referred for consultation, and further work is currently ongoing within the Government Offices of Sweden. The Swedish Agency for Marine and Water Management, together with other authorities, has developed proposals for new marine plans. These plans identify suitable areas with an additional electricity production potential of 90 TWh compared with the current marine plans. SOU (2024:98) proposes measures to simplify and shorten the licensing process under the Environmental Code by making assessments more flexible, efficient and predictable. The changes are expected to be implemented in 2027/2028.

The reports mentioned above are motivated by the need for more efficient planning processes to fuel the green transition and to implement new EU directives (see [chapter 2](#)). Handling will take time, and the outcome remains uncertain. In the following, we base our analysis on the current approval situation in Sweden.

### Procedural framework

The overall licensing process for offshore wind power in Sweden is quite similar to the licensing process for onshore power. The process is initiated and led by the developer and as such differs from in the other Nordic countries. There are certain differences between the licensing process for projects in territorial waters (within 12 nautical miles, or approximately 22 km from the coast) and those in the Swedish Exclusive Economic Zone (12–200 nautical miles, or up to about 370 km offshore). The main aspects of the processes are summarised in Figure 3.5 and Figure 3.6. However, the greatest differences primarily concern which stakeholders hold decision-making authority at the various stages.

---

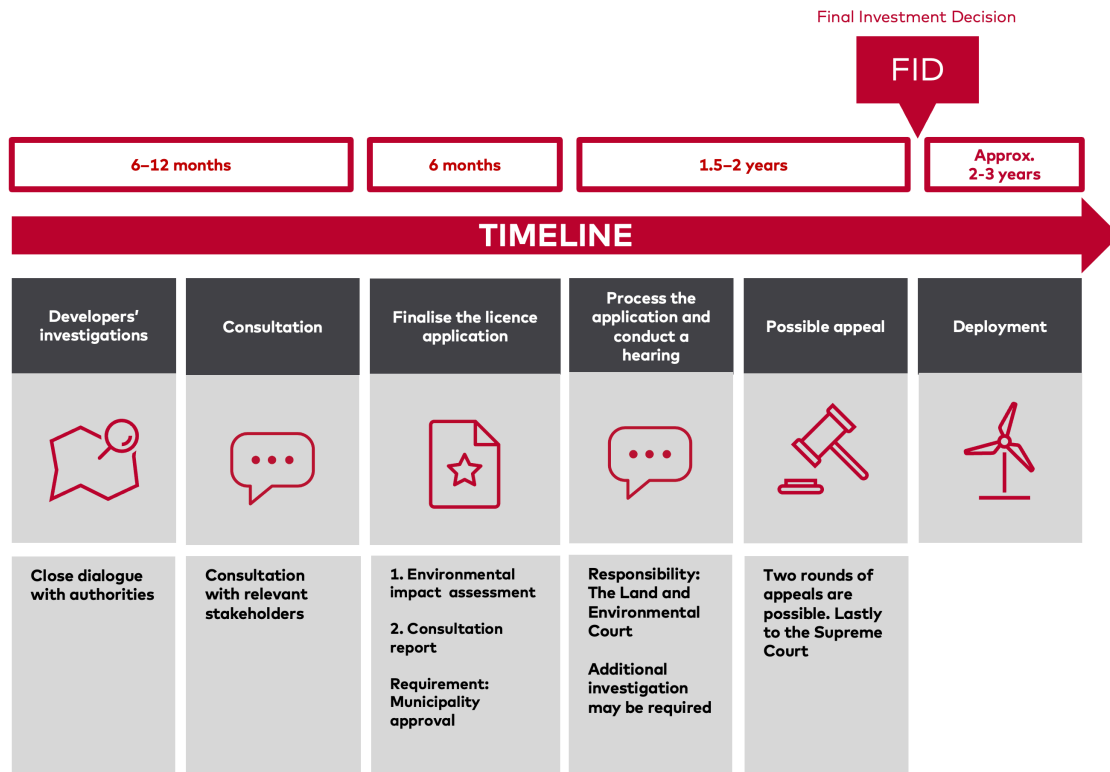
19. <https://www.regeringen.se/regeringens-politik/regeringens-prioriteringar/klimat-och-energi/>

20. The Swedish Agency for Marine and Water Management recently published new marine plans in Sweden. This work was carried out in collaboration with several directorates. The new marine plans identify areas suitable for offshore wind and indicate a potential for a total of 120 TWh in Sweden. However, this does not represent a national offshore wind target.

## Territorial waters

The licensing process for wind farms within territorial waters is based on the same legislation as for onshore wind and is conducted according to the Environmental Code. However, several other pieces of legislation must be followed, and the developer must obtain several permits throughout the process.

**Figure 3.5: Overview of the licensing process for offshore wind in Swedish territorial waters**



The Environmental Code regulates environmental protection and the management of natural resources in Sweden. The law aims to promote sustainable development by protecting people and the environment from harm and preserving biological diversity, and covers areas such as nature conservation, water management, noise pollution and industry plans.

In an offshore wind project, the developer initiates the process by independently identifying suitable areas for development. This process takes place in close consultation with authorities, mainly the municipality. A central element of this process involves determining whether the project will have significant environmental impacts. The municipality holds the right of veto and therefore wields considerable influence over the project throughout the licensing process. This approach is similar to that used for onshore wind power.

If the seabed in the relevant area has not been previously explored, a separate permit for seabed exploration is required under the Continental Shelf Act<sup>[21]</sup>. Such a permit is also required before electrical cables are installed on the seabed. Initially, the seabed surveys, as well as other investigations and studies, should lead to an informal consultation with the County Administrative Board (*Länsstyrelsen*), and with local and other stakeholders. The consultation is a meeting in which the project's advantages and disadvantages are presented to stakeholders, allowing them to provide input. The developer is responsible for preparing, sending out invitations to, and conducting the consultation, as well as writing a consultation report afterwards.

If the municipality supports the project, the developer can submit a licence application to the Land and Environment Court (*Mark- och miljödomstolen*). An application must include the consultation report and an environmental impact assessment. The Land and Environment Court processes the licence application and sends it for public hearing. The licensing process may lead to requirements for additional studies and can impose various conditions on the project. The decision can be appealed, initially to the Land and Environment Court of Appeal, and subsequently to the Supreme Court. If the project is granted a final licence, it must still go through a stage of detailed planning and a final investment decision before construction of the wind farm can begin. In connection with the licence application, the developer must secure access to the water area and obtain permission for water activities. In addition, a separate process is required to acquire an electricity grid licence and approval to install seabed cables. It is also important to note that Sweden currently has no subsidy scheme for offshore wind power. Whether and when such financial support will be made available is uncertain.

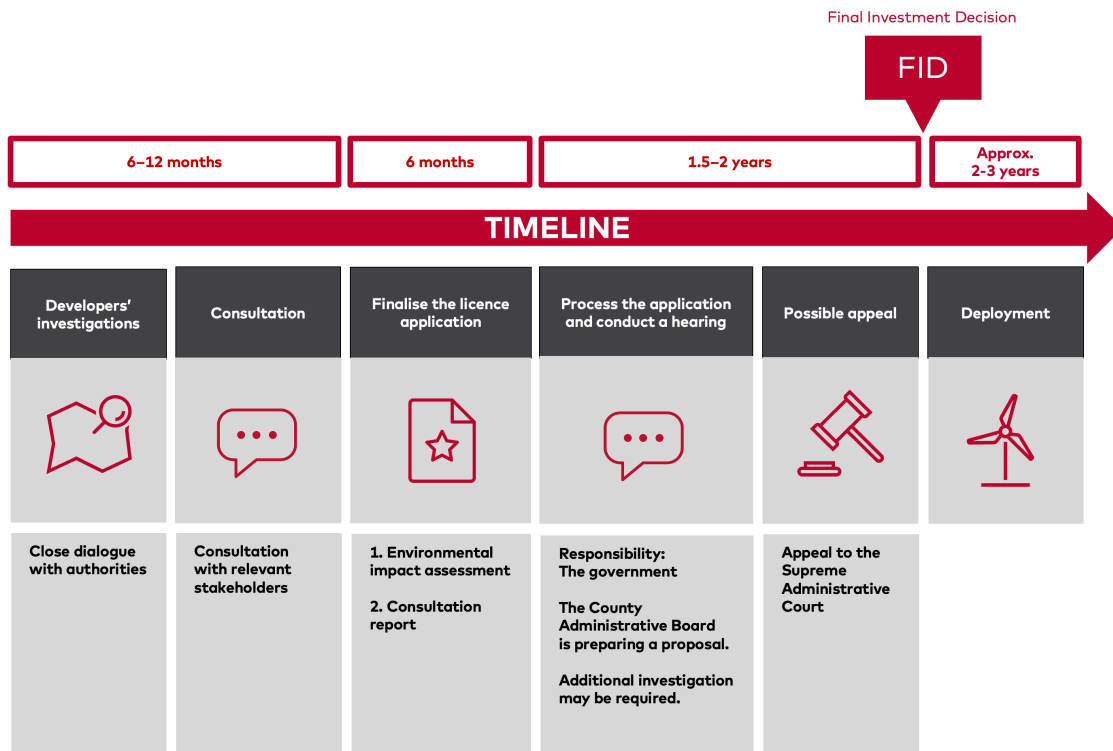
### **Swedish Exclusive Economic Zone (SEZ)**

The licensing process for wind farms in the Swedish Exclusive Economic Zone is conducted according to the Act on Sweden's Exclusive Economic Zone. The steps of the process align well with those for territorial waters; however, other key stakeholders and different actors are responsible for licence evaluation.

---

21. <https://lagen.nu/1966:314>

**Figure 3.6: Overview of the licensing process for offshore wind in the Swedish Exclusive Economic Zone**



Compared with projects in territorial waters, municipalities have less influence and no power of veto. The Government Offices of Sweden are responsible for evaluating licence applications within the Swedish Exclusive Economic Zone. The County Administrative Board is typically asked to conduct the public hearing and prepare a draft decision, but the Government Offices make the final decision. In the event of an appeal, the Supreme Administrative Court is the appellate body. As with territorial waters, there is a separate process for grid connection.

## Barriers

### Developer-led processes

The developer-led process in Sweden facilitates market entry but also requires developers to invest significant time and resources during the early stages of a project. Close dialogue with the authorities in the early stages of the process is expected to guide developers toward the most suitable areas for deployment. However, developers bear considerable financial risk, an issue that is highlighted below in relation to municipal power of veto and potential conflicts with defence interests.

## Municipal veto

Since 2019, 40 per cent of Swedish offshore wind projects have been stopped due to municipal vetoes.<sup>[22]</sup> The veto provision does not specify when the municipality must make its final decision, other than that it must occur before the authority issues its own decision. Municipal approval granted in the early stages of the process may later be withdrawn or replaced by rejection. There are no requirements for the municipality to justify its decision, and the decision cannot be appealed.<sup>[23]</sup> The municipal veto therefore represents a significant risk for offshore wind developers in Swedish territorial waters.

The municipality's stance on offshore wind is closely linked to the population's attitudes. Our understanding is that there is significant opposition to offshore wind development among the Swedish population. The fishing industry, as a strong stakeholder, is clearly opposed to offshore wind development and effectively communicates its concerns. Offshore wind power imposes restrictions on industrial trawling in the affected areas. Impacts on biodiversity, with a focus on porpoises and certain migratory birds, are other important counter-interests against offshore wind that receive public attention. Although there are both benefits and drawbacks to offshore wind development and fishery activities, it appears reasonable to assume that the prevailing opposition to offshore wind is influencing the municipalities' perspectives.

The municipalities' limited incentives to approve offshore wind power deployment in coastal areas have reinforced the NIMBY effect.<sup>[24]</sup> Negative impacts of wind power deployment, for instance aesthetic aspects and land use, affect local inhabitants. Meanwhile, property taxes from the projects are paid to the national authorities, not the local authorities. However, the government has recently allocated SEK 700 million in the budget for 2025–2027 to support municipalities that have developed or are developing wind power.<sup>[25]</sup> The financial transfer is largely based on the total amount of property tax paid by wind farms to the national authorities, with all municipalities hosting wind turbines receiving a proportional share of the funds. This funding is set for a period of three years, after which further financing is reviewed. The government is also preparing measures to implement proposals that would allow local communities to receive a share of revenues from wind farms, grant nearby residents the right to a portion of the income, and give owners of adjacent properties the option to redeem their property at a price reflecting its value had the wind farm not been built. These proposals aim to improve the conditions for efficient expansion of wind power through strengthened municipal incentives and increased local benefits and acceptance. Additionally, to facilitate an efficient review process locally, the County Administrative Boards are allocated money to prepare offshore wind power cases in the Economic Zone.

---

22. <https://www.europower.no/vindkraft/kommunal-vetorett-i-sverige-har-stanset-75-prosent-av-vindkraften-og-40-prosent-av-havvinden/2-1-1725692>

23. <https://svenskvindenergi.org/fakta/det-kommunala-vetot-kommunal-tillstyrkan>

24. NIMBY | Engelsk betydning – Cambridge Dictionary

25. <https://regeringen.se/rattsliga-dokument/proposition/2024/09/prop.-2024251>

## Swedish defence interests

In November 2024, the Swedish Government announced its decisions for 14 offshore wind applications.<sup>[26]</sup> In total, 13 of the 14 applications, including all projects in the Central Baltic Sea and the Baltic Proper, were rejected, with the justification that security policy considerations and defence interests outweighed other concerns, see Figure 3.7.

The Armed Forces take part in the initial consultation process when developers assess potential areas for offshore wind power within the Exclusive Economic Zone. In consideration of the security policy situation, and to avoid disclosing security information, the Armed Forces are cautious in their statements. The handling of cases within the Swedish Armed Forces can take considerable time, sometimes up to a year, and developers often find it difficult to anticipate the outcome. This causes risk for developers and represents a barrier to wind power development, but could be resolved through a more centralised site allocation system.

---

26. <https://www.regeringen.se/globalassets/regeringen/dokument/klimat--och-naringslivsdepartementet/dokument/presentationbilder-fran-presstraff-den-4-november-2024-om-havsbaserad-vindkraft-.pdf>

**Figure 3.7: Swedish offshore wind power projects. Red projects have been rejected, green projects have been approved and orange projects are pending**



Source: The Swedish Government<sup>[27]</sup>

## Grid connection

In an auction-based offshore wind system with pre-defined development areas, the strategic assessment often involves outlining where the power can be fed into the grid. In Sweden, offshore wind developers can apply to develop wind power anywhere, and there is no systematic plan with regard to allocation of grid capacity. Additionally, recent governments have emitted varying signals regarding who should bear the costs of the grid connection. The previous government had a policy in place requiring the state to finance the land connection, but the current government has repealed it. That was the main reason cited by Vattenfall for its decision to pause the Swedish Krieger Flak project at a very late stage in preparations due to a current lack of profitability. Developers therefore face significant uncertainty regarding the location and timing of potential connection points, and the share of the grid costs that the project will have to cover. It is estimated that grid costs can constitute about one-sixth to one-third of the total costs of an offshore wind project.

27. [www.regeringen.se/globalassets/regeringen/dokument/klimat--och-naringslivsdepartementet/dokument/presentationsbilder-fran-presstraff-den-4-november-2024-om-havsbaserad-vindkraft-.pdf](http://www.regeringen.se/globalassets/regeringen/dokument/klimat--och-naringslivsdepartementet/dokument/presentationsbilder-fran-presstraff-den-4-november-2024-om-havsbaserad-vindkraft-.pdf)

## **Political uncertainty**

Different governments have shown different ambitions and degrees of willingness to invest in grid connections and offshore wind in general, albeit without making a clear commitment. As such, Sweden still lacks specific targets for offshore wind development.

## **Data availability and sharing**

Under the developer-led, open-door process in Sweden, developers can plan projects where they want and different developers can investigate the same areas for offshore wind deployment. This means that seabed exploration and data collection are financed by the developer and data sharing between competitors is not rational. Additionally, collecting, storing and sharing of bathymetry data in the territorial waters are generally forbidden due to security aspects. The licence application must be made public, but the data submitted to the authorities does not have to be disclosed. This results in less cross-learning among companies and data costs being higher than they could be.

## 3.4 Finland

### Background

Finland currently has one offshore wind farm in Pori, comprising 11 fixed-bottom turbines. [28] Several offshore wind projects are currently being planned and are undergoing assessment, including the Halla Offshore Wind Farm, which has a projected annual electricity production of 12 TWh. [29] However, whether these projects will reach a final investment decision remains uncertain, as Finland has not established a support scheme for offshore wind and is currently revising its licensing process, particularly within its EEZ. In response to increasing demand for renewable energy, Finland has implemented reforms to its licensing process to facilitate quicker and improved approval for wind energy projects. The Ministry of Economic Affairs and Employment has formed a coordination group for offshore wind power to oversee the sector, plan timelines and select areas for development, both in territorial waters and the EEZ. The group will additionally propose improvements in and streamline the licensing process. [30] The Ministry also established a working group to suggest measures to enhance Finland's competitive position in offshore wind power production compared to other Baltic Sea countries and to advance other offshore wind power objectives outlined in the Government Programme. [31]

### Procedural framework

The licensing procedures differ between territorial waters and the EEZ. In the following sections we provide a brief overview of the process, before we discuss the main barriers to deploying offshore wind in Finland.

### Territorial waters

There are two key stakeholders involved in the development in territorial waters: Metsähallitus and the municipalities. The municipalities are the spatial planning authorities, who play a similar role to in onshore land areas and facilitate wind power development in their regions through maritime spatial planning and building permits. Metsähallitus manages all government-owned sea (and land) areas, and is generally the landowner in the territorial waters, and leases state-owned areas to developers.

Initially, feasibility studies and exploration are conducted to identify suitable sites for wind power in territorial waters, taking into account wind and seabed conditions while avoiding conflicts with other interests. In areas it owns, Metsähallitus conducts the initial surveys and identifies suitable locations in collaboration with the municipalities. [32] Often, the areas to be surveyed must be pre-designated for offshore wind development in the

---

28. Renewables Finland. Offshore wind power. Available [here](#).

29. <https://www.offshorewind.biz/2025/02/12/eia-report-filed-for-2-4-gw-finnish-offshore-wind-project/>

30. The Ministry of Economic Affairs and Employment (2024). New coordination group to intensify national cooperation in promotion of offshore wind power. Available [here](#).

31. An overview of the action plan and measures proposed by the working group can be found [here](#).

32. Metsähallitus. Offshore wind power is a decade-long project. Available [here](#).

municipalities' spatial plans in advance. When Metsähallitus identifies suitable areas for wind power development that have been approved by the municipality, it typically holds a competitive tender for these areas to find a developer to lease them.<sup>[33]</sup> Additionally, all offshore wind farms require Defence Forces' approval, which should be sought early in the identification process, due to their power of veto.<sup>[34]</sup> In the initial phase, a flight obstacle permit is also required from Traficom to ensure that the turbines will not obstruct air traffic.<sup>[35]</sup>

After suitable areas have been identified and a developer has been awarded the tender for the area by Metsähallitus (or other landowners), and received approval from the Finnish Defence Forces, they can begin work on the Environmental Impact Assessment (EIA) and Master Plan. These are often developed simultaneously. The developer must contact the ELY Centre to determine if the EIA procedure is required and, if necessary, initiate the EIA process.<sup>[36]</sup> The ELY Centre, which is responsible for carrying out regional implementation and development tasks on behalf of the central government, approves the EIA. The Master Plan is a detailed land use plan for the offshore wind power project that must be approved by the municipality.

In the final phase of the licensing process, the developer must obtain several remaining permits.<sup>[37]</sup> A building permit is issued by the municipality's building inspector and can be granted after the municipality approves the Master Plan, and construction cannot start until both the Master Plan and building permit are legally valid.<sup>[38]</sup> An ELY Centre statement on the EIA must be attached. A water permit from the Regional State Administrative Agencies (AVI) is needed for water use. After this, construction of the wind farm can begin. Note that grid connection also requires a range of permits, which have their own processes that can also be extensive and time-consuming.<sup>[39]</sup> The process is illustrated in the figure below.

---

33. Metsähallitus. Our offshore projects. Available [here](#).

34. All wind turbines exceeding a total height of 50 metres require approval from the Finnish Defence Forces before the wind power project can proceed. In practice, this means that all industrial-sized wind farms always require such approval.

35. Metsähallitus. Offshore wind power is a decade-long project. Available [here](#).

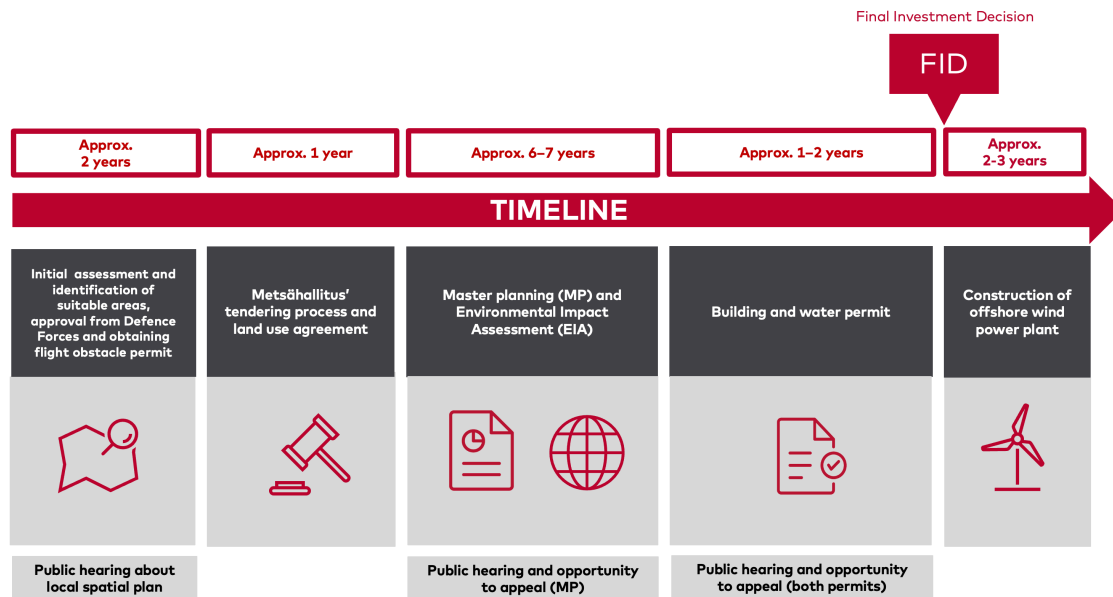
36. Required for projects comprising more than ten turbines or 45 MW. The ELY Centre may also require EIA for smaller projects in sensitive environments or with similar impacts.

37. An environmental permit is not usually required from the municipality's environmental inspector, unless hydrogen production is being constructed in connection with the wind farm.

38. Renewables Finland. Permitting process. Available [here](#).

39. In the same way as the power line permit for constructing the offshore substation, the submarine cable and the onshore connection cable.

**Figure 3.8: Overview of the licensing process for offshore wind in Finland's territorial waters**



## Exclusive Economic Zone

The licensing process for offshore wind in Finland's Exclusive Economic Zone has recently changed following the introduction of the new Act on Offshore Wind Power in the Exclusive Economic Zone from 1 January 2025.<sup>[40]</sup> The Act introduces a tendering process for the rights to exploit and develop offshore wind in Finland's Exclusive Economic Zone. The new procedure includes the following steps: 1) The government identifies offshore wind power areas to be opened up to tender, considering various societal interests such as maritime transport, fishing, the Defence Forces and wildlife. 2) The Energy Authority organises the competitive tendering process for the areas selected by the government.<sup>[41]</sup> 3) The winner of the tendering process is granted exclusive rights to apply for an exploration and utilisation permit from the government for the designated area. It should be noted that the licensing process in the EEZ is undergoing changes, which means there is some uncertainty regarding the current process and how it will look in the future.

The exploration and utilisation permit grants rights to utilise the area for a specified period. The duration of this period has not yet been determined, but this is crucial as it forces developers to proceed with projects. A time-limited permit ensures that developers do not sit on project rights while waiting for higher electricity prices or lower construction

40. The Ministry of Economic Affairs and Employment (2024). Act on Offshore Wind Power in the Exclusive Economic Zone enters into force – First tenders could be organised at the end of 2025. Available [here](#).

41. Details regarding which areas will be opened up to tender and how they are identified are still being finalised, along with the criteria for selecting the tender winners. The government aims to select the first areas for tendering in the autumn of 2025.

costs, a practice that could slow the pace of offshore wind development. Additionally, if the winner of the tendering process chooses to not apply for an exploitation and utilisation permit, the second-best tenderer will be allowed to apply immediately. This allows for quicker project development compared to restarting the tendering process from scratch, should the winner decide not to explore or develop the area.<sup>[42]</sup>

The new tendering process will not only accelerate development due to the limited duration of exclusive rights but will also reduce the financial risk for developers. With exclusive rights, they can invest in exploration without the risk of competitors preemptively developing the area if it proves economically viable. Under the previous system, the legislation allowed several exploration permits to be granted for the same area, without giving priority to the entity that carried out the investigations for project development. This could lead to complications if the area was suitable for offshore wind and the project was financially viable.

An exploitation permit alone does not guarantee that the project will be implemented, as this requires additional permits. This includes obtaining a water permit from the Regional State Administrative Agencies (AVI) for the use of the water. The developer is also required to carry out an Environmental Impact Assessment (EIA) for the wind power project, which must receive government approval. If the project has cross-border effects, it must follow the procedure set out in the Convention on Environmental Impact Assessment in a Transboundary Context. Under the Territorial Surveillance Act, a permit for exploration and surveys from the Finnish Defence Forces is generally not required for projects located in the Exclusive Economic Zone. However, a permit is required to run cables through territorial waters.<sup>[43]</sup>

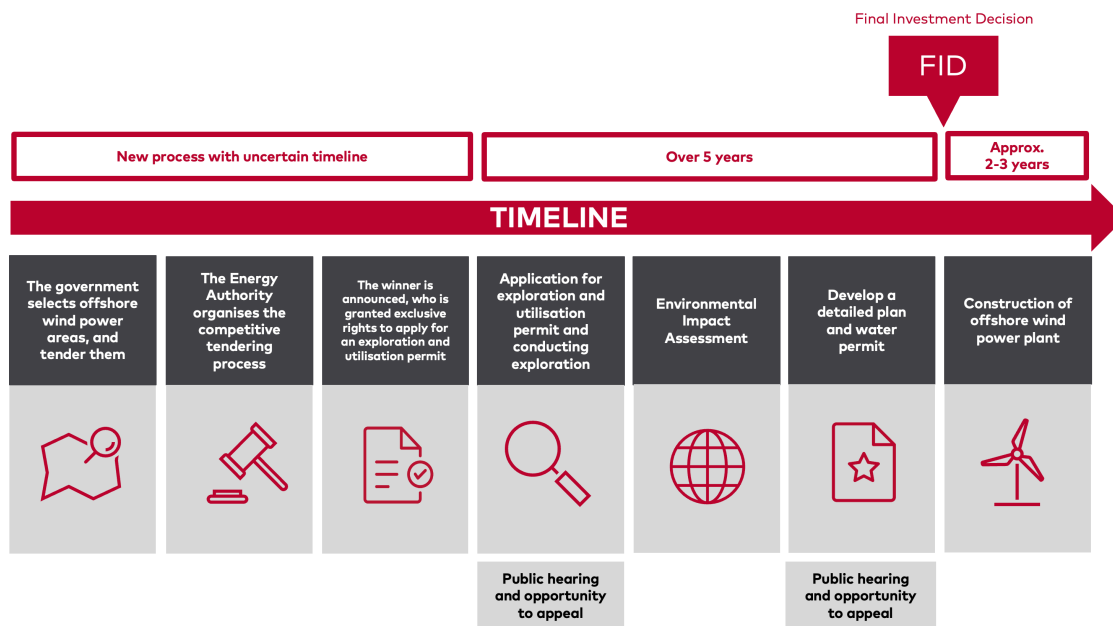
Once all necessary permits have been obtained, the developer can start project development. See the figure below for an overview of the licensing process for offshore wind in Finland's Exclusive Economic Zone. It is important to note that Finland has not established a financial support mechanism for offshore wind. As such, even projects that are regarded as mature with regard to the licensing process could face significant risk in terms of financial profitability. The latter is discussed in more detail below.

---

42. In addition, the rule limiting a single bidder to winning only one area, even when multiple areas are tendered simultaneously, has been removed.

43. The Finnish Defence Forces also provide their assessment of the project's suitability to the government when multiple areas are being considered for exploitation and utilisation permits.

**Figure 3.9: Overview of the licensing process for offshore wind in Finland's Exclusive Economic Zone<sup>[44]</sup>**



## Barriers

### Profitability

A primary barrier to expanding offshore wind energy in Finland is the lack of profitability. High development costs and low electricity prices make it difficult to secure profitable projects. Unlike some other markets, Finland has no government support schemes such as Contracts for Difference (CfDs), leaving developers to shoulder most of the risk in achieving profitability. Financing for such projects typically relies on securing Power Purchase Agreements (PPAs). However, securing these agreements can be challenging. Additionally, the long development timelines create significant uncertainty regarding electricity prices when the wind farm becomes operational.

### Grid connection

A significant barrier cited by many stakeholders is grid connection, which often creates a bottleneck in projects and hinders their realisation. The grid connection process is not integrated into the licensing process for offshore wind, which can lead to several practical issues. Grid connection is not guaranteed, even if an operator wins a tendering process for an area, either within territorial waters or the EEZ. Grid connection is crucial for the project's feasibility, and clarifications regarding grid connection should be made as early as possible to ensure that the project is viable in practice. In Finland, however, grid connection is resolved at the end of the process when all other elements are in place. This creates significant uncertainty for developers with regard to cost and project progress.

44. This figure is somewhat uncertain due to ongoing changes in the licensing procedure.

Fingrid<sup>[45]</sup> has provided seven connection points for grid connection to the mainland, intended for offshore wind. One of these is in the Gulf of Finland and cannot be used due to security concerns to the east, leaving only six viable connection points. Stakeholders we have spoken to say that the current maximum capacity of 1,400 MW per connection point is too low for several potential offshore wind farms, which could each require two connection points. The low capacity could also lead to a situation where, if multiple projects are attempting to connect at the same point in the same area, only the first would have capacity, preventing others from connecting. Several stakeholders suggest that grid connection should be clarified earlier and that authorities should facilitate this when tendering areas.

## **Finnish Defence interests**

Wind turbines taller than 50 metres require approval from the Finnish Defence Forces and TUVE<sup>[46]</sup> before a project can proceed.<sup>[47]</sup> Approval must be obtained early to prevent them from stopping the process at a later stage. The requirement stems from the potential interference of turbine movement with surveillance equipment like radars. This statement may be favourable or unfavourable. Alternatively, the Defence Forces may require the operator to commission the VTT Technical Research Centre of Finland to carry out a more detailed assessment of how the wind turbines affect their sensors. Additionally, construction and cable and grid installation must consider the Defence Forces' cables.<sup>[48]</sup> The military can block projects that conflict with their activities, particularly in eastern Finland near Russia, making development in the Gulf of Finland and other strategic areas impossible.

## **The regulatory framework does not accommodate specific offshore wind needs**

The current licensing process consists of a broad spectrum of laws and regulations that apply to offshore wind development, without a well-conceived process for the development. This can result in unnecessarily lengthy processes and increased risk for developers. This issue has been partially improved by the new tendering process in the EEZ; however, some parts of the process for offshore wind have still not been streamlined, such as obtaining a water permit. The Water Act was drafted before offshore wind development was feasible in Finland. Stakeholders believe that adapting and streamlining this permit would offer significant benefits in terms of accelerating offshore wind projects. Finland's offshore wind working group has proposed aligning the water permit process with the rest of the permitting procedure.

Some stakeholders we have spoken to also point out that having different processes for territorial waters and the EEZ is unfortunate, especially given the somewhat limited offshore wind potential. This results in numerous governmental authorities working on the same challenges independently, leading to fragmented expertise and inefficient management.

---

45. A Finnish limited company that operates the transmission network in Finland. The Finnish state is the majority owner of the company.

46. Government Security Network.

47. Finnish Defence Forces. Available [here](#).

48. Renewables Finland. Available [here](#).

## Lack of data sharing

To identify areas best suited for offshore wind and develop projects that do not conflict with other interests, it is essential to map maritime wildlife, other business interests and seabed conditions. In Finland, authorities conduct limited surveys before areas are tendered in the EEZ but more extensive surveys in the territorial waters, which means the majority of exploration and surveys are carried out by the companies in the EEZ. Some stakeholders state that this leaves companies with limited knowledge of the areas they are bidding for, increasing their exposure to risk if the sites later prove unsuitable for offshore wind development. In territorial waters, Metsähallitus conducts more comprehensive assessments before auctioning areas. It also shares this data with all interested parties considering bidding for the area. This approach reduces risk for developers, as they have more information, and prevents duplication of effort in conducting assessments.

Under the previous process in the EEZ (prior to the new tendering process), multiple companies surveyed the same areas at the same time. The lack of exclusivity over areas results in less data sharing and duplicate exploration efforts. This increases financial risk for developers and reduces data sharing. The stakeholders report that the introduction of exclusivity over areas does not necessarily lead to increased data sharing. The reason is that companies have no incentive to share data.

## Practical challenges

Some practical challenges pose barriers to deploying offshore wind energy in Finland. One issue is that Finnish sea areas often freeze during the winter months. This situation complicates the construction of offshore wind farms and renders floating wind solutions almost impossible to implement. The reliance on bottom-fixed installations presents a further challenge, as many areas, especially within the EEZ, are too deep. Nevertheless, there are several locations that are suitable for the development of bottom-fixed offshore wind farms.

Another practical challenge that could impede the pace of offshore wind development in Finland is the height of the Øresund Bridge, which connects Denmark and Sweden. All vessels heading to Finnish territorial waters and the EEZ must pass under this bridge. The problem arises because wind turbine installation vessels are typically very tall, as they require high cranes for turbine installation. Some of the vessels are too large to pass under the Øresund Bridge, which reduces their availability and may lead to increased waiting times. This situation could create a bottleneck, particularly since next-generation offshore wind turbines are generally taller, necessitating vessels with even higher cranes. Recent studies indicate that only 4 out of 44 installation vessels are too large to navigate under the bridge,<sup>[49]</sup> meaning that this is likely a limited barrier at the present time. However, as turbines, and the vessels servicing them, grow larger, the problem is likely to become more significant in the future.

---

49. Wind Europe (2022). Offshore wind vessel availability until 2030: Baltic Sea and Polish perspective. Available [here](#).

### Textbox 3.3: Factors accelerating the development of offshore wind in Finland

While we identify a number of barriers to the development of offshore wind in Finland, we also recognise factors that help accelerate this development.

**Municipal property tax:** In Finland's territorial waters, municipalities hold significant authority in the licensing process for offshore wind projects, as they are the planning authority and in charge of spatial planning in their areas. Wind power installations, both onshore and offshore, pay property taxes to the municipalities. Property tax revenue can be a substantial incentive to accelerate development within the territorial waters. Consequently, offshore wind projects encounter little local opposition, as some of the revenue from the power plants benefits the municipalities. However, there have been discussions about redistributing these funds among municipalities, which could diminish the local incentive to develop wind power.

**New tendering process for exclusive rights in the EEZ:** The new licensing system in the EEZ introduces a tendering process granting exclusive rights to apply for exploration permits and subsequent development, thereby speeding up project progress compared with the previous system. Firstly, exclusivity over areas reduces financial risk for developers during exploration and development. Secondly, allowing the second applicant to apply for an exploration permit if the first does not, enables another entity to immediately exploit the area without needing to restart the entire process. Thirdly, the time limitation on exclusive rights prevents developers from holding onto the rights while waiting for higher electricity prices and lower development costs, requiring them to proceed with construction once they have the rights. Fourthly, authorities will likely select areas where development is less likely to conflict with other interests, increasing the likelihood that developers will obtain other necessary permits, such as water permits or approval from the Defence Forces. It is, however, still unknown how the areas designated for tendering will be selected and to what extent the authorities will survey these areas, as well as the degree to which they will coordinate with other interests.rway.

## 3.5 Iceland

### Background

Iceland currently has no deployed offshore wind farms. Historically, the abundance of geothermal and hydropower has been more than sufficient to meet the country's energy needs. Hydropower generates approximately 70 per cent of the country's electricity needs, with the remaining 30 per cent generated by geothermal power plants (IRENA, 2024). In the future, Iceland expects a significant increase in demand for electricity due to the decarbonisation of road transport, shipping and fishing vessels, as well as growth in power-intensive industries like data centres. The extra supply of electricity is expected to primarily come from wind and geothermal sources, and to a lesser extent from additional hydropower, given the smaller potential for further hydropower development (The National Regulatory Authority, 2024).

When it comes to offshore wind, there are currently no projects in the pipeline under review by the energy authorities. Iceland lacks a policy framework and specific legislation for offshore wind development, indicating that the country is still in a premature phase regarding this sector. However, the fact that several companies have expressed interest in developing offshore wind in Iceland suggests that such projects are likely to materialise in the country in the future. Iceland is currently developing an Energy Production strategy and roadmap which will presumably include all energy sources, including onshore and offshore wind.<sup>[50]</sup>

### Barriers

While laws and policies do not necessarily need to be established before the development of offshore wind, having them in place would greatly facilitate the process. Iceland's experience with fish farming, which initially faced regulatory challenges similar to those expected for offshore wind, highlights the need for proactive planning. Strengthening preparedness for offshore wind development will help ensure that projects move forward responsibly, with fewer uncertainties, and may prevent time-consuming conflicts over environmental and resource management.

Electricity production licensing is covered by the Electricity Act. However, the legislation is not designed for offshore wind energy. If a developer wants to establish a project, the authorities would either have to use the existing legislation for onshore wind, with expanded scope to include offshore wind, or develop new legislation specifically applicable to offshore wind. It can be assumed that developers would have to complete an Environmental Impact Assessment (EIA). Based on experience from onshore wind development, this can be a lengthy process involving public consultation. Although some streamlining has been achieved, for instance by removing duplicate elements, there is still room to further speed up the process without compromising quality. Currently, the

---

50. <https://www.stjornarradid.is/efst-a-baugj/frettir/stok-frett/2025/04/04/Frumvarp-sem-kvedur-a-um-stefnu-um-oflun-raforku-i-samradsgatt/> [08.09.25].

existing EIA process would likely also apply to offshore wind projects, while the licensing process requires further development.

Connecting offshore wind farms to the grid could also be a potential barrier. Challenges can arise because local authorities have their own construction and land-use plans for grid infrastructure, which historically required approval from each municipality affected by the grid. Efforts have been made to streamline this process with new planning laws to avoid the need for individual approvals from all municipalities. Despite working on simplifying the regulations to facilitate grid expansion, it is currently unclear if these challenges have been fully resolved.

## 3.5 Åland

### Background

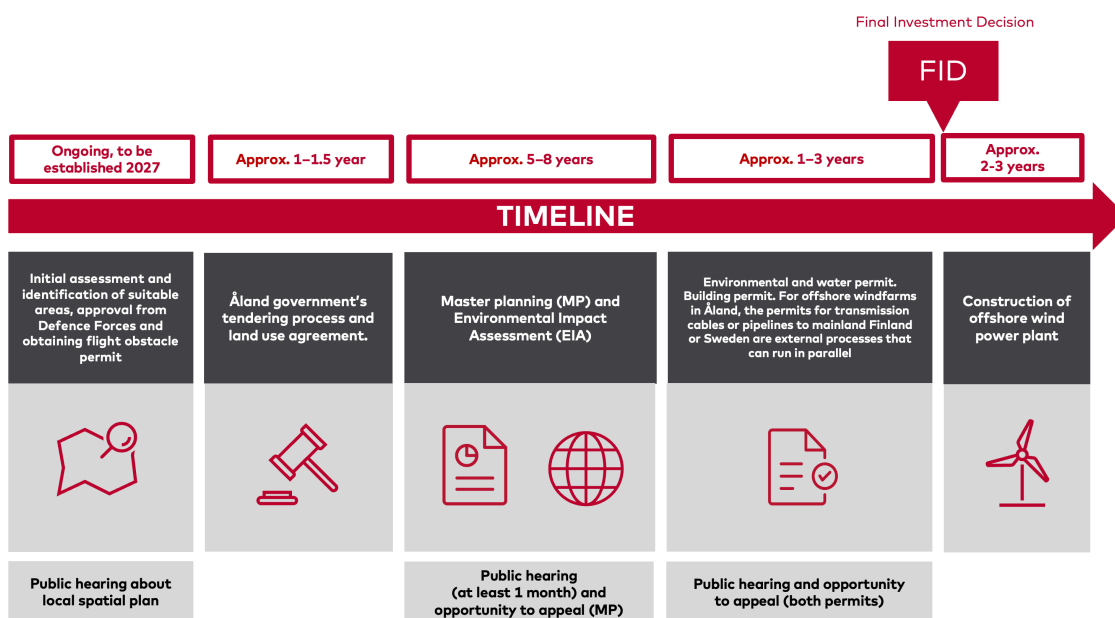
Åland does not yet have any offshore wind production but sees significant potential. The goal of the Sunnavind project is to pave the way for offshore wind development through a series of preparatory measures. One of these is to spearhead efforts to develop regional development plans for sea areas on the northern side of Åland. In the first stages of the Sunnavind project, the wind power areas south of Åland were highlighted as promising due to their high production potential. However, because of defence interests and security considerations, these areas were excluded from the Sunnavind project pending changes in the geopolitical situation in the Baltic Sea. The area in the north currently covers 1,200 km<sup>2</sup>, providing a potential production capacity of 3–4 GW, with estimated production in the range of 20 TWh. This represents roughly 65 times Åland's current total electricity consumption, meaning that most of the output would need to find off-takers in neighbouring markets such as Finland or Sweden. One alternative could be supplying electricity to Åland itself if demand rises sharply, for example due to new hydrogen production facilities. During the current preparatory phase, the government is developing procedures for allocating sea areas for energy production and identifying sites suitable for offshore wind. The right to develop and build offshore wind farms will be awarded based on a market-based competitive auction process to be arranged by the government. The Sunnavind project, with €2.7 million funding from the EU, will deliver its final report by 30 June 2026. The project is conducting an extensive environmental impact assessment of the regional plans, as required by legislation. Two private developers have investigated the seabed in areas identified in the Åland Maritime Spatial Plan.

Åland is an autonomous region of Finland with its own legislative powers in several areas relating to wind power and the associated licensing process. Of the authorities involved in the licensing process, some are local to Åland and some are national agencies. Åland follows a similar licensing process to the one used in Finnish territorial waters, but Åland has decision-making authority in areas where municipalities have jurisdiction in Finland, as well as in the legislative fields of environment and energy. Several municipalities in Åland have only a few hundred inhabitants, resulting in limited capacity and expertise to manage offshore wind issues. As part of the Sunnavind project, the Åland government will prepare a comprehensive plan proposal, divided into six separate municipal plans to facilitate offshore wind development. While the Sunnavind project is developing the plan proposals for the municipalities, the municipalities will ultimately make the final decisions regarding adaptation of the plan for offshore wind in their jurisdictions.

Åland is subject to EU directives in the same way as Finland, as outlined in [chapter 2](#). Finland has authority relating to areas such as maritime traffic, defence, aviation and seabed surveys. However, Åland is responsible for decisions concerning planning, administration, environmental assessments, construction law and maritime cultural heritage. Åland's government has its own maritime plan that outlines the usage possibilities for the Åland public waters that are managed by the government. Private waters are excluded from the current maritime spatial plan. As part of the municipal plan

proposal, initial overarching environmental assessments in the relevant areas are conducted by the government. More detailed environmental impact studies will be carried out by the offshore wind developer at a later stage, i.e. EIA assessment for projects to receive environmental permits and building permits.

**Figure 3.10: Overview of the licensing process for offshore wind in Åland's territorial waters**



The licensing process in Åland, which is illustrated in Figure 3.10, follows the Finnish model for territorial waters. However, although the procedural framework is in place, the initial environmental assessment and the identification of suitable areas have not yet been completed. An appeal in the master planning process could take up to three years to resolve in court.

Once the building application complies with the zoning regulations, the developer receives a building permit. A cable connection to shore is not included in the current plans. Cable permits require a separate environmental impact assessment, depending on whether the export cable is routed to Finland, Sweden or Åland. The Finnish TSO, Fingrid, has identified potential grid connection points for offshore wind from Åland, whereas no such points have yet been defined in Sweden. Consequently, the permitting timeline may vary depending on where the wind farm connects to the grid.

## Barriers

We have identified two main barriers that increase risk with regard to progress, cost and local acceptance in Åland.

The first barrier relates to grid connection. Åland is an independent energy market, with grid connections to the mainland grid in Finland and to the SE3 price region in Sweden. Given the expected electricity production volume, the power will need to be exported either to Sweden or Finland. As several offshore wind projects in both countries also require grid connections, the availability of suitable connection capacity will need to be clarified. Åland has its own legislation for the electricity market and in addition to the technical solutions and availability, this legislation and that of mainland Finland may need to be adapted to handle the possible hybrid connection issues for the offshore wind farm(s).

Secondly, it is also worth noting that taxes generated from future wind farms go to Finland rather than Åland, which provides local incentives for acceptance. This approach is consistent with other forms of taxation on Åland; however, it may act as a barrier by offering limited incentives for offshore wind development in the region.

## 3.7 Faroe Islands

### Background

The Faroe Islands currently do not have any offshore wind projects in operation. However, the country has gained relevant experience from building onshore wind farms that can also be applied to offshore wind development.

The Faroe Islands are a self-governing nation with extensive autonomous powers and responsibilities within the Kingdom of Denmark. The country has exclusive authority to legislate and govern independently in a wide range of areas. These include external trade relations, customs, taxation and financial policy, business regulation, management of fisheries and all other utilisation of natural resources, energy and the environment, the labour market, social security, emergency preparedness, education, research and culture.

Generally, offshore wind developers require three types of permits from the Environment Agency: a permit for the Environmental Impact Assessment (EIA), an environmental licence and an electricity production licence for the wind farm. These three permits are all obtained from the Faroese Environment Agency. The EIA and environmental licence are issued by the Department of Conservation, while the development licence is granted by the Department of Energy. The permitting process is coordinated between the two departments, with the Department of Energy acting as the primary point of contact.

The authorities have not yet designated specific areas for offshore wind deployment, unlike for onshore wind.

### Barriers

We have identified a number of barriers that could potentially limit or slow down offshore wind development on the Faroe Islands: challenges include the timely completion of EIA studies (such as assessments of rare bird species), conflicting interests with fisheries, and potential appeals from the public, NGOs or other developers. The Parliamentary Act on Electricity and District Heating was amended in 2024, stipulating that a development licence cannot be tendered before the EIA has been approved. Previously, the licence could be tendered but not awarded prior to approval. These amendments ensure that assessments are carried out earlier in the process, thereby reducing the risk of conflicts at later stages.

## 3.8 Greenland

Greenland has no current wind projects, nor any in the pipeline. Some initiatives exist for land-based wind energy aimed at producing other green energy carriers (Galimova et al., 2024). However, no ambitions or initiatives have been identified for offshore wind energy. There are currently no government policies or designated areas supporting offshore wind development.

## Textbox 3.4: The Net Zero Industry Act

Spatial data is essential for both optimising site selection and ensuring cost efficiency, technical feasibility and effective energy production, while minimising negative impacts in areas such as marine biodiversity. Nordic Energy Research (2023) highlights the importance of knowledge and data sharing (using reliable third parties) in order to accommodate other interests, in particular nature, but also fisheries, shipping, military activities, aquaculture and tourism. Data collection and analysis after deployment could also provide valuable insights for the industry and other stakeholders, e.g. with regard to turbine performance and bird observations (Kusiak 2016). With rapid advances in data processing and analysis, including the use of AI, the value of data is increasing as it provides a stronger foundation for informed decision-making.

Data collection is costly. Geophysical and geotechnical surveys require specialised vessels, dedicated equipment and skilled personnel. Resource and metocean assessments, in turn, depend on specialised sensors and extended data collection over time; while other environmental surveys and socioeconomic studies could require vessels, aircrafts and specialised personnel.

Sharing existing data across industry actors, government agencies and others could therefore potentially help reduce costs and accelerate projects. In interviews with industry actors and government agencies we have explored the extent of data sharing and to what degree lack of data sharing is a barrier to accelerated offshore wind deployment. In the following we summarise our findings, in general, and with regard to specific countries where relevant.

Several of our interviewees cite lack of data as a barrier to offshore wind deployment. There are platforms that gather and make data accessible, in particular [Nordic Spatial](#) and [EMODnet](#), as well as country-specific data (e.g. [Geonorge](#) and the [Offshore Directorate](#) in Norway). Our understanding is that the data-sharing platforms themselves are adequate, but that there is insufficient underlying data. This may be due either to limited data collection or to restricted data sharing by industry or government actors. Examples of data sharing initiatives in Norway include:

- The hull-based surveys (MBES, backscatter and SBP) on Sørilige Nordsjø II and Utsira Nord have been made available via Kartverket in Norway.
- For the Sørilige Nordsjø II area, awarded to Ventyr Energi, all data has been made available via the Offshore Directorate's Diskos database, except for magnetometer and water column data.

In Finland, the authorities conduct limited surveys before areas are tendered in the EEZ, but more extensive surveys in the territorial waters, which means the majority of exploration and surveys are carried out by the companies in the EEZ. Some stakeholders point out that this leads to companies having less knowledge about the areas they are bidding on, increasing their risk since the areas may turn out to be unsuitable for offshore wind for various reasons. In territorial waters, Metsähallitus conducts more comprehensive assessments before auctioning areas. It also shares this data with all parties interested in bidding for the area. This approach reduces risk for developers, as they have more information, and prevents duplication of effort in conducting assessments.

Under the previous process in the EEZ (prior to the new tendering process), multiple companies surveyed the same areas at the same time. The lack of exclusivity over areas results in less data sharing and duplicate exploration efforts. This increases financial risk for developers and reduces data sharing. The stakeholders report that the introduction of exclusivity over areas does not necessarily lead to increased data sharing due to the fact that companies have no incentive to share data.

To improve the information base and data in these areas, the Finnish working group for offshore wind proposes to extend maritime observation activities and the coverage of the Finnish Inventory Programme for Underwater Marine Diversity (Velmu) in deeper waters. It also proposes producing more detailed maritime information to support maritime spatial planning and land use planning, and launching studies on the impacts of offshore wind power on migratory fish, marine mammals, migratory birds and bats. It further proposes developing information systems to streamline assessment and administrative processes across administrative sectors and to enable anticipation of business project planning.

### 3.9 Similarities and differences between the Nordic countries

When it comes to the procedural framework, our review shows that there are both similarities and differences between practices in the Nordic countries. In general, there is significant variation in terms of how well established the licensing processes are. On the one hand, Denmark is a relatively mature market with a process that has been implemented and developed continuously over the decades. Several projects have been approved in the Danish licensing process. On the other hand, the Finnish process is still in its early phase and has only one small operational offshore wind farm. The processes in Norway and Sweden are "somewhere in the middle" in terms of maturity. There are only a few offshore wind farms in either country. In Norway, the existing offshore wind farm was approved through specialised procedures, while licensing processes under the new legal framework have now begun.<sup>[51]</sup>

Sweden and Finland have different processes for projects in their exclusive economic zones (EEZ) and territorial waters, while Norway has a different process for projects within the baseline. Denmark makes no such distinction. The baseline is so close to shore that virtually all projects in Norway fall under the general process. Having different processes for projects in the EEZ and territorial waters heightens complexity from a developer's perspective and increases the number of stakeholders involved in a country's offshore wind development. This, in turn, might slow down the overall development.

There is also a varying degree of centralisation in terms of decision-making authorities across the Nordic countries. Denmark has a system where the DEA serves as the single contact point from the authorities' side. This centralises responsibilities at the Danish Energy Agency (DEA), avoiding problems regarding uncertainties about who is in charge. In Norway, although the process is generally national with a relatively high degree of centralisation, both the Norwegian Water Resources and Energy Directorate (NVE) and

---

51. GoliatVind has submitted its concession application, while Ventyr is working on its awarded Sørlige Nordsjø II contract.

the Ministry of Energy make decisions at different points in the process. This fragmentation contributes to some mismatches in the process, both in terms of responsibilities and timelines. In Sweden, the Land and Environment Court handles licences for projects in territorial waters, while the government does the same for projects in the EEZ. However, municipalities exert a high degree of influence in the licensing process, especially within territorial waters. This leads to a more decentralised process, involving a greater number of institutions than in the other Nordic countries. In Finland, the process is relatively segmented, requiring multiple permits to be obtained from different authorities. Developers need a water permit from Regional State Administrative Agencies, approval of the Environmental Impact Assessment (EIA) from the government and an approval from the Finnish Defence Forces. In territorial waters, developers need to lease land from Metsähallitus through auctions. In the EEZ, areas are similarly allocated through auctions, but by the Energy Authority.

In all countries, except Sweden, the authorities designate areas for developing offshore wind. In Sweden, developers are responsible for identifying suitable areas on their own initiative. Sweden is also the only Nordic country that does not currently allocate areas through an auction or tender process. However, the introduction of such a system has recently been proposed and is now under review.

Norway differs from the other countries in that it is not part of the EU, and that floating offshore wind technology is more relevant. The former condition provides greater flexibility for country-specific policy adaptations, but the benefits of EU directives are realised to a lesser extent. For example, Norway does not have a Maritime Spatial Plan, which is standard among EU Member States (see chapter 2), which may indicate that less data collection is carried out. Floating offshore wind technology is less developed than bottom-fixed, meaning costs and uncertainties are higher.

Profitability is an issue in all the Nordic countries. Offshore wind is in general not profitable without subsidies (the Thor tender in Denmark in 2021 being the exception). Denmark has previously used Contracts for Difference (CfDs) to support offshore wind development financially, and Norway uses the same contracts for its current projects<sup>[52]</sup>. The implementation and contract parameters vary somewhat between the two countries. Both CfD schemes are designed to provide financial support for wind farms and to transfer part of the project risk from developers to the government. In the last auction round in Denmark, there was no subsidy scheme in place. In Norway, it is still unclear to what extent future offshore wind farms will be subsidised. Neither Sweden nor Finland has a CfD scheme to support offshore wind development.

---

52. This might change for Floating offshore wind at Utsira Nord.

## 3.10 Main barriers

In the following we summarise the main barriers identified in each country. We conduct a schematic comparison across Denmark, Norway, Sweden and Finland. The barriers identified and considered in the comparison are described in Table 3.1. The descriptions also highlight which sub-barriers we consider. Political ambitions, profitability for developers and partly national regulations (marked in **grey**) can be understood as **market type barriers** that affect deployment indirectly through changes in the conditions the developers and others operate under. The other barriers (marked in **pink**) apply more specifically to **project development and deployment**.

**Table 3.1: Definition of main barriers considered in the Nordic countries**

I manuskriptet var øverste celler markeret med blå og nederste celler markeret med grøn. Skriv gerne farveønske i pdf

Barrier	Description and sub-barriers in bold text
Political ambitions and predictability	The degree to which the <b>national government</b> provides stable conditions for the industry is a key factor. Limited ambition or unpredictability can act as a barrier. A clear and binding target for offshore wind production serves as an indicator of stable and predictable political ambition.
Profitability for developer	Profitability for developers is chiefly determined by the <b>subsidy level</b> , the <b>support scheme design</b> , as well as the long-term expectations regarding the <b>electricity price</b> . The price is a function of demand and supply in the area in which the project is based as well as the extent to which the produced electricity may be exported to areas with higher electricity price. Profitability may also depend on the extent to which obtained permits can be traded or transferred, providing ownership flexibility, as discussed in the text.
Regulations	All the Nordic countries have <b>regulatory frameworks</b> for renewable energy production, but the extent to which they have developed specific frameworks for offshore wind varies. There is also some flexibility in <b>national implementation of EU regulations</b> , which may be utilised. Lastly, the <b>ownership and organisation of the regulatory process</b> determine the speed of deployment, where a "One-Stop Shop" has become the gold standard.
Stakeholder involvement	Stakeholder involvement is necessary to balance different interests. At the same time, the <b>timing and number of consultations</b> is a driver of longer processes and thus a barrier to accelerated deployment. Conversely, shortcomings in the consultation processes may lead to changes in the project at a later stage, thus introducing significant uncertainty for the developer. We have identified <b>municipal rights of veto</b> and <b>defence interests</b> as the strongest drivers of such uncertainty.
Knowledge gathering and sharing	Sharing of <b>seabed and water column data</b> and <b>impact assessment results</b> may reduce costs, improve information quality and/or shorten the process. Efficient timing of data collection ensures that seasonal constraints on fieldwork do not delay the <i>process</i> .
Industrial barriers	Offshore wind deployment relies on complex value chains of materials and people. In particular, <b>turbine availability</b> and <b>availability of vessels</b> (installation and service vessels) as well as <b>relevant infrastructure</b> (installation and logistics ports etc.) can affect the speed of deployment, as can the <b>availability of specific experts</b> , such as project managers and electrical engineers.
Grid connection	The <b>organisation</b> of grid connection (e.g. developer-driven or centralised and how well the organisation works) is evaluated as separate barrier, as this infrastructure is required for the project. It normally also requires a separate permit, which is regulated by an agency other than the one responsible for energy production.

For each sub-barrier and each country, we consider the extent to which the barrier *delays* deployment of offshore wind in the country and/or increases *uncertainty* of deployment. The difference between the two is that the former influences the expected duration, while the latter affects the variability of that duration. For instance, consultation of stakeholders in itself may increase the time required to obtain a permit, but the time required is known to the developer. In contrast, a municipal veto may not significantly affect timelines, but does increase uncertainty regarding whether the project will be realised. In practice, expected time and uncertainty can be difficult to separate. We therefore combine these two factors in the schematic scoring and provide further explanation in the text.

In Table 3.2 we provide a schematic overview of the main barriers and how they are addressed in Denmark, Norway, Sweden and Finland.

We consider the barriers at three levels, in addition to the category of "not relevant":

- **High:** Highly relevant and strong barrier to accelerated deployment, in terms of expectations or as a driver of uncertainty
- **Medium:** Barrier, in terms of expectations or as a driver of uncertainty
- **Low:** A slight barrier, in terms of expectations or as a driver of uncertainty
- **N/R:** Not relevant for the specific country

**Table 3.2: Overview of main identified barriers and relative score between countries.**

Barrier	Sub-barrier	DK	NO	SE	FI
Political ambitions and predictability	Binding national targets	Medium	High	High	High
Profitability for developer	Subsidy level	Medium	Medium	High	High
	Support scheme design	Medium	High	High	High
	Electricity prices	Medium	Medium	Medium	Medium
Regulations	Implementation of EU reg.	Low	Medium	Low	Low
	Regulatory framework	Low	Medium	High	Medium
	Organisation of processes	Low	Medium	Medium	Medium
Stakeholder engagement	Timing and no. of consultations	Low	Low	Low	Low
	Municipal veto	N/R	N/R	High	Low
	Defence interests	Low	Low	High	High
Knowledge sharing	Seabed and water column data	Medium	Medium	Medium	Medium
	Impact assessment results	Medium	Medium	Medium	Medium
Industrial barriers	Vessel, turbine and infrastructure availability	Low	Medium	Medium	Medium
	Expert availability	Low	Low	Low	Low
Grid connection	Organisation	Medium	Medium	Medium	Medium

Most of the identified barriers are also relevant for Iceland, the Faroe Islands, Greenland and Åland. However, these countries have less developed policies and limited plans for offshore wind deployment. The main barrier for them is therefore the establishment of political conditions and regulatory frameworks to enable offshore wind development (see subchapters 3.5–3.8). Åland is currently developing such a framework in parallel with the Sunnavind project, while the other countries do not yet have any specific projects in the pipeline.

Lack of **political ambitions and predictability** is identified as a crucial barrier in all of the countries. Denmark is spearheading the development of offshore wind.<sup>[53]</sup> Since the failure to attract bids for the 3 GW tender in December 2024 (North Sea I A1, A2 and A3), the target of 9 GW in 2030 has been adjusted and with the new political agreement from 19 May 2025, the government has signalled more attractive terms for the upcoming 3 GW tender, scheduled for the second half of 2025. These include the possibility of state subsidies and increased flexibility for bidders.<sup>[54]</sup> Sweden and Finland also have ambitions for offshore wind developments, but no clear binding targets. Åland, Iceland, the Faroe Islands and Greenland currently have no stated targets for offshore wind development. Åland has demonstrated ambition by actively pursuing specific project initiatives. Iceland is currently developing an Energy Production Strategy and roadmap, which is expected to encompass all energy sources, including onshore and offshore wind.

A lack of profitability for developers represents a barrier, depending on the level of state subsidies available and the electricity prices faced by the project. The electricity price is determined by multiple factors, all outside the control of the government. Nonetheless, allowing for hybrid connections or facilitating the development of alternative fuel production *could* reduce the need for financial support, all other factors remaining unchanged. This is relevant in Denmark (hydrogen infrastructure) and Norway and Åland (potential hybrid connections). Support scheme design and electricity price volatility could also be a barrier as this significantly impacts developers' risk exposure. Denmark was an early adopter of targeted support measures for offshore wind, ensuring steady development until the 2020s. Rising costs and changes in both design and support levels in later years have introduced some long-term uncertainty. Nonetheless, the political agreement following the no-bid auction in 2024 has confirmed the country's commitment to offshore wind, evidenced, among other things, by the reintroduction of CfDs. The Norwegian design is more immature, with limited predictability for upcoming competitions. At the time of writing, different designs have been selected for floating and bottom-fixed technologies, with modifications to the former made during the late stages of the tender process. Sweden, Finland, Åland, the Faroe Islands, Iceland and Greenland currently have no support schemes in place.

---

53. <https://www.kefm.dk/aktuelt/nyheder/2023/maj/danmarkshistoriens-stoerste-havvindsudbud-er-paa-plads> [05.05.25].

54. <https://www.dn.no/politikk/jens-stoltenberg/kjell-inge-rokke/havvind/sammenligner-gronn-kollaps-med-dotcom-boblen-alle-investerte-i-det-og-sa-kom-det-et-tilbakeslag/2-1-1818453>; <https://www.dn.no/energi/terje-aasland/havvind/marius-arion-nilsen/garanterer-at-regjeringen-fortsetter-havvind-satsingen/2-1-1820864> [18.05.25].

Lack of clear and supportive **regulations** may also be a barrier to acceleration of offshore wind development. For EU countries, the implementation of EU regulations is not necessarily a barrier (see chapter 2). However, the efficiency of implementation varies, and requirements relating to grid integration and interconnectivity may cause some delays in the process. Regulations such as the Marine Spatial Planning Framework, on the other hand, may facilitate offshore wind development by identifying suitable areas, although the relevant permits will still be required. For non-EU countries, there is a slightly higher risk of EU regulations becoming a barrier. In Norway, the government's support scheme for floating offshore wind at Utsira was recently approved by the EFTA Surveillance Authority (ESA) in April 2025. Generally, a less developed regulatory framework and more immature organisation of core processes are considered to be barriers to growth in Norway, Sweden and Finland. We assess the barriers to be most prohibitive in Sweden. The country's developer-led process may not be particularly time-consuming in terms of expected duration, but it is likely to increase uncertainty for developers. This risk is clearly reflected in recent project developments and in the number of projects that have been halted in recent years.

**Stakeholder involvement** is a necessity for balancing different interests, e.g. biodiversity, fisheries, marine traffic and defence interests, and needs to follow regulations. Nonetheless, there is some variation across countries. Interviews with industry representatives indicate that the time required for stakeholder consultations tends to be somewhat greater in Denmark and Norway than in Finland and Sweden. However, in the latter two countries, there is a higher risk that specific interests may halt the process. In Sweden, projects within the territorial waters risk municipal veto in the later stages of planning, and in both Sweden and Finland there is a similar risk of defence interests halting projects. This illustrates a dilemma: while limiting consultations might speed up early project development, insufficient stakeholder engagement can ultimately undermine progress and long-term social and political sustainability.

Lack of **knowledge gathering and sharing** may be a barrier to offshore wind deployment, compared to a situation with full available information. Timing of knowledge gathering, and the sharing of that information between and within government and industry actors could accelerate deployment in all the Nordic countries. Our interviews reveal that these are likely less significant than other barriers.

**Industrial barriers** include the availability of vessels, turbines and infrastructure, as well as human capital (particularly package managers, electrical engineers and impact assessment consultants). Expert availability is mentioned as a barrier in our industry interviews, but to a lesser extent than most other identified barriers. Vessel and turbine availability is something of a barrier, in particular for non-standard size turbines and within floating offshore wind. For countries other than Denmark, the current lack of assembly and installation ports is a strong barrier to project deployment.

**Grid connection** is an identified barrier in all countries, in particular with regard to process organisation and cost sharing. Grid connection is crucial for project feasibility, and the absence of clear and early approvals increases uncertainty for developers, thereby constituting a barrier to deployment. Grid investments may also be costly and increase the risk for developers.

## 4. Opportunities for accelerating the licensing processes



Image: iStock

In this chapter we present a wide range of options for accelerating the licensing processes within offshore wind. To overcome the barriers identified in the previous chapter, it is important to draw on experience from mature markets such as the UK, Germany, the Netherlands and Belgium. Below, we present a review of each of these countries, highlighting the policies that have had the greatest effect on long-term deployment. The relevance of these policies in a Nordic perspective will be further investigated in chapter 5, where we develop a catalogue of best practice.

### 4.1 Experience from the UK

#### Clearly defined legislative framework and targets

The UK set its first long-term climate target in 2008 through the Climate Change Act, which aimed to reduce greenhouse gas emissions by 80 per cent (from 1990 levels) by 2050. An additional target was set in 2009, requiring 30 per cent of all electricity to come from renewable sources by 2020. Today, the UK is aiming for net zero by 2050. In 2019, the government signed the Offshore Wind Sector Deal, which set a target of 30 GW of installed capacity by 2030. The legally binding target has since been increased twice, with the latest target of 50 GW by 2030 set in April 2022 through the British Energy Security Strategy (GWEC, 2024a). However, in December 2024, the UK government published the Clean Power 2030 Action Plan, which revises the offshore target downwards to 43–50 GW by 2030 (UK Government, 2024).

Establishing clear national wind energy production targets played a crucial role in creating a supportive regulatory environment for offshore wind development in the country, helping drive the necessary strategies and actions to scale up the sector (Monteiro de Vasconelos et al., 2022). As highlighted in Metcalfe & Sasse's (2023) study on the UK, the question of *if* action was needed became irrelevant once concrete targets were embedded in law, and instead the focus of discussions shifted to *how*. A firm government commitment, backed by a strong political will, boosts industry confidence and has a catalytic effect on offshore wind development. In addition, a well-defined strategic vision,

supported by ambitious medium-term GW targets for renewables, provides essential political leadership and clarity for renewable energy developers and stakeholders, stimulating investment in infrastructure and value chains (Energy Transitions Commission, 2023).

The UK's targets have been underpinned by a stable legal framework. The period from 2010 to 2016 was a defining phase for the country's offshore wind development, as legislation introduced during this time laid the foundation for the rapid expansion that followed (Metcalfe & Sasse, 2023). The same authors identified a crucial factor in the UK's successful development of offshore wind: the clear and concise policy direction provided by the Department of Energy and Climate Change (DECC). The Department set clear priorities at an early stage within a well-defined and authoritative programme, providing stability, direction and long-term consistency for its policies. Furthermore, the DECC was not just a leader in the field but also had the capacity and capability to develop and implement effective policies. Its large team of experienced civil servants, specialising in electricity market reform, contributed to the development of effective policies. In addition, the DECC operated as a standalone department until 2017, allowing it to maintain a clear and dedicated focus<sup>[55]</sup> and to develop a comprehensive suite of policies, including:

- **Well-designed price support:** The DECC introduced Contracts for Difference under the Energy Act 2013 as part of the Electricity Market Reform, creating predictable revenue streams, reduced investor risk and cost reductions. (Further elaborated in chapter 4.1.2)
- **Clear planning process deadlines:** Reforms under the Planning Act 2008 created a streamlined, time-bound approval system for major offshore projects, which were classified as Nationally Significant Infrastructure Projects. This classification moved decision-making authority from local authorities to the Secretary of State for Energy and Climate Change and established a fixed 18-month timeline for assessment by the Planning Inspectorate.
- **Competitive transmission licences:** The DECC introduced the Offshore Transmission Owner (OFTO) regime under the Energy Act 2004. This required developers to construct the transmission infrastructure themselves but to sell it to an independent TSO through a competitive tender process. The TSO then owns and operates the asset under a long-term contract. This tender process ensures a transparent and competitive procedure for selecting the TSO that will acquire the transmission infrastructure. To safeguard its profitability, the TSO operates under long-term contracts with regulated returns, ensuring a stable and predictable revenue stream. According to the Cambridge Economic Policy Associations Ltd (2016) and Metcalfe & Sasse (2023), this model lowered costs for offshore wind developers and increased efficiency by engaging dedicated grid operators. However, Nieuwenhout (2023) argued that a TSO-led model, as employed in Germany and

---

55. Other interests were brought into discussions after the DECC merged with the Business Department to create the Department for Business, Energy and Industrial Strategy.

Belgium<sup>[56]</sup>, is more cost-effective.

- **Green Investment Bank:** Established in 2012, the Green Investment Bank (GIB) provided financing for low-carbon infrastructure, supporting early projects like Gwynt y Môr and Dudgeon. However, the GIB was privatised in 2017, and its new owner is not legally obliged to continue focusing on green investments (Vaughan, 2018).
- **Industrial policy to grow domestic supply chains:** The DECC, together with the Department for Business, Innovation and Skills, created an Offshore Wind Industry Strategy (2013), and encourages port and manufacturing investments as well as turbine manufacturers like SGRE and Vestas to set up factories in the country<sup>[57]</sup>. Later, the Offshore Wind Sector Deal (2019) set local content targets (60 per cent by 2030), further strengthening the local supply chain.

## Low-risk tendering mechanism

A key factor in accelerating offshore wind in the UK has been the transition from non-competitive Renewables Obligation Certificates (ROCs) to Contracts for Difference (CfDs) (O'Hanlon & Cummins, 2020). This publicly funded support measure for large-scale renewable energy projects was introduced in 2014 and the UK's auction system for offshore wind has since, amidst multiple reforms, proven to be one of the lowest-risk tender design models to developers (Brinckmann, 2025).

In the CfD Allocation Rounds, the Crown Estate and Crown Estate Scotland issue guidelines on potential offshore development areas and developers choose which ones to apply for. If successful, the developer is awarded an Agreement for Lease (AfL) (Monteiro de Vasconelos et al., 2022). Seabed leasing in the UK began as early as 2001 and has been managed by the Crown Estate (TCE) (England) and Crown Estate Scotland (CES) since then. Pre-determined zones are tendered through "Contract for Difference" rounds. Nieuwenhout (2023) found that state control over seabed allocation is crucial, particularly as competition for space intensifies.

The design of the auction encompasses multiple factors that reduce investment and development risk:

- **Guaranteed revenue streams:** The CfDs provide price stability by bridging the gap between the wholesale market price and the generator's strike price, which is determined through the auction process and remains unchanged for 15 years<sup>[58]</sup>. By providing revenue certainty, CfDs made offshore wind projects more bankable, allowing access to lower-cost financing. Furthermore, long-term investments and larger-scale projects were encouraged due to increased planning confidence.

---

56. In Germany and Belgium, the offshore wind owner only needs to construct cables from the turbine to the offshore converter station, which is owned and managed by the TSO, and treated as a regulated asset for which the TSO receives income via tariffs from electricity users.

57. Siemens opened its first turbine blade factory in Hull in 2016.

58. Under a CfD, a government-backed entity agrees to pay renewable energy generators the difference between a fixed "strike price" and a market reference price for electricity. If the market price falls below the strike price, the generator receives a top-up payment; if the market price rises above the strike price, the generator pays back the excess.

- **Auction-based pricing:** The UK's CfD auctions have been one of the key factors driving down offshore wind costs by stimulating competition among developers. In 2015, the strike price was around £120/MWh, while by 2019, it had dropped below £40/MWh. Although prices increased again in subsequent rounds<sup>[59]</sup>, CfDs are still regarded as one of the most cost-effective support mechanisms, as they provide a fixed revenue stream that enables lower financing costs (Wind Europe, 2024).
- **Centralised cost for site allocation:** By identifying the most suitable offshore wind project areas, the seabed licensing agencies (TCE & CES) create a level playing field. This centralises the initial cost of site identification, allowing bidders to focus on development and potentially attracting more interest (Johnson et al., 2022).
- **Grid connection cost and timing:** The cost of connecting the wind farm to the grid is state-funded or borne by the transmission operator. Furthermore, grid connection and timelines are guaranteed by the state or grid operator.
- **No state ownership:** The UK does not mandate state co-ownership.
- **Long-term policy commitment:** A clear target (see chapter 4.1.1), backed by ongoing CfD auctions, has been providing a clear roadmap that has reassured investors and supply chain stakeholders, enabling long-term strategic planning.

## A one-stop shop permitting authority (unique to Scotland)

Marine Scotland's Marine Licensing and Operations Team (MS-LOT) provides a one-stop shop for marine licences in Scotland, covering projects of all sizes (Scottish Government, 2018). The one-stop shop for project consenting was established by the Scottish Government through the Marine (Scotland) Act 2010, setting the legislative basis for Scottish marine licensing carried out by MS-LOT. It handles the entire consenting/licensing process<sup>[60]</sup> and is the single point of contact for all queries relating to the licensing and deployment of offshore wind projects. MS-LOT also coordinates with other agencies, such as the Scottish Environment Protection agency, to ensure a streamlined decision-making process. The function works in two directions: it acts as an advisor to the developer on preparing and submitting competent applications but also gives the Scottish Ministers independent advice on the suitability and sustainability of a proposed project. Additional divisions within Marine Scotland include Marine Scotland Science (MSS), which provides expert scientific advice to MS-LOT to enable informed decision-making. Additionally, the Crown Estate Scotland (CES) aids in the designation of leasing zones and works collaboratively with Marine Scotland/MS-LOT in granting a seabed lease once consents have been granted to the developer. The two government agencies, MS-LOT and CET, work strategically together to streamline the process for developers.

---

59. In the 2024 AR5 auction, no developers submitted bids, mainly because the strike prices were too low to reflect rising costs, highlighting the system's sensitivity to appropriately set strike prices. AR6 responded to the challenges facing the wind industry by increasing the bid price ceilings to £73/MWh.

60. Including marine licences, EPS licences and basking shark licences (Scottish Government, 2018).

According to a study conducted by O'Hanlon & Cummins (2020), Marine Scotland's one-stop shop integrative structure for project consenting has enhanced integration and streamlined government functions, increasing developer confidence in the functionality and responsiveness of the regulatory system. The country's one-stop shop procedure has further been recognised by Moscoloni et al. (2023) as contributing to an efficient authorisation process for the deployment of offshore renewable energy projects with short administrative and lead times.

Further best practices in relation to the Scottish permitting process include:

- **Centralised environmental assessment before leasing:** As part of the Marine Sectoral Plan prepared by MS-LOT, a strategic Environmental Assessment (SEA), a Habitats Regulations Appraisal and a Social and Economic Impact Assessment were conducted centrally. This ensures that environmental risks are assessed at a regional level, thereby reducing duplication and accelerating approvals (Monteiro et al., 2022). Later in the process, developers must conduct a more comprehensive Environmental Impact Assessment (EIA), but the previous pre-clearing of suitable zones means developers face fewer environmental barriers later in the permitting process.
- **Mandatory pre-application consultation:** Developers must consult with key stakeholders, such as local communities and environmental organisations prior to submitting a formal application. This reduces legal challenges and objections later in the permitting process.
- **Structured process and timelines for EIA approval:** MS-LOT establishes a standard timeframe for EIA decision-making, providing developers with clear guidance on deadlines and documentation requirements from the outset.<sup>[61]</sup>

## 4.2 Experience from Germany

### Continuous adaptation of offshore wind targets and the related regulatory framework

Germany has consistently increased its legally binding offshore wind targets, with the most recent amendment made through the Offshore Wind Energy Act (WindSeeG) of 2022. The legally binding targets now include 30 GW by 2030, 40 GW by 2035 and 70 GW by 2045 (Deutsche Wind Guard, 2024), providing long-term investment security. Germany is the only country in Europe with three time-bound targets, ensuring steady progress and predictable sector growth through a phased approach. A firm government commitment, backed by strong historic political will, enhances industry confidence and acts as a catalyst for offshore wind development<sup>[62]</sup>. In addition, a well-defined strategic vision, supported by ambitious medium-term GW targets for renewables, provides essential

---

61. Marine Scotland Consenting and Licensing Guidance (Scottish Government, 2018).

62. The political will is now being undermined by the rise of popular (centre-) right-wing parties, who are showing less commitment to wind power.

political leadership and clarity for renewable energy developers and stakeholders (Energy Transitions Commission, 2023).

The primary legislation governing the construction and operation of offshore wind farms includes the Renewable Energy Act (*Erneuerbare-Energien-Gesetz*, EEG), the Energy Industry Act (*Energie-wirtschaftsgesetz*, EnWG), and the Wind Energy at Sea Act (*Windenergie-auf-See-Gesetz*, WindSeeG)<sup>[63]</sup>. The WindSeeG of 2017 and its subsequent amendments stand out as best practices, marking Germany's transition from an open-door approach to a centrally planned offshore wind strategy. The law regulates bidding procedures and coordinates the licensing, planning, construction and commissioning of offshore wind projects, including grid connections. Additionally, government authorities conduct pre-selection and assessment of suitable coastal sites<sup>[64]</sup> (Jansen et al., 2022).

## Creation of a centralised geographic allocation method and tender system

Prior to the WindSeeG, Germany offered feed-in tariffs for offshore wind projects (2008–2014), which effectively supported the first projects in the market. However, the system adopted an open-door approach, where developers independently identify and investigate suitable sites before applying for permits. This system produced mixed results, including issues around suboptimal site selection, partially overlapping projects, a high risk of stranded investments and insufficient coordination regarding grid connections (adelpi & German Offshore Wind Energy Foundation, 2022).

To address these challenges, the WindSeeG of 2017 established a centralised planning process for wind farms, overseen by the Federal Maritime and Hydrographic Agency (BSH) (Norton Rose Fulbright, 2023). Since 2021, annual auctions have been held under this system, with pre-investigated sites identified under the Site Development Plan (SDP) assessed by the BSH and the Federal Network Agency (BnetzA). Shifting from feed-in tariffs to a competitive auction system for offshore wind site allocation created a predictable framework for investors, moving project allocation away from direct subsidies towards market-based competition. This, in combination with more centralised planning, has contributed to cost reductions and more efficient development, with zero subsidy bids being awarded from 2021 onwards<sup>[65]</sup> (GWEC, 2024b).

Germany's auction design has been continuously refined and improved, with the latest amendment to the WindSeeG in 2022 resulting in the current auction framework (Brinckmann, 2025; Deutsche WindGuard, 2024; Norton Rose Fulbright, 2023):

---

63. Additionally, several other regulations apply, such as the Marine Facilities Ordinance (*Seeanlagenverordnung*, SeeAnIV) and the Federal Nature Conservation Law (*Bundesnaturschutzgesetz*, BNatSchG) (BWO, 2025).

64. Since 2023, in addition to tenders for sites centrally pre-investigated by the BSH, tendering rounds have also been held for sites not centrally pre-investigated or put out to tender (Deutsche WindGuard, 2024).

65. Although the auctions held in 2017 and 2018 already saw several companies submitting zero-subsidy bids, the winning projects still received a subsidy of around €45 per MWh. Subsequent rounds were exclusively zero-subsidy.

- **Two-track auction system:** Germany has an auction-based system in place for both pre-investigated sites and another one for non-pre-investigated sites.
- **Multi-criterion auctions:** For centrally pre-investigated sites, apart from price criteria, additional non-price criteria, such as a bidder's decarbonisation initiatives, are now considered for evaluation alongside concession payments<sup>[66]</sup>. What sets Germany's new auction system apart is, unlike for instance Belgium and the UK, the inclusion of non-price criteria, balancing price and sustainability. By considering factors such as sustainability, system integration and innovation, rather than solely prioritising the lowest bid, Germany avoids a "race to the bottom" and promotes a more holistic approach.
- **No state ownership requirement:** Germany does not mandate state co-ownership.
- **Grid connection partially funded and managed by the TSOs:** The TSO is responsible for offshore grid planning and covers the cost of connecting the offshore platform, which gathers electricity from multiple wind farms, to the mainland grid. The developer only needs to build the relatively short connection from the turbine to the substation. According to Nieuwenhout (2023), the TSO-led model is most effective when a centrally planned offshore location approach is in place, as this allows offshore converter stations to be efficiently planned. While delays can still occur under this system, the cost of the offshore grid connection in Germany is borne by the TSOs, such as 50Hertz, TenneT and Amprio. The TSO-led model therefore centralises responsibility for offshore grid infrastructure with the TSOs, enhancing efficiency and reducing risks for wind farm developers.
- **Hybrid management of permitting:** Under the latest auction design, centrally developed sites have state-managed permitting, while non-pre-developed sites require developers to manage permitting and project-related studies.

## Adoption of a one-stop shop permitting procedure

In Germany, the Federal Maritime and Hydrographic Agency (*Bundesamt für Seeschifffahrt und Hydrographie*, **BSH**) has been recognised as a best practice for a one-stop shop process in offshore wind licensing by multiple studies (Nieuwenhou, 2023; Monteiro de Vasconelos et al., 2022, Moscoloni et al., 2023 and Salvador et al., 2018). The BSH is responsible for permitting beyond territorial waters in the Exclusive Economic Zone (EEZ)<sup>[67]</sup>, and is the single authority granting all required authorisations. According to the European Commission (2023), having a single point of contact reduces administrative costs for the developer, lowers bureaucratic hurdles and shortens the time required to obtain necessary permits.

---

66. For sites that have not been centrally pre-assessed, projects are awarded to those offering the lowest market premium. If several bidders submit €0.00 offers, a second round determines the winner based on the highest concession payment, replacing the former lottery-based selection method.

67. Offshore wind permitting within territorial waters is managed by the Federal States, though they play a minor role with only 0.5 GW offshore wind capacity installed (Deutsche WindGuard, 2024).

As Germany has implemented two tender systems, offering both centrally pre-investigated sites and non-pre-investigated sites, the permitting process differs depending on which site is up for tender (BSH, 2025). While open-door processes can be a barrier due to their increased length and the discretion of authorities (European Commission, 2023), the consenting process for pre-investigated sites in Germany is streamlined<sup>[68]</sup> and coordinated by the BSH (Monteiro de Vasconelos et al., 2022, Salvador et al., 2018) as follows:

**Pre-tender:**

- The BSH develops the Site Development Plan (SDP) as part of Germany's Maritime Spatial Planning framework.
- Site Investigation of the areas defined in the SDP, which details specific sites for development, lines and grid connection points.
- For the pre-investigated sites, the BSH conducts environmental assessments and a geological survey to provide data for potential developers, omitting the preliminary approval procedure.

**Tender:**

- The BNetzA conducts the tenders for both pre-investigated and non-pre-investigated sites in a competitive auction.

**Project approval:**

1. Once the developer has secured a site<sup>[69]</sup>, several of the major permits and licences are bundled into a single authorisation process administered by the BSH (land tenure rights, EIA, generation licence).
2. The developer is responsible for ensuring compatibility with the BNatSchG.
3. Next, the BSH makes a decision, after reviewing with other agencies such as the Federal Agency for Nature Conservation (BfN) and the general public, whether the project is compatible with marine environment protection.
4. Once the BSH has granted approval, the offshore wind farm is authorised to operate for up to 25 years.

---

68. According to a study conducted by the European Commission (2023), the administrative authorisation process in Germany does not entail major barriers such as lack of legal coherence or the need for a large number of uncoordinated permits.

69. Germany's auction revenue model is currently market-based, with no financial support such as CfDs or feed-in tariffs given to the developer.

## 4.3 Experience from the Netherlands

### Comprehensive regulatory framework establishing clear targets and a centralised tender roadmap

The Netherlands' regulatory framework, which is key to providing political leadership and clarity for renewable energy developers and stakeholders (Energy Transitions Commission, 2023), stands out due to its clear pathway and targets and clear action plan for achievement of targets.

Offshore wind development gained momentum through the Energy Agreement for Sustainable Growth, published in 2013 by a broad coalition of government and industry stakeholders. The Agreement included not only targets to increase the share of renewables in the energy mix (16 per cent by 2023), but also the Offshore Wind Energy Roadmap 2023, which proved to be a key instrument in kick-starting large-scale offshore wind development. According to the Dutch Government, the Roadmap 2023 was a "game changer" for the development of offshore wind in the Netherlands, as it led to the successful tendering of the planned 3.5 GW (Netherlands Enterprise Agency, 2024).

The most important characteristics of the Offshore Wind Roadmap can be summarised as follows:

- **Clear targets:** The Offshore Wind Roadmap 2023 introduced the country's first clear offshore wind capacity target of 3.5 GW of new offshore capacity by 2023, along with a plan to tender five offshore wind farms.
- In 2018, a second Roadmap 2030 was released, targeting 11.5 GW by 2030, adding three additional wind farm zones. The new government of 2022 committed to more ambitious targets, doubling the target to 21 GW by 2030. The Roadmap 2030 was extended, outlining a tender timeline for a third batch of offshore wind farms to be out for tender until the end of 2027. Furthermore, in 2022 the government presented the country's first long-term target, aiming for 50 GW by 2040, and 70 GW by 2050 (Netherlands Enterprise Agency, 2024).
- **More centralised:** Before the Energy Agreement and Offshore Roadmap, offshore sites were awarded on a first-come, first-served basis, restricting competition between developers (Salvador et al., 2018). Developers also retained responsibility for site selection and investigation, permitting processes and grid connection. The new tendering system that was implemented through the Offshore Roadmap 2023 established legal, centrally planned zones for long-term offshore wind development, with multi-annual tender schedules for pre-selected sites and timely state-owned grid connections (Netherlands Enterprise Agency, 2024).
- **More supportive:** Under the new tender design, the government provided pre-investigated site survey data and environmental impact information, ensuring a clear and timely permitting process while introducing level-playing-field tenders.

- **One-stop shop:** Netherlands Enterprise Agency (RVO) was established as the coordinating authority under the Ministry of Economic Affairs and Climate Policy. Rijkswaterstaat, an agency of the Ministry of Infrastructure and Water Management, is responsible for the Environmental Impact Assessment and the consenting process.

## Inclusion of non-price criteria in the tender design

The Netherlands was the first country to introduce non-price criteria (NPC) into its offshore wind auction design and has since served as a model for other countries, such as Germany, to incorporate NPCs into their tenders. Non-price criteria evaluate bids for offshore wind farm areas based on factors such as the likelihood of realisation, sustainability and community engagement. According to Wind Europe (2022), including NPC as auction criteria rewards companies for the wider societal value wind energy brings and encourages innovation in important areas such as system integration, biodiversity protection and community engagement. Industry participants, such as the offshore wind developer SSE (2023), have also expressed support for the inclusion of NPCs, as they help ensure that renewable projects are delivered on time and within budget while providing long-term value to society and the environment. However, they must be well designed, carefully implemented and transparently assessed. According to SSE (2023), NPCs in emerging offshore wind markets should focus on deliverability and developer track record, whereas more diverse criteria, such as sustainability factors, are better suited to mature markets where competition is typically higher.

### Textbox 4.1: Introduction of non-price criteria (NPC) in the Netherlands

Due to strong interest and competition for the tenders organised under the Offshore Wind Roadmap 2023, strike prices fell rapidly following the introduction of NPC in the Netherlands. While the target price for 2020 was set at €100/MWh, the price level in the 2016 BMWFS I & II auction was already substantially lower than the 2020 target. Because upcoming tenders for the remaining zones were expected to be subsidy-free, the Netherlands introduced a new legal tender model that allowed subsidy-free leasing. NPCs were incorporated into the bid concept for the first time in the tender for the offshore area Hollandse Kust West, awarded in November 2022. <sup>[70]</sup> Another innovation was the inclusion of negative bidding capped at €50 million, with the assessment of the NPCs balanced against the bidder's willingness to pay (Netherlands Enterprise Agency, 2024). It should be noted that in the subsequent IJmuiden Ver tender, as developers were not expected to differ significantly in their NPC scores, the cap on negative bidding was increased, shifting the auction's focus back towards financial considerations (Janipour & Groot, 2023).

---

70. Ecowende emerged as the winner of the HKW lot VI tender by offering a bid focusing on innovative ecology measures with a strong emphasis on data sharing and transparency.

## Auctioning of a fully packaged permit

Under the Netherlands' offshore wind development framework, the winning bidder in a tender is granted a comprehensive permit package, reducing both costs and risks for the developer. The package includes the lease area, a preliminary study sufficient to complete the initial engineering design, the interconnection substation and the right to build and operate the facility for up to 40 years (James et al., 2023).

Historically, the Dutch government conducted and provided site assessment campaigns, e.g. wind resource and metocean conditions and initial environmental impact assessments (EIA), to all bidders free of charge, leading to cost centralisation and increasing the attractiveness of the Dutch offshore market to developers (Jansen et al., 2022)<sup>[71]</sup>. The EIA is prepared by the government institution RVO, which organises the entire licensing process using a general "bandwidth approach" to accommodate different offshore wind designs. The EIA is prepared in accordance with the Wind Farm Zone Decision (Kavelbesluit), and serves as an assessment for the entire project, including construction activities. The developer is allowed to plan and construct the wind farm within the bandwidth indicated in the EIA. (Nieuwenhout, 2023). From 2022, starting with the tender of Hollandse Kust West, the winner of the tender has to reimburse the site development cost to the Dutch government (Jansen et al., 2022). The new legal tender model introduced a subsidy-free leasing scheme, with an indirect subsidy provided through a funded site study. The EIA was conducted in line with this updated model (Netherlands Enterprise Agency, 2024).

**TSO-led offshore wind farm connection:** In the Netherlands, the government ensures timely grid connections through the Transmission System Operator (TSO), which is fully responsible for developing and operating offshore wind substations and grid links. The costs of offshore transmission are socialised to accelerate site development (Jansen et al., 2022). Similar to as in Germany, the developer only needs to construct the relatively short cables from the turbine to the substation. According to Nieuwenhout (2023), this TSO-led model facilitates hybrid connections and clustering, and efficient utilisation of seabed space and resources, while reducing environmental impacts and costs. The Netherlands has improved efficiency through its TSO-led model, which standardises substation design to reduce construction and maintenance costs (Wind and Water Works, 2025).

## Efficient permitting procedure and one-stop shop

According to Nieuwenhout (2023) and the European Court of Auditors (2023), the Netherlands has one of the shortest permitting procedures of all the North Sea countries. The European Commission (2023) identifies the Netherlands as the only country in its comparative study with no barriers in the offshore wind permitting process, which covers site selection, administrative authorisation and grid connection permits. The European Court of Auditors (2023) concluded that the Netherlands has succeeded in achieving some

---

71. As such, the EIA could be viewed as a part of the subsidy received by the developers, reducing the need for additional support.

of the shortest permitting timelines in all the North Sea countries while safeguarding the ecological health of its marine areas. By adopting a proactive approach that emphasises comprehensive strategic environmental assessments and early stakeholder engagement, the country mitigates the effects of environmental impacts to prevent them becoming a barrier to project development.

Netherlands Enterprise Agency serves as a one-stop shop for offshore wind development, streamlining several key steps in the process. The agency is responsible for site mapping and selection in consultation with other sea users, conducting environmental surveys and site investigations, managing the consenting process, granting permits, ensuring timely grid connection through the TSO, and organising the tender. According to the Energy Transitions Commission (2023), the country's proactive approach helps reduce pre-bid investment risks, financing and societal cost, which in turn drive down the levelised cost of energy and facilitates subsidy free bidding. However, the Energy Transmission notes that while this approach provides clarity and efficiency, it also places a substantial burden on government agencies. Having sufficient capacity and capability within government bodies, as illustrated by the UK's former Department of Energy and Climate Change (DECC) (see chapter 4.1.1), is essential for reducing the risk of slow progress.

## 4.4 Experience from Belgium

### Early and effective adoption of a marine spatial plan within a regular framework

The successful development of offshore wind energy relies heavily on early and effective spatial planning to ensure that the limited and valuable marine space is optimally allocated. Belgium was a pioneer among European countries in launching a marine spatial plan (MSP), showing how early and legally binding marine spatial planning can serve as a crucial tool in the sustainable development of offshore wind.

Belgium's commitment to marine spatial planning began with the establishment of the Act on the Protection of the Marine Environment in 1999. This law established the legal basis for the country's MSP, which is now evaluated and revised every six years. It outlines guiding principles for developers, including the precautionary, preventive and restoration principles, which are designed to safeguard the environmental sustainability of marine activities, including offshore wind development (Théry, 2022). The plan's legally binding status means that developers must comply with the designated zones and spatial allocations (Galparsoro et al., 2022). This legal robustness plays a crucial role in creating long-term certainty for stakeholders, which is often absent in countries with less prescriptive plans (Borja, 2022).

Belgium's early adoption of MSP allowed for an organised approach to offshore wind energy development, particularly in the Belgian North Sea, a region with limited available space and multiple competing marine activities. Maes (2016) emphasises that, given the dense usage of marine space for shipping, fishing and energy production, careful planning and turbine spacing were essential to avoid conflicts and ensure optimal use of the available area. By establishing the MSP early in the process, Belgium ensured that

offshore wind energy could be integrated into the broader marine environment without jeopardising other uses. Moreover, a legally binding spatial plan increases predictability for developers, all other factors remaining unchanged.

As marine environments are dynamic and spatial needs change, Belgium's MSP was designed with flexibility and stability in mind. As stated above, the MSP undergoes a mandatory review and revision process every six years, ensuring that it remains adaptive to the dynamic marine environment. This revision process includes a public inquiry and is subject to a Strategic Environmental Assessment (SEA) (Galparsoro et al., 2022). The continuous refinement of the MSP allows Belgium to maintain a balance between flexibility and stability, a crucial aspect for offshore wind development (Douvere et al., 2007). By continuously updating the plan, Belgium can integrate the latest research, adapt to emerging challenges and respond to the changing needs of offshore wind energy developers.

A significant milestone was reached with the adoption of a new marine spatial plan for the period 2020–2026, which unlocked additional areas for offshore wind farm development (FPS Health, 2023). A key feature of this plan was the zoning of the Princess Elisabeth Zone, which was divided into three parcels for offshore wind development. The first parcel is currently out for tender, with the remaining two parcels expected to be tendered between 2026 and 2028 (FPS Economy, 2025).

One of the core principles of Belgium's MSP is the inclusion of stakeholders in the planning process. From the outset, the Belgian government has engaged a wide range of stakeholders, including offshore wind developers, environmental organisations, fisheries and other marine users (FPS Health, 2023). By involving diverse interests in the decision-making process, Belgium ensures that its MSP reflects a comprehensive understanding of marine space use and minimises conflicts (Maes, 2016).

## Revised tender design and support mechanism for new Princess Elisabeth Zone

Belgium's approach to offshore wind tendering provides valuable lessons for other countries aiming to accelerate offshore wind development. As part of its goal to reduce the additional cost of offshore renewable electricity, the government has pledged to organise a competitive bidding procedure and put larger parcels on the market (FPS Economy, 2024). With its latest tender for the Princess Elisabeth Zone, the country has established a structured, transparent and competitive tendering process that ensures investor confidence, cost efficiency and grid integration. The most important aspects are highlighted below:

- **Clear legislative framework and competitive bidding:** A robust legal foundation underpins Belgium's offshore wind strategy. The Law of 12 May 2019 established a competitive tendering process and ensures a level playing field for developers. The Princess Elisabeth Zone, launched for tender on 25 November 2024, exemplifies Belgium's structured approach. By conducting preliminary site surveys and making the data available to bidders, Belgium significantly reduces investment risks, leading to more competitive bids and streamlined project execution (FPS Economy, 2025).

- **Two-sided Contracts for Difference (CfD) for price stability:** Belgium's transition from a one-sided CfD to a two-sided CfD has enhanced market efficiency. This mechanism stabilises pricing by offering revenue protection while preventing excessive profits. It also attracts a more diverse pool of bidders, enables lower financing costs and helps mitigate windfall profits through balanced revenue mechanisms (FSP Economy, 2025).
- **Strong stakeholder engagement through public consultation:** In 2022, the General Directorate of Energy organised a public consultation on the Princess Elisabeth Zone, gathering input from market players, environmental organisations and the general public. These insights directly shaped the competitive bidding framework, aligning industry needs with policy goals and enhancing social acceptance and regulatory efficiency (FPS Economy, 2025).
- **Balanced pre-qualification and award criteria:** Belgium separates pre-qualification (admissibility) criteria from award criteria, ensuring only capable bidders enter the competition while allowing price and innovation to determine the winner. According to a position paper by SSE (2023), non-price criteria are best applied as prerequisites for participation rather than as factors at the point of competition. Belgium will conduct its new tender in a similar fashion, with the majority of NPC applied as pre-qualification criteria, including technical capacities, financial strength and stability, requirements for grid connection, maximum strike price, minimum installed capacity, minimum share of citizen participation and cybersecurity (FSP Economy, 2023). If a bidder complies with all pre-qualification criteria, they enter into the award process. The award criteria then focus on price, with a 90 per cent weighting on the strike price and a 10 per cent weighting on innovation in business model<sup>[72]</sup> (A&O Shearman, 2025).

## 4.5 Experiences from other countries: a global review

Based on *Offshore Wind Licensing* (Anchustegui & Hunter, 2024) and our own studies, we have conducted a comprehensive review of practices in an extended selection of countries across all continents. We summarise the results in Table 4.1. Anchustegui and Hunter (2024) map licensing practices and, while they do not explicitly identify the most favourable approaches, a number of potentially positive measures can be inferred:

- Set national offshore targets binding in law, not just in policy.
- Assign public authorities financial responsibility for initial resource mapping.
- Organise one-stop shops for licensing.
- Avoid sequential licensing in order to reduce risk for developers.
- Pre-define compensation schemes to mitigate all (not just fisheries') conflicts of interest.
- Establish clear, predictable schedules for licensing rounds.
- Simplify procedures and licensing requirements for smaller projects.

---

72. Refers to a citizen participation increase up to 4 per cent of the project's CAPEX.

Academic literature on wind wakes between jurisdictions emphasise the need to develop new pan-jurisdictional approaches to deal with the ever-increasing amount of OW in European waters (Finserås et al., 2024). From this we may deduce the following potential measures:

- Coordinate licensing policies/rounds with neighbouring countries
- Develop mechanisms to deal with wind wake effects within and between jurisdictions
- Allow hybrid projects where all or part of the energy is exported to countries other than the one where the offshore wind farm is located.

## Sudden halt in the Empire Wind project in the USA<sup>[73]</sup>

In April 2025, the US Department of the Interior (DOI) ordered a halt to construction on the Empire Wind 1 project. Empire Wind 1 had secured necessary federal and state permits and is currently under construction (estimated 30 per cent complete). It is being developed under contract with New York State Energy Research and Development Authority (NYSERDA). The pause is part of a broader federal review initiated by President Trump's administration to reassess offshore wind and other renewable energy projects.

Estimated investments to date total about USD 2.5 billion, with further exposure including guarantees and termination fees of USD 1.5–2 billion. The pause threatens more than USD 1.6 billion in investments across 23 states and more than 3,500 jobs in the Empire Wind's supply chain.

This decision has sparked a significant backlash from industry organisations, New York state agencies and the governor, who have criticised the move as detrimental to investor confidence in the US renewable energy market. Concerns have also been raised about business predictability, financial investment and increased costs.

One of the implications of uncertain conditions for offshore wind in the US is increased short-term availability of vessels, turbines, capital and qualified personnel for projects in the Nordics. In isolation this could contribute to accelerated deployment. In the longer term, uncertain conditions could reduce expected demand and subsequently the supply of vessels and turbines.

---

73. Sources: <https://www.equinor.com/news/20250417-suspends-offshore-construction-activities-empire-wind>; <https://www.reuters.com/sustainability/boards-policy-regulation/equinor-slams-trump-administrations-halt-major-us-offshore-wind-project-2025-04-30/>; <https://www.offshorewind.biz/2025/04/18/chilling-signal-to-investors-in-us-market-backlash-from-industry-ny-state-agencies-after-us-govt-suspends-empire-wind-1-mid-construction/> [10.05.25].

**Table 4.1: Identified offshore wind (OW) characteristics in selected countries, updated version of table in Anchustegui & Hunter (2024)**

Feature	US	CO	AR	DK	FR	UK	SP	NO	CH	TA	JA	SK	AU
<b>Marine and OW planning</b>													
Marine Spatial Planning Framework				X	X	X	X	X				X	
Declaration/pre-approval of Wind Zones	X	X		X	X	X	X		X	X	X		X
<b>OW targets</b>													
Offshore wind targets in policy/law				X	X	X		X	X	X	X	X	
<b>Governmental preparatory assessments</b>													
Resource mapping before release of area for licensing	X	X		X	X	X		X	X	X	X		
<b>Regulatory agencies</b>													
Separate wind regulatory agency		X		X	X	X			X		X	X	
Regulatory agency combined with other offshore users' regulator	X		X					X					X
Multiple licensing/permitting regulatory agencies	X	X					X		X	X	X		
<b>Licensing and concession regime</b>													
Licensing and Concession regime used	X	X	X	X	X	X	X	X	X	X	X	X	X
Environmental Impact Assessment permission required	X			X	X	X	X	X	X	X	X	X	X

Consideration of other uses for the marine area in licence or legal framework				X	X	X	X	X			X	X	
Consideration of field development plan	X			X	X	X	X	X	X	X	X	X	
Capacity allocation regime included in licensing regime										X			
<b>Demonstration licences</b>													
Demonstration licence granted		X		X		X		(X)	X	X			X
<b>Support schemes</b>													
Support schemes	X			X	X	X		X		X	X	X	
<b>Allocation of licences</b>													
Bid allocation of licence work programme bidding (WPB) or Cash bidding (CB)	X			X						X			
Discretionary allocation of licence using non-price criteria		X		X	X	X	X	X	X		X	X	X
Local content/national value-added requirements							X	X*		X			X
<b>Number of licences required</b>													
Grant of access to wind areas and automatic right to construct installations and infrastructure ( <i>access and construction licence combined</i> )					X								X
First access and then construction licence	X			X		X	X	X	X	X	X	X	

Decommissioning													
Decommissioning planning requirements in licensing regime	X			X	X				X		X		
Compensation to other users/ interests													
Fisheries compensation				(X)					X		X	X	

CO=Colombia, AR=Argentina, FR=France, SP=Spain, CH=China, TA=Taiwan, JA=Japan, SK=South Korea, AU=Australia.

\* The ESA-approved support scheme for the Utsira Nord pilot OW project has elements of national value-added requirements.<sup>[74]</sup>

74. <https://www.eftasurv.int/newsroom/updates/esa-approves-norwegian-scheme-floating-offshore-wind-utsira-nord> [02.09.25].

## 4.6 Summary of opportunities

In Table 4.2 we summarise the main measures (and policies) identified in the case countries that contribute to accelerated deployment of offshore wind. The measures are categorised under the main barriers identified in [chapter 3](#). We evaluate the measures based on the extent to which they contribute to acceleration, from **high** (strongly contribute to acceleration), **medium** (contribute to acceleration) and **low** (marginally/do not clearly contribute to acceleration). We briefly discuss the measures in each country. For more details, please see the section on the country in question subchapters 4.1–4.4. We highlight the following points for each of the barriers identified in [chapter 3](#):

**Political ambitions and predictability:** Germany has three timed and legally binding targets, ensuring steady progress and predictable sector growth through a phased approach. The Netherlands has also followed up targets with a clear pathway, accompanied by a clear action plan that has ensured that targets have been achieved.

**Profitability for developers:** The UK has developed a tendering scheme that employs a number of mechanisms to lower investment and deployment risks. In the Netherlands, the winning tender bid receives a full-package permit, which lowers costs and risks. The permit covers the lease area, a preliminary study sufficient to complete the initial engineering design, the interconnection substation and the right to construct and operate the facility for up to 40 years.

**Regulations:** The UK has a clear and stable regulatory framework, including a streamlined, time-bound approval system for major offshore projects, which were classified as Nationally Significant Infrastructure Projects. Scotland, Germany and the Netherlands have developed a one-stop shop policy. Germany has also established a centralised geographic allocation method and tender system. Belgium has consistently developed and integrated marine spatial planning to ensure early and effective spatial planning. With an increased focus on sustainability and local content, driven by both EU requirements and national expectations, the efficient implementation of non-price criteria in auctions is particularly important to enhance acceptability and reduce the risk of late project rejections. The review points to practices implemented in Germany and the Netherlands.

**Stakeholder involvement:** Belgium engages early stakeholders through its marine spatial plan. Scotland has focused on mandatory pre-application consultation of stakeholders, where developers must consult with key stakeholders before submitting their formal application in order to reduce legal challenges and objections later in the permitting process.

**Knowledge sharing:** The Dutch and Belgian governments have recently focused on providing preliminary site surveys and EIAs for bidders. This reduces investment risks, leading to more competitive bids and streamlined project execution. It also facilitates stakeholder involvement and contributes to quicker permitting process.

**Industrial barriers:** The market for turbines and vessels is largely global, meaning that developers encounter similar barriers across countries. In the labour market, skills are also largely transferable between nations, particularly within Europe.

**Grid connection:** In all countries, grid connection is managed by a separate agency, the transmission system operator (TSO), even where a one-stop shop policy has been implemented. In Germany, the TSO is responsible for offshore grid planning and covers the cost of connecting sea platforms, which collect energy from multiple offshore wind farms, to the mainland. In the UK, an alternative model based on competitive Offshore Transmission Owners (OFTOs) has been introduced to help reduce transmission costs.

- **High:** Strongly contribute to acceleration of offshore wind deployment.
- **Medium:** Contribute to acceleration of offshore wind deployment.
- **Low:** Marginally/do not clearly contribute to acceleration of offshore wind deployment.

**Table 4.2: Overview of main identified drivers and relative score between countries**

Driver	Measure	The UK	Germany	The Netherlands	Belgium
Political ambitions and predictability	Clear and predictable targets and legislative framework	High	High	High	High
Profitability for developers	Cost reduction mechanisms	High	High	High	High
Regulations	Centralised tendering system	High	High	High	High
	Stable but adaptive regulation	High	High	High	High
	Efficient permitting processes	Medium	High	High	High
	Non-price criteria (NPCs) in Auctions	Low	High	High	Medium
Stakeholder engagement	Efficient stakeholder engagement	Medium	Medium	High	High
Knowledge gathering and sharing	Government survey data shared with bidders	Low	Low	Medium	Medium
Industrial barriers	Contribute to supply chain development	High	Medium	Medium	Medium
Grid connection	Efficient and facilitating grid connection models	Medium	High	High	High

## 5. Opportunities in the Nordics



Image: Shutterstock

Based on the review of practices and identified barriers in the Nordic countries ([chapter 3](#)) and the identified measures or policies (opportunities) for accelerated offshore wind in other countries ([chapter 4](#)), we assess in this chapter the relevance of the opportunities for the Nordic countries.

The Nordic countries are at different stages, with different ambitions in developing offshore wind and with different approaches. There is therefore variation in the relevance of potential measures or policies from other countries. The review is thus a relevant contribution to the knowledge base for continued policy development in each of the Nordic countries.

In the following we assess both:

- the relevance of the identified measures in [chapter 4](#) for each of the Nordic countries, and
- to what extent the measures contribute to limiting each country-specific barrier identified in [chapter 3](#).
- The assessments are summarised in Table 5.1, coloured depending on the relevance of the measures for the barriers in each country: **relevant (green)**, **somewhat relevant (yellow)** and **not relevant (red)**. The table can be read alongside Table 3.2 (barriers) and Table 4.2 (opportunities). The assessments are explained in more detail below the table.

**Table 5.1: Overview of identified possible measures and their relevance for each of the Nordic countries**

Driver	Measure	DK	NO	SE	FI	IS	FO	AX
<b>Political ambitions and predict-ability</b>	Clear and predictable targets and legislative framework	<b>Relevant for all countries</b> , and fundamental for addressing the other barriers. Germany has three timed and legally binding targets, the UK has clear targets and a strategic vision, and the Netherlands have also followed up targets with a clear pathway and action plan.						
<b>Profit-ability for developer</b>	Support level and design	<b>Somewhat relevant for all countries</b> , but will depend on the level of political ambitions. Some inspiration from designs in the Netherlands and Belgium, but are continuing processes, especially in DK and NO. Hybrid connections to facilitate export will increase profitability.						
<b>Regulations</b>	Centralised Tendering System	<b>Somewhat relevant.</b> DK is well developed	<b>Relevant for all other countries.</b> The review highlights stable and predictable conditions in the UK and Germany. More effort is required in SE and FI, and in particular in IS, FO and AX.					
	Stable but adaptive regulation							
	Efficient permitting processes							
<b>Stakeholder involvement</b>	Efficient stakeholder engagement	<b>Relevant for all countries.</b> The model in Belgium contributes to early involvement of stakeholders.						
<b>Knowledge sharing</b>	Government survey data shared with bidders	<b>Relevant for all countries.</b> Measures in Scotland and Belgium may contribute to more efficient knowledge gathering and sharing.						
<b>Industrial barriers</b>	Contribute to supply chain development	<b>Relevant for all countries.</b> Industrial strategies in the UK could be a blueprint.						
<b>Grid connection</b>	Efficient and facilitating grid connection models	<b>Relevant for all countries.</b> In particular the German and Dutch TSO-led models may be relevant for all the Nordic countries.						

Several of our interviewees stressed the importance of **national political predictability**, and we summarise this as a clear barrier in [subchapter 3.10](#). The international review in particular points to Germany, with three timed and legally binding targets, ensuring steady progress and predictable sector growth through a phased approach. Beyond set targets, the UK is considered to have a well-defined strategic vision to back up the political ambitions. The Netherlands have also followed up targets with a clear pathway, accompanied by a clear action plan that ensured the achievement of targets. Predictable government commitment enhances industry confidence and acts as a catalyst for offshore wind development. It also provides clarity for renewable energy developers, fostering investment in infrastructure and value chains, and preparing other stakeholders for potential synergies and conflicts.

Binding long-term targets are more relevant for countries that need to replace fossil electricity production than for countries focusing on supplying future demand growth. For countries such as Germany and the UK, the uncertainty with regards to offtake/demand is relatively low, as renewable energy replaces natural gas and coal. For Nordic countries, on the other hand, the development of offshore wind requires more alignment with the energy transition in other sectors. This creates more uncertainty of future offtake and thus complicates the predictability of quantified production targets. However, the need for flexibility on the production side has to be balanced against the long-term predictability for the industry, to ensure sufficient investments in the value chain.

For **profitability for developers**, some best practices are being developed and applied across countries; auctions and two-sided CfDs are becoming standard. Thus, stable long-term signals on national ambitions are fundamental for signalling the level of government support, e.g. recent developments in Denmark, mentioned in chapter 3. There is, however, also room for deliberate measures for acceleration within this framework. In the Netherlands, the winning bid of a tender receives a full-package permit, which lowers cost and risk. The package includes the lease area, a preliminary study that is sufficient to complete preliminary engineering design, an interconnection substation, and the right to construct and operate the facility for up to 40 years. In Belgium, non-price criteria are used as a prerequisite to participate rather than award criteria. If a bidder complies with all pre-qualification criteria, they enter into the award process, where the price is weighted 90 per cent.

For **regulations**, Denmark is also considered somewhat more developed than the other Nordic countries, meaning the relevance is higher for the other countries than Denmark. One-Stop Shops are becoming the standard practice, in addition to central planning of site allocation. In addition, the UK has a clear and stable regulatory framework, including a streamlined, time-bound approval system for major offshore projects, and Belgium has worked consistently over time to develop and integrate a marine spatial plan for early and effective spatial planning.

**Stakeholder involvement** is a challenging barrier, as consultation with and involvement of stakeholders contribute to limiting consequences for other interests. Measures to reduce the time for consultation will contribute to accelerated deployment, particularly in Norway and Sweden, and earlier involvement and clarification among municipalities and

defence interests will contribute to accelerated deployment in Sweden and Finland. In particular, the Belgian model of early engagement of stakeholders through their marine spatial plan may be relevant for all the Nordic countries. Also, Scotland has focused on mandatory pre-application consultation of stakeholders, where developers must consult with key stakeholders, prior to submitting the formal application.

**Knowledge gathering and sharing** may be a barrier relevant for all Nordic countries, when the timing is not optimal (e.g. due to seasonality) or when sharing existing information is quicker (and more efficient) than gathering new information. The Dutch and Belgian governments have recently focused on providing preliminary site surveys and EIA to bidders. This reduces investment risks, leading to more competitive bids and streamlined project execution. It also facilitates stakeholder involvement and contributes to quicker permitting processes.

**Industrial barriers** are also relevant for all Nordic countries: the markets for labour, vessels and turbines are global, or at least European. Port infrastructure is more country specific, where Denmark is more developed than the other countries. Industrial strategies in the UK incentivise local content and manufacturing and may thus help reduce the barrier. At the same time, with the supply being global, other processes (e.g. reduced demand for renewable energy in the US) may be more determining for the barrier than measures the Nordic countries undertake. The countries are more in control of developing port infrastructure, which may facilitate practical deployment.

Lastly, the organisation of **grid connection** may be a barrier to offshore wind deployment. TSO-led models implemented as one-stop shop policies in Germany and the Netherlands are likely relevant to facilitate deployment in all of the Nordic countries. In Germany, the TSO is responsible for offshore grid planning and bears the cost for the connection from the sea platform. In the longer term and with more activity, more extensive models may be beneficial, e.g. see the textbox below.

## Gas infrastructure in the North Sea and the Norwegian Sea<sup>[75]</sup>

Norway's offshore gas infrastructure, with state involvement, neutral operations, collective ownership and regulated tariffs, provides a comprehensive model for organising offshore infrastructure of possible relevance for offshore wind grid systems. Efficient systems for transporting gas contribute to national objectives of value creation from petroleum extraction. Some of the oil and gas is transferred in pipelines to onshore facilities, to Norway or directly to the UK and continental Europe. The infrastructure is regarded as cost-effective and reliable, thus giving Norwegian gas a competitive edge.

The total length of the Norwegian gas pipeline network is almost 9,000 kilometres. The infrastructure is controlled by the Norwegian government, with important motivations being the major investments needed and that multiple companies rely on its services. The infrastructure is regarded as a natural monopoly. Government ownership contributes to equal access to capacity in the system on the basis of companies' needs and for tariffs by socio-economic principles.

The original dedicated gas transport solutions for individual fields have been transformed into an integrated system serving most of the Norwegian continental shelf. Three onshore gas processing plants, Kårstø, Kollsnes and Nyhamna, are integrated with the pipeline network, and receive rich gas from the fields. Dry gas is separated from the rich gas for onward pipeline transport to receiving terminals abroad. There are four receiving terminals for Norwegian gas in continental Europe (two in Germany, one in Belgium and one in France) and a further two in the UK.

The operator Gassco, the joint venture Gassled and regulated access to the transport system are important elements of the framework. **Gassco** was established in 2001, and is state-owned. Gassco is the neutral, independent operator of the gas transport system. They develop new infrastructure, administer system capacity, and coordinate and manage gas streams. They also run the infrastructure in accordance with legal requirements. As the system operator and the actor with the best overview of the system, Gassco has the task of further developing integrated Norwegian gas infrastructure. This means for example that when major development projects are being evaluated, gas fields other than those that have a clearly defined need for gas transport must also be taken into consideration. Interactions between new and existing infrastructure must also be part of the assessment. **Gassled** is a joint venture that owns most of the gas infrastructure. The aim of the joint venture is to avoid conflicts of interest, for example when deciding which pipeline should be used to transport gas from a particular source. **Petoro** manages the State's direct financial investments in petroleum activities (SDØE) on the Norwegian continental shelf. They hold rights in extraction licences, fields and transport infrastructure.

---

75. Sources: <https://www.norskpetroleum.no/en/production-and-exports/the-oil-and-gas-pipeline-system/>; <https://www.regjeringen.no/en/aktuelt/the-state-acquires-increased-ownership-in-the-gas-transportation-system/id3074172/> [10.05.25].

## 6. Catalogue of best practice and recommendations



Images: iStock

This chapter brings together the key identified barriers from [chapter 3](#) and the identified international opportunities from [chapter 4](#), into actionable, Nordic-level and country-tailored suggestions for best practice.

We present seven recommendations for accelerating offshore wind deployment, as outlined below. Recommendations 1–3 build a solid foundation for policies, where the level of ambition and extent of government commitment determine the need for regulatory framework and support levels. Recommendations 4–6 centralise government organisation in one-stop shops, integrating grid planning, as well as centralising and frontloading information gathering. This reduces developer risk and costs, and likely also total costs. It may improve stakeholder consultation and front-load conflict resolution.

Recommendation 7 more specifically addresses stakeholder involvement and acceptability through early and well-designed consultation processes. This may also reduce the risk of delays or cancellations and time spent on stakeholder consultation later in the process, and may increase local and regional acceptance for deployment. We also suggest two other possibly relevant practices, depending on current practices in each country: use of non-price criteria (NPC) as pre-qualification, and contributions to infrastructure and supply chain development.

Offshore wind policies and industries are evolving quickly across countries, meaning that we are assessing a moving target: we are suggesting best practices in a context where policies are continuously being developed and technological and policy developments outside the Nordic region are changing the conditions under which Nordic authorities and industry operate. In addition, there is variation between the Nordic countries. Denmark is a frontrunner and has to a larger extent than the others already implemented recommendations 1–3.

## Policies for accelerated offshore wind deployment require a solid foundation

An enabling condition for implementing other best-practice measures is a strong, publicly stated commitment that sets the direction, timeframe and level of ambition for the offshore wind build-out. At a minimum this should come from the national government; legislative commitment set by the parliament will give greater predictability.

Commitments should be specified and followed up in strategies and action plans. Publicly available and credible pathways allow for long-term planning by developers and the supply chain. Setting binding long-term targets must be balanced against the need for flexibility to meet changes on the demand side. Future electricity demand is less uncertain in countries that to a greater extent than the Nordic countries are replacing fossil electricity production with renewable energy production (e.g. the UK and Germany). In Nordic countries, short- to medium-term targets could be more suited. If such targets are backed by political commitment this would increase predictability for the industry in most countries.

	Relevance	Ownership
<p><b>1. Clear and predictable targets:</b> Broad political agreement on offshore wind targets and willingness to support development will increase predictability for developers and reduce investment risk in national supply chains. However, the time frame of the targets needs to be balanced against demand-side risk.</p>	<p>DK <b>NO</b> <b>SE</b> <b>FI</b> <b>IS</b> <b>FO</b> <b>AX</b></p>	<p>National government. Parliament if legislative enactment.</p>
<p><b>Non-Nordic examples:</b> Germany and the UK</p>		

*Denmark is a frontrunner and has to a larger extent than the others already implemented the recommendation and is thus indicated as slightly less relevant than the other countries.*

Set political commitment should be followed up with a supporting framework for offshore wind deployment. Stable framework conditions increase predictability for developers. It may also stimulate industry development, ensuring vessels, turbines and specific experts, such as project managers and electrical engineers. Key elements include legislating targets and issuing binding secondary regulations/guidance, process maps with statutory time limits and service levels, and aligning tender calendars with data collection, grid plans and MSP zoning. For example, the **UK** couples a time-bound planning regime for Nationally Significant Infrastructure Projects with predictable CfD allocation rounds and standard contracts – giving clear milestones and revenue certainty. The **Netherlands** uses the Offshore Wind Energy Act with an RVO one-stop model: the government issues binding **site decisions** and awards “full-package” sites.

	Relevance	Ownership
<p><b>2. Clear and stable regulatory framework:</b>            Adopt a law-anchored, end-to-end regime with statutory timelines, efficient and robust tender design, as well as alignment of tenders with data collection, MSP and grid planning.</p>	DK	National government, Energy ministries
	NO	
	SE	
	FI	
	IS	
	FO	
AX		
<p><b>Non-Nordic examples:</b> The UK and the Netherlands</p>		

*Denmark is a frontrunner and has to a larger extent than the others already implemented the recommendation and is thus indicated as slightly less relevant than the other countries.*

Most offshore wind projects are presently not profitable without financial support. Auctions and Contracts for Difference (CfDs) have become the gold standard. Other project-specific measures could further increase profitability for developers and thus facilitate deployment. In the Netherlands, the winning bid of a tender receives a full-package permit (the lease area, a preliminary study, an interconnection substation, and the right to construct and operate the facility for up to 40 years). Access to a larger market (hybrid connections and other infrastructure) may also increase profitability as well as an increased deployment of alternative fuel infrastructure.

	Relevance	Ownership
<p><b>3. Support level that matches the targets:</b>            Auctions and CfDs have become the gold standard, and use market mechanisms to reduce costs. Given lack of profitability, government support should align with stated targets and commitment. Full-package permits, hybrid connections and other infrastructure to support profitability and reduce risk should be considered.</p>	DK	National government, Energy ministries
	NO	
	SE	
	FI	
	IS	
	FO	
AX		
<p><b>Non-Nordic examples:</b> The UK and the Netherlands</p>		

*Denmark is a frontrunner and has to a larger extent than the others already implemented the recommendation and is thus indicated as slightly less relevant than the other countries.*

## Efficient and predictable processes

One-Stop Shops and central planning of site allocation are becoming standard practice for organising deployment. A single point of contact eases developers' government contact, which reduces pre-bid investment risks and reduces costs for developers. This should also be seen in relation to TSO-led grid development, which, if effectively coordinated, reduces developer risk. For instance, the Netherlands Enterprise Agency takes on the site mapping and selection in agreement with other users of the sea, conducts environmental surveys and site investigations, undertakes the consenting process, grants the permits, guarantees timely grid connection through the TSO and arranges the tender. The UK also has a streamlined, time-bound approval system for major offshore projects classified as Nationally Significant Infrastructure Projects. The practice is relevant for all Nordic countries, although Denmark – with a single point of contact – is somewhat more developed than the other Nordic countries in this regard.

	Relevance	Ownership
<p><b>4. One-stop shops, centralised tendering and licensing:</b> Establish or strengthen a single point of contact across permitting and grid interfaces. Where relevant, pair this with centralised tendering to reduce post-award uncertainty.</p>	<p><b>DK</b> <b>NO</b> <b>SE</b> <b>FI</b> <b>IS</b> <b>FO</b> <b>AX</b></p>	<p>Energy ministries and agencies; TSOs</p>
<p><b>Non-Nordic examples:</b> The UK and the Netherlands</p>		

## Centralised data collection and exchange facilitate efficient and speedy deployment

Government-led site surveys and EIA reduce developer risks and may reduce total costs through economies of scale (by reducing the number of surveys). They may also reduce delay risks due to seasonality in data collection. Data may either be sold or distributed to bidders and/or given to the winning bid (see full-package permit, NL). Stronger government data control may also increase credibility in the data and facilitate stakeholder involvement. Data should be open access when possible and relevant, e.g. through [NordicSpatial](#).

	Relevance	Ownership
<b>5. Government data collection and sharing:</b> Government-led site surveys and data shared with bidders to reduce total cost and risk, which also may speed up the process. Costs may be reimbursed to authorities by bidders.	DK	Relevant agencies (One-Stop Shop)
	NO	
	SE	
	FI	
	IS	
	FO	
	AX	
<b>Non-Nordic examples:</b> Scotland, Belgium and the Netherlands		

Investing in and active use of Marine Spatial Planning (MSP) front-loads conflict resolution and outlines guiding principles for developers. Belgium has invested in MSP that sets clear rules for developers and is revised on a six-year cycle, with updated SEA and a public inquiry.

	Relevance	Ownership
<b>6. MSP-anchored zoning and data framework:</b> If possible, active use of MSP that designates offshore wind areas, sets common standards for baseline surveys and open data (methods, metadata and release timelines), links to the one-stop shop and tender data rooms, and is revised on a fixed cycle.	DK	Relevant agencies (One-Stop Shop)
	NO	
	SE	
	FI	
	IS	
	FO	
	AX	
<b>Non-Nordic example:</b> Belgium (MSP 2020–2026; Princess Elisabeth Zone)		

## Offshore wind deployment relies on public and stakeholder acceptance

Support and acceptability for offshore wind deployment relies on stakeholder consultation and possibly involvement. Deployment may produce negative environmental effects, have visual impacts and be in conflict with other interests, such as marine traffic, fisheries and national security. Early and well-designed stakeholder consultation reduces risks of delays or cancellations (e.g. cases of municipal veto and defence interests in Sweden). Stronger early consultation is also likely to reduce total time spent on stakeholder consultation later in the process. In particular, the Belgian model of early engagement of stakeholders through their marine spatial plan may be relevant for all the Nordic countries. Also, Scotland has focused on mandatory pre-application consultation of stakeholders, where developers must consult with key stakeholders, prior to submitting the formal application.

7. Early stakeholder consultation:	Relevance	Ownership
Stakeholder consultation in developing MSP and other strategic processes may identify conflicts and potential barriers for development early on. This reduces risk for developers and governments, e.g. of municipal veto or conflict with national security interests, and may reduce total consultation time.	DK NO SE FI IS FO AX	Relevant agencies (One-Stop Shop)
<b>Non-Nordic example:</b> Belgium		

## Other possibly relevant practices for accelerating deployment of offshore wind energy

Depending on the specific project, other measures may be put in place. With increased focus on sustainability and local content, both from EU requirements and local or national expectations, **efficient implementation of non-price criteria (NPC) as pre-qualification** may be relevant to increase acceptability and decrease the risk of late rejections of projects, e.g. for biodiversity management plans and decommissioning. The review points to practices implemented in Germany and the Netherlands.

Also, the authorities may **contribute to infrastructure and supply chain development** through port planning and roadmaps for industry development. This may reduce challenges with vessel and turbine availability. For countries other than Denmark, lack of assembly and installation ports is also a barrier for project deployment that may be reduced through infrastructure planning.

# References

adelphi & German Offshore Wind Energy Foundation. 2022. Offshore Wind in Germany – Status Quo and Prospects 5. Available at:

[https://adelphi.de/system/files/mediathek/bilder/221011\\_Input%20Offshore%20Wind%20WindSeeG\\_final\\_0.pdf](https://adelphi.de/system/files/mediathek/bilder/221011_Input%20Offshore%20Wind%20WindSeeG_final_0.pdf).

A&O Shearman. 2025. The Tender Principles for the Development of the Belgian Offshore Princess Elisabeth Zone. Available at: <https://www.aoshearman.com/en/insights/the-tender-principles-for-the-development-of-the-belgian-offshore-princess-elisabeth-zone>.

Anchustegui, I. & Hunter, T. 2024. Offshore Wind Licensing. Edward Elgar Publishing.

Brinckmann, C. 2025. Assessment of the Failed Offshore Wind Auction in Denmark – 2024.

Bundesamt für Seeschifffahrt und Hydrographie (BSH). 2025. Wind Farms. Available at: [https://www.bsh.de/EN/TOPICS/Offshore/Offshore\\_projects/Wind\\_farms/wind\\_farms\\_node.htm](https://www.bsh.de/EN/TOPICS/Offshore/Offshore_projects/Wind_farms/wind_farms_node.htm).

BWO – Bundesverband Windenergie Offshore e.V. 2025. Laws & Regulations. Available at: <https://bwo-offshorewind.de/en/category/offshore-windenergie/gesetze-und-verordnungen/>.

Cambridge Economic Policy Associates Ltd. 2016. Evaluation of OFTO Tender Round 2 and 3 Benefits.

Deutsche WindGuard. 2024. Status of Offshore Wind Energy Development in Germany – Year 2023.

Douvere, F., Maes, F., Vanhulle, A. & Schrijvers, J. 2007. The role of marine spatial planning in sea-use management: the Belgian case. *Marine Policy*, 31(2), 182–191.

Energy Transitions Commission. 2023. Streamlining Planning and Permitting to Accelerate Wind and Solar Deployment.

European Commission. 2020. An EU Strategy to harness the potential of offshore renewable energy for a climate neutral future.

European Commission: Directorate-General for Energy; Tallat-Kelpšaitė, J. et al. 2023. Technical Support for RES Policy Development and Implementation – Simplification of Permission and Administrative Procedures for RES Installations (RES Simplify): Final Report. Publications Office of the European Union.

European Court of Auditors. 2023. Offshore Renewable Energy in the EU.

Finserås, A. 2024. Comparative Legal Analysis of North Sea Offshore Wind Licensing Procedures (PhD thesis, Bergen).

Finserås, E., Herrera Anchustegui, I., Cheynet, E., Gebhardt, C. G. & Reuder, J. 2024. Gone with the wind? Wind farm-induced wakes and regulatory gaps. *Marine Policy*, 159, 105897.

FPS Economy. 2023. Belgian Offshore Wind Energy Tenders & Corporate PPAs. Available at: <https://economie.fgov.be/sites/default/files/Files/Energy/belgian-offshore-wind-energy-ppa-fo-%20industry.pdf>.

FPS Economy. 2024. Belgian Offshore Wind Energy. Available at: <https://economie.fgov.be/en/belgian-offshore-wind-energy>.

FPS Economy. 2025. Offshore Tenders. Available at: [https://offshore-tender-platform-pep.my.site.com/s/?language=en\\_US](https://offshore-tender-platform-pep.my.site.com/s/?language=en_US).

FPS Health (Federal Public Service Health, Food Chain Safety and Environment). 2023. Marine Spatial Plan. Available at: <https://www.health.belgium.be/en/marine-spatial-plan>.

Galparsoro, I., Menchaca, I., Seeger, I., Nurmi, M., McDonald, H., Garmendia, J. M., Pouso, S. & Borja, Á. 2022. Mapping Potential Environmental Impacts of Offshore Renewable Energy. European Environment Agency.

Groot, S. & Janipour, Z. 2023. Offshore Wind Tender Design in Need of Overhaul to Meet Climate Ambitions. Rabobank. Available at: <https://www.rabobank.com/knowledge/d011389995-offshore-wind-tender-design-in-need-of-overhaul-to-meet-climate-ambitions>.

GWEC. 2024a. Global Offshore Wind Report.

GWEC. 2024b. Global Offshore Wind Auction Database.

James, M., Jannusch, K., Koenig, K., McGowan, J., Small, J. & Yahr III, E. 2023. Using Non-Price Criteria in State Offshore Wind Solicitations to Advance Net Positive Biodiversity Goals.

Jansen, M., Beiter, P., Riepin, I., Müsgens, F., Guajardo-Fajardo, V. J., Staffell, I., Bulder, B. & Kitzing, L. 2022. Policy choices and outcomes for offshore wind auctions globally. *Energy Policy*, 167, 113000.

Johnson, M. F., Gillespie, T., Gilbert, A., Callus, P. & Taylor, C. 2022. Lessons from the UK and ScotWind. Russell McVeagh. Available at: <https://www.russellmcveagh.com/insights-news/lessons-from-the-uk-and-scotwind/>.

Kusiak, A. 2016. Renewables: Share data on wind energy. *Nature*, 529(7584), 19–21. Available at: <https://www.nature.com/articles/529019a>.

Maes, F. 2016. Ruimtelijke planning op zee in België: van plan naar proces en een nieuw plan.

Menon Economics. 2022. Differansekontrakter: Vurdering av innretning av differansekontrakter for utbygging av havvind på norsk sokkel. Menon-publikasjon nr. 137/2022.

Metcalfe, S. & Sasse, T. 2023. The Development of the UK's Offshore Wind Sector 2010–16. Institute for Government.

Monteiro de Vasconcelos, R., Silva, L. L., González, M. O., Santiso, A. M. & de Melo, D. C. 2022. Environmental licensing for offshore wind farms: guidelines and policy implications for new markets. *Energy Policy*, 171, 113248.

Moscoloni, C., Carà, C., Novo, R., Giglio, E. & Mattiazzo, G. 2023. Comparison of the European regulatory framework for the deployment of offshore renewable energy projects. *Proceedings of the European Wave and Tidal Energy Conference*, 15.

Netherlands Enterprise Agency. 2024. Dutch Offshore Wind Innovation Guide – Your Guide to Dutch Offshore Wind Policy, Technologies and Innovations. Issue 2024.

Nieuwenhout, C. 2023. Developing offshore wind farms – a comparison and analysis of the legal and governance frameworks of the North Sea coastal states. *European Journal of Comparative Law and Governance*, 1-25.

Norton Rose Fulbright. 2023. Global Offshore Wind: Germany. Available at: <https://www.nortonrosefulbright.com/en/knowledge/publications/22341fc4/global-offshore-wind-germany>.

Nordic Energy Research. 2022. Accommodating Biodiversity in Nordic Offshore Wind Projects.

Nordic Energy Research. 2023. Coexistence and nature-inclusive design in Nordic offshore wind farms.

O'Hanlon, Z. & Cummins, V. 2020. A comparative insight of Irish and Scottish regulatory frameworks for offshore wind energy – an expert perspective. *Marine Policy*, 117, 103934.

Salvador, S., Gimeno, L. & Sanz Larruga, F. J. 2018. Streamlining the consent process for the implementation of offshore wind farms in Spain, considering existing regulations in leading European countries. *Ocean & Coastal Management*, 157, 68–85.

Scottish Government. 2018. Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave and Tidal Energy Applications.

SSE Renewables. 2023. Position Paper: Non-price Criteria in Renewables Auctions (June 2023). Available at: <https://www.sserenewables.com/media/s4ujcww4/sser-position-paper-non-price-criteria-in-renewables-auctions-june-2023.pdf>.

Théry, A. 2022. Legal and Regulatory Barriers to the Development of Offshore Wind Farms: A Comparison between Norway and Belgium. UiT The Arctic University of Norway.

UK Department for Business, Innovation & Skills. 2013. Offshore Wind Industrial Strategy: Business and Government Action. London: BIS. Available at: <https://assets.publishing.service.gov.uk/media/5a7ba8ebe5274a7202e18983/bis-13-1092-offshore-wind-industrial-strategy.pdf>.

UK Department for Business, Energy & Industrial Strategy. 2019. Offshore Wind Sector Deal. London: BEIS. Available at: <https://www.gov.uk/government/publications/offshore-wind-sector-deal/offshore-wind-sector-deal>.

UK Government. 2024. Clean Power 2030 Action Plan: A New Era of Clean Electricity. Available at:

<https://assets.publishing.service.gov.uk/media/677bc80399c93b7286a396d6/clean-power-2030-action-plan-main-report.pdf>.

Vaughan, A. 2018. Green Investment Bank sell-off process "deeply regrettable", say MPs. *The Guardian*, 14 March. Available at:

<https://www.theguardian.com/environment/2018/mar/14/green-investment-bank-sell-off-mps-macquarie>.

Wind and Water Works. 2025. Offshore Grid Connection. Available at:

<https://www.windandwaterworks.nl/cases/offshore-grid-connection>.

WindEurope. 2022. The Netherlands run another successful auction based on non-price criteria, 16 December. Available at: <https://windeurope.org/newsroom/news/the-netherlands-run-another-successful-auction-based-on-non-price-criteria/>.

WindEurope. 2024. Negative bidding continues to burden offshore wind development, 25 June. Available at: <https://windeurope.org/newsroom/press-releases/negative-bidding-continues-to-burden-offshore-wind-development/>.

WindEurope. 2025. Wind energy in Europe 2024: Statistics and the outlook for 2025–2030.

# Appendix

## List of interviewees

Name	Company/institution	Focus area (country)
<b>Industry actors</b>		
-	Ørsted	
-	RWE	
-	European Energy	
-	Eurowind	
-	Vattenfall (DK, SE)	
-	Source Galileo (Norge)	
Emmy Tollin	Swea wind offshore	Sweden
Ilona Valimaa	OX2	Finland
Elibna Cuéllar	OX2	Sweden
-	Statkraft	
-	Equinor	
-	Vattenfall	Germany, Denmark, the Netherlands
-	Copenhagen Infrastructure Partners	Denmark
<b>Government agencies</b>		
-	NVE	Norway
-	Statnett	Norway

-	The Offshore Directorate (Sokkeldirektoratet)	Norway
-	Kartverket	Norway
Eleonora Rönström	Regeringskansliet, Miljöprövningsenheten	Sweden
Filip Vestling	Regeringskansliet, Energienheten	Sweden
-	Energi-avirasto	Finland
Stefan Fransman	Sunnanvind project	Åland
Ralf Haggblom	Sunnanvind project	Åland
Katrin Haraldsdóttir Jensen	Umhvørvisstovan	Faroe Islands
Magnus D. Baldursson	Skrifstofa umhverfis og orku	Iceland
-	Klima-, Energi- og Forsyningsministeriet	Denmark
-	Energistyrelsen	Denmark
-	Energinet	Denmark
Roland Magnusson	Energiavirasto	Finland
Anna-Maria Lansimies	Metsähallitus (Forest Administration)	Finland
Markku Tuominen	Metsähallitus (Forest Administration)	Finland
-	Energistyrelsen	Denmark
<b>Others</b>		
-	Green power Denmark	Denmark
-	Danish Export Association	Denmark
Lina Kinning	Svensk Vindenergi	Sweden
Kristina Fröberg	WWF	Norway

# About this publication

## Accelerating Offshore Wind in the Nordics – Review of policies, legal frameworks, and licensing processes across the region

### AUTHORS:

**Menon Economics:** Øyvind N. Handberg, Even Winje, Kjetil Mastad Vestergaard, Aljoscha Schöpfer and Markus Lund Andersen

**NORCE:** Atle Blomgren and Thomas Dahlgren

**Brinckmann:** Carsten Brinck, Deepak Chinnapa, Frederik Overby Vinding and Alicia Schmidt

**University of Bergen:** Siv Elén Årskog Vedvik

© Nordic Energy Research 2026

<http://dx.doi.org/10.6027/NER2025-04>

Cover image: iStock

Layout: Agger Grafisk Design

Published: January 2026

### **Nordic Energy Research**

Nordic Energy Research is the Nordic institution for joint energy research and research-based policy development, under the Nordic Council of Ministers. [www.nordicenergy.org](http://www.nordicenergy.org)

### **Menon Economics**

Menon Economics is a Norwegian consultancy operating at the intersection of economics, policy market and the environment. [www.menon.no/en](http://www.menon.no/en)

### **Brinckmann Group**

Brinckmann is a leading renewable energy research and consulting firm, based in Denmark and Germany. [www.brinckmanngroup.com](http://www.brinckmanngroup.com)

### **NORCE Research**

NORCE is an independent research institute in Norway that conducts research for both public and private sectors, to facilitate informed and sustainable choices for the future. [www.norceresearch.no](http://www.norceresearch.no)

Legal expertise provided by Siv Elén Årskog Vedvik, Faculty of Law, University of Bergen.