GWEC
GLOBAL WIND ENERGY COUNCIL

IRENA
International Renewable Energy Agency

ENABLING FRAMEWORKS FOR

# OFFSHORE WIND SCALE UP

## INNOVATIONS IN PERMITTING

A brief from the
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## About IRENA

The International Renewable Energy Agency (IRENA) serves as the principal platform for international co-operation; a centre of excellence; a repository of policy, technology, resource and financial knowledge; and a driver of action on the ground to advance the transformation of the global energy system. A global intergovernmental organisation established in 2011, IRENA promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy and geothermal, hydropower, ocean, solar and wind energy, in the pursuit of sustainable development, energy access, energy security, and low-carbon economic growth and prosperity. www.irena.org

## About GWEC

GWEC is a member-based organisation that represents the entire wind energy sector. The members of GWEC represent over 1 500 companies, organisations and institutions in more than 80 countries, including manufacturers, developers, component suppliers, research institutes, national wind and renewables associations, electricity providers, finance and insurance companies. GWEC works at the highest international political level to create a better policy environment for wind power. GWEC and its members are active all over the world, educating local and national governments and international agencies about the benefits of wind power.

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# Abbreviations

| | |
|---|---|
| **BOEM** | Bureau of Ocean Energy Management |
| **$CO_2$** | carbon dioxide |
| **COP** | construction and operations plan |
| **DEA** | Danish Energy Agency |
| **DOI** | Department of the Interior (United States) |
| **EEZ** | exclusive economic zone |
| **EIA** | environmental impact assessment |
| **ENTSO-E** | European Network of Transmission System Operators for Electricity |
| **ESIA** | environmental and social impact assessment |
| **EU** | European Union |
| **FID** | final investment decision |
| **GIIP** | good international industry practice |
| **GIS** | geographic information systems |
| **GOWA** | Global Offshore Wind Alliance |
| **GT** | gigatonne |
| **GW** | gigawatt |
| **GWEC** | Global Wind Energy Council |
| **IEA** | International Energy Agency |
| **IOC-UNESCO** | Intergovernmental Oceanographic Commission – United Nations Educational, Scientific and Cultural Organisation |
| **ITC** | investment tax credit |
| **IRENA** | International Renewable Energy Agency |
| **LCOE** | levelised cost of electricity |
| **MSP** | marine spatial planning |
| **MITECO** | Ministry for Ecological Transition and the Demographic Challenge (Ministerio para la Transición Ecológica y el Reto Demográfico) (Spain) |
| **NCCOS** | National Centers for Coastal Ocean Science (United States) |
| **NOAA** | National Oceanic and Atmospheric Administration (United States) |

| | |
|---|---|
| **NSEC** | North Sea Energy Co-operation |
| **NSOG** | North Sea Offshore Grid |
| **OCS** | outer continental shelf |
| **OECD** | Organisation for Economic Co-operation and Development |
| **OEI** | offshore electricity infrastructure |
| **OFW** | offshore wind |
| **OSS** | one-stop-shop |
| **PPA** | power purchase agreement |
| **PPP** | public-private-partnership |
| **PTC** | production tax credit |
| **RED** | Renewable Energy Directive (EU) |
| **REDII** | Renewable Energy Directive - Recast to 2030 (EU) |
| **RVO** | Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland) |
| **SAP** | site assessment plan |
| **TEN-E** | Trans-European Networks for Energy |
| **TSO** | transmission system operator |
| **WEA** | wind energy area |
| **WETO** | World Energy Transition Outlook |

# EXECUTIVE SUMMARY

Offshore wind is key to meeting global climate goals. If the world is to achieve the 1.5°C scenario outlined in the Paris Agreement and the Glasgow Climate Pact, installed capacity of nearly 500 gigawatts (GW) of offshore wind will be needed by 2030. By 2050, that figure will have risen to 2 465 GW.

A fundamental step in supporting this technology's successful deployment around the world is the permitting process. Currently, three models exist for this: centralised, decentralised and hybrid. European best practices show that the centralised model helps decrease risks for developers, as governments take control of the process. The decentralised, two-stage model changes this to give developers more of the risk, but also greater flexibility. The hybrid model is a combination of the other two and can be adapted easily to particular country contexts. Indeed, while any of these models could be used, it is the particular political, fiscal and cultural backdrop of a country that determines which should be used.

The permitting process is part of all three deployment models. It includes the conducting of marine spatial planning (MSP) and environmental and social impact assessment (ESIA). It also encompasses stakeholder engagement and the process of gaining the requisite approvals during the project development lifecycle.

This policy brief was produced by the International Renewable Energy Agency (IRENA) and the Global Wind Energy Council (GWEC) under the Collaborative Framework for Ocean Energy Technologies and Offshore Renewables. It presents several country case studies and provides recommendations on how to improve the predictability of permitting procedures and their content, based on international best practices.

## KEY RECOMMENDATIONS

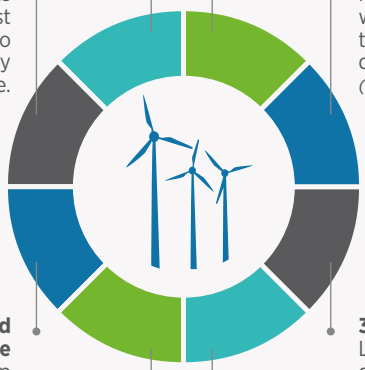
- The establishment of dedicated central authorities and single focal points which can work with offshore wind developers to streamline the siting and permitting process.
- The promotion of active dialogue between local authorities, communities, and industry to ensure shared understanding of priorities and solutions during the consenting and construction stages of wind projects.
- The mandating of maximum lead times in the offshore wind energy plant permitting process. Following the award/concession of an area for offshore wind development, a maximum of three years from the application for administrative authorisation is suggested. Additional discretionary time could be allowed under extraordinary circumstances.
- An improvement in the capacity of the personnel responsible for the permitting process. This could be achieved by investing in more staff and digital resources for the various decision-making authorities involved.
- The development of digitised & searchable for land registration and for the siting of renewable energy projects. These databases should include an inventory of local ordinances and records of places where projects have met community resistance.
- The alignment of land and ocean-use guidance at the national and subnational levels. This guidance should prioritise projects which support energy security, the principles of 'Do No Significant Harm' (DNSH)[1], biodiversity and the green economy.
- The implementation, as a national priority, of a clearing house mechanism for legal disputes to prevent extended delays to critical infrastructure projects. There should also be a structured and time-limited process for developers to provide evidence, if so required.
- An acceleration in the permitting and deployment of critical energy infrastructure, such as grids. This should be both offshore and onshore, reinforcing the infrastructure required to transport offshore power, where needed.

[1] *'Do no significant harm' means not supporting or carrying out economic activities that do significant harm to any environmental objective, where relevant, within the meaning of Article 17 of Regulation (EU) 2020/852. See https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32020R0852, accessed 22 August 2023. (European Union, 2020)*

The above recommendations are based on first-hand information and input provided directly by countries participating in the Collaborative Framework for Ocean Energy Technologies and Offshore Renewables.

## Key recommended actions to accelerate permitting process for offshore wind projects:

### Eight recommended actions to accelerate permitting for offshore wind projects



**1. One Stop Shops**
Such an institution with capable staff can promote transparent, efficient, and fair permitting processes.
*(refer to Denmark and Costa Rica Case Study)*

**2. Stakeholder Consultations**
Promote active engagement with local communities throughout whole project development process.
*(refer to GOWA Case Study)*

**3. Mandated Lead Times**
Limiting lead times can reduce government bureaucracy and prevent prolonged legal disputes with concerned stakeholders.
*(refer to European Union Case Study)*

**4. Digital Training Courses**
Relevant staff should develop skills to leverage digital platforms & tools that increase permitting efficiency.
*(refer to United Kingdom Catapult Digital Case Study)*

**5. Digital & Searchable Databases**
Developing databases on existing RE projects and land registrations complement and support awarding of permits
*(refer to United States BOEM Case Study)*

**6. Alignment of Land and Ocean Use**
Government should develop detailed guidance on how land and ocean can be used for offshore infrastructure.
*(refer to Spain Case Study)*

**7. Emergency Clearing Mechanisms**
Legal systems should have 'fast track' that allow for disputes to be resolved in the quickest way possible.

**8. Energy Infrastructure Permits**
Establish clear and consistent regulations and guidelines for the permitting and deployment of energy infrastructure.
*(refer to EU Case Study)*

# 01 INTRODUCTION

Deliberations at the annual, UN climate change conferences – the most recent of which was held at Sharm al Sheikh in Egypt in 2022 – have repeatedly resulted in calls for countries to take tangible action in response to the ever-increasing impact of climate change.

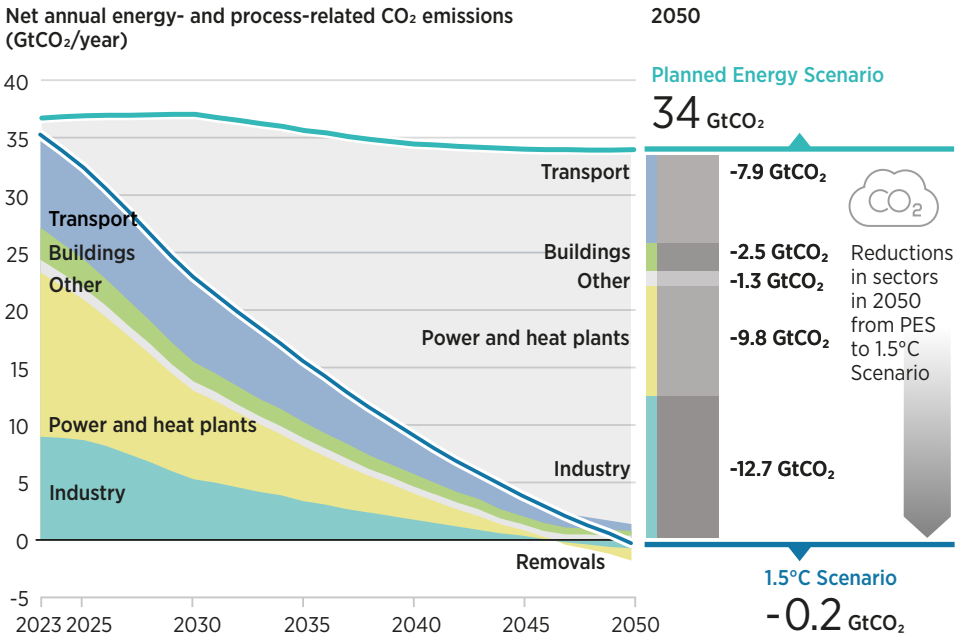
More recently, the 2023 synthesis by the Intergovernmental Panel on Climate Change once again raised the alarm that the international community is far from limiting global warming to 1.5°C – as required by the Paris Agreement and the Glasgow Climate Pact. The panel noted that the global temperature increase had already reached 1.1°C (IPCC, 2023).

In addition, IRENA's *World Energy Transition Outlook 2023* has also once again reiterated that the energy transition is off-track. The outlook notes that the aftermath of the COVID-19 pandemic and the ripple effects of the Ukraine crisis have exacerbated the barriers that are preventing the international community from accelerating global energy transition efforts (IRENA, 2023a).

WETO 2023 also stresses that limiting global warming to 1.5°C will require cutting carbon dioxide ($CO_2$) emissions by around 37 gigatonnes (Gt) from 2022 levels, if a net-zero scenario in the energy sector is to be achieved by 2050.

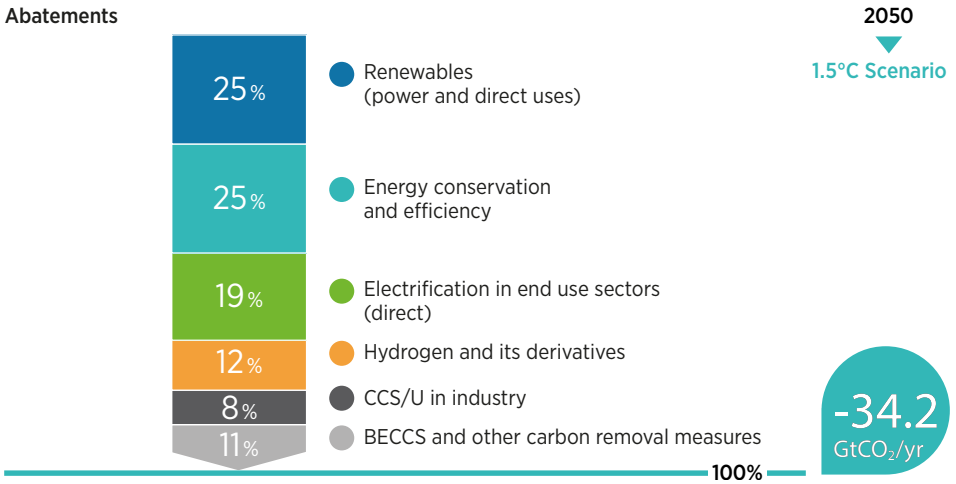
Decarbonisation of the power sector will be an important conduit in supporting the attainment of a net-zero future. Despite some progress, however, significant gaps remain between the current deployment of energy transition technologies and the levels needed to achieve the goals of the Paris Agreement. Succeeding in those goals will require a wholescale transformation of the way societies consume and produce energy (IRENA, 2023a).

Figure 1 **Estimated trends in global $CO_2$ emissions under the Planned Energy Scenario and the 1.5°C Scenario, 2023-2050**




*Source:* (IRENA, 2023a).

Figure 2 **$CO_2$ emissions abatements under the 1.5°C Scenario in 2050**




*Source:* (IRENA, 2023a).

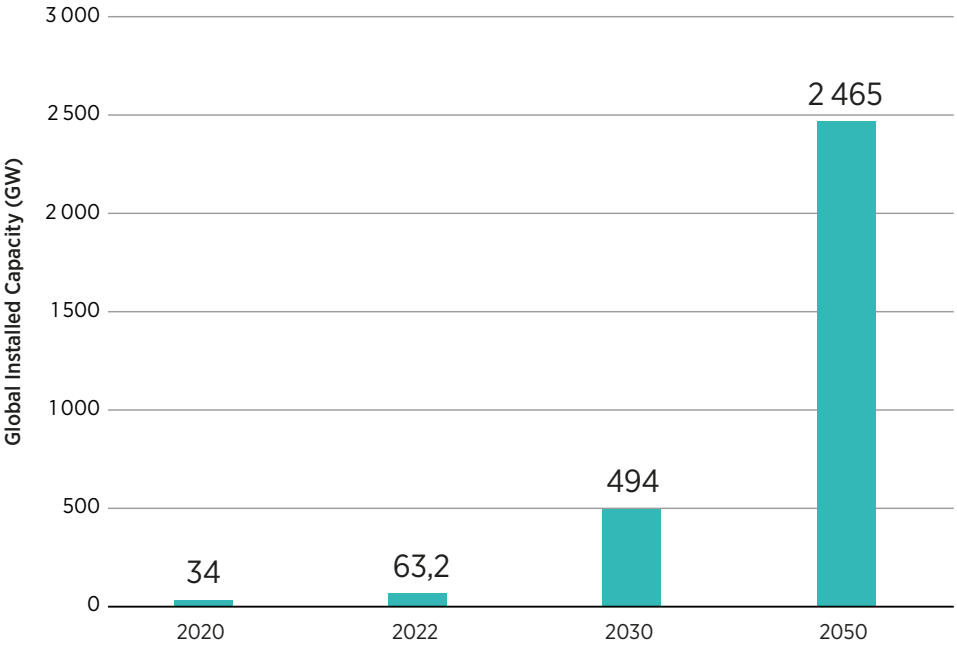
Annual deployment of approximately 1 000 GW of renewable energy will be required to comply with a 1.5°C pathway. IRENA's latest analysis shows that in 2022, around 300 GW of renewables were added globally. This accounted for 83% of new energy capacity, with the remainder consisting of fossil fuel and nuclear additions. Looking to the future, however, the volume and share of renewables needs to grow substantially – a task which is both technically feasible and economically viable (IRENA, 2023a).

Figure 3 **Annual power capacity expansion, 2002-2022**


*Source:* (IRENA, 2023a).

Offshore wind is a key resource which when harnessed effectively can contribute to meeting global climate goals. According to IRENA, nearly 500 GW of installed offshore wind will be needed by 2030 and 2 465 GW by 2050, if the 1.5°C Scenario is to be achieved. This is a huge capacity gap, given the 63 GW of offshore wind that was cumulatively installed globally in 2022. In comparison, installed onshore capacity in 2022 was 836 GW (IRENA, 2023a).

Figure 4 **IRENA WETO 2023 offshore wind global installed capacity projections**

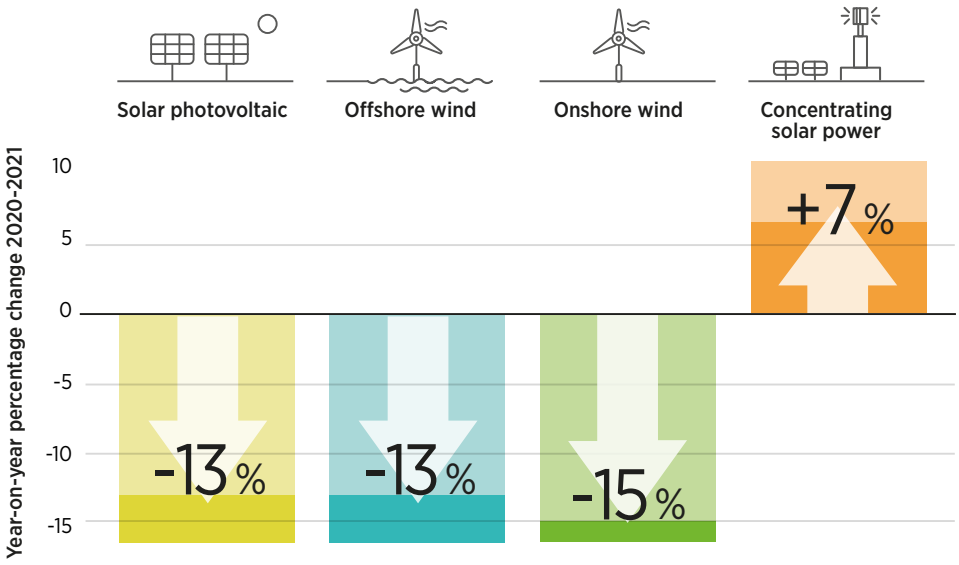



*Source:* (IRENA, 2023a).

In terms of competitiveness, offshore wind continues to be a viable solution for countries planning their energy transition strategies. Overall, since 2010, there has been a seismic shift in the cost of renewable power generation options. The global weighted-average levelised cost of electricity (LCOE) for offshore wind fell 67% during the period 2010-2021. In 2021 alone, the LCOE of utility-scale offshore wind projects fell by 13%, relative to 2020 (IRENA, 2023a).

Offshore wind will therefore be instrumental in accelerating a sustainable energy transition. It can play an integral role in delivering large volumes of clean power, enhancing domestic energy production and supporting the creation of new green jobs. There is also an ongoing 'race to the top' in terms of offshore wind ambition, with more countries than ever before setting offshore wind targets (IPCC, 2023).

Figure 5 **Change in global weighted-average LCOE by technology, 2020-2021**




*Source:* : (IRENA, 2023a).

Global focus now needs to shift towards a level of implementation that is commensurate with this scale of ambition. From an international perspective, large quantities of private capital exits that could be mobilised and directed towards offshore wind development (GWEC, 2023). At the same time, governments and policy makers around the world are keen to advance their offshore wind industries, learn from international best practice and share innovations. However, the offshore wind industry – including manufacturers, developers and investors – cites the lack of available project sites and volumes for allocation as the single biggest barrier to the rapid scale up of offshore wind.

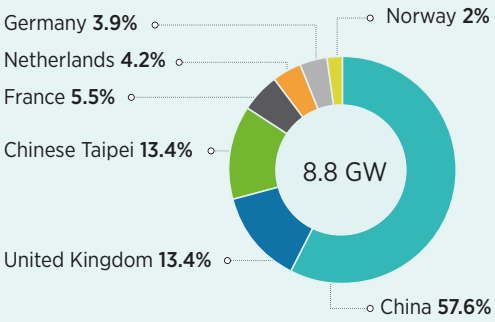
Identifying and dedicating greater amounts of marine space to offshore wind and establishing efficient permitting processes will therefore be instrumental to maximising offshore wind opportunities. It would be a high impact, tangible and achievable step in accelerating offshore wind deployment, boosting market attractiveness and growing inward investment.

# GWEC offshore wind development insights 2023

According to the GWEC Global Wind 2023 report, in 2022, 8.8 GW of offshore wind was grid connected, bringing the cumulative global offshore wind capacity that year to 64.3 GW. These new additions were 58% less than in the bumper year of 2021, but still made 2022 the second highest year for new additions in offshore wind history. New offshore wind installations decreased by 58% (12.3 GW) compared to 2021, mainly due to annual growth returning to normal after China's policy driven installation rush came to an end. (GWEC, 2023)

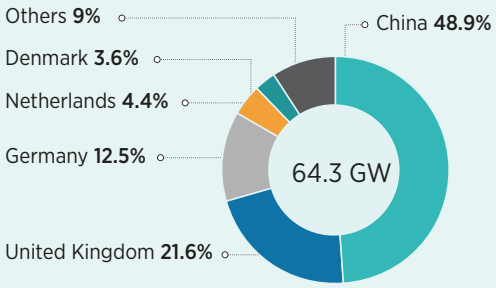
Annual offshore wind installations are expected to bounce back in 2023, to reach 18 GW. The compound annual growth rate (CAGR) for offshore wind in the next five years is forecast at 32%. With such a promising growth rate, by 2027 new installations are likely to be double their 2023 levels. (GWEC, 2023)

Figure 6 **New installations in offshore wind, 2022**



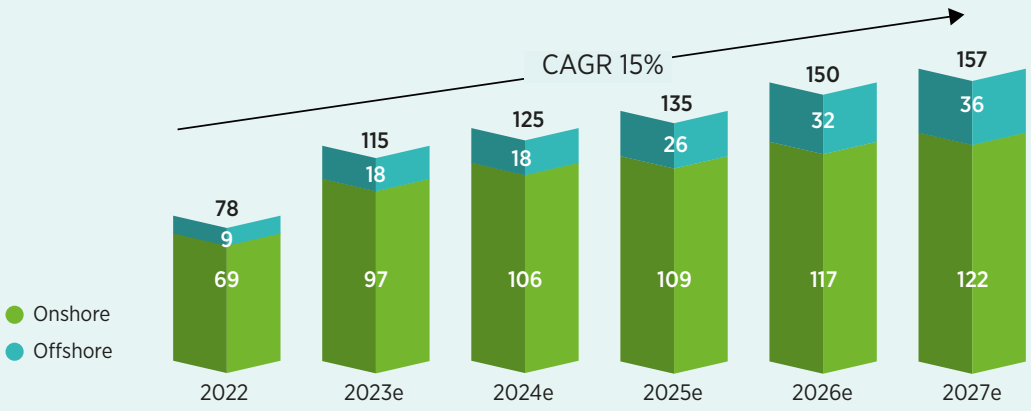

*Source:* (GWEC, 2023).

Figure 7 **Total installations in offshore wind, 2022**




*Source:* (GWEC, 2023).

Figure 8 **Offshore wind installation outlook, 2023-2027 (GW)**




*Source:* (GWEC, 2023).
*Note:* e = estimated.

In this brief, IRENA and the GWEC have leveraged their collective convening power to bring the offshore wind industry and governments together in an **effort to explore the attributes of effective permitting models**. The purpose of this is to offer insights that can help accelerate the issuance of relevant permits. By sharing international examples of best practice, it aims to aid decision and policy makers across the world in developing their approach to offshore wind permitting. The paper also provides specific case studies on how different countries are regulating the permitting processes, while outlining proposed actionable steps for the consideration of policy makers and government officials.

# 02 INNOVATIONS IN PERMITTING

## 2.1 BACKGROUND CONTEXT

Permitting models for offshore wind tend to develop in two main ways: the centralised model and the decentralised model. In addition, some countries have opted for a hybrid model, which takes elements from both the above approaches.

In the **centralised model**, the government carries out all the environmental and social impact assessments (ESIA) and site feasibility surveys (geographical and/or geotechnical), engages with stakeholders and provides consent for offshore wind development. This model enables the government to determine where sites are to be located within its territorial waters and provides a mechanism to drive a competitive auction process, whereby cost reductions for deployment are intended to benefit taxpayers. This route yields lesser risks for the developers who win the auction, as all upfront planning, development work and consent are undertaken and approved by the government.

This model is more administratively intense, however, and ultimately places more risk on the government. In this system, the preparatory development process leading up to an auction is undertaken by the government, which will have to ensure that the impact on the environment and on stakeholders meets all the requisite legal and political standards. The government also has to ensure that the data used to inform site feasibility are scientifically robust. Failure to secure stakeholders, meet ESIA requirements and/or make the site feasible can all result in delays, while also ultimately leading to a less competitive auction process, as developers may be unable to generate a competitive bid (WBG, 2021).

The Netherlands is an example of a country employing a centralised model. The Dutch government controls the entire process until the handing over of a 'packaged' offshore wind project to an offshore wind developer via a competitive auction. Under this centralised approach, TenneT, the transmission system operator (TSO) in the Netherlands, is responsible for construction and operation of the transmission system. The developer therefore needs to apply for an all-in-one permit. The milestone for submission of planning is therefore deemed to take place as project areas secure seabed development rights. In the Netherlands model, a single auction takes place (RVO, 2023).

The **decentralised model**, on the other hand, offers greater flexibility for developers and governments and places the risk of site selection and obtaining permits on the developer. In this model it is the developer's responsibility to obtain the necessary consents and permits to secure the site, following robust feasibility and assessment studies. This responsibility extends to all onshore work and grid connection, whereas the government's role is to award site areas to develop the seabed for offshore wind.

This model has the advantage of – potentially – allowing for quicker project development. This is because more stakeholders can become involved in undertaking the workload that would usually be undertaken only by government bodies. The decentralised model also ensures that developers, who are usually well placed to manage and mitigate project risk, can take control of the actions required.

However, permitting processes in this model can take longer than the centralised model, if environmental or stakeholder concerns are not addressed adequately, or the consent approval process is challenged. This model can also provide less certainty for developers and governments because there is no defined pathway for developers, unless one is provided. The absence of a defined pathway could lead to developers taking a variety of approaches, potentially overlapping stakeholder engagement activities.

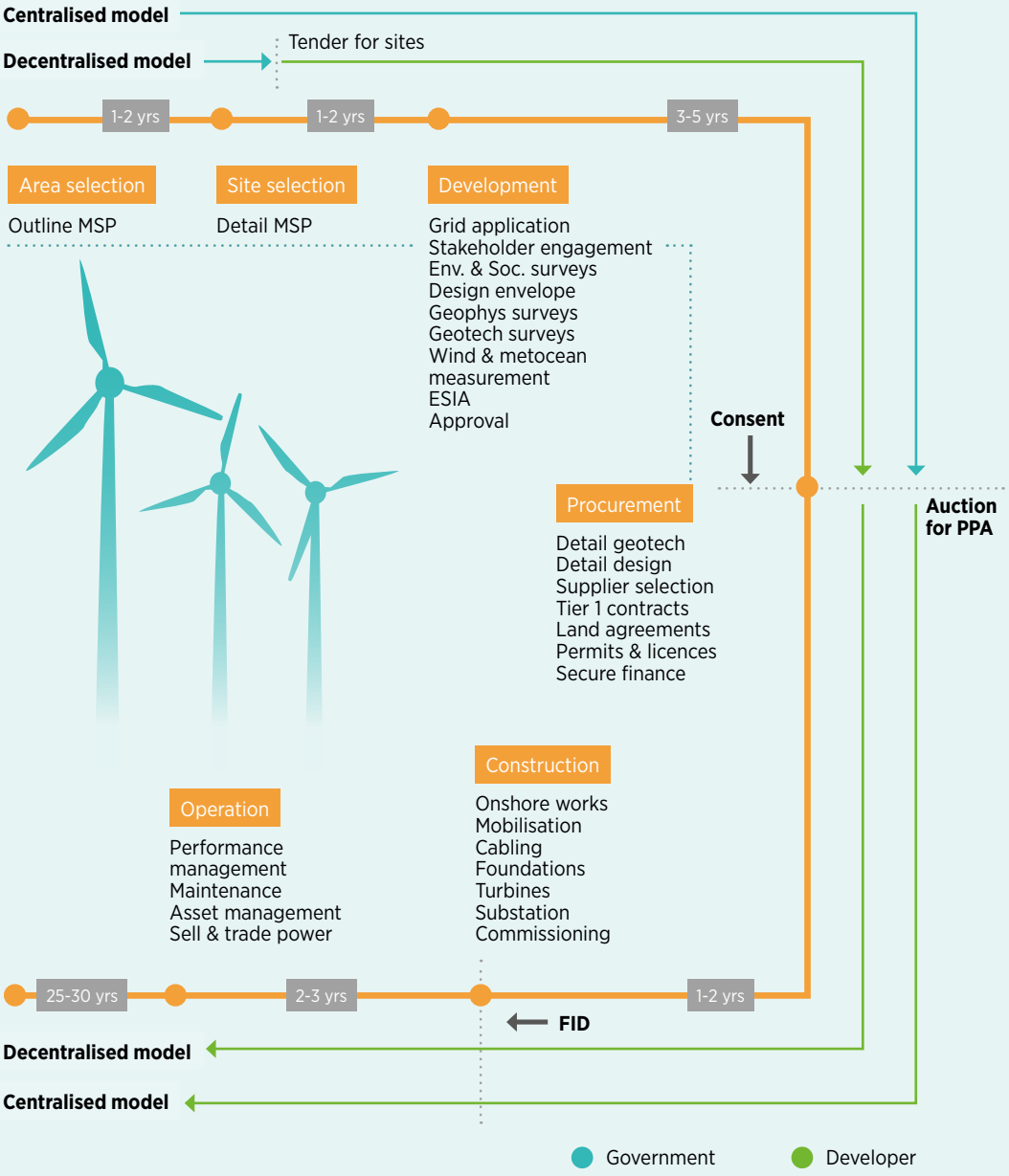
The United Kingdom employs an example of the decentralised approach. Using a two-stage model, the Crown Estate allocates leasing areas, but developers are responsible for specific site selection and early-stage development work to meet permitting and consent requirements. The developer bears the risk of gaining grid connections and permits. In the United Kingdom two auctions take place: one for the rights to exclusively develop the seabed and the second for a revenue stabilisation scheme for the offtake (BVG Associates, 2019).

Finally, the **hybrid model**, which by its very nature is a combination of aspects from the centralised and decentralised models – and thus permitting multiple configurations – is widely followed. In this model, the government is responsible for some of the early development phases, with the grid operator often planning and constructing the grid. The private developer takes over the costly parts of the project planning stages – usually those requiring significant technical know-how. The developer is usually required to conduct or contract an obligatory, detailed investigation during the permitting process. The benefit of this approach is that it can be tailored to the different characteristics of the process in different places and to existing frameworks (FOWPI, 2017).

The United States is an example of a country that follows this hybrid approach. Developers must complete an application and submit the relevant documentation, following survey and consultation activity. The Bureau of Ocean Energy Management (BOEM), which is the lead regulator, delineates areas for leasing and manages seabed site allocation. It then reviews and decides on the completeness of the site assessment plan (SAP) and construction and operations plan (COP) and prepares the Environmental Impact Assessment (EIA). As the federal government's lead regulator for offshore wind planning and authorisation, BOEM then makes the final determination. State governments, meanwhile, often play a role in driving demand for renewable energy generation by setting policy that often influence the decisions of the electricity utilities.

A general schematic of the Offshore Wind development process including permitting of the centralised and decentralised models can be seen below.

Figure 9 **General schematic of the process involved in offshore wind permitting**




*Source:* (GWEC, 2022).
*Note:* MSP = marine spatial plan; PPA = power purchase agreement; FID = final investment decision; ESIA = environmental and social impact assessments.

For more information on the theoretical underpinnings of permitting please refer to the recommended reading listed in the References section.

When looking at the three models from a bird's eye perspective, the following general conclusions can be made:

- The centralised model sees governments in charge of the ESIA process, site feasibility surveys and consent for offshore wind development processes.
- The decentralised model sees developers take on a greater share of the development risk.
- The hybrid model allows more flexibility and can potentially support the acceleration of the offshore wind market in key areas.

Evidence from the above-mentioned best practice shows that all approaches to permitting can work, but it is the political, fiscal and cultural backdrop in these countries that determines which is best to use. t is also important to highlight that each model facilitates the process for permitting, albeit at a different speed.

The foundational steps within each permitting model which influence the speed at which permits are awarded include, but not are limited to: **marine spatial planning (MSP)**; **ESIA** (including an appropriate time period for thorough baseline surveys); **stakeholder engagement**; and the **gaining of permit approvals** to support the installation of offshore wind turbines.

### Marine Spatial Planning (MSP)

Marine ecosystems make important contributions to coastal nations' economies. The Organisation for Economic Co-operation and Development (OECD) estimates that in United States dollar (USD) terms, oceans contribute as much as USD 1.5 trillion in value-added, annually, to the global economy. Due to projected technological developments in offshore renewables, this marine activity addition could double by 2030, with offshore wind playing an increasing role in the maritime environment. Indeed, as the number of actors within countries' waters increases, careful planning of the marine space will be increasingly necessary in order to deploy levels of offshore wind in line with climate targets, whilst protecting biodiversity (WBG, 2023).

MSP is an integrated, policy-based approach to regulating marine environments. It includes the allocation of space based on the multiple and potentially conflicting uses of the sea in order to facilitate sustainable development. Conducted at the start of the permitting process and used as a zoning tool, MSP aims to mitigate risks by engaging multiple stakeholders early on. This should speed up the approval of projects and reduce potential conflicts. The outcomes from a similar management scheme may be used to infer the potential of an MSP in providing positive benefits when incorporated into the permitting process (Jay, 2017).

MSP brings together users and stakeholders of the ocean – including energy, industry, government, conservation and recreation – to make informed and co-ordinated decisions about how to use marine resources sustainably. In 2021, in conjunction with the European Union (EU), the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organisation (IOC-UNESCO) developed the MSP global International Guide on Marine/Maritime Spatial Planning to inform MSP practices. Previously, in 2009, the IOC-UNESCO had also published Marine Spatial Planning: A Step-by-Step Approach toward Ecosystem-based Management, which aimed to serve as a set of standards and tools for the implementation of MSP, globally (Ehler and Douvere, 2009).

The Spanish government's Roadmap for the Development of Offshore Wind and Marine Energy is an example of the important role of the MSP. Launched in December 2021, the roadmap puts a clear emphasis on the increased utilisation of MSPs to catalyse permitting activities, as well as to promote the co-ordination of access to existing and new grid connection frameworks.

In March 2023, the Spanish government approved its MSP through Royal Decree 150/2023. This identified the most suitable marine areas for the future development of offshore wind farms, ensuring their compatibility with other present and future uses and activities. The first cycle of this MSP – for the 2022-2027 period – covers five Spanish maritime districts: the North Atlantic, South Atlantic, the Straits and Alboran, the Levantine-Balearic district and the Canary Islands. The MSP is therefore a strategic planning instrument aiming to organise maritime space in order to guarantee the sustainability of activities at sea and facilitate the development of the maritime sector. The MSP is conceived as a dynamic instrument, envisaged to carry out a range of measures which, together with the monitoring indicators included in the plan, will provide new knowledge for the design of the MSP's second cycle, from 2028 onwards (MITECO, 2023).

### Environmental and Social Impact Assessment (ESIA)

An ESIA is a comprehensive review of the various possible environmental and social consequences of a new infrastructure project. This phase of the permitting process aims to promote environmentally friendly, sustainable development by forecasting and assessing the environmental as well as socio-economic impacts of offshore wind projects. The ESIA is commonly assessed on a case-by-case basis, with an analysis of the following potential topics: *technical solutions; maritime and environmental safety precautions; organisations' planning processes; and the involvement of and consent by relevant other interests at sea and on land*.

Offshore wind projects require a 360° techno-environmental review of their potential impact on the marine ecosystem, the socioeconomic sphere and other dimensions. A sound ESIA process will identify measures to avoid, minimise or mitigate potential impacts on environmental resources and on other maritime users.

High quality EISAs are aligned with international standards and good international industry practice (GIIP). This means the exercise of professional skill, diligence, prudence and foresight – qualities that would reasonably be expected from skilled and experienced professionals engaged in the same type of undertaking under the same or similar circumstances globally or regionally. Adopting international standards and GIIP can help improve the ESIA process and reduce costs by providing clear guidelines for assessing and managing environmental and social risks (WBG, 2017).

In addition, a thorough baseline assessment is one of the criteria that determines a good ESIA. This is because such an assessment provides important information that can be used to identify and understand the environmental and social conditions of the project area before the project is developed. This can involve identifying sensitive or protected areas, understanding existing conditions, or ensuring compliance with relevant laws and regulations.

### Stakeholder engagement

Stakeholder engagement is a vital stage in offshore wind permitting and the wider project development process, as it helps identify and address concerns. This engagement should go hand in hand with the ESIA process. Local stakeholder groups, such as fishermen and indigenous communities, can provide informative feedback and express their concerns. An ESIA that is well conducted in terms of

its analysis, coupled with a well-arranged stakeholder engagement, can therefore facilitate a smoother granting of consents.

European experiences show that it is always deemed favourable to clarify upfront if conflicting uses can be expected in a sea space envisioned for offshore wind. Early dialogue between relevant authorities can identify potential co-existence issues and mitigation measures where possible.

In most European countries, stakeholder engagement is required in the stage of preliminary investigations, whereas in the United States or Canada, it is either done at multiple stages throughout the process or for the complete life cycle of a project. In the United States, stakeholder consultation starts at the very beginning of project development, with public comment periods incorporated into each of the regulatory stages. Stakeholders to be consulted include indigenous communities, residents in the vicinity of the project, public and private entities, fishermen, sailors or statutory consultees – a group consisting of a variety of agencies and government departments.

### Obtaining approvals to support the installation of offshore wind turbines

Some key permits which need to be obtained before the construction and operation of offshore wind farms can commence include (but not limited to): seabed leasing permit; an authorisation to exploit the energy source or generate electricity; a grid connection agreement; and permissions for any works that should be done onshore to support the installations of offshore turbines. In addition, there might be permits related to electricity produced at sea for local use (for example, for hydrogen production in electrolysers).

Feedback from industry experts shows that while this process of gaining approvals is necessary, it can be time-consuming and costly. This is particularly so when the planning timescales for these processes are not aligned to the offshore wind development lifecycle and overarching national timelines for renewable energy deployment.

Systems which do not have a simultaneous approach to obtaining these different permits can present a huge challenge. Significant delays can result when it is not clear where roles and responsibilities lie between departments or authorities. Circuitous and complex consenting processes or delayed approvals also increase

project risks. A coherent permitting process must therefore be in place to support and accelerate offshore wind development.

## 2.2 OBSERVATIONS, CHALLENGES AND POTENTIAL SOLUTIONS IN CURRENT PERMITTING PROCEDURES

Choosing and putting in place a correct and effective permitting model can facilitate offshore wind project development and the rapid deployment of offshore wind projects. Improving the transparency and predictability of permitting procedures can help bolster investment in offshore wind.

Presented below are some general observations on current permitting processes within the established models for offshore wind projects. Also included are some potential solutions to address the challenges identified by these observations. The recommended solutions and selected case studies are then elaborated further on in this report.

Table 1 **Observations, challenges and potential solutions in permitting procedures**

| Observations on permitting | Observation description | Potential solution |
|---|---|---|
| Lengthy bureaucratic processes and complexity of administration | For offshore wind, it takes up to nine years, on average, from the awarding of a lease to the full commissioning of a project (GWEC, 2022).<br><br>Elongated timeframes can lead to projects reaching the construction stage with outdated technology in their plans, including wind turbine models which may no longer be manufactured at optimal scale or cost-efficiency.<br><br>Apart from the duration, most jurisdictions also require developers to secure permits from several layers and different offices of government.<br><br>It is vital to note that in emerging markets where projects are being permitted for the first time, this process can have delays as governments are naturally undergoing a learning curve based on best practices acquired over decades in mature markets. | • Mandate maximum lead times to permit offshore wind energy plants.<br><br>• Implement an emergency clearing house mechanism for legal disputes to prevent extended delays to critical infrastructure projects.<br><br>• Accelerate energy infrastructure (offshore and onshore grid) permitting and deployment. |
| Lack of central authorities | The lack of a central authority increases complexity. This is because the permitting process becomes more complex and difficult to navigate the more agencies and departments are involved, each with their own regulations and requirements. There might also be increased time and cost, as developers must work with multiple agencies and departments each with their own timelines and fees. The absence of a central body can also potentially limit the capacity to share data with other stakeholders and track progress. | • Introduce a dedicated central authority and single focal point which can work with offshore wind developers to streamline the siting and permitting process. |
| Lack of streamlined digital resources | Without digital resources, the industry finds that it is challenging for the permitting process to go smoothly and in a timely manner. In some cases, authorities may still rely on paper-based systems, or manual data entry which can be time-consuming. Insufficient digital tools will make it more difficult to share data between different agencies and departments and to collaborate with other stakeholders, such as local communities and the private sector. This can result in additional delays, as stakeholders will have limited access to project information. | • Invest in more staff and digital resources for the various authorities which make decisions during the permitting process of a renewable energy and infrastructure project.<br><br>• Build digitised, searchable databases for land registration and the siting of renewable energy projects. |

Table 1 **Observations, challenges and potential solutions in permitting procedures (continued)**

| Observations on permitting | Observation description | Potential solution |
|---|---|---|
| Lack of holistic planning to capture complex stakeholder interactions and lack of a clear, shared understanding of the permitting rules between promoters and permitting entities | The marine space is a complex environment with many stakeholders. Deployment of offshore wind farms needs to take account of socio-cultural, political, economic and community dimensions. Any potential impact on biodiversity also needs to be taken into account, as well as any impact on other marine activities such as fishing, shipping and tourism.<br><br>A key approach that needs to be revisited/ rethought is that of using geographic information system (GIS) methodology to determine suitable project sites. A limitation of this approach is that analyses can lose data dimensionality and often require prior classification of individual GIS layers to determine suitability. Often, this does not match up with practical considerations/ factors. | • Promote active dialogues between local authorities, communities and industry during the consenting and construction stages of wind projects, with a view to ensuring community benefits and minimising environmental impacts.<br><br>• Align land and ocean use guidance at national and subnational level, prioritising projects which support energy security, DNSH principles, biodiversity and the green economy. |

## 2.3 RECOMMENDED SOLUTIONS TO PERMITTING CHALLENGES

Amongst others, the following measures should be considered in order to help foster process efficiencies and timely reviews of successful projects:

### 1. One-stop-shops

The adoption of a single contact point – a one-stop-shop (OSS) or similar model – is an important step towards a more simplified permitting process. These dedicated central authorities and single focal points can work with offshore wind developers to streamline the siting and permitting processes.

Combining regulatory skills and capacities into single bodies can also allow governments and the industry to strategically develop habitat solutions and environmental protections. This approach will help make the permitting process fairer, more transparent and efficient.

The first thing an OSS should do is to establish an organisational framework to co-ordinate the permitting requirements across all authorities that will be placing legislative conditions on the project. This is the key to the success of the OSS.

The administering organisation of an OSS needs to:

- Engage early with those developers considering applying for permits and keep stakeholders informed of the upcoming workload.
- Assess documentation from a developer and make early requests for clarifications.
- Manage assessment and responses from stakeholders, ensuring that they are informed about the latest developments.
- Manage any additional information requests to the developer.
- Keep the ultimate decision-making body (often a government minister) informed about the status of permitting.
- Make a final recommendation to the decision-making body, including any conditions required to protect the environment and affected communities.
- Administer any appeals processes.

In the EU, Renewable Energy Directive REDII[2] (European Union, 2018)requires member states to designate a single contact point – an OSS – to grant permits for operating generation assets for renewables.[3] Moreover, the regulation on trans-European energy infrastructure (the TEN-E Regulation) requires member states to set up unique points of contact for offshore grid cross-border projects, reducing the administrative burden for project developers.

Another example is the Swedish Energy Agency, which has been tasked with establishing and being responsible for a digital contact point. Direct links to the authorities handling a case need to be provided through that facility. The national provisions for Sweden that transpose REDII also include a list of authorities that shall assist the contact point, including authorities and agencies responsible for maritime issues, environmental protection, national heritage and agriculture, as well as the municipalities.

[2] *See https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02018L2001-20220607*
[3] *Article 16(1) REDII, ibid.*

Elsewhere, Finland's single contact point has been tasked with providing procedural advice on authorisation and other administrative procedures for renewable energy production plants. The national provisions in Finland include a list of elements to which the contact point's duty of advice applies. This includes the opinion of the defence forces on the acceptability of wind power construction.

It is important to stress that **setting up an OSS does not mean that all approvals are made by the OSS, or that legislative mandates are moved from other authorities to the OSS. The OSS serves as a contact point only, mandated to champion the project through the permitting process.**

An OSS may not look the same in all countries, either. Its specific structure and method of implementation will depend on the country's laws and regulations, as well as on its political and administrative structure. In some countries, a central authority for offshore wind projects may already exist. Other countries may have a more decentralised approach to permitting, with multiple agencies and departments involved in the process. Also, in other parts of the world there might not be the necessary legal framework in place or political will to establish an OSS. In these cases, it may be difficult to bring all the necessary agencies and departments together under one roof. However, in such cases, it is strongly recommended that there is, ultimately, a body championing offshore wind permitting/consenting, or that clear roles and responsibilities are defined.

In general, governments should take into account the country's specific context and needs when developing an OSS for offshore wind projects. It would be an advantage to consider the needs of different stakeholders, such as project developers, local communities and regulatory agencies, and to make sure that the OSS is able to meet those needs effectively.

## Case study 1 **Denmark's OSS for timely project permitting**

Long-term planning, as well as a stable and supportive policy framework, have been fundamental to the success of Danish offshore wind development. The concept of a single point of access, or an OSS, for project permitting not only speeds up the consenting process, but also reduces uncertainties and delays.

In Denmark, the Act on Promotion of Renewable Energy defines the rules, requirements, and procedures for issuing licenses for offshore wind development. According to the Act, the Danish Energy Agency (DEA) has the mandate to both plan and issue permits for offshore wind projects within the country's territorial waters and its exclusive economic zone (EEZ). The permit issued compiles all the information from the relevant authorities and is as such a compilation of permits, all given in one go. The DEA serves as an OSS for the project developer and grants the three licenses required to establish an offshore wind farm. These are:

- License to conduct preliminary investigations, granted after the developer submits a project description and plan of activities to carry out on the offshore site.
- License to establish the offshore wind turbines, granted if preliminary investigations show that the project is compatible with the relevant interests at sea.
- License to exploit wind power for a certain number of years and an approval for electricity production.

According to the DEA, the OSS model ensures a smooth and administratively lean process in obtaining consent for offshore wind farms, with the DEA championing the project through the permitting process. The licenses required are prepared and granted by the DEA through an iterative method. This involves contributions of project-specific knowledge being made between the relevant authorities, mitigating potential conflicts of interest. Once the concession has been granted, the DEA continues to operate as a single point of contact if the developer needs assistance on issues related to the licenses granted or any additional procedures.

**Source:* (GWEC, 2021) and Information has been based on discussion and exchanges had with the representatives of Denmark to the CFOR.

### Case study 2 **A new way of setting up a single contact point in Costa Rica** *

Countries such as Costa Rica do not have a dedicated OSS for processing offshore wind projects, but the country has developed a similar platform for other energy projects of national interest.

This alternative OSS is known as the Investment Single Window (*Ventanilla* Única *de Inversión*). With this, businesses can make a free-zone application, apply for construction consent and for environmental assessment, among other services, online. The development of this platform has reduced the permit processing time from 406 days to approximately 35-45 days.

Costa Rica has committed to leverage this platform for offshore wind projects and will be engaging with relevant stakeholders as well as investors in the foreseeable future.

**Based on:* discussion and exchanges had with the representative of Costa Rica to the CFOR.

## 2. Stakeholder consultations

Shared understanding of priorities during the consenting and construction stages of wind projects can come from the promotion of an active dialogue between local authorities, communities, and industry. Indeed, public involvement in defining regional or local spatial plans is crucial to securing public acceptance of offshore wind, as are measures to allow local communities to benefit from renewable energy installations in their vicinity.

At the same time, local communities can provide additional information which can help de-risk an offshore wind project, while the private sector can provide valuable input on project design, feasibility, new technologies and potential challenges during the permitting process. This is because private sector companies often have extensive experience and expertise in the development and construction of offshore wind projects.

By having an early, active dialogue with these stakeholders, governments will be able to manage offshore wind in a way that recognises all users and balances competing interests.

## Case study 3 **Stimulating public-private partnership for accelerated offshore wind deployment: GOWA**

The government of Denmark, IRENA and the GWEC founded the Global Offshore Wind Alliance (GOWA) in September 2022. Its aim is to drive the uptake of offshore wind through political mobilisation and the creation of a global community of practice.

GOWA aims to contribute to achieving a total global offshore wind capacity of at least 380 GW by 2030 and 2 000 GW by 2050. This means 35 GW being deployed on average each year through the 2020s and a minimum of 70 GW annually from 2030.

GOWA envisions offshore wind making a significant contribution to the energy transition and the achievement of sustainable development goals. It can do this through large-scale renewable power generation, which benefits regions, nations and critical sectors, such as industry and transportation. To benefit from the substantial potential and opportunities deriving from offshore wind, it is pivotal, however, that governments, private sector actors, international organisations and other relevant stakeholders work together to remove the barriers to scaling up investment and finance.

GOWA is a multi-stakeholder, diplomatic and workstream-based initiative that has public private partnership (PPP) as its guiding principle. GOWA is working to:

- Raise ambition on offshore wind amongst governments and other public and private stakeholders.
- Support the creation of policy frameworks and efficient offshore wind value chains to bring new and existing markets to maturity through, for example, the sharing of best practices and capacity building. Create an international community of practice to drive action on offshore wind deployment as a key to achieving 1.5C pathways.

To support countries as they seek to develop offshore wind, GOWA will address the major building blocks for the sector, such as framework conditions, financial de-risking, system integration and economic benefits. These are all important drivers to reduce costs, ensure competitive market prices and create project pipelines at the country and regional level. GOWA activities will be based on a demand-driven approach.

The first workstream of GOWA is streamlining the permitting process, examining how to optimise seabed allocation and consent for offshore wind.

**Source:* (GWEC, 2021); (IRENA, 2023b) and information has been based on discussion and exchanges had with the GOWA leads in IRENA and GWEC.

### 3. Mandated maximum lead times

Mandated lead times should be enforced for permission or refusal of offshore wind energy plants. These times should start from the application for administrative authorisation following the award/concession of an offshore area for an offshore wind development. Additional discretionary time should be allowed only under extraordinary circumstances.

Limiting permitting lead times is necessary because it will help avoid prolonged litigation and ensure a reduction in government bureaucracy and more efficient processing of applications (WindEurope, 2022). Mandatory maximum lead times to complete permitting may be appropriate where delays are consistently within the permitting agency's power. Delays due to causes outside the agency's control cannot be counted against the agency's timeframes.

Learning from European best practices and considering that emerging markets are on a learning curve, the wind industry recommends that three years be the maximum lead time for offshore wind permitting processes. The three-year deadline should include all administrative work, grid permits and the ESIA. It is important to recognise that leads time requirements might be different in emerging markets.

#### Case study 4 **The EU's fast-track permitting process** *

In response to the energy crisis, the EU Commission introduced the RePower EU plan. This calls for all renewable energy project permitting to be "drastically accelerated". To that end, member states are to design dedicated 'renewables acceleration areas' for associated technologies. These areas will have shortened and simplified permitting processes in locations with lower environmental risks. There are also 'renewables go-to areas', which include land, sea and inland waters and are those found particularly suitable areas for specific renewable energy technologies that present lower risks for the environment. Protected areas should be avoided.

## Case study 4 **The EU's fast-track permitting process (continued)**

For the renewables go-to areas, the EU Council and Parliament came to a provisional agreement on 30 March 2023 which allows a three-year permitting process for offshore projects and two years for onshore projects. The period includes the undertaking of EIAs. In the renewables acceleration areas, however, the deadlines have been reduced by one year and in principle no EIA is required. In duly justified extraordinary circumstances, the period may be extended by up to six months.

* *Source:* (European Union, 2023) and information has been based on discussion and exchanges had with the representative of EU to the CFOR.

## Case study 5 **An action-oriented administration in the United States advances project permitting** *

The Biden-Harris administration in the United States has increased strategic attention on offshore wind deployment by setting federal targets of 30 GW by 2030 and 15 GW of floating offshore wind by 2035, in addition to setting a broader net zero by 2050 goal (White House, 2023).

As in other countries, government bodies in the United States have evolved in terms of interagency co-ordination and transparency, as well as in the predictability of permitting procedures and content. In addition, the Bureau of Ocean Energy Management (BOEM) has focused on ensuring that there are sufficient human resources to provide the necessary technical and environmental reviews.

The Outer Continental Shelf (OCS) Renewable Energy Program announced by the United States Department of the Interior (DOI) in 2009 provides a framework for issuing leases, easements and rights-of way for OCS activities that support the production and transmission of energy from sources other than oil and gas. These responsibilities are implemented through the BOEM. This has outlined a four-phase leasing process based on competitive or non-competitive auctions to regulate the overall process of offshore wind project permitting.

In recent years, permitting has been raised as a prominent obstacle in the way of developers meeting construction timelines and benefitting from production tax credit (PTC) and investment tax credit (ITC) schemes. The first large-scale, 800 MW Vineyard offshore wind project, awarded through a lease auction in 2015, went through additional review to expand the cumulative effects assessment to 1.5 years, due to

## Case study 5 **An action-oriented administration in the United States advances project permitting (continued)**

challenges encountered during the COP and EIA stages. The developer then chose to withdraw its application prior to a decision being reached – but then resubmitted after the current administration took office.

According to GWEC, 28 GW of offshore wind could be built in the United States by 2030. Up to 15 GW of fixed-bottom offshore wind capacity has already been awarded through state-level solicitations, or having secured offtake, while another 9.2 GW of competitive solicitations (in Rhode Island, New Jersey, Massachusetts, Connecticut and Maryland) are lined up out to 2028 (GWEC, 2022). To meet the scale of interest and targeted growth, as of 2023, there were 20 states participating in one or more offshore wind Task Force.

There are also new permitting deadlines: BOEM plans to complete a review of 16 COPs by 2025. As of November 2022, the bureau had done this for 2 COPs and initiated a formal review for 10 more. These steps, along with improved engagement between the relevant authorities and stakeholders, have turned the United States into a good example of an action-oriented administration resolving permitting hurdles to foster offshore wind growth.

* *Source:* (GWEC, 2021) and Information has been based on discussion and exchanges had with the representatives of the USA to the CFOR.

## Case study 6 **Australia's National Offshore Renewable Energy Framework** *

The Australian government has committed to a 43% reduction in Australia's emissions by 2030 and net zero by 2050. The establishment of an offshore renewable energy industry in Australia will play an important role in the decarbonisation of the energy sector.

The *Offshore Electricity Infrastructure Act 2021* (OEI Act) provides the legal framework for offshore renewable energy projects and activities in Commonwealth waters. It commenced on 2 June 2022 and enables the full life cycle for the construction, implementation and decommissioning of offshore renewable energy infrastructure.

## Case study 6 **Australia's National Offshore Renewable Energy Framework (continued)**

While the framework is not limited to offshore wind projects, it has been designed to be flexible and able to adapt to any emerging offshore renewable energy technologies, allowing industry to drive development.

The OEI Act prohibits people from undertaking offshore infrastructure activities without one of three main licence types that can be granted by the Ministry for Climate Change and Energy:

- A commercial licence to generate offshore renewable energy for up to 40 years. A feasibility licence must be obtained prior to an application for a commercial licence. A feasibility licence allows the project proponent to undertake scoping studies in the licence area for a period of up to 7 years.
- A transmission and infrastructure licence to install offshore cables transmitting electricity for the duration of the asset.
- A research and demonstration licence to enable short term projects (up to 10 years) to trial and test new technologies and infrastructure exploration without leading to a commercial project.

The granting of feasibility licences is a competitive process, as the licence area of a feasibility licence cannot overlap with the licence area of another feasibility or commercial licence. The Ministry will grant feasibility licences based on merit, such as whether the applicant has the financial and technical capabilities to undertake the project they propose. In circumstances where licence applications overlap and are similarly meritorious, the government may invite financial offers to separate the proposals.

A key principle of the framework is to ensure that the offshore electricity sector can co-exist with other offshore industries and users. Processes are included under the framework to ensure that impacts of offshore electricity projects on other maritime users are identified and managed.

An area must be declared as suitable before licence applications can be received for commercial and research and demonstration projects.

## Case study 6 **Australia's National Offshore Renewable Energy Framework (continued)**

The Ministry decides which areas to consider for declaration and can take into account matters such as interest from industry in particular areas, the quality of resources and the proximity to existing grid infrastructure. A 60-day public consultation process is undertaken on a proposed area.

Before declaring an area as suitable for offshore electricity infrastructure projects, the Ministry will consider the potential impacts of such activities on other industries, the environment, the electricity generation capacity, and the potential demand for such projects in state and territory planning.

An area off the coast of Gippsland, Victoria has been declared as suitable for development and developers are now able to apply for feasibility licences for that area. The application round closed at the end of April 2023. The government is currently consulting on the suitability of a second area off the coast of the Hunter Valley in New South Wales.

To support the implementation of the legal framework, a regulatory framework is currently under development. Regulations setting out operational requirements for projects are intended to be in place to coincide with the first licences being granted.

The OEI framework will be fully cost recovered through the imposition of fees and levies on regulated entities. It is not designed to generate revenue above costs incurred by the Australian government.

* *Source:* (Offshore Infrastructure Regulator (Australia), 2023) and information has been based on discussion and exchanges had with the representatives of the Australia to the CFOR.

### 4. Digital skills development

Processing an increasing number of project permits will require a sufficient number of adequately skilled personnel. Therefore, more investment in staff and digital resources for the various authorities which make decisions during the permitting process of a renewable energy and infrastructure project will be necessary. Governments should consider investing in staff at both national and local levels to make sure that personnel have more opportunity to acquire useful information and improve transparency.

According to IRENA's Renewable Energy Jobs Report 2022, global employment in onshore and offshore wind grew to 1.4 million jobs in 2021 – an increase from 1.25 million in 2020 (IRENA and ILO, 2022).

Some country perspectives showing the forecast importance of offshore jobs include:

- The United Kingdom's offshore wind industry, which had a workforce of 31 082 at the end of 2021. This was up 16% on the previous year. Disaggregated data shows there were 19 591 direct jobs and 11 491 indirect jobs in the 2021 total (IRENA and ILO, 2022).
- In France, the Saint-Nazaire, Fécamp and Saint-Brieuc offshore wind farms accounted for about 5 200 jobs in 2020, of which 1 300 are in manufacturing. It is thought that offshore wind employment opportunities in France could increase to 15 000 by 2030 (IRENA and ILO, 2022).
- In the United States, several coastal states (New York, Massachusetts, Rhode Island, Maryland and Texas) are pursuing industrial and infrastructure policies and workforce development programmes to support offshore wind development. The cumulative job opportunities made available total approximately 21 000 (IRENA and ILO, 2022).

A potential way to fulfil the objective of digital skills development is to encourage staff to participate in digital skills training courses offered by recognised universities and/or wind associations and companies. In addition, governments should allocate funds specifically for hiring more staff and purchasing digital resources to support decision making in the permitting process.

An example of a digital solution which is being used to bring digitalisation into permitting is one that has been developed by WindEurope, Amazon Web Services (AWS), the World Economic Forum and Accenture. These three organisations have developed an online tool which can automate workflows, increase accuracy and support in the enhancement of process transparency for permitting agents working in different public authorities in the EU (WEF, 2023).

This tool has been developed using advanced AWS services as well as leveraged programmes such as AWS S3, Lambda, Amplify, Cognito, Textract and Lex. The advanced nature of the tool allows for the following potential benefits:

- The reduction of document processing times by digitising and automating the data extraction from relevant documents. This can allow permitting agents to allocate additional time to more important aspects of the permitting process (Yan, 2023).
- Catalyse the increasing accuracy of wind permit applications by allowing for the development of automated checklists and workflow triggers and notifications for the required agency stakeholders (Yan, 2023).
- Allow for the collection, management and processing of all documents in a single repository (Yan, 2023).
- Allow for the visualisation of transparency regarding progress throughout the permitting process (Yan, 2023).
- Templated workflows and application templates available on the platform can aid developers deliver more consistent project proposals. Meanwhile, the public and other authorities will have improved access to useful information such as benefit assessments or environmental and economic impact documentation (Yan, 2023).

### Case study 7 **The United Kingdom Catapult-developed digital ESIA project**

The United Kingdom Catapult, funded by InnovateUK, has developed a digital ESIA project.[4] This aims to understand the existing ESIA process, identify challenges and design a collection of future-facing ideas to resolve them. The project also aims to demonstrate a series of prototypes and develop a roadmap for the implementation of a digitally driven equipment integration (EI) system, outlining where legislative and technical changes are required. By conducting user-research and workshops with relevant stakeholders using a human-centred design approach, an in-depth understanding of existing ESIA processes, challenges and pain points has been established.

[4] *See https://cp.catapult.org.uk/news/digitisation-of-environmental-impact-assessments-report-launched and https://digitaleia.co.uk/wp-content/uploads/Digital-EIA-Report.pdf*

### Case study 7 **The United Kingdom Catapult-developed digital ESIA project (continued)**

The project provided great results as it helped determine the following elements:

- Average cost reductions to a developer in British pounds (GBP) of GBP 150 000 to GBP 250 000
- An average duration from ESIA initiation to determination of between 8 and 18 months
- Co-ordination of an ESIA requiring, on average, 0.2-3.0 full-time employees, plus 6-10 technical specialists
- An average ESIA of 4 350 pages and 14–17 chapters
- A cost of GBP 5 000 to GBP 15 000 per chapter on average, depending on the topic
- That on average, almost 55 days of effort are spent by each firm on areas with potential inefficiencies in data, modelling and reworking content.

Following synthesis of our above findings, a number of key opportunity areas for transformation were prioritised:

- Data digitisation
- Streamlined processes
- Real-time collaboration
- Improved communication
- Feedback-based iterative evolution.

*Based on:* Catapult, 2020

## 5. Digital database development

Digitised, searchable databases for land registrations and the siting of renewable energy projects should be built. These should also include an inventory of local ordinances and records of where projects have met community resistance.

Databases are important tools that keep developers well informed about offshore wind sites and the conducting of ESIAs, which are important parts of the permitting process. For areas that face community resistance, well-collected data can be used to develop mitigation measures to ensure the harmonious co-existence of offshore wind farms and biodiversity.

## Case study 8 **BOEM's digitised model for marine ecosystem analysis** *

In collaboration with the National Centers for Coastal Ocean Science (NCCOS) of the United States National Oceanic and Atmospheric Administration (NOAA), BOEM is employing a spatial model to analyse entire marine ecosystems and identify the best areas for wind energy sites. It is deploying this model in the Gulf of Mexico, offshore Oregon, and the Central Atlantic and Gulf of Maine. This ocean planning tool will help inform BOEM's draft wind energy areas (WEAs) document, which will be available for public review and comment prior to final WEA designations. BOEM and NOAA recently collaborated to use the NCCOS tool to identify WEAs in the Gulf of Mexico.

* *Based on: (*National Centers for Coastal Ocean Science, 2023) as well as based on discussion and exchanges had with the representatives of the USA to the CFOR.

## Case study 9 **Collaboration in creating a digitalised permitting process** *

The European Network for Digital Building Permits[5] could provide an example of how digital solutions might work in offshore wind permitting protocols. The EUnet4DBP is composed of researchers, public entities and companies that collaborate to establish an agreed and consensus strategy for the digitisation of the building permit issuing process. This would bring advantages to interoperability, procedures, data optimisation and standardisation, and improve implementation.

* *Based on:* (EUnet4DBP, 2023).

[5] See *https://eu4dbp.net*

### 6. Synergise land and ocean resource utilisation

Land and ocean use guidance should be aligned at the national and sub-national level, prioritising projects which support energy security, DNSH principles, biodiversity, and the green economy.

As offshore wind infrastructure is located both on land and at sea, governments should align land and ocean use guidance to avoid conflicts among different land and ocean users. Recommended actions include the development of a comprehensive set of national-level guidelines and policies that provide direction for the usage of land and the ocean and which ensure consistency and coherence across different regions and jurisdictions.

Moreover, it is vital that a higher priority be given to projects which support energy security, the principles of DNSH, biodiversity and the green economy. As nations worldwide face the twin crises of climate change and biodiversity loss, the wind industry remains committed to the co-existence of wind farms in harmony with nature. The industry also should also aim for robust engagement with other users of the marine space and strive to do everything it can to prevent, manage and mitigate the impacts of these twin crises.

#### Case study 10 **Spain's use of MSP in the permitting process** *

In December 2021 the Spanish government published a roadmap for the country's development of offshore wind and marine energy. This roadmap lays the foundations for a model in which a state-level framework for the orderly deployment of offshore renewables is envisaged. It also highlights three key elements in a co-ordinated and simultaneous manner: spatial planning, grid connection and the business model.

With regards to permitting, a key point in the roadmap is the promotion and use of MSP to catalyse permitting activities. The roadmap also stresses the importance of co-ordinating the access and connection frameworks and new grid management models, along with the adaptation of the administrative framework to take account of the permitting of offshore renewable installations.

In June 2022, Spain's Ministry for Ecological Transition and the Demographic Challenge (MITECO) launched a public consultation to inform the design of the regulatory

## Case study 10 **Spain's use of MSP in the permitting process (continued)**

framework for the development of offshore wind and marine energy facilities. This consultation was to ensure the effective participation right from the start of public and private agents, the wind and offshore energy sector, and the other sectors using the sea. These sectors included fishing, aquaculture and navigation, among others.

In March 2023, through Royal Decree 150/2023, an MSP was approved that identifies the most suitable marine areas for the future development of offshore wind farms. It also integrates general interest planning objectives and horizontal multi-sectoral objectives, while seeking sectoral convergences and synergies (MITECO, 2022a).

This MSP exercise in Spain has proved to be complex and has been achieved through a highly participatory process. All the ministerial departments with sectoral responsibilities in the marine environment, the coastal autonomous regions, representatives of all involved sectors and civil society participated in its elaboration.

The use of MSP as a zoning instrument was an outcome of this process. With this, once the possible interactions with other users and activities had been analysed, the most suitable areas for the development of offshore wind energy could be recognised, based on their technical and environmental feasibility. In addition, future electrical evacuation of the offshore wind farms in the coastal evacuation nodes – those close to the MSP offshore wind identified areas – has now been considered in the electricity transmission network (ETN) plan for 2021-2026. It is also expected to be covered in more detail in the next ETN cycle planning (MITECO, 2022b).

* *Based on:* Information also based on discussion and exchanges had with the representatives of the Spain to the CFOR.

## Case study 11 **Towards an innovative permitting scheme in the Netherlands** *

In the Netherlands, the upcoming permit for the IJmuiden Ver 4 GW offshore wind farm will include criteria aimed at stimulating circularity and responsible business conduct. The Dutch government is also currently working on a national legislative amendment that will include these criteria in future permits for offshore wind farms.

For responsible business conduct, the criteria will be in line with United Nations principles on human rights and businesses, and the OECD guidelines for multinational

### Case study 11 **Towards an innovative permitting scheme in the Netherlands (continued)**

corporations (MNCs). According to these guidelines, in their international activities, MNCs should follow human rights law and undertake environmental due diligence. They should identify areas of significant human rights and environmental risks in their supply chain and participate in multi-stakeholder co-operation to prevent or mitigate those risks. They should also install a complaint mechanism and report publicly on their due diligence processes.

For circularity, the criteria will be in line with the EU Sustainable Product Initiative. This initiative enables governments to introduce product requirements concerning recyclability, reusability, lifetime extension, the phasing out of hazardous substances and the level of secondary and renewable resources that need to be used when producing new products. The European Commission is also working on introducing legislation and regulations for responsible business conduct and circularity. The Netherlands is anticipating this legislation by already including these criteria in its offshore wind permitting.

* *Based on:* Information also based on discussion and exchanges had with the representatives of the Netherlands to the CFOR.

## 7. Emergency Clearing House Mechanisms

**Implement an emergency clearing house mechanism for legal disputes to prevent extended delays to critical infrastructure projects, and a structured and time-limited process for developers to provide evidence.**

Legal challenges are one of the causes of delays in offshore wind projects because after all permits have been awarded and/or granted, the decisions can still be challenged by interested parties who usually are environmental protection groups. Stakeholders may challenge the environmental impact assessment of the project, arguing that it has not adequately considered the potential impacts on wildlife, water quality, or health and safety.

To avoid delays due to legal disputes, governments need to apply the fastest judicial procedures available at the national level. To minimise the complexity of the legal appeals against ESIA decisions, it would be in the interest of all parties involved to ensure that appeal processes are not elongated beyond reason – keeping a defined number of appeals during the permitting process or allowing for selective appeals

could prevent these legal delays. It is also necessary to reinforce staff in national courts to limit delays or encourage alternative dispute resolution methods such as mediation or arbitration, to ensure that any disputes that do arise are resolved in a timely and effective manner.

### 8. Award energy infrastructure permits

For both offshore and onshore wind, energy infrastructure permitting and deployment should be accelerated and reinforced where necessary.

Ensuring a fast-track infrastructure permitting deployment helps improve energy security by increasing the availability and reliability of energy sources. Governments should establish clear and consistent regulations and guidelines for the permitting and deployment of energy infrastructure, such as transmission and distribution lines, to provide a clear and predictable process for developers. Governments should also see the opportunities in accelerating grid permitting and deployment. These include a quicker response to changes in energy demand, increased integration of renewable energy and cost savings.

#### Case study 12 **Trans-European Networks for Energy in the EU** *

The European Commission adopted the Trans-European Networks for Energy (TEN-E) regulation in 2022. This was done in order to align the EU with new energy requirements, the EU Green Deal objective of carbon neutrality by 2050, and to provide better support for the modernisation of Europe's cross-border energy infrastructure.

In the regulation there is a clear focus on linking energy infrastructure across five identified priority offshore corridors. These are: the Baltic Sea, North Sea, Atlantic Ocean, Black Sea and Mediterranean Sea. The regulation requires member countries, TSOs and the European Commission to collaborate and develop their first sea basin-related offshore network development plans by January 2024.

In line with TEN-E regulations, the European Network of Transmission System Operators for Electricity (ENTSO-E) and the European Commission recently released a guidance document. This document aims to support member countries in delivering the input information required by ENTSO-E for the infrastructure planning of offshore networks.

## Case study 12 **Trans-European Networks for Energy in the EU (continued)**

The member countries of North Sea Energy Co-operation (NSEC) have become the facilitating agencies for the North Seas Offshore Grid (NSOG) priority offshore corridor sea basin. When signed, the NSOG agreement empowers ENTSO-E to prepare a strategic offshore network development plan for the NSOG maritime area which will run until 2050. This will further facilitate the large-scale implementation of hybrid offshore renewable energy projects and enhance cross-border co-operation in regional offshore grid development.

To facilitate the accelerated permitting for offshore renewable energy and infrastructure projects, NSEC countries have declared their support to the permitting package within RePowerEU. They have also agreed to explore options for better integration of spatial planning and regional strategies within a 2050 scenario study. Furthermore, the NESC countries and the European Commission have agreed to promote closer co-ordination of offshore grid planning and onshore grid connection of offshore wind farms. The countries plan to work on a common vision within the NSEC of establishing the next of several major hybrid projects in the North Sea.

*Based on:* (Information based on Andrey *et al.*, 2022).

# 03 CONCLUSION

The targets set by governments around the world during COP-26 and COP-27 were welcomed by the international community and global industry, which also recognised the efforts made in recent years to try and push offshore wind to the forefront of many countries' development. In an offshore wind context, the development of cohesive, efficient and accelerated permitting protocols has been widely recognised as one of the fastest ways to unlock offshore wind potential and reach the set targets.

It is clear, however, that the window of opportunity for collectively achieving the 1.5°C and net-zero scenarios is closing fast.

The objective of this brief has been to provide readers with an overview of the key tenets that form the foundation for permitting in offshore wind projects. The brief has also presented key factors hampering the acceleration of permitting protocols. These are: lengthy bureaucratic processes and complexity of administration; a lack of central authorities; a lack of streamlined digital resources; a lack of holistic planning to capture complex stakeholder interactions; and a lack of a clear shared understanding of the permitting rules between promoters and permitting entities.

This brief has correspondingly presented potential solutions to address these challenges such as OSS, mandating lead times and developing digital databases among others. These solutions have been further accompanied by case studies that have come as a result of leveraging inputs from IRENA's Collaborative Framework for Ocean Energy and Offshore Renewables, as well as GWEC's vast industry membership.

The intention of this brief is to serve as a reference document on permitting for all decision makers, in both mature and nascent offshore markets. It outlines what should be considered in order to ensure that permitting protocols for projects can be implemented and approved efficiently and smoothly.

Together with Denmark, IRENA and the GWEC launched GOWA at COP 27. This is an initiative that will bring together governments, the private sector, international organisations and other stakeholders to accelerate the deployment of offshore wind power. GOWA hopes that through its actions it will allow the international community to reach the 2 000 GW offshore capacity goal by 2050 – a goal that is necessary to fulfil the net-zero scenario. Within GOWA a dedicated working group on permitting and leasing will be established to discuss how the recommendations in this brief, along with others, can be reflected in the activities undertaken by Alliance in the coming years.

Moving forward, key actions for governments include improving the transparency and predictability of permitting procedures and content. They also include facilitating early and ongoing engagement between approving government entities, developers and stakeholders in order to foster process efficiencies that can lead to timely reviews of successful projects.

# 04 BASIC CHECKLIST AND INFOGRAPHIC FOR ACCELERATED PERMITTING

## PERMITTING MODELS

**Centralised:** Government determines where sites are to be located, less risks for developers therefore. **Example: the Netherlands**

**Decentralised:** developers take responsibility to obtain the necessary consents and permits, more risks for developers. **Example: the United Kingdom**

**Hybrid:** a combination of aspects from both (centralised, decentralised), thus conveying multiple configurations. Government is responsible for some of the early development phases, The private developer takes over the costly parts of the project planning stages requiring significant technical knowhow. **Example: the United States**

## Eight recommended actions to accelerate permitting for offshore wind projects

**1. One Stop Shops**
Such an institution with capable staff can promote transparent, efficient, and fair permitting processes.
*(refer to Denmark and Costa Rica Case Study)*

**2. Stakeholder Consultations**
Promote active engagement with local communities throughout whole project development process.
*(refer to GOWA Case Study)*

**3. Mandated Lead Times**
Limiting lead times can reduce government bureaucracy and prevent prolonged legal disputes with concerned stakeholders.
*(refer to European Union Case Study)*

**4. Digital Training Courses**
Relevant staff should develop skills to leverage digital platforms & tools that increase permitting efficiency.
*(refer to United Kingdom Catapult Digital Case Study)*

**5. Digital & Searchable Databases**
Developing databases on existing RE projects and land registrations complement and support awarding of permits
*(refer to United States BOEM Case Study)*

**6. Alignment of Land and Ocean Use**
Government should develop detailed guidance on how land and ocean can be used for offshore infrastructure.
*(refer to Spain Case Study)*

**7. Emergency Clearing Mechanisms**
Legal systems should have 'fast track' that allow for disputes to be resolved in the quickest way possible.

**8. Energy Infrastructure Permits**
Establish clear and consistent regulations and guidelines for the permitting and deployment of energy infrastructure.
*(refer to EU Case Study)*

## NOTABLE ASPECTS OF PERMITTING

### 1. MSP

- MSP brings together users of the ocean – including energy, industry, government, conservation and recreation – to make informed and co-ordinated decisions about how to use marine resources sustainably.
- MSP should be conducted at the start of the permitting process and used as a zoning tool. It aims to mitigate risks by engaging multiple stakeholders early on to speed up the approval of projects and reduce potential conflicts.
- Careful planning of the marine space will be necessary in order to deploy levels of offshore wind in line with climate targets, whilst protecting biodiversity.

### 2. The ESIA, including an appropriate period of baseline surveys

- The ESIA is a comprehensive review of the various possible environmental and social consequences of a new infrastructure project.
- The ESIA aims to promote environmentally friendly, sustainable development by forecasting and assessing the environmental as well as socio-economic impacts of offshore wind projects.
- High quality EISAs are aligned with international standards and good international industry practice (GIIP) and a thorough baseline assessment.

### 3. Stakeholder engagement

- Relevant stakeholders, such as environmental groups, local communities, fishing industries and energy developers, should be identified and involved in order to address potential concerns. This should go hand in hand with the ESIA process.
- Early dialogues between relevant authorities can identify potential co-existence issues and mitigation measures, where possible.

### 4. Gaining permit approvals to support installation of offshore wind turbines

- Key permits should be obtained before the construction and operation of offshore wind farms.
- While this process of gaining approvals is necessary, it can be time consuming and costly when the planning timescales for these processes are not aligned with the offshore wind development lifecycle and overarching national timelines for renewable energy deployment.
- A streamlined permitting process is needed to avoid significant delays in the process of gaining permits.

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