DENTONS

Floating Offshore Wind

New Breakout Markets: a Legal and Regulatory Review

Grow | Protect | Operate | Finance

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Foreword

80% of the world's offshore wind resource potential is located in areas with water depth greater than 60 metres. Based on today's technology, this is close to the upper limit for the economic deployment of traditional bottom-fixed foundations. To address this challenge, the adoption of floating offshore wind (**FLOW**) solutions is gaining momentum as the technology approaches commercial maturity and countries across the world are recognising the potential in deploying FLOW platforms to exploit this offshore wind resource.

This report takes inspiration from the Global Wind Energy Council's (**GWEC**) report, "Floating Offshore Wind – A Global Opportunity" that was published in March 2022 (the **GWEC Report**)[1], which identifies 30 "Round 2" new breakout markets which present "the right conditions in place to evolve rapidly as successful floating offshore wind markets" post 2030. Not only do countries need the right technical characteristics (i.e. wind in deep offshore locations), but also the right policies and regulations to develop FLOW projects.

The purpose of this report is to assess the relative progress that has been achieved across these Round 2 new breakout markets in implementing the right conditions to evolve as successful FLOW markets since the date of publication of the GWEC Report. In preparing our report, we have co-ordinated responses from our offices across a sample range of 20 of these Round 2 markets (and, in Norway, collaborated with the Selmer law firm) and have paid particular regard to whether such countries have adopted an appropriate legal and regulatory framework to support the required development of FLOW projects.

Based on our findings, our secondary objective was to determine whether any adjustment to the membership of the chasing pack of five fast follower countries identified in the GWEC Report was justified. Such adjustment could be either because of the accelerated progress of one of the other Round 2 nations or because one of them had earned promotion to the Round 1 category of first mover markets.

1. https://gwec.net/report-outlines-enormous-potential-for-floating-offshore-wind-in-energy-transition/

Dentons has been advising participants in the offshore wind sector for several years and our local presence in many of these new breakout markets gives us a unique position to advise both developers and other interested parties from both a national and international perspective. With more than 160 offices in 80+ countries, Dentons is well positioned to understand the emerging global FLOW picture, to identify markets with higher potential for FLOW deployment and to advise on the applicable local legal and regulatory regime.

This report is intended to serve not only as a helpful guide, but also as a legal point of contact for any interested parties who are looking to learn more about the development of the FLOW sector in any of these markets. I invite anyone with any queries or comments to contact the authors of the relevant country report (contact details have been included for ease of reference) who can provide an in-depth briefing on the legislative and regulatory progress and any new policy initiatives. More generally, we would be delighted to discuss any of the themes/ issues identified in this report.

Finally, I would like to thank all of those who have collaborated on the production of this report, including OWC[2], Charles July (Consultant, London), Torquil Law (Senior Associate, London), Adjoa Kwakwa (Trainee, London), Katja Obed (Trainee, London) and Isabelle Ong for their editorial oversight.

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2. https://owcltd.com/

Executive Summary

Achieving Net Zero by 2050 will be exceptionally hard but FLOW provides an exciting global opportunity as one of the solutions that will contribute towards reaching this goal.

The GWEC Report predicted that 18.9GW of FLOW generation would be built by 2030. However, in its latest Global Offshore Wind Report 2023[3] GWEC has downgraded this prediction to 10.9 GW, 42% lower than the earlier projection in recognition of the challenging economic and financial conditions and expected supply chain bottlenecks facing the emerging FLOW sector.

Historically, the FLOW sector and its deployment through pilot and pre-commercial projects has been largely confined to the Round 1 first mover markets in Europe identified in the GWEC Report, such as the UK, France and Portugal, and in Asia such as Japan and China (to be followed shortly by Taiwan and South Korea). In the short term, these are expected to remain the most developed markets. However, as the FLOW sector progresses towards full scale commercialisation, we are seeing FLOW solutions increasingly gaining traction in a broader range of markets, including some nascent markets where favourable site conditions make them commercially attractive, albeit in the longer term.

This report summarises the status of the FLOW sector in 20 of the Round 2 new breakout markets identified in the GWEC Report and, through comparative analysis, identifies their respective barriers to entry and the key areas for development.

There are three broad stages of development in which we can categorise the rate of progress in these 20 markets. Stage 1 includes those markets which have taken no or minimal action to incentivise the development of the offshore wind sector including FLOW projects, and where no developments have been proposed. Stage 2 includes markets, which have conducted studies on the potential of offshore wind and FLOW projects given attractive site conditions, have identified areas for development and have made some progress towards implementing actions that will incentivise offshore wind and FLOW projects. Finally, Stage 3 includes the more advanced markets, the so-called "fast followers" that have taken a series of actions to attract offshore wind, have separately encouraged FLOW projects and have either begun, or announced the decision to begin, the deployment of FLOW projects either through developer led initiatives or through auctions for the allocation of sea-bed space.

We have found that, in the more advanced Stage 3 markets, auctions for the allocation of sea-bed spaces for the deployment of FLOW projects have already been announced. Similarly, financial support mechanisms either specifically for FLOW projects or capable of being adapted for FLOW projects have been approved. By way of example, Norway has announced its Utsira Nord FLOW tender process for part of which a CfD based financial support mechanism will be available. Indeed, given its rate of progress and with its existing 94MW of operational pre-commercial FLOW capacity across 3 projects, Norway makes a compelling case for promotion beyond Stage 3 to the Round 1 first mover category.

3. https://gwec.net/gwecs-global-offshore-report-2023-press-release/

Elsewhere in Northern Europe, Ireland has adopted a legal and regulatory framework that can support the roll-out of FLOW projects as well as a CfD based support mechanism that can be readily adapted to FLOW projects. Notwithstanding the very real challenges of the lack of suitable port infrastructure and the shortage of grid capacity in the locations most suited to FLOW projects, Ireland retains its position as a Stage 3 market.

In the US, on the West Coast, leases for 4.6GW of FLOW projects offshore California have been provisionally awarded. On the East Coast, Maine has announced ambitious plans to procure 3GW of FLOW projects by 2040 and a draft wind energy area has been published for federal waters in the Gulf of Maine suitable for FLOW projects with a capacity of more than 40GW. Despite the lack of financial support mechanisms such as power purchase agreements or offshore renewable energy credits for the California FLOW projects, the availability of investment tax credits and production tax credits under the Inflation Reduction Act strongly supports the development of FLOW in the US and more than justifies its position as a Stage 3 market.

In Southern Europe, despite the lack of clarity on regulations for an offshore wind framework and delay in implementing price support mechanisms and faster permitting processes, both Spain (with 2 pilot FLOW projects operational) and Italy have seen a high number of proposals for FLOW projects. Italy with proposals for 47 projects has the largest project pipeline but nearly all are at an early stage of development. The expected adoption of a firm legal and regulatory framework and a price support mechanism in 2024 should underpin Italy's position as one of the Stage 3 markets. Likewise, the adoption of proposed regulatory reforms and anticipated FLOW auctions in Spain in 2024 will bolster its chances for promotion to this category, although clarity on a business support mechanism will also be required.

In Eastern Europe, Romania has taken preliminary action to introduce the necessary legal and regulatory framework to attract FLOW investment. A draft law has been introduced providing for auctions to procure 3GW of offshore wind capacity by 2035 and providing a CfD based support mechanism for winning projects. Nevertheless, the absence of a detailed regulatory framework and marine spatial plans are substantial obstacles that need to be overcome before it can be regarded as a Stage 3 market.

Outside Europe, we have seen positive steps from Stage 2 jurisdictions such as India, Brazil, Colombia and Australia implementing suitable legal and regulatory regimes.

In India, the government has recently announced a tender for the award of 7.2GW of offshore wind capacity offshore Tamil Nadu, although none specifically for FLOW projects.

Brazil has announced expressions of interest in more than 70 offshore wind projects, including a FLOW project, and has already enacted specific legislation regarding seabed leasing for offshore wind. It expects to implement a regulatory framework for offshore wind by mid-2024.

Australia is an exciting jurisdiction for FLOW that has implemented a comprehensive legal and regulatory regime for offshore wind and has established wind energy zones that are suitable for large-scale offshore wind projects, two of which located off the coast of New South Wales have attracted interest from FLOW project developers. As such Australia ticks a lot of the boxes to justify its appointment as a Stage 3 market, although further work is required to align and co-ordinate national and state regulatory frameworks and detailed financial support packages for the offshore wind sector including FLOW projects as well as for the development of the required port infrastructure.

Vietnam has attractive site conditions, some of which are suitable for FLOW projects. At present, there are a handful of offshore wind projects in development. However, the regulatory framework is still lacking with no offshore wind or FLOW specific regulations and issues regarding the only route to market are a concern for developers.

In Colombia, progress towards the adoption of a favourable policy environment has been encouraging with the recent announcement of the first auction for the award of temporary sea-bed area permits for offshore wind development to be held in 2024 and the publication of the final version of the tender documents. Colombia makes a good case for selection as one of the Stage 3 markets, although it remains to be seen whether the auction requirement for successful bidders to partner with a publicly owned local energy sector entity may be a concern for foreign developers.

Costa Rica and New Zealand are also showing promise. In Costa Rica, studies are being conducted on the potential and feasibility of FLOW projects. In New Zealand, there are interested developers and projects at feasibility stage and the government has recently announced that regulations for the development of offshore renewable energy infrastructure, including offshore wind, are expected to be implemented in 2024.

Finally, in the preliminary FLOW markets (i.e., Stage 1), lack of knowledge, support and technical capacity sees countries struggling to take advantage of their large technical potential for FLOW. Canada, Chile, Kenya, Mexico, Morocco, South Africa and Tunisia, in particular, have seen few, if any, projects proposed or otherwise.

We expect to see the pace of regulatory implementation accelerate as the global FLOW market builds. However, it will be a competitive environment to secure FLOW investment and all the Round 2 markets should consider steps that would make them attractive destinations for FLOW developers and investors. Such steps would include:

- Establishing a supporting legal framework and associated regulations that outline how and where offshore electricity infrastructure (including FLOW projects) can operate.
- Setting clear long-term targets (preferably enshrined in legislation) over the medium to long term.
- Designing an appropriate licensing regime including qualifying criteria for the grant of applicable licences.
- Clear and transparent charging methodologies for the award of seabed usage rights and the grant of applicable licences with charges applied to stated objectives such as the recovery of administration costs of licensing regimes or to provide compensation for communities impacted by licensed activities.
- Establishing or revising procedures for environmental impact assessments and compliance with marine spatial planning requirements, and the criteria and evidence required to satisfy them such as a full suite of environmental and other relevant surveys.

- Identifying a government agency to act as a "one-stop shop" for project developers to assist in the de-risking of projects. Such an agency could act either as a single licensing authority or as the coordinator of the licensing processes of different authorities, with responsibility for screening information provided by project developers and ensuring that the licensing applications are processed in a timely fashion. Such an agency could also act as the local champion for offshore wind with responsibility for explaining the societal benefits that offshore wind can deliver, ensuring that impacted communities are fully consulted and objections properly considered, and acting as the interface between the local supply chain and project developers.
- Operating an open-door procedure, at least for initial projects, that allows a project developer to submit an unsolicited application to develop a FLOW project in an area selected by it.
- As the market for offshore wind and FLOW projects matures and there is more competition from developers to build projects, governments can deploy auction rounds for seabed usage rights to realise new FLOW developments. Sensible non-price auction criteria can contribute to achieving projects. Initially, these should be focused on project deliverability and track record and be included as a prequalification to participate in the auction, rather than a point of competition between bidders. With growing market maturity, greater weight can be placed on non-price criteria which can provide long-term value to society (sustainability, development of workforce and skills, and local supply chain) and the enhancement of the environment, but these need to be introduced with care.
- Establishing business support mechanisms not only for FLOW projects but also to facilitate the delivery of the likely enhancements to existing port infrastructure required to support FLOW projects and enabling lawful collaboration between ports to collectively deliver such infrastructure enhancements.
- Clarifying the legal position regarding the ownership of transmission assets for offshore wind projects and the funding arrangements for such assets and any onshore grid strengthening costs required to receive the power exported from such projects.
- For Stage 1 countries, enabling early demonstration projects to kick-start the FLOW sector.
- Devising policies to balance promoting local jobs and economic benefit with ensuring low-cost electricity generation as, according to GWEC, requiring local content can reduce competition, increase cost and risk, and slow market development.

Save for those countries identified above who are already pursuing the required actions to ensure that they will be 'match fit' to attract commercial scale FLOW investment, much more remains to be done in Round 2 markets for the FLOW sector to meet its full potential. In this regard, the recent announcements at COP28 for the expansion of the Global Offshore Wind Alliance[4] and the launch of the Ocean Energy Pathway[5] are very encouraging as these platforms can facilitate the implementation of the required steps in Round 2 markets through providing technical assistance and advisory services to governments and stake holders and so help to turn the pipeline of potential FLOW projects into a reality.

4. https://gwec.net/gowa-new-members-at-cop28/
5. https://gwec.net/launch-of-global-offshore-wind-accelerator-as-a-flagship-initiative-of-250-million-fund-for-sustainable-oceans/

Australia

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Australia (such as announced procurement goals and awards of individual projects or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Australia?*

Australia has recently undergone a significant shift in focus towards renewable energy (**RE**), with the Australian federal government revealing its target of 82% renewables in the country's electricity grid by 2030 in December 2022. In June 2022, the federal government implemented the Offshore Electricity Infrastructure Act 2021 (**OEI Act**) which provides an important framework for introducing offshore wind generation to Australia's renewable sector.

The OEI Act allows developers to begin taking the necessary steps towards the development of offshore wind projects in Commonwealth waters. Since then, States and Territories have begun to make pledges to fund feasibility studies and preconstruction activities for three major offshore wind projects which are proposed to be built in regions which present opportunities from a natural resource and infrastructure perspective.

Australia has witnessed the emergence of substantial floating offshore projects in recent years, with many proposed projects located off New South Wales (**NSW**). In 2022 for example, Equinor and Oceanex announced that they intended to jointly submit feasibility licence applications for offshore wind acreage for three projects, each of up to 2GW.[6] Furthermore, in December 2021, Spain-based BlueFloat Energy and Australia's Energy Estate, partnered to develop three wind projects in Australia (including two floating and one bottom-fixed), which have a total capacity of 4.3GW.[7]

As at the date of writing, there have been some 37 applications submitted for the awarding of licences to assess feasibility of offshore wind projects within the Gippsland, Victoria declared region. The application round to develop offshore wind projects in the Hunter Region, NSW, has recently closed on 14 November 2023. There is a probability that the various applicants' areas of interest may well overlap. This is due to the federal government approach being simply to invite applications for feasibility licences of up to 700km2 anywhere within the declared area.

There is a process to deal with overlapping applications, where the relevant Minister has a discretion regarding merit, or may determine an overlapping group and ask the members of that group to resubmit without overlap, or deal with it on a financial-offer basis, having determined a "financial offer group". So in essence, the Minister has, as is often the case for resources projects in Australia, a very wide discretion. A discretion which, absent male fides, is difficult to challenge or overturn. (This is in contrast to the approach from other jurisdictions (such as the UK and Germany) where they have drawn lines on the maps, and conducted auctions where developers competitively bid financially – something akin to how the Australian offshore oil and gas regime operates with bidding rounds for blocks).

The initial areas leading the offshore wind development in Australia are Victoria and NSW.[8] Please see Question 4 for further details on designated offshore wind development areas.

6. Adrijana Buljan, 'Equinor Enters Australian Offshore Wind Market' (Offshorewind.biz, 30 August 2022) <www.offshorewind.biz/2022/08/30/equinor-enters-australian-offshore-wind-market/> accessed 11 December 2023.
7. Adrijana Buljan, 'Three New Offshore Wind Projects Emerge in Australia (Offshorewind.biz, 22 December 2021) <www.offshorewind.biz/2021/12/22/three-new-offshore-wind-projects-emerge-in-australia/> accessed 11 December 2023.
8. 'Australia's first offshore wind areas are coming in Victoria and New South Wale' (Aegur, 29 November 2022) <www.aegirinsights.com/australias-first-offshore-wind-areas-are-coming-in-victoria-and-new-south-wale> accessed 11 December 2023.

2. What challenges are faced by the FLOW industry in developing FLOW projects in Australia (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?

   The floating offshore industry in Australia faces some challenges, with the main ones being:

   - **Grid constraint.** Grid connection risk is a large obstacle to the development of RE. The increase in non-synchronous RE and distributed generation has increased the risk of curtailment and congestion. This has resulted in concerns regarding the stability and security of the network and grid. Various States are developing initiatives to overcome this hurdle, including the Victorian government's proposal to develop a new transmission to connect offshore wind to the grid for the Star of the South Offshore Wind Project. [9]

   - **Heavy regulation.** The offshore wind industry is heavily regulated in Australia. For example, Australia has a specific licensing regime which may affect the way in which assets and infrastructure can connect and interact with the electricity grid. The varying levels of approvals and permits could result in long delays to kickstart offshore wind projects. Parties interested in investing in the offshore wind industry in Australia will need to navigate these licensing regimes and be aware of the possible timeframes and requirements for each permit.

   - **Environmental concerns.** Offshore wind farms present numerous environmental concerns and communities in Australia have expressed potential for adversarial effects on the ecology surrounding the areas where the wind farms are proposed to be located, as ecosystem disruption has been reported to occur from wind farms overseas. For example, noise from the wind farms travelling underwater may disrupt marine life patterns and behaviour. Electromagnetic fields from the transmission of energy harnessed from the offshore wind to the electricity grid may also impact marine life which depends on electromagnetic fields to exist. Offshore wind farms have also been reported to affect the surrounding and migrating birdlife.

     To address these concerns, the OEI Act has been designed to operate in conjunction with other legislation enacted to protect Australia's ecology and biodiversity.

   - **Supply concerns.** The offshore wind industry in Australia will need to attract suppliers of vessels, turbines and other related technology and infrastructure away from the rapidly advancing markets of other countries, particularly those in Europe and Asia. It will need to create a market which is attractive enough for suppliers to invest in Australia, rather than another geographic region developing offshore wind farms. Developers need to be mindful of the availability windows to secure the necessary vessels and materials, particularly vessels purposed for heavy lifting.

3. *Is there a World Bank Offshore Wind Roadmap for Australia or any announced plans by the government of Australia such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   There is no World Bank Offshore Wind Roadmap for Australia. FLOW capacity targets have been set from some of the States and Territories. For example, Victoria has set an ambitious target of at least 2GW of offshore generation capacity by 2032, 4GW by 2035 and 9GW by 2040. One of the proposed offshore wind farms within the state has already passed consultation stages. Ultimately, Victoria envisages offshore wind production up to "33GW and beyond" depending on the rate in floating turbine technology advancement.

9. Victoria state government – Department of Environment, Land, Water and Planning, "Scoping Requirements for Star of the South Offshore Wind Farm Environment Effects Statement".

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Australia.*

The Department of Climate Change, Energy, the Environment and Water (**DCCEEW**) regulates offshore RE infrastructure in Australian Commonwealth waters under the OEI Act and the Offshore Electricity Infrastructure Regulations 2022. See the associated Regulatory Levies Act, Regulatory Levies Regulations and Consequential Amendments Act. Australian Commonwealth waters start three nautical miles from the coastline and extend to the boundary of Australia's EEZ. For the first three nautical miles from the coastline (which can depend on the nature of the coastline), the various States and Territories have jurisdiction.

The OEI Act and associated regulations enable the construction, operation and decommissioning of offshore electricity infrastructure. They outline how and where infrastructure projects for RE generation or transmission can operate, including offshore wind and solar farms.

Declaring suitable areas for offshore RE infrastructure is a ministerial decision. The DCCEEW advises the Minister for Climate Change and Energy (**Minister**) on suitable areas in consultation with:

- other Australian Government departments and agencies;
- state and territory governments;
- industry stakeholders;
- local communities; and
- the Australian public.

Considering a specific area for declaration requires a 60-day public consultation process. It will take into account factors including existing marine users.

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

The Minister may invite eligible persons to apply for a feasibility licence on proposed projects within declared areas. Feasibility applications are considered by the Offshore Infrastructure Registrar (Registrar) and decided by the Minister.

There will be a finite number of feasibility licences available for groups within declared areas.

The Minister may declare that there are overlapping applications if:

- the Minister considers all of the applications in the group to be of equal merit;
- each application in the group overlaps at least one other application in the group;
- the licence areas proposed by all of the applications in the group (including parts of those areas that overlap, and parts that do not overlap) together form a continuous area; and
- the Minister is satisfied that, if not for the overlap or overlaps, a feasibility licence could be offered in response to each of the applications in the group.

In the event of an overlapping application group, the Minister will notify applicants and ask that they revise and resubmit their applications. Applications will then be assessed on a competitive higher or lower merit basis.

Companies wanting to undertake offshore RE infrastructure projects can also apply for:

- **Commercial licences.** These allow offshore RE infrastructure projects for up to 40 years.
- **Transmission and infrastructure licences.** These permit installation and operation of undersea interconnectors to transmit electricity.
- **Research and demonstration (R&D) licences.** These enable short-term projects (up to 10 years) to trial and test new offshore RE technologies.

Please see Question 6 for further details.

Companies will need a feasibility licence before applying for a commercial licence. Feasibility licences permit the holder to assess the feasibility of a project for up to seven years.

Companies can apply for a feasibility or R&D licence in an area after the Minister declares it suitable for offshore renewable electricity infrastructure. Transmission licences do not need to be in a declared area.

The Registrar administers licences for offshore RE and transmission projects. Staff within the National Offshore Petroleum Titles Administrator (**NOPTA**) assist the Registrar.

To assist prospective licence holders and other stakeholders in understanding the requirements and processes for feasibility licences, the Australian Government has developed a suite of guidance documents and approved forms on the Registrar's website: www.offshoreregistrar.gov.au.

b. *Is there a specific legal/regulatory regime for FLOW projects in Australia, as opposed to broader offshore wind or renewables projects in general?*

The Offshore Electricity Infrastructure Regulations 2022 (Cth) and Offshore Electricity Infrastructure (Regulatory Levies) Regulations 2022 (Cth) (the **Regulations**) came into force on 2 November 2022.

The OEI Act establishes a legal framework to enable the construction, installation, commissioning, operation, maintenance and decommissioning of:

- offshore RE infrastructure; and
- offshore transmission infrastructure,

(together, **OREI**) in the Commonwealth offshore area.

The OEI Act commenced on 2 June 2022 and has resulted in the announcement of several new offshore wind projects. It provides for the making of regulations for the OREI licensing scheme, spatial datum provisions, arrangements for pre-existing infrastructure, and the application of fees and levies.

The government has said that the aim of the OEI Act and Regulations is to provide a consistent and transparent regulatory regime for the full life cycle of OREI developments, and ultimately a pathway to de-risking investments and reassuring sponsors, financiers and broader stakeholders alike.

The OEI Act prohibits the construction and operation of OREI in the Commonwealth offshore area without a licence. It sets out three pathways for licensing (commercial licences, transmission and infrastructure licences, and R&D licences) to accommodate a range of potential types of development.

The Regulations set out the details of the licensing scheme for OREI. This licensing scheme establishes a system for licence applications, offering and granting of licences, variations to licences, extension of licences, transfers of licences, and changes in control of licence holders. The licensing scheme is administered by the Registrar, who maintains a register of licences and manages the licence application process.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Australia intended to enable fast-track development of floating wind projects and technologies?*

The OEI Act empowers the Australian Government to designate areas to be used to develop offshore RE infrastructure. In fact, a ministerial declaration must be made before feasibility or commercial licences can be granted over an area under the OEI Act.

In December 2022 and following a public consultation, the Bass Strait off Gippsland in Victoria was designated as Australia's first offshore wind zone.[10] The other regions for offshore wind energy projects include:

- the Pacific Ocean region off the Hunter Valley in NSW. This was designated as the second offshore wind zone in July 2023,[11] with the application period for feasibility licences recently opening;[12]
- the Pacific Ocean region off the Illawarra in NSW, where the consultation period has commenced;[13]

10. Adnan Memija 'Australia Designates First Offshore Wind Zone, Gives Star of the South Major Project Status' (Offshorewind.biz, 19 December 2022) <www.offshorewind.biz/2022/12/19/australia-designates-first-offshore-wind-zone-gives-star-of-the-south-major-project-status/> accessed 11 December 2023
11. Adnan Memija '5 GW Offshore Wind Zone Declared off Hunter Coast' (Offshorewind.biz, 12 July 2023) <www.offshorewind.biz/2023/07/12/5-gw-offshore-wind-zone-declared-off-hunter-coast/ > accessed 11 December 2023.
12. Adrijana Buljan 'Australia Invites Applications for Hunter Offshore Wind Zone' (Offshorewind.biz, 9 August 2023) <www.offshorewind.biz/2023/08/09/australia-invites-applications-for-hunter-offshore-wind-zone/> accessed 11 December 2023.
13. Adrijana Buljan 'Australia Working Towards Declaring Next Offshore Wind Zone' (Offshorewind.biz, 15 August 2023) <www.offshorewind.biz/2023/08/15/australia-working-towards-declaring-next-offshore-wind-zone/> accessed 11 December 2023.

- the Southern Ocean region off Portland in Victoria. While the consultation period has begun, there has been opposition from the South Australian government in relation to state waters being included as a development zone;
- the Bass Strait region off Northern Tasmania;[14] and
- the Indian Ocean region off Perth/Bunbury, WA.[15]

Victoria has placed offshore wind at the centre of its plan to meet its net zero target by 2050 and is targeting at least 2GW of offshore generation capacity by 2032, 4GW by 2035 and 9GW by 2040.

Studies commissioned by the Victorian Government found that the waters near Gippsland and Portland have the potential to support 13GW of capacity, equating to more than five times the current RE generation in Victoria. These regions are close to existing grid infrastructure and experienced personnel in the energy sector.

In NSW, the pathway for renewable projects has been enacted by the Electricity Infrastructure Investment Act 2020 (NSW) and the NSW Electricity Infrastructure Roadmap. The Roadmap will deliver five Renewable Energy Zones (REZs) in the Central-West Orana, Illawarra, New England, South-West and Hunter-Central Coast regions of NSW. The REZs will deliver an intended network capacity of 12GW.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

Governance of marine functions and activities are a state-by-state approach in Australia. In Victoria, the Port of Hastings has been identified as the primary port to facilitate the assembly of the first tranche of fixed bottom OSW projects in waters off the Victorian coastline. However, given the likely location of the first Australian FLOW projects in REZs offshore NSW, additional port capacity and access to port infrastructure in NSW and Victoria will be required for the construction, assembly and integration of components for such projects.

Foreign investment in Australia is monitored and regulated by the Foreign Investment Review Board (**FIRB**). Foreign investors would need to consider and plan for the application of the Foreign Acquisitions and Takeovers Act 1975 (Cth) (as amended) and its corresponding regulations to offshore wind operations.

There is also a national access regime regulating rights for third parties to gain access to certain infrastructure services. The rules of the national access regime and the regulator's role (being the Australian Competition and Consumer Commission (**ACCC**)) is set out in Part IIIA of the Competition and Consumer Act 2010 (Cth). This regime may become relevant depending on the nature of the access and infrastructure.

14. Adrijana Buljan 'Australia Soon to Move Forward with Two More Offshore Wind Zones' (Offshorewind.biz, 30 August 2023) <www.offshorewind.biz/2023/08/30/australia-soon-to-move-forward-with-two-more-offshore-wind-zones/?utm_source=offshorewind> accessed 11 December 2023; Australian government, Department of Climate Change, Energy, the Environment and Water, 'Consultation hub - Offshore renewable energy infrastructure area proposal: Northern Tasmania, Bass Strait, TAS' <https://consult.dcceew.gov.au/oei-bass-strait> accessed 11 December 2023.
15. Adrijana Buljan 'Australia Soon to Move Forward with Two More Offshore Wind Zones' (Offshorewind.biz, 30 August 2023) <https://www.offshorewind.biz/2023/08/30/australia-soon-to-move-forward-with-two-more-offshore-wind-zones/?utm_source=offshorewind> accessed 11 December 2023.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Australia?*

Government body/authority	Role
Minister	May invite eligible persons to apply for a licence and determines where there are overlapping applications. Responsible for making all licensing decisions under the framework.
Registrar	Responsible for administering the licensing scheme, including assessing licence applications and making recommendations to the Minister.
Offshore Infrastructure Regulator (**Regulator**)	Sits within the National Offshore Petroleum Safety and Environmental Management Authority. Responsible for oversight of work, health and safety, environmental management, infrastructure integrity and financial security for offshore infrastructure activities.
NOPTA	Staff within NOPTA assist the Registrar.
DCCEEW	Responsible for leading area identification process and advising and supporting the Minister.

Prior to commencing offshore infrastructure activities, a licence holder will also be required to submit a management plan to the Regulator for assessment. Management plans will contain details about the operational aspects of a project and content will vary according to the licence and type of project.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Australia (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

As mentioned, there are currently four categories of licences associated with the operation of FLOW farms. These are:

- **Feasilibity licences.** Allow a licence holder to assess the feasibility of an offshore infrastructure project that the licence holder proposes to carry out in the licence area prior to being eligible for a commercial licence.
- **Commercial licences.** Allow a licence holder to carry out an offshore infrastructure project in the licence area for the purpose of exploiting RE resources in the licence area.
- **R&D licences.** Allow a licence holder to carry out an offshore infrastructure project for any of the following purposes:
  - to conduct research relating to the feasibility or capabilities of a technology, system or process;
  - to demonstrate the capabilities of a technology, system or process;
  - to conduct research relating to the exploitation of, or exploration for, RE resources.
- **Transmission and infrastructure licences.** Allow a licence holder to carry out an offshore infrastructure project for any of the following purposes:
  - to assess the feasibility of storing, transmitting or conveying electricity or an RE product in or through the licence area;
  - to store, transmit or convey electricity or an RE product in or through the licence area.

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

At this stage, no additional or separate licences are required for development of offshore wind projects other than the standard licences under the OEI Act, although marine spatial planning consents and consents to access public land and seabed for feasibility studies for such projects may be required under separate state legislation.

b. *Are consents required at a national level or state/municipal level?*

Offshore wind is regulated by the OEI at national level with applications being considered by the Registrar and approved by the Minister. Certain consents such as for marine spatial planning and to access public land and seabed for feasibility studies for such projects may be required under state legislation.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

In addition to the application fee, licence holders will need to pay the following three annual levies:

- annual licence levy;
- annual compliance levy; and
- annual Commonwealth levy.

At this stage, it has not yet been announced whether the application fee or levies will be recoverable.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Australia? Are these specific to FLOW, to offshore wind or renewables in general?*

Government support programmes exist across the financial spectrum for RE, from grant funding to equity, debt and bond-like products. These range from being related to energy/resource in general to being specific to offshore wind, with notable support programmes including:

- **Tax concessions.** May be possible (for example, the Research and Development Tax Incentive). A Research and Development Tax offset regime allows a research and development entity to claim a tax offset for expenditure on defined "core" or "supporting" research and development activities.
- **Grants.** There are now more than 130 Commonwealth programmes relating to RE, including the Australian Renewables Energy Agency and the Modern Manufacturing Initiative.
- **Major Project Status (MPS).** Offshore wind projects may be awarded MPS which provides the project access to bespoke, tailored facilitation, referral and information services by the Major Projects Facilitation Agency for three years. This includes assistance in understanding and navigating the Australian government regulatory approvals process. The MPS is awarded at a federal level and the criteria to be awarded MPS status are as follows:
  * the project is of strategic significance to Australia (which includes contributing significantly to economic growth) and with an estimated investment of more than A$50 million;
  * the project is facing complex regulatory approval challenges with Australian government approvals; and
  * the project has sufficient financial resources and is commercially viable.
- **Debt or equity funding.** This can be directly administered by Commonwealth departments such as Industry, Science, Energy and Resources, or delivered through corporate Commonwealth entities such as Clean Energy Finance Corporation, Export Finance Australia or the Northern Australia Infrastructure Facility.

To date, feed-in tariffs have not been utilised to support large-scale projects in Australia, although capped CfDs were used in both the Victorian Renewable Energy Target (VRET) 1 and 2 auctions.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

   In addition to the above, the Victorian government is further supporting the offshore wind sector through the Energy Innovation Fund (**EIF**), which is targeted at funding the commercialisation of RE technologies in Victoria. It can fund up to 50% of a project's eligible expenditure (which includes contract preparation, wages, legal expenses, licensing and intellectual property costs, but not property acquisition or research and development costs).

   Round 1 of the EIF was dedicated to offshore wind with three projects securing funding of a total of A$37.9 million to support feasibility and preconstruction activities.

   In December 2023 the Victorian Government launched its Offshore Wind Energy Implementation Statement 3 which committed it to develop a comprehensive financial support package, integrated with national energy funding incentives, for the first tranche of OSW projects in declared areas adjacent to the Victorian coastline so as to ensure that these projects are bankable. The Victorian Government is considering a support package structure based on a CfD with a term of up to 20 years to help mitigate market revenue risk, in combination with availability based additional payments to close the revenue-cost gap, potentially also including a payment cap.

   The support package will be awarded following a competitive auction process which will assess both price and non-price factors with a majority weighting for price to satisfy value-for-money concerns while driving both project delivery and ensuring wider policy objectives such as support for local industry and jobs and Traditional Owner benefits sharing.

   In NSW, the NSW Government appointed the Australian Energy Market Operator as the "Consumer Trustee" tasked with the duty to protect the long-term financial interests of NSW electricity consumers. This includes the coordination and planning of long-term investment in generation, storage and transmission in NSW (including awarding Long-Term Energy Service Agreements (**LTESAs**)). It also involves the design and conduct of the competitive tender process to facilitate this investment, undertake authorisation of REZ transmission infrastructure, and provide financial risk management and advice.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   The terms of support provided by such schemes (as announced on a state-by-state and territory-by-territory basis) are negotiated between parties and may allow for adjustment. For example, the LTESAs contain "change in law" and "cost change" provisions which allow the parties to possibly negotiate for adjustment, following efforts to mitigate additional costs incurred.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Australia (e.g. is there a state owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    There is no mandated electricity offtaker at this stage and the feasibility licence application allows for applicants to detail their "preferred" option for the supply or transmission of the electricity and/or RE products that would be generated by the proposed project. The Minister will assess an applicant's plans for addressing future grid connection agreements and end user/offtake agreements.

Given that the projects which have been officially announced are still in the feasibility stage, we anticipate that any revenue structure/offtake arrangements for FLOW projects being considered will be announced in due course. However, it is not clear at this time what the government (both federal and state) approach to offtake and support mechanisms or what the likely capacity and usage (and competition issues for third party access) of port and transmission infrastructure will be. In this regard, some guidance can be drawn from the recently announced Offshore Wind Energy Implementation Statement 3 by the Government of Victoria, which, although not specific to FLOW projects, is based upon international precedents that have shown themselves to be capable of application to FLOW projects.

11. *Are there any restrictions on foreign companies participating in FLOW projects in Australia? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Australia?*

    There are currently no restrictions on foreign companies applying for a feasibility licence. However, overseas participants will need to consider additional factors in making their application to participate in an offshore wind farm project, including whether any approval from the Australian FIRB or ACCC is required.

    A foreign company looking to apply for a feasibility licence must also obtain an Australian Registered Body Number and have a registered office or agent in Australia.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Australia)?*

    As the offshore wind farm industry is in its infancy, there are currently no specific restrictions on the ownership or construction of transmission assets relating to FLOW projects. However, the Minister's assessment of an application for a feasibility licence or transmission and infrastructure licence may include a review of the applicant's assets to determine the applicant's technical and financial capabilities to carry out the proposed commercial offshore infrastructure. Approval from the Australian FIRB may also be a consideration if the applicant is a foreign company.

13. *Are there any requirements in Australia for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    At this stage, it has not been announced whether marine structures that comprise a FLOW farm will need to be registered in any local ship register or for a FLOW farm to be formally certified or classified separately from the legislation considered in this report.

    Foreign investors will need to consider whether the project must be registered with FIRB as a critical infrastructure asset or otherwise. Further, the Security of Critical Infrastructure Act 2018 (Cth) may require compliance.

14. *Are there any local content requirements in Australia in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    It has not yet been announced whether local content requirements will be required in relation to the procurement of goods and services for FLOW projects. This policy will likely be considered and announced at a later date.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    As part of the application process for a feasibility licence, applicants will need to demonstrate that they have the financial capability to carry out the proposed commercial offshore infrastructure project. As mentioned, this is a merit-based assessment – and therefore a conditional guarantee from another entity that the funds will be available to the applicant upon the grant of the licence may be considered.

    At this stage, however, project developers are not required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the Regulator.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    On 22 November 2019, the Council of Australian Government Energy endorsed a national hydrogen strategy which sets out the development of a clean, innovative, safe and competitive hydrogen industry. This led to States and Territories releasing their respective hydrogen action plans which set out the regulatory incentives for hydrogen production. NSW's hydrogen plan, for example, provides up to A$3 billion in incentives to commercialise hydrogen supply chains and reduce the cost of green hydrogen. Victoria's renewable hydrogen industry development plan details its hydrogen energy supply chain, a project to safely and efficiently produce and transport clean hydrogen.

    Regarding tax, there are generally no specific state-based incentives for oil and gas activities. NSW does currently have a tax holiday for up to five years for coal seam gas projects.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Australia. For example, is there an existing offshore oil and gas industry in Australia given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    Whilst Australia has made significant advances towards FLOW projects, offshore wind farms in Australia are a nascent industry, many proposals remain in their infancy and much of the regulations will need to be expanded before actual development can take place. Australia has a long-standing offshore oil and gas industry and has been exploring beneath deep waters for more than 40 years. Infrastructure, technology and knowledge from the oil and gas industry will help drive development of the offshore wind industry in Australia, in addition to Australia's mature port and transport industry.

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Brazil

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Brazil (such as announced procurement goals and awards of individual projects, or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Brazil?*

   The FLOW industry in Brazil is currently underdeveloped, with investor interest and proposals for future projects mainly focused on fixed offshore wind. The Brazilian Institute of Environment and Natural Resources (**IBAMA**) reported 71 applications for environmental investigation licences for offshore wind projects, with most scheduled to start from 2030 onwards. These projects are expected to generate 176.6GW in total.

   Although FLOW has not been identified specifically as part of Brazil's plans for the energy sector, the country has demonstrated a strong commitment to decarbonisation. Brazil also has nearly 7,500km of coastline with two broad shelves with large technical potential for FLOW. Indeed, the southeast coast has 277GW of technical potential, while the southern coast has 430GW.

   The 2030 National Energy Plan, a long-term plan for Brazil's energy sector published by the Ministry of Mines and Energy (**MME**), prioritised national research focused on offshore wind technology and included it as one of the country's generation sources. Brazil aims to source 45% of the country's energy needs from renewable sources by 2030, with 23% derived from wind, solar and biomass. By 2029, it aims to have 17% of its national electricity generation generated from wind power.

   There is strong interest and commitment both locally and from foreign investors in offshore wind in Brazil. A number of the proposed future projects come from European developers, including oil and gas companies such as TotalEnergies, Shell and Equinor. The Brazilian government has encouraged investment by issuing a decree enabling the implementation of necessary offshore studies and the identification of suitable areas for the development of offshore wind projects.

   The Minister of Mines and Energy, Alexandre Silveira, also recently confirmed that the long-anticipated sector policy for offshore wind will be ready "by December of 2023".[16] This could be essential in advancing Brazil's offshore wind industry.

2. *What challenges are faced by the FLOW industry in developing FLOW projects in Brazil (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   The challenges faced by Brazil's FLOW industry mainly stem from its underdeveloped status. Environmental studies are still being conducted and delivered to IBAMA. The sector also lacks regulation and needs to focus on developing the necessary infrastructure and supply chain to overcome its infancy and geographical hurdles.

- **Planning/regulatory approvals.** Brazil has yet to enact legislation or regulations to govern the development of FLOW projects. Marcelo Storrer, Chairman of the Brazilian Association of Maritime Energies, criticised the industry on its extreme legal uncertainty and lack of a robust set of regulations.

16. 'SPOTLIGHT | Brazil's gigascale offshore wind boom looms – but will vision match reality?' (Aegir, 22 September 2023) <www.aegirinsights.com/spotlight-brazils-gigascale-offshore-wind-boom-looms-but-will-vision-match- reality?utm_campaign=Beaufort&utm_medium=email&_hsmi=76530565&_hsenc=p2ANqtz-9d8bYQT05J2E5tFSjFh_tAd_AEXySL5KyacpFC_-O2h9TrsqPgdtw-bTwp-vRknh1_WO0QYF7SxJoktYV51Pr5X4UjZw&utm_content=76530565&utm_source=hs_email> accessed 11 December 2023.

- **Infrastructure**. Brazil will need to develop the necessary transmission infrastructure and map out areas for development. In contrast to onshore wind infrastructure, offshore wind equipment is larger and more complex. At this stage, there are no manufacturers of blades, wind towers or foundations for such equipment in Brazil. Basic port infrastructure to serve the market is also lacking. A large system of high-voltage submarine cables would also be needed to connect new offshore projects to the grid.
- **Supply chain.** The supply chain for Brazil's onshore wind market is limited to a few companies, with a single national turbine supplier owning a small market share. There are difficulties in the industry regarding blade supply, suppliers of components for the wind turbines, wind tower manufacturers, cost of steel, logistics and crane availability. The development of a comprehensive supply chain for offshore wind, including installation, will face similar, if not greater, challenges than the onshore wind market.

3. *Is there a World Bank Offshore Wind Roadmap for Brazil or any announced plans by the government of Brazil, such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   There is a World Bank Offshore Wind Roadmap for Brazil, published in May 2020, which shows a potential of 480GW for fixed offshore wind and 748GW for FLOW, totalling 1,228GW of potential energy generation. The technical potential identified aligns with Brazil's plans for the energy sector in terms of fixed offshore wind, but the lack of financial and political investment in the FLOW sector has so far failed to capitalise on all of Brazil's potential.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Brazil.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

   Developers of FLOW projects will likely require an operational licence. The issuance of operational licences is subject to a bidding process, in which the MME evaluates factors to assess the highest economic return. Relevant criteria include: sustainable development; jobs and income generation; rationality in the use of natural resources for the security of electric energy; integration with other sectors; development of new energy-related technologies; harmonisation with other users of the relevant maritime space; and other factors related to the socio-economic and environmental impact of each project.

   The bidding process is subject to an order being issued by the Interministerial Commission for Sea Resources Decree No. 10,946/2022 (the **Decree**) which specifies two processes: planned assignment[17] and independent assignment. Both require a bidding process, but in a planned assignment the area for exploration is pre-determined, whereas in an independent assignment the interested parties are required to indicate the geo-referenced boundaries.

b. *Is there a specific legal/regulatory regime for FLOW projects in Brazil, as opposed to broader offshore wind or renewables projects in general?*

   There is no specific legal or regulatory regime for FLOW projects, but the Decree governs the exploitation of offshore wind energy in Brazil. Pursuant to the Decree, exploitation rights shall be granted through the assignment of the use of maritime spaces, authorised by the MME and formalised via an onerous assignment contract for the use of public property.

17. "Assignment" can be interpreted as "assignment of rights" or as the "transfer to the assignee of the right to use". The right of use is granted through a fixed-term administrative contract between the Brazilian government and the company interested in utilising the offshore area.

The generator will also require an authorisation from the Agência Nacional de Energia Elétrica (**ANEEL**). The MME may delegate to ANEEL powers to sign the assignment contracts and carry out any necessary acts for their formalisation.[18] ANEEL requires offshore wind projects to comply with several requirements, including Fault Ride Through, frequency support (response to variations in the grid frequency), voltage support and reactive power (minimum and maximum amount of energy generated and consumed), and active power control and remote operation.[19]

The Bill of Law No. 576/2021 regulates the granting of authorisations for the use of offshore energy.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Brazil intended to enable fast-track development of floating wind projects and technologies?*

The Decree enables offshore wind research and generation projects within the physical spaces of the federal government's internal waters, the territorial sea, the EEZ and the continental shelf of Brazil.

The assignment of usage covers areas under the governance of items V and VI of Article 20 of the Brazilian Constitution, paragraph 2 of Article 18 of Law No. 9,636/1998, Articles 1, 6 and 11 of Law No. 8,617/1993 and the United Nations Convention on the Law of the Sea.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

According to the Decree, the assignment of usage shall be preceded by a Declaration of Prior Interference (DIP), which confirms the existence (or lack) of interference of the prisms with other existing enterprises or activities (such as maritime and aerial navigation). The DIP shall be requested by the interested party before the competent authorities, including the Ministry of Infrastructure.

IBAMA also has the authority to license organised ports and port facilities that handle loads exceeding 450,000 TEU per year or 15 million tons per year. This authority extends to private use terminals and port facilities, handling cargo in excess of 450,000 TEU per year or 15 million tons per year.

18. 'Decree to regulate the exploitation of offshore wind energy is published' (Campos Mello Advogados, 28 June 2023) <https://cmalaw.com/contents/decree-to-regulate-the-exploitation-of-offshore-wind-energy-is-published/#:~:text=Decree%20No.,the%20Brazilian%20power%20generation%20industry> accessed 11 December 2023.
19. Ministério de Minas e Energia, 'Roadmap Eólica Offshore Brasil' (2020) <www.epe.gov.br/sites-pt/publicacoes-dados-abertos/publicacoes/PublicacoesArquivos/publicacao-456/Roadmap_Eolica_Offshore_EPE_versao_R2.pdf> accessed 11 December 2023.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Brazil?*

Government body/authority	Role
Air Force Command	Issues the DIP.
ANEEL	Established by Federal Decree No. 2,335/1997 and Law No. 9,427/1996 as the national agency that regulates the electricity sector in Brazil.
Chico Mendes Institute for Biodiversity Conservation	Administrative arm of the Brazilian Ministry of the Environment. Issues the DIP.
IBAMA	Issues the DIP. Established by Federal Decree No. 8,437/2015 as the central federal agency in charge of environmental licensing.
Interministerial Commission for Sea Resources	National entity that advises on issues related to marine resources, especially those of scientific and technological research.
Ministry of Agriculture, Livestock and Supply	Issues the DIP.
Ministry of Economy	Plans Brazil's economic matters and manages, plans and executes Brazilian fiscal policy. Manages public expenditure, financial institutions, insurance and private pension plans.
Ministry of Infrastructure	Issues the DIP.
Ministry of Tourism	Issues the DIP.
MME	Established by Law No. 3,782/1960. Seeks to foster investment in mining and energy-related activities, fund research and set out government policies.
National Agency of Oil, Natural Gas and Biofuels	Issues the DIP.
National Telecommunications Agency	Issues the DIP.
Navy Command	Issues the DIP.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Brazil (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

   IBAMA requires three licences in order to authorise the operation of FLOW projects:

   - the Preliminary Licence, which attests the environmental viability of the project in terms of its planning and location;
   - the Installation Licence, which authorises the installation of the project, in accordance with the specifications set out in the plans, programmes and projects approved during the previous phase; and
   - the Operation Licence, which authorises the operation of the project and determines the environmental control measures and conditions.

a. Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?

   IBAMA is the relevant federal agency appointed pursuant to Federal Decree No. 8,437/2015 to grant licences for wind power plants and projects in connection with offshore activities and in the land-sea transition zone.

b. Are consents required at a national level or state/municipal level?

   Consents for FLOW projects are required at the national level. According to Articles 13 and 7, XIV, "b", of Complementary Law No. 140/2011, a single federated entity (in this case, the federal government) is responsible for the environmental licensing of FLOW projects. There has been a surge in environmental licence requests, totalling more than 176GW in requests with an average capacity of 2.7GW per project.

c. Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?

   There are no specific subsidies or support schemes available for recovering the costs of licences associated with developing a FLOW project.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Brazil? Are these specific to FLOW, to offshore wind or renewables in general?*

   There are several financial incentives and support programmes for onshore wind projects in Brazil. We expect similar incentives to be available for FLOW projects in the future.

   - The Programme for Investment Partnerships (Programa de Parcerias de Investimentos) can be used for: (i) public infrastructure projects that are to be performed through partnership agreements to be signed by the direct or indirect bodies of the Brazilian federal government; (ii) public infrastructure projects to be performed through partnerships signed by the government of states or municipalities directly or indirectly, but delegated by the federal government; and (iii) other measures established by the National Privatisation Plan, pursuant to Law 9,491/97.
   - The Special Incentive Regime for Infrastructure Development (**REIDI**) creates tax breaks for infrastructure construction projects. REIDI suspends the contribution of the social contribution tax[20] and the federal contribution tax for social security financing.
   - The National Bank for Economic and Social Development's (**BNDES**) differentiated financing conditions for wind energy projects, with a specific methodology for accreditation of wind turbines.

20. This is the Social Integration Programme (Programa de Integração Social), which implements the social tax contribution paid by companies in order to finance the payment of unemployment insurance and abandonment to the employees who earn up to two minimum salaries.

In addition, the Foreign Exchange Market Legal Framework (Law No. 14,286/2021) allows payments in foreign currency for contracts entered into by exporters in which the counterparty is a concessionaire, permissionaire /permit holder, licensee or lessee in the infrastructure sector. This framework will permit foreign companies within the energy field to enter into sale and purchase agreements using foreign currency, expanding the financing possibilities for projects within the energy sector. We expect that FLOW projects will be able to take advantage of the financial incentives above, just as onshore wind projects have.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among* pre-qualified applicants, direct purchase or negotiated purchase?).

   The BNDES is the main financial support instrument in Brazil for investments in all economic sectors. FLOW projects are likely to request financing from the BNDES, similar to onshore wind projects. To request financing from the BNDES, a company may either request: (i) direct support (which generally covers the qualification stages, request for financial support, analysis, hiring and follow-up work); or (ii) indirect support (for which the company must request financing from one of the financial institutions credentialled by the BNDES).

   For indirect support, credentialled financial institutions assume the risk of the financing operations and have their own policies and rules for granting credit. Following their risk analysis, they can approve the operation in its form as requested by the client, or change their percentage of participation in financing and terms of the project, subject to the maximum limits set by the BNDES, as well as other regulations including those set by the Brazilian Central Bank. The credentialled institutions also define the guarantees for the project. As each institution has its own procedure, the timeframe for the approval of credit differs based on the transferring institution.

   Only following the credit approval can the project be put forward for approval by the BNDES. The financial institution will then instruct its client to commence the project. After the contractual registrations are made, the credentialled institution sends the request to the BNDES for release of the first (or only) section of the credit. Once the request is approved by the BNDES, the resources are released to the financial institution, which must pass them on to the company within one business day.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   Onshore wind projects benefit from support schemes made available at both the national and state level. We expect FLOW projects to benefit from the same, but there is currently no regulation which details how such support schemes will be made available for FLOW projects.

   For financial funding from the BNDES, the timeframe consists of the grace period and the amortisation period. It is determined by the BNDES or, in the case of indirect support, by the credentialled financial institution. Early payment of the debt (partial or total) requires prior authorisation by the BNDES and it does not necessarily release the company from the obligation to carry out the investment objective of the financing.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Brazil (e.g. is there a* state-owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?

ANEEL is the main agency responsible for contracting offshore areas for power generation. Recently, the new generation concessions are granted through a bidding procedure which lasts up to 35 years. This period is not expected to be further extended, under Brazilian Laws 8,987/1995 and 9,074/1995.

A specific regulation from ANEEL for FLOW is scheduled to be issued during the first part of 2024. However, currently there is no existing revenue structure for offtake arrangements proposed for FLOW projects.

11. *Are there any restrictions on foreign companies participating in FLOW projects in Brazil? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Brazil?*

    There are no restrictions on foreign companies participating in FLOW projects. However, only companies headquartered in Brazil, foundations, associations and public entities may request a personal guarantee from the BNDES in respect of financial obligations assumed by applicants with national or foreign creditors.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Brazil)?*

    Bill No. 576/2021 regulates the exploitation of offshore wind energy in Brazil. The bill provides for the transfer of the exploration right of maritime surfaces by means of an assignment of the use of a public asset. The bill provides that the granting of a concession or authorisation will be formalised by a grant agreement, reflecting the conditions of the tender and information provided by the winning bidder.

    Law No. 14.133/2021, which regulates biddings and administrative contracts, establishes that the contracting party may be a natural person, a legal entity or a consortium of legal entities.

    In addition, Law No. 14.133/2021 permits the participation of a natural person, a legal entity or a consortium of legal entities with the possibility of quotation of prices in foreign currency, or bidding in which the contractual object can or should be executed in whole or in part in a foreign territory. On the other hand, if it is an authorisation granted by Brazilian government, the bidding process is no longer needed since the authorisation is a unilateral administrative act by which the public power transfers by delegation the execution of a public service to third parties. Article 6, subsection XXXV of Law No. 14.133/2021 defines an international bid as the bidding processed in a national territory in which the participation of foreign bidders is admitted, with the possibility of quoting prices in foreign currency, or bidding in which the contractual object can or must be executed in whole or in part in a foreign territory.

    In order for a company to apply for financing through the BNDES, it must meet specific criteria and requirements established for the accreditation of wind turbines with or without a gearbox. To do so, it is necessary to comply with the "Regulation for the Accreditation of Wind Turbines in BNDES CFI System". To name a few, the blades and the towers must be manufactured in Brazil, using domestic components (platforms, ladders, supports, guardrails, conduits and 50% of the flange connection bolts).

    Article 6 of Decree No. 10,946/2022 determines that the commercialisation of electricity from offshore power generation projects must comply with Law No. 10,848/2004, which sets out the general rules for the commercialisation of electricity. Also, Article 7 of such Decree establishes that the implementation of an offshore power generation project intended for self-production without connection to the National Integrated System (SIN) shall comply with the rules of Decree No. 5,163/2004.

    The MME will establish the procedures for the integration of the offshore energy generation projects to the SIN. Furthermore, DIP issuance by the authorities listed in Question 5 above is required.

    In regard to more practical aspects, the contract for exploring offshore electricity generation shall provide the necessary studies to identify the offshore energy potential of the prism, according to criteria and deadlines established by the MME.

Brazil has several research requirements in connection with the bidding process. According to Decree No. 10,946/2022, the interested party must conduct research of the offshore power potential, including preliminary technical, economic and socio-environmental analysis. The research must be approved by ANEEL in order to be compliant with the criteria established by the MME. The bidding process itself considers the criteria mentioned in Question 4(a) above.

13. *Are there any requirements in Brazil for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    There are no requirements that marine structures that comprise a FLOW farm be registered in a local ship register. As stated above, Decree No. 10,946/2022 and Bill of Law No. 576/2021 regulate the granting of exploration rights in respect of maritime spaces. However, they do not specify requirements in relation to marine structures. Marine spatial planning is currently under development in the southern region of the country by the BNDES and the Secretary of the Interministerial Commission for Sea Resources.

14. *Are there any local content requirements in Brazil in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    Brazil has several research requirements in connection with the bidding process. According to Brazilian Decree No. 10,946/2022, the interested party must carry out studies of the offshore power potential, including preliminary technical, economic and socio-environmental analysis. The studies must be approved by ANEEL, to certify whether the studies comply with criteria established by the MME. The bidding process itself considers the criteria mentioned in Question 4(a) above.

    Companies that operate public services granted under concession, or that carry out industrial or commercial activities, are obliged to maintain in their staff (when comprising three or more employees) a proportion of no fewer than two-thirds of Brazilian employees. However, a lower proportion may be established, taking into account the special circumstances of each activity, by means of an act of the Executive Branch, and after the National Department of Labour and the Social Security and Labour Statistics Service have duly ascertained the insufficiency of the number of Brazilians in the activity in question.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)? For example, in the upstream oil and gas industry, there is often a requirement to provide parent company guarantees or bank support/credit to guarantee minimum work obligations or in case of environmental damage.*

    In order to secure the bid and avoid the bid winner refusing to proceed with the project without a cause, or it fails to submit the necessary documents for the formalisation of the contract, Brazilian Public Bidding Law (Article 58 of Law No. 14.133/2021) states that it may be necessary for the bidder to provide a proof of payment of amount as a bid guarantee, which will not be higher than 1% of the estimated contract value. Nevertheless, such amount will be returned to the bidder either when winning the bid and signing the contract, or when the bid is declared lost for that bidder. Article 96 of the same Law states that the guarantee must be provided in one of the following formats: (i) collateral in cash or government bonds; (ii) security bond; or (iii) bank-issued guarantee, or guarantee issued by a financial institution duly authorised to operate in Brazil by the Central Bank of Brazil.

Under the financing regime with the BNDES discussed at Question 8, there are guarantee requirements for project developers pursuing both the direct and indirect support route. For the direct support request, customers must present secured guarantees (such as mortgage, pledge, fiduciary property, receivables, etc.) and/or personal guarantees (such as surety or guarantee). For the indirect support request, the guarantee requirements are negotiated between the credentialled financial institutions and the client.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

Brazil has placed significant focus on green hydrogen as a renewable energy source. The Bill of Law No. 725/2022 includes green hydrogen as an energy source in Brazil and sets out measures to encourage the use of sustainable hydrogen, but there are no particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms. However, a number of investors have submitted proposals for green hydrogen projects with power being sourced from offshore wind including: Fortescue – Porto do Pecém (CE), Qair Marítimo Dragão (CE) and White Martins (RS).

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Brazil. For example, is there an existing offshore oil and gas industry in Brazil given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

The FLOW industry in Brazil is still relatively underdeveloped, with projects scheduled to commence from 2030 onwards. Nevertheless, foreign developers have demonstrated a keen interest in committing to this industry. There is considerable interconnection between the oil and gas industry and the future of the FLOW industry in Brazil. Many of the applications for offshore wind projects have been proposed by oil and gas majors such as TotalEneriges, Shell, and Equinor. Petrobras, the Brazilian state-controlled oil and gas company historically focused on fossil fuel extraction, has announced its plans to get involved in the renewable energy sector with ambitious projects totalling 23GW.[21] Its expertise in the planning and logistics of large offshore works would prove fundamental to the success of any future renewable offshore projects.

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21. 'SPOTLIGHT: Brazil's gigascale offshore wind boom looms – but will vision match reality?' (Aegir, 22 September 2023) <www.aegirinsights.com/spotlight-brazils-gigascale-offshore-wind-boom-looms-but-will-vision-match-reality?utm_campaign=Beaufort&utm_medium=email&_hsmi=76530565&_hsenc=p2ANqtz-9d8bYQT05J2E5tFSjFh_tAd_AEXySL5KyacpFC_-O2h9TrsqPgdtw-bTwp-vRknh1_WO0QYF7SxJoktYV51Pr5X4UjZw&utm_content=76530565&utm_source=hs_email> accessed 11 December 2023.

Canada

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Canada (such as announced procurement goals and awards of individual projects or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Canada?*

   There are currently no operational offshore wind projects in Canada. Since there are no operational offshore wind projects in Canada generally, our answers reflect the broader category of offshore wind, including FLOW.

   The development of offshore wind is regulated by the Canada Energy Regulator (CER), under Part 5 of the Canadian Energy Regulator Act – Offshore Renewable Energy Projects and Offshore Power Lines. Since 2020, Natural Resources Canada (NRCan) has been developing the Offshore Renewable Energy Regulations, which will provide safety, environmental protection and licensing requirements for ORE projects and power lines in Canada's offshore areas. Consultation on proposed Technical Requirements of the Offshore Renewable Energy Regulations has been completed and pre-publication of the regulations is expected in autumn 2023.22 While the federal regulations will apply to ORE projects in Canada's offshore areas (areas within provincial and territorial jurisdiction), these projects are likely to be an area of federal-provincial collaboration in the joint management of Canada's energy resources. There is potential for ORE developments on Canada's western, eastern and potentially northern coasts, as well as on the country's Great Lakes.

   The first ORE projects were planned in the early 2000s to be built in Ontario's lakes. However, these projects were subsequently cancelled or put on hold when the Ontario government imposed a moratorium on offshore wind in 2011, citing a lack of scientific research on the effects of such projects in the area. The moratorium was extended in 2017 and it is unclear at this time when, or if, it will be lifted. In the Great Lakes area, there is some development on the American side, with a proposed offshore wind project to be developed in Lake Michigan by the Illinois Power Agency. It is yet to be seen if this proposed project will prompt Ontario to proceed in a similar manner.[23]

   In British Columbia, the NaiKun Offshore Wind Energy Project, a 400MW capacity project located in Hecate Strait, was proposed prior to 2009. However, its environmental approvals expired in 2019 due to lack of a substantial start to development. The project was acquired by Northland Power in 2020 and is currently in the early stages of development. A 17GW offshore wind project, the Allan Array Floating Wind Farm, is proposed for development off the coast of British Columbia and is in the early planning stages. There are no operational ORE projects in British Columbia at this time.

   The majority of proposed offshore wind projects and regulatory development stems from Canada's eastern coast. As such, the remainder of this report will focus, where applicable, on the Atlantic Provinces of Canada, namely Nova Scotia, Newfoundland and Labrador, Prince Edward Island and New Brunswick.

22. 'Offshore Renewable Energy Regulations – Proposed Technical Requirements' (Natural Resources Canada, undated) <https://natural-resources.canada.ca/sites/nrcan/files/public-consultation/orer_-_technical_requirements_paper_-_en.pdf> accessed 11 December 2023.
23. 'Rust Belt to Green Belt Pilot' (Illinois General Assembly Bill Status of HB2132, 28 April 2023) <https://ilga.gov/legislation/billstatus.asp?DocNum=2132&GAID=17&GA=103&DocTypeID=HB&LegID=145649&SessionID=112> accessed 11 December 2023.

The Impact Assessment Agency of Canada is currently undertaking two regional assessments under the Impact Assessment Act (**IAA**) for ORE projects in Nova Scotia and Newfoundland, with the goal of informing future project-specific federal impact assessments in these areas. The governments of Nova Scotia and Newfoundland each have an established joint regulatory agency with the federal government, the

Canada-Nova Scotia and Canada-Newfoundland Offshore Petroleum Boards, responsible for the development of offshore oil and gas activities in these areas. In 2022, it was announced that each of these Boards' mandates will be expanded to include the regulation of ORE development in the Nova Scotia and Newfoundland offshore areas, respectively.

Amendments were proposed in May 2023 to implement the abovementioned expansion mandate, which include renaming the Offshore Petroleum Boards the Canada-Nova Scotia Energy Regulator and Canada-Newfoundland Energy Regulator, and aligning offshore petroleum activities with the new provisions on ORE.[24] Such amendments have been put forward in Bill C-49, aligning the offshore petroleum activities with the new provisions on ORE. The second reading of Bill C-49 was completed in the Canadian House of Commons in October 2023. From an environmental perspective, the proposed amendments would have Marine Protected Areas standards apply to all offshore areas governed by the regulations. Offshore wind farms may be permitted within Marine Protected Areas.[25] Bill C-49 also clarifies that ORE activities would not be considered key industrial activities, but related activities which conflict with conservation objectives set out by the federal government may nevertheless be prohibited.[26]

In 2022, Nova Scotia set a target to auction off 5GW leases of offshore wind energy by 2030. However, in November 2023 Nova Scotia announced a 'pause' on this plan to allow for further regulatory development and public consultation.[27] The government of Newfoundland and Labrador also previously lifted the moratorium on wind investment and development in the province in 2022, which was in place in relation to onshore wind development since 2007. In December 2023, Newfoundland and Labrador signed a Memorandum of Understanding (**MOU**) on offshore wind to enable the Province to take the lead on offshore wind projects within its inland bays.[28] The MOU establishes a process to administer land tenure and life-cycle regulation, and the province intends to move quickly to develop offshore projects within its provincial bays.

Prior to these regulatory developments, four projects were proposed in the Atlantic Canada region (Nova Scotia, Newfoundland, New Brunswick and Prince Edward Island) by a joint venture called Atlantic Canada Offshore Developments (ACOD). ACOD continues to seek development of the first offshore wind farm in Canada and is engaged with the Canadian government throughout the proposed regulatory amendments to advance this goal. Another project, Nova East Wind, is aiming to be Canada's first offshore wind project. Nova East Wind is a proposed 300 to 400 MW floating offshore wind project located 20-30 km off of Goldboro, Nova Scotia. Subject to regulatory approval, it is planned to be operational by 2030.

24. 'Building Offshore Renewables in Newfoundland and Labrador and Nova Scotia' (Natural Resources Canada, 30 May 2023) <www.canada.ca/en/natural-resources-canada/news/2023/05/building-offshore-renewables-in-newfoundland-and-labrador-and-nova-scotia.html> accessed 11 December 2023.
25. 'Marine Protected Areas' (Government of Canada, 8 February 2023) <www.dfo-mpo.gc.ca/oceans/mpa-zpm-aoi-si-eng.html> accessed 11 December 2023.
26. Dominique Amyot-Bilodeau and others, 'Canada Introduces New Legislation to Regulate Offshore Wind Projects' (Energy Regulation Quarterly October 2023) <https://energyregulationquarterly.ca/articles/canada-introduces-new-legislation-to-regulate-offshore-wind-projects#sthash.Wy8DZGRI.p8YoEwSp.dpbs> accessed 11 December 2023.
27. CBC, "Nova Scotia government retreats on plan to fast-track wind farms in coastal bays" (November 2023), <https://www.cbc.ca/news/canada/nova-scotia/government-retreats-offshore-wind-bays-1.7036827> accessed 22 December 2023.
28. Newfoundland and Labrador, "Provincial and Federal Governments Sign Memorandum of Understanding to Advance Offshore Wind Power and Good Jobs" (December 2023), <https://www.gov.nl.ca/releases/2023/exec/1206n02/> accessed 22 December 2023.

2. *What challenges are faced by the FLOW industry in developing FLOW projects in Canada (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   FLOW is largely undiscussed due to the lack of development in offshore wind generally, with any discussion occurring in the context of OREs more broadly, and offshore wind in general.

   The offshore wind projects previously proposed in Ontario and British Columbia were met with societal opposition. However, these areas are more densely populated than Atlantic Canada. This challenge will still be present in Atlantic Canada, particularly with respect to mitigation of risks to fisheries, protection of aquatic species and species at risk, acknowledgement of indigenous communities and rights, and protection of ecologically sensitive areas and habitats. Canada has many ecologically significant areas and the relevant legislation and administration of ecological protection laws is stringent. Achieving regulatory approval for energy projects in Canada can be a lengthy and arduous process. The goal of the regional assessments under the IAA conducted by the federal government is to provide a full understanding of potential and cumulative effects of ORE development in the areas, while aiming to provide a level of regulatory certainty and expediency.

   The complex geological and bathymetric conditions in Atlantic Canada present various challenges. Canada's offshore waters are extremely deep and regions with analogous characteristics have had limited ORE project development. This depth may not be compatible with existing project types and associated infrastructure. The deep waters of Atlantic Canada's region may be more suitable to the anchoring of floating foundation turbines than other existing foundations. Installations further from shore increase cost, but are associated with the important benefits of providing higher, consistent wind speeds, avoiding marine activity and facing less societal opposition than installations closer to shore.

   Cold climates represent a technical challenge to offshore wind in Canada, particularly in Atlantic Canada. Canada's climate is colder than many other countries with existing ORE projects. Other climatic considerations include parts of Atlantic Canada being prone to hurricanes, the accumulation of sea and atmospheric ice in the area and parts of Atlantic Canada containing some of the highest tides in the world, which will particularly pose an issue with respect to any potential floating ORE projects.

   Further, while there is significant demand and potential for offshore wind energy in Atlantic Canada, harnessing this energy will require a major increase in transmission capacity to connect these projects to Quebec and the other Canadian provinces.[29]

3. *Is there a World Bank Offshore Wind Roadmap for Canada or any announced plans by the government of Canada such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   While the Canadian government has included offshore wind development as part of its 2023-2025 Forward Regulatory Plan, via the Offshore Renewable Energy Regulations initiative, at this time the federal government has not announced any plans or capacity targets with respect to ORE. The provincial government of Nova Scotia has set a target to auction off leases for 5GW of offshore wind energy by 2030 via a competitive bidding process. This strategy is part of a larger energy transition plan in the province to use ORE projects to produce green hydrogen for use and export. At this time, no other Canadian provinces have committed to any capacity goals.

   There is significant untapped potential for ORE projects in Canada, but no significant action has been taken with respect to assigning or committing to capacity. Regulatory assessment and clarification is required in order to move forward with such projects in Canada.

29. Peter Nicholson, 'Catching the Wind: How Atlantic Canada Can Become an Energy Superpower' (Public Policy Forum,October 2023) <https://ppforum.ca/wp-content/uploads/2023/10/CatchingTheWind-AtlanticCanadaEnergySuperpower-PPF-Oct2023-EN.pdf> accessed 11 December 2023.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Canada.*

   Offshore wind is federally regulated by the CER, the Canadian Energy Regulator Act. The Offshore Renewable Energy Regulations are currently under development by NRCan. Consultation on proposed Technical Requirements of the Offshore Renewable Energy Regulations has been completed and

   pre-publication of the regulations is expected in autumn 2023.[30] These regulations will provide safety and environmental protection requirements for ORE projects and power lines in Canada's offshore areas. These projects will also be subject to the existing federal environmental protection acts, such as the Canada Environmental Protection Act and Species at Risk Act, and must obtain associated authorisations. Any ORE projects will need to undergo EIA under the IAA.

   The legal, statutory and regulatory regime for the development of offshore wind also varies by province and territory. For Nova Scotia and Newfoundland, the Canada-Nova Scotia and Canada-Newfoundland Offshore Petroleum Resources Accord Implementation Acts will be amended in order for the Canada-Nova Scotia and Canada-Newfoundland Energy Regulators to regulate ORE projects and grant leases or licences to develop them. No other provinces or territories in Canada have engaged in such joint-management agreements to date. Other provinces may follow suit with respect to joint management. ORE projects will have to abide by the provincial and territorial regulatory, land use and environmental protection acts which also vary by province and territory. For example, in Nova Scotia, the regulatory regime for marine renewable energy projects is set out in the Marine Renewable Energy Act which governs areas of Marine Renewable Energy Priority, Marine Renewable Electricity Areas, licensing, etc. In addition, provincial environmental protection acts must be followed, such as the Nova Scotia Environment Act.

   Agreements and licences for electricity generation and supply with the applicable province's electricity regulator will also be required. For example, in Nova Scotia, the Electricity Act requires licences for generation and supply of electricity from the Nova Scotia Utility and Review Board, and there must be consideration of potential public utility obligations under the Public Utilities Act.

   a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

      In Nova Scotia, leases for offshore wind development will be granted through a competitive bid process jointly managed by the provincial and federal governments, with the first call for bids scheduled to be issued in 2025. After reaching the 5GW target in Nova Scotia, calls for bids will be based on market opportunities. Other provincial strategies may vary. For example, in British Columbia, rights to allocate land for ocean energy power projects may be allocated by the Ministry of Forests, Lands, Natural Resource Operations and Rural Development on a first come, first served basis, through a planned disposition process, or using a competitive bid process.

   b. *Is there a specific legal/regulatory regime for FLOW projects in Canada, as opposed to broader offshore wind or renewables projects in general?*

      To date, any existing legal and regulatory regime for offshore wind projects are general and not specific to FLOW.

   c. *Are there any designated areas of the territorial sea or exclusive economic zone of Canada intended to enable fast-track development of floating wind projects and technologies?*

      No.

30. 'Offshore Renewable Energy Regulations – Proposed Technical Requirements' (Natural Resources Canada, undated) <https://natural-resources.canada.ca/sites/nrcan/files/public-consultation/orer_-_technical_requirements_paper_-_en.pdf> accessed 11 December 2023.

d. Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?

Yes. However, it will vary depending on the location and type of port. Canada has more than 550 port facilities, 17 of which are federally regulated by Transport Canada and Canadian Port Authorities pursuant to the Canada Marine Act. Canada's public ports may be owned by Transport Canada or by non-federal entities. There are also a number of non-federal ports in Canada, for which Transport Canada's role is limited to a regulatory and compliance monitoring role. Any analysis of the legal or regulatory regime will depend on the location and type of port (e.g. public, private, federally regulated) being accessed.

In Nova Scotia, an agreement for Canada's first offshore wind port has been signed in 2023 between a Danish shipping company and a Canadian transportation, logistics and green energy development company, establishing them jointly as the exclusive marshalling port operator in order to carry out offshore wind development and operation planning of offshore wind port design, including marshalling, pre-assembly, logistics and safety.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Canada?*

Federally, the CER is responsible for regulation of offshore wind projects in Canada. As discussed above, depending on the province or territory, the provincial government may also serve a role in regulation of offshore wind projects and various other regulatory bodies may be involved in the overall regulation of such projects, such as environmental regulators.

6. What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Canada (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?

As mentioned above, there are numerous federal and provincial/territorial, as well as municipal permits, licences and consents that will be required for offshore wind projects. The regulatory framework for such projects is still under development and therefore is subject to change. However, licences, consents, authorisations and/or permits will be required relating to environmental assessment, species at risk, data collection, investigation leases or licences, environmental protection and others – both the federal and provincial/territorial levels depending on location and associated regulatory framework. In addition, electricity generation and transmission licences will be required with respect to the governing utilities body and various other consents will likely be required at the municipal level.

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

Currently there are no separate or specific licences exclusively required for FLOW projects. This may be an area of development as the regulatory framework progresses.

b. *Are consents required at a national level or state/municipal level?*

Consents are required at the federal, provincial and municipal level.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

Cost recoverability will depend on the location of the project and the applicable overseeing bodies.

7. Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/ feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Canada? Are these specific to FLOW, to offshore wind or renewables in general?

   The 2023 federal budget announced new measures to support and capitalise on Canada's offshore wind potential. This includes the dedication of C$3 billion of funding to NRCan over 13 years, starting in 2023 and 2024, to create new investments in science-based activities, particularly off the coasts of Nova Scotia, and Newfoundland and Labrador.[31]

   The following federal incentives are relevant to ORE projects:

   - **Clean Technology Investment Tax Credit.** This credit is refundable up to 30% of the cost of capital investment for eligible investments made by taxable entities in wind, solar PV and energy-storage technologies. The federal government recently announced a refundable 15% tax credit on the capital costs of investments made by non-taxable entities on investments in renewable energy and other non-emitting electricity infrastructure.
   - **Clean Manufacturing Investment Tax Credit.** This credit was recently introduced, providing a 30% refundable credit for investment, machinery and equipment used to manufacture clean technology. This credit is applicable to the manufacturing of renewable energy and energy-storage equipment.
   - **Clean Electricity Focus for the Canada Infrastructure Bank (CIB).** The CIB will invest at least C$10 billion through each of its Clean Power and Green Infrastructure priority areas — i.e. at least C$20 billion to support the building of major clean electricity and clean growth infrastructure projects (such as offshore wind farms).
   - **Canada Growth Fund.** A C$15 billion public investment vehicle that will attract private capital to build Canada's clean economy by using investment instruments that absorb risks to encourage private investment in low carbon projects and supply chains.

   NRCan often presents funding opportunities for clean energy projects. However, no applicable programmes are currently in place. The federal government is providing funding to the Strategic Innovation Fund of approximately C$500 million over 10 years, which has been proposed to provide funding for eligible large clean technology projects.

   Any financial incentives or support schemes will depend on the location of the project. It is also likely that such programmes have yet to be developed or implemented due to the current early stages of offshore wind development in Canada. Provincial and territorial funding is expected to vary by region.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among* pre-qualified applicants, direct purchase or negotiated purchase?).

   The Clean Technology Investment Tax Credit applies to the capital cost of investments made by taxable entities in wind, solar PV and energy-storage technologies. This percentage will remain at 30% for property available for use in 2032 and 2033, and move to 15% in 2034. The credit will not be available after 2034. This credit is available for all eligible property, which includes wind electricity generation systems. Funding under the Strategic Innovation Fund is provided for activities related to the research, development and commercialisation of innovative products, processes or services, and must have reached associated Technology Readiness Levels with the potential to be implemented or commercialised.

   The details of the relevant funding programme will depend on the programme and the region.

31. Government of Canada, 'Federal Budget: Chapter 3 - A Made-In-Canada Plan: Affordable Energy, Good Jobs, and a Growing Clean Economy' (2023) <www.budget.canada.ca/2023/report-rapport/chap3-en.html> accessed 11 December 2023.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   Financial support schemes are available at the federal, provincial and municipal level. Details will depend on the region and programme.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Canada (e.g. is there a state owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    Revenue structures and offtake arrangements will vary by region. As there are no existing or developed FLOW projects in Canada, this may only be speculated.

11. *Are there any restrictions on foreign companies participating in FLOW projects in Canada? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Canada?*

    As the regulatory framework for offshore wind leases and licences is not yet established, it is uncertain whether there will be restriction on foreign ownership or participation.

    The Nova Scotia Power Privatisation Act has historically limited foreign ownership of the main vertically integrated utility in the province. However, there has been some movement in past years proposing to loosen the restrictions on foreign ownership.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Canada)?*

    This will depend on the region. As there are no existing or developed FLOW projects in Canada, this may only be speculated.

13. *Are there any requirements in Canada for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    This is currently unknown. As offshore wind will be an area regulated by the CER or jointly between the CER, or the Canada-Nova Scotia and Canada-Newfoundland Energy Regulators, depending on location, it is likely that any registration requirements will stem from this regulatory oversight.

14. *Are there any local content requirements in Canada in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    This will be region-dependent and the progression of offshore wind developments in Canada is not far enough advanced to provide guidance at this time.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    The CER may grant conditions on any authorisations relating to offshore wind with respect to approvals, deposits, liability for loss, damage, costs or expenses, carrying out of safety studies or environmental programmes or studies, and certificates of fitness under the Canada Energy Regulator Act. The CER Guidelines Respecting Financial Requirements sets out stringent financial requirements adopted under the Canada Energy Regulator Act.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    The federal government has proposed a Clean Hydrogen Investment Tax Credit based on the life cycle carbon intensity of hydrogen. The credit offers varying levels of support between 15% and 40% of eligible project costs, with projects that produce the cleanest hydrogen receiving the highest levels of support. Further details regarding the applicability of this incentive are required to know if it would apply to the use of FLOW to power green hydrogen production.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Canada. For example, is there an existing offshore oil & gas industry in Canada given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    In Nova Scotia, and Newfoundland and Labrador, there is an existing offshore oil and gas industry, and therefore the regulatory oversight and licence regime is the most developed. This region is likely the most suitable for assessment and is the closest to implementation of an offshore wind regime in the near future.

As of the end of 2023, it appears that Newfoundland and Labrador may be the first province to move forward with the construction and implementation of ORE projects in Canada.

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Chile

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Chile (such as announced procurement goals and awards of individual projects, or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Chile?*

   The Chilean government is committed to decarbonisation but has to date not focused on FLOW as a method of achieving this. There is currently no FLOW industry in Chile despite significant technical potential and no future plans from the Chilean government to prioritise FLOW are anticipated.

   Chile has set a goal of converting 70% of its total energy consumption to renewables by 2030 and pledged to become carbon neutral by 2050. Projects in renewable energy are receiving increased government and private sector support, but FLOW projects remain undeveloped. Wind energy in Chile remains focused on onshore sites as demonstrated by Bill No. 14.443-12, which seeks to regulate the construction of wind farms.

2. *What challenges are faced by the FLOW industry in developing FLOW projects in Chile (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   The challenges potentially facing a FLOW industry in Chile will largely depend on the area where a project is to be developed. A detailed study of the prospective region for any FLOW project will be required. For example, in the north of the country, the challenges are mainly environmental, such as the conditions of the Chilean seabed, while in the south, the challenges are in relation to connecting to the grid and port infrastructure.

   However, there are several overarching challenges facing the FLOW industry in Chile:

   - **Lack of specific legislation.** As stated, there is currently no FLOW industry in Chile, nor any immediate plans to develop one. The Chilean government needs to instigate research and studies investigating the potential for FLOW projects in the country. As such, the industry lacks regulation, planning and specific incentives for its development.
   - **Characteristics of the Chilean sea and seabed.** The Chilean sea is very deep, steep and active, both seismically and tectonically, while the Chilean seabed is characterised by intense biological activity. Such features will prove challenging to the development of FLOW projects in these areas. While there is vast geographical potential in the Chilean seabed, with more than 6,000km of coastline, the Chilean sea proves extremely inhospitable to many projects. It has what is known as the "Chile Trench" – a continuous depression of the seabed that extends for more than 5,000km from Ecuador to Tierra del Fuego, which in its deepest part is believed to reach a depth of 8,801 metres (the Atacama Trench). Research will need to be conducted to investigate how to combat these unfavourable geographical conditions in developing the FLOW industry.
   - **Supply chain issues and connecting to the grid.** The supply chain is not prepared to respond to the requirements of any FLOW industry, which is particularly the case in the south of Chile (Magallanes Region). Port facilities, land transportation routes and transmission lines close to the coast would all require significant development in order to support the development of a FLOW industry. However, in response to the development of the Green Hydrogen industry, the Chilean government, with the

collaboration of private entities, is planning the development of import and export facilities that include new ports, connection points to the national grid and transportation routes. Such infrastructure has the potential to aid in the development of the FLOW industry.

- **Technological advances.** Technology for FLOW is not available at a cost-efficient price, resulting in lack of government and private sector investment.

3. *Is there a World Bank Offshore Wind Roadmap for Chile or any announced plans by the government of Chile, such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   The World Bank, through a published report and roadmap, estimates that Chile has technical potential to install a total of 957GW of power capacity for offshore wind, with 826GW for FLOW. Despite this potential, the Chilean government still has not announced a formal plan to commit to the development of FLOW.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Chile.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

   In Chile, offshore wind projects are not required to own a seabed licence or lease, but instead must obtain maritime concessions and authorisations. Maritime concessions are required for energy projects developed along the coast and within 12 nautical miles from the coast baseline into the Chilean territorial sea. Such concessions and authorisations are requested from the Ministry of National Defence, through the Undersecretariat for the Armed Forces, in accordance with the Decree with Force of Law No. 340 on Maritime Concessions. Maritime concessions can be granted for up to 30 years.

b. *Is there a specific legal/regulatory regime for FLOW projects in Chile, as opposed to broader offshore wind or renewables projects in general?*

   There is no specific legal regime for FLOW projects. The industry is still yet to be developed, but it is expected that any regime will follow the rules governing onshore and offshore wind energy projects in Chile.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Chile intended to enable fast-track development of floating wind projects and technologies?*

   In Chile, there are neither any zones established or intended to allow the accelerated development of floating or fixed wind energy projects and technologies, nor any fast track zones for the development of renewable energies.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

   In Chile, there is no regulation that governs access to ports and the activities permitted within them. Its regime is mainly regulated by: (i) Law 19,542, which regulates port infrastructure and establishes an associative port system between public and private actors; and (ii) Decree with Force of Law No. 340 on Maritime Concessions and its Regulations. Under these, ports are free to perform the activities they decide as part of the port business. Thus, port space could be used for assembling wind turbines as agreed with the port company.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Chile?*

The institutional jurisdiction for offshore wind projects lies with the Ministries of Energy, Defence and Economy and the environmental legal frameworks, as further set out below.

Aspect of process	Regulatory body	Responsibilities
Licensing and enforcement authority	Ministry of National Defence	Controls the use of the territorial sea, seabed and beaches.
	Undersecretariat for the Armed Forces	Works with the Ministry of National Defence to permit maritime concessions.
	General Directorate of Territory and Merchant Marine	A public institution, dependent on the Chilean Navy that, as a public service of the state of Chile, ensures compliance with current international laws and agreements, to provide maritime security and protect human life at sea; preserve the aquatic environment and marine natural resources; exercise maritime police and supervise and regulate the activities carried out in the maritime area of its jurisdiction. It is also in charge, among other things, of granting maritime concessions.
	Port Captaincy	Jurisdiction over the sector where the project will be carried out.
	Controller General of the Republic	The Controller is a constitutionally autonomous body of the government of Chile, in charge of the legal review/ control of the laws and regulations, and performs pre-audit and post-audit functions of all the activities of the centralised and decentralised civil service, whatever its forms of organisation may be, as well as of other powers granted by law. Exercising this ex-ante review power, the Controller scrutinises, on constitutional and legal grounds, executive decisions and regulations prior to their official publication or communication. In practice, this checking procedure may represent an effective veto point in the Chilean administrative process. Another aspect of the legal control function of the Controller consists of its power to issue legally binding opinions on issues concerning the laws that govern administrative bodies and procedures.
	Ministry of Environment	Through the Environmental Assessment Service, it verifies the fulfilment of environmental standards and the life cycle of the project.

Aspect of process	Regulatory body	Responsibilities
Connecting to the grid	Superintendency of Electricity and Fuels	The supervisory body in charge of monitoring and supervising compliance with legal and regulatory provisions and technical standards on the production, generation, transportation and distribution of electricity.
	National Electric Coordinator	The entity responsible for ensuring the continuous operation of the Chilean power supply, ensuring the most economical operation of the electrical system, and guaranteeing open access to all electrical transmission systems.
Overall strategy, policy and legislation	Ministry of Energy	Regulates the bidding process and the technical norms pertaining to Chile's energy system through the National Energy Commission.
	Ministry of Economy, Development and Reconstruction	Through the undersecretary of fisheries and aquaculture, it manages the offshore project and its spatial relation to other economic activities already approved near the offshore project zone.
	Ministry of National Defence	See above
	National Energy Commission (**CNE**)	The entity in charge of analysing the prices, tariffs and technical provisions that companies involved in the production, generation, transportation and distribution of energy must follow.
	Renewable Energy Centre	Its mission is to promote and facilitate the development of the non-conventional renewable energy (**NCRE**) industry. It is responsible for articulating public and private efforts to optimise the use of the energy potential existing in the country.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Chile (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

   There are no permits and/or authorisations specifically required in relation to FLOW projects in Chile. However, given the nature of FLOW projects, they would most likely be subject to the following permits and/or authorisations that generally apply to all energy projects:

   - to use and enjoy a certain area of the Chilean seabed, a maritime concession must be requested from the Ministry of Defence through the Undersecretariat for the Armed Forces;
   - all power generation projects larger than 3MW must meet the requirements of the Environmental Impact Assessment System, either through an Environmental Impact Statement or an Environmental Impact Study;
   - small generation projects with installed capacity up to 9MW and more than 3MW must obtain an Environmental Impact Declaration (Declaracíon de Impacto Ambiental); and
   - any project wishing to connect new generation and/or transmission facilities to the National Electric System must request connection from the National Electric Coordinator.

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

   There are no specific marine or environmental licences required for FLOW projects in Chile.

b. *Are consents required at a national level or state/municipal level?*

   All consents are required at the national level. However, the participation of regional and municipal authorities will be required in some instances. For example, if the project involves the construction of facilities, its construction will require approval at the municipal level by the Departamento de Obra.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

   Currently, there are no subsidies or support schemes to recover the cost of such licences or connection charges.

4. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Chile? Are these specific to FLOW, to offshore wind or renewables in general?*

   There are currently no financial incentives or support schemes in Chile for the development of FLOW projects.

   However, there are incentives for NCRE projects. A FLOW project is likely to be considered an NCRE project. The incentives for NCRE projects primarily apply in respect of those which do not generate more than 20MW. The primary incentives are as follows:

   - **Waiver of transmission tolls.** Any project connected to the transmission grid must pay transmission tolls. However, this requirement may be waived or partially waived for NCRE projects of less than 20MW. NCRE projects that generate less than 9MW are completely exempt, and NCRE projects that generate more than 9MW but less than 20MW are partially exempt.
   - **The stabilised price mechanism.** Such projects are characterised either as Pequeños Medios de Generación (PMG) or Pequeños Medios de Generación Distribuida (PMGD) projects (translated as "small generation means" and "small distributed generation means", respectively). The only difference being that PMGD projects are those connected directly to the distribution lines.

   PMG and PMGD projects receive access to the stabilised price mechanism, established by the Chilean government under Decree 88/2020. The stabilised price mechanism is not a subsidy, but rather a financial incentive designed to assist small energy developers in achieving easier and

better financing of their projects. The stabilised price is calculated based on a projection of the marginal costs of energy in the system (the spot market) and the average price of all energy sold to free clients and regulated customers (the mean market price). The CNE publishes the stabilised price twice a year.

Such projects therefore have the option to sell their energy at the stabilised price or at the spot market price.

- **Auto-dispatch scheme.** All NCRE, PMG and PMGD projects will be able to request to the grid operator a "self-dispatch" or "auto-dispatch" operation scheme in coordination with the Coordinador Eléctrico Nacional (CEN). This means the project is guaranteed to automatically connect to the grid and not be curtailed. In the case of a PMG project, once requested, the auto-dispatch option shall be maintained for at least 12 months.
- **Green tax.** Law No 20.780 introduced a new annual tax on fixed sources of pollutants, including CO2. It is aimed at facilities with boilers or turbines that, together, add up to a heat output of at least 50 megawatts thermal (MWt). This tax will incentivise the development of NCRE projects as it targets large factories in the electricity sector, covering an important percentage of the nation's carbon emissions. In the case of CO2 emissions, the tax is equivalent to US$5 for each ton emitted. In order to determine the tax burden, the Chilean Environmental Superintendency will certify in March of each year a number of emissions by each taxpayer or contributor during the previous calendar year. Each taxpayer or contributor who uses any source that results in emissions, for any reason, shall install and obtain certification for a continuous emissions monitoring system for PM, CO2, SO2 and NOx. This tax will be assessed and paid on an annual basis for the emissions of the prior year.
- **NCRE Generation.** Article 150 bis of Decree with Force of Law No. 4/20018, "General Law on Electrical Services", mandates that at least 20% of power sold by electrical companies operating in systems with an installed capacity greater than 200MW must come from NCREs. Such companies must certify this withdrawal percentage to their respective Coordinator Toll Department in each calendar year. In order to comply with this obligation, electrical companies may transfer their surplus of NCRE attributes to those who cannot comply with their own NCRE quota. This obligation needs to be satisfied from 2025.
- **Tax incentives.** Finally, in the hard to access areas of the country, such as the Magallanes Region, there are tax incentives for private investment, established mainly by the Navarino Law, the Austral Law and the Tierra del Fuego Law, among others. These regulations seek to promote investment by companies in the area, encourage the hiring of local labour and promote the economic development and population of the most isolated communities through income and other tax exemptions, bonuses and credit facilities.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

   As stated above, there are no financing methods or allocation methodologies for FLOW.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   Not applicable.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Chile (e.g. is there a state-owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need*

to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?

Chile has an open and competitive generation market, where all electrical power assets are privately owned. Electricity costs are set by the variable cost of the most expensive plant that is required to serve the demand. Due to the history of Chile's power generation, this has meant that wind projects can only recover their investments and costs when they get paid for their energy as their variable costs of operations are assumed to be near zero.

The generation segment is based on free market rules. When a generator decides to connect to the national grid, it becomes subject to dispatch and wholesale market price regulations. The CEN, as grid operator, regulates dispatch priority and sets prices according to its methodologies. They will optimise the system to reach the lowest overall cost possible.

Whenever a generation facility is connected to the national grid, its owner or operator is subject to the instructions of the CEN. For any given demand, the CEN orders the injection of energy by the most

cost-efficient power plants first (such as solar, hydro and wind) and only, if necessary, by less efficient generators (thermal units powered by natural gas, coal and diesel).

With regard to the revenue structure, generation companies can sell their surplus energy (the difference between injections and withdrawals for contracted customers) in the spot market at a price equal to the marginal cost of the electricity system. This spot price is defined as the variable cost to produce energy by the least efficient generation facility per hour. They can also sell power at a Short-Term Node Price which is calculated twice a year (April and October) by the CNE.

Besides their participation in the spot market, generators can also take part in the energy supply contract market. They can sell energy and power to private companies at a freely agreed price. Finally, they can sell energy and power to distribution companies through a public bidding process supervised by the CNE, one of the main electrical sector regulators. This process awards 15-year supply contracts (PPAs) and is

technology-agnostic, meaning all types of generation can compete fairly and transparently. The price paid by the distribution company to its supplier is known as a Long-Term Node Price.

PPAs for the supply of energy to regulated customers are usually concluded by public tender procedures. Non-regulated customers will generally call for public or private bidding processes and subsequently enter into PPAs with the successful bidders.

11. *Are there any restrictions on foreign companies participating in FLOW projects in Chile? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Chile?*

    There are no restrictions on foreign companies participating in NCRE projects. However, according to the General Law on Electrical Services (DFL4/20018), any owner, lessee, usufructuary or anyone that operates a generating power plant connected to the national grid under any title and subject to the coordination of the National Electricity Coordinator, must incorporate an electricity generation company that is domiciled in Chile. Additionally, for NCRE projects to be commissioned, they must have been previously declared to be under construction by the CNE, and they must have the authorisation of the National Electric Coordinator to energise the corresponding facilities. Electricity concessions are given to Chilean citizens only and to companies incorporated in accordance with Chilean laws.

    Law No. 20.848 states that foreign investors who make investments in Chile as of January 2016 can request a Foreign Investor Certificate from InvestChile, allowing them to access the benefits established in that law, among others: to be considered as a foreign investor (fast-track in some permitting processes); direct subsidy against wages paid to workers of up to US$200 per worker; access to the formal exchange market; some imports do not pay VAT; etc.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Chile)?*

    There are no restrictions on foreign companies constructing electrical power transmission projects, or transmission facilities related to NCRE projects. However, according to the General Law on Electrical Services (DFL4/20018), the operating companies or owners of the national transmission systems must be incorporated as open or closed corporations, in accordance with Chilean law. Additionally, as indicated in Question 11, electricity concessions are given to Chilean citizens only and to companies constituted under Chilean law.

13. *Are there any requirements in Chile for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    There do not appear to be requirements that marine structures which comprise a FLOW farm be registered in a local ship register.

14. *Are there any local content requirements in Chile in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    There are no local content requirements in relation to the procurement of goods and services for NCRE projects. In fact, investors importing capital goods for energy projects in excess of US$5 million will benefit from a tax exemption. Such imports will be exempt from VAT, with the prior approval of the Ministry of Finance.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    Project developers are not required to provide any security or guarantees to any government agency for FLOW projects as Chile has an open and competitive generation market, where all electrical power assets are privately owned.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    The FLOW industry in Chile is still in its nascent stages and, as such, there are no particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms. However, the production of green hydrogen is expected to play a significant role in Chile's commitment to achieve carbon neutrality and hopefully FLOW alongside it. The country seeks to position itself as one of the world's main exporters of green hydrogen by 2040. In 2020, Enel Green Power and AME announced plans for the first pilot project for green hydrogen production in Chile to be produced by means of an electrolyser fuelled by wind energy. In December 2022, the Haru Oni pilot plant was inaugurated, which has been designed for a production of about 130,000 litres of e-fuels per year. Today, companies such as Porsche, Siemens Exxon Mobil and Enap have become partners of this project.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Chile. For example, is there an existing offshore oil and gas industry in Chile given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

As stated above, Chile has strong decarbonisation commitments and aims to achieve carbon neutrality by 2050. Chile's national green hydrogen strategy considers financing and subsidies for projects, infrastructure, normative regulation and coordination of public-private actors. The country's strong commitment to green hydrogen will hopefully continue to push the FLOW industry.

According to studies by the Chilean government in 2021, 13% of the world's green hydrogen could potentially be produced using wind energy from the Magallanes Region and the Chilean portion of Antarctica. Furthermore, the Chilean government has signed agreements with the IDB and the World Bank to promote green hydrogen projects with financing lines of up to US$750 million.

The development of the green hydrogen industry in Chile may provide strong foundations for the pathway for FLOW to develop as Chile develops port infrastructure, supply chains and connections to the national electricity grid etc. as part of the development of its green hydrogen market.

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VFA-2

Colombia

1. *Summarise the status of any current and proposed floating offshore wind (FLOW) developments in Colombia (such as announced procurement goals and awards of individual projects or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Colombia?*

   The potential of FLOW as a powerful renewable energy source has been recognised by the Colombian government. It has issued public policies and regulatory signals for the development of offshore wind projects, for both floating and fixed structures. On the country's northern coast, 14 initial exploration areas have been identified as suitable for the development of offshore wind projects, and 8 of the 14 identified areas are intended for the development of FLOW projects, totalling 5,400km2 deep waters (+70 metres) to generate 21GW. This is discussed further in response to Question 4(c).

   In Colombia, the establishment of a Roadmap for the implementation of Offshore Wind (OSW) energy is a promising initial step that has piqued the interest of foreign developers considering OSW projects exceeding 5GW. The government announced in December 2023 a competitive tender process for temporary occupancy permits for OSW projects in designated areas in the Caribbean Sea off the coast of Magdalena, Bolivar and Sucre provinces. Awards are expected in December 2024, with successful bidders having to demonstrate satisfactory legal, technical and financial capabilities. The government also published the final version of the tender documents, which confirmed earlier rumours by introducing a requirement that successful bidders must establish one of three structures with a public or mixed entity in the Colombia energy sector: (i) a consortium, (ii) a joint venture, or (iii) a new corporation.

   Despite the Colombian government's initial recognition of the potential for FLOW, it has yet to establish official procurement goals for FLOW developments and no individual project has yet been granted an offshore concession.

   It is anticipated that the FLOW industry will develop in one of two ways:

   - a low deployment scenario with an installed capacity of 200MW by 2030, 500MW by 2040 and 1.5GW by 2050; or
   - a high deployment scenario with an installed capacity of 1GW by 2030, 3GW by 2040 and 9GW by 2050.

2. *What challenges are faced by the FLOW industry in developing FLOW projects in Colombia (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   A number of challenges are faced by the FLOW industry in Colombia, with more anticipated to arise as the industry develops. At the moment, these challenges include:

   - **High energy costs.** The cost of producing FLOW energy is higher in comparison to other renewable energy sources (i.e. onshore wind or solar). To stimulate the growth of the industry, government incentives may be required to offset such costs, such as through competitive auctions specifically aimed at FLOW projects. Energy costs could further be reduced through economies of scale.
   - **Transmission grid.** At present, the infrastructure in Colombia is not constructed in a way that allows for FLOW projects to easily connect to the grid. Substantial upgrades to the consumption centres located along the northern cost of Colombia will be required, in addition to the construction of further transmission lines to provide energy to the central areas of Colombia in line with the energy demands of the country.

- **Environmental and social impacts.** The potential environmental and social impact of constructing FLOW projects must be analysed and studied before their implementation. Possible adverse impacts include disruption of biodiversity, offshore maritime commercial traffic and overlap with conservation areas and wildlife habitats. However, these factors may be mitigated through careful marine spatial planning.
- **Supply chain.** As with any nascent energy generation industry, FLOW is likely to face significant supply chain issues. The technology required for FLOW structures is significantly larger and more complex than fixed offshore wind farms and onshore wind farms. The supply chain in Colombia will need to be upgraded to accommodate this strain.
- **Financing and bankability.** The FLOW industry is a relatively new area for investment. The Colombian government will need to employ risk management and mitigation measures to ensure the bankability of projects and reduce equity costs for investors.

3. *Is there a World Bank Offshore Wind Roadmap for Colombia or any announced plans by the government of Colombia such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   The World Bank published its Offshore Wind Roadmap for Colombia in 2022, which sets out two potential options for deployment of FLOW projects as detailed above at Question 1.

   The Colombian government recognises the technical potential for FLOW identified in the World Bank's roadmap and we anticipate that it will launch a national strategy for offshore wind projects. The government is interested in the further development of non-conventional sources of energy, including offshore wind. Three auctions have already been held for the long-term contracting of generation projects, exclusively for NCRE sources.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Colombia.*

   There is no specific legal, statutory or regulatory regime for the development of FLOW in Colombia other than Resolution MME 40284 of 2022 as amended by Resolution 40712 of 2023 regarding the competitive tender process for a Temporary Occupancy Permit (POT) which is required to carry out pre-feasibility activities in designated areas (see above). However, given the nature of such projects, we can anticipate that they will require the following consents:

   - a maritime concession necessary to develop projects under Resolution MME 40284 of 2022 as amended by Resolution 40712 of 2023;
   - an environmental licence;
   - prior consultation with any indigenous and ethnic communities may need to be carried out under Decree 1076 of 2015;
   - a permit issued by the Mining and Energy Planning Unit (**UPME**) to connect a project to the grid (interconnected national system); and
   - a connection contract, which must be signed pursuant to the Energy and Gas Regulation Commission (CREG) Resolution 75 of 2021. This is also required to connect a project to the interconnected national electricity system.

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

As stated above, FLOW projects will require a POT which is subject to a competitive tender process. A POT is required to perform pre-feasibility studies such as data collection and analysis activities for offshore wind energy projects over a designated maritime area. A POT grants the holder the exclusive right to perform such studies for a period of eight years. The General Maritime Directorate (DIMAR) decides whether or not to grant a POT and will take into account technical, financial and legal qualification requirements. The Directorate will also take into account the applicant's experience in developing offshore wind energy generation projects. A thirty-year maritime concession and an environmental licence will also be required for OSW projects. However, these are not subject to competitive tender processes but are instead available through direct application if the relevant project proves to be feasible.

b. *Is there a specific legal/regulatory regime for FLOW projects in Colombia, as opposed to broader offshore wind or renewables projects in general?*

As stated above, there is no specific framework for FLOW projects. However, from an environmental perspective, any interested project developers must request the Terms of Reference (TdR) from the relevant environmental authority. The TdR establishes the environmental legal framework for these types of projects and provides guidelines for the necessary environmental studies. The Ministry of Environment and Sustainable Development has yet to issue a general TdR for FLOW projects.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Colombia intended to enable fast-track development of floating wind projects and technologies?*

Following the results of a preliminary analysis, eight areas were identified as potentially suitable for the development of FLOW projects. The identified areas show fewer technical, environmental and social barriers and are located between 10km and 50km from the shore baseline. FLOW projects therefore may be developed on the territorial sea (including the continental and insular territory up to approximately 22km away from the baseline) or in the contiguous zone (up to approximately 38km away from the baseline).

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports, such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

Law 1 of 1991 is the general regime governing access to ports and permitted port activities, including the rules surrounding the construction and assembly for offshore wind projects. However, due to the passage of time since its enactment, the legislation does not contain any specific regulations regarding FLOW projects.

Project developers seeking to access port services must abide by the following requirements:

- compliance with the technical regulations for port operations applicable to port operators;
- compliance with the contractual terms regarding the use of port facilities; and
- ensuring that the port terminal has sufficient capacity available for construction.

To carry out construction and assembly activities in Colombian ports, investors must obtain the necessary permits and approvals from the National Infrastructure Agency and other relevant government agencies, such as the Ministry of Environment and Sustainable Development and the National Authority for Environmental Licences (**ANLA**), as further detailed in Question 6 below. The permits and approvals required will depend on the specific activities to be carried out and the location of the project.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Colombia?*

The government authorities and public bodies involved in the regulation of FLOW in Colombia are as follows:

Government authority/ public body	Role
The Ministry of Mines and Energy (MME)	Sets out the public policy on generating, transmitting, distributing and commercialising electricity. Decree 1073 of 2015 established MME as the authority responsible for overseeing the energy sector's development. It also set forth guidelines for long-term energy generation projects and incorporated Law 1715 of 2014 which governs the regulation of non-renewable energy sources. The MME has a duty to promote the use of wind power generation projects in the country. Together with the General Maritime Directorate, it is responsible for determining the rules around allocating areas for the development of offshore wind projects. It defines target volumes, develops competitive allocation schemes and the assessment criteria for wind project developments.
DIMAR	Forms part of the Ministry of National Defence. It authorises concessions and permits in the waters and beaches. Together with the MME, it determines the rules and mechanisms surrounding the allocation of areas for the development of offshore wind projects and awards offshore wind permits.
CREG	Issues the regulations applicable to electric energy projects. It also sets out the procedure for connecting generation projects to the interconnected national electricity system network (SIN).
The UPME	In charge of processing and allocating the transport capacity in power generation projects (grid connection), including non-conventional energy projects, through auctions. It also prepares the national energy and expansion plans for the electricity sector.
The National Hydrocarbons Agency (ANH)	Has a temporary delegated function, lasting two years from 12 July 2023 until 12 July 2025. It makes recommendations for public policy and for the structure and development of the competitive processes for wind, geothermal, hydrogen and carbon capture projects. On 12 July 2023, DIMAR and ANH executed an inter-administrative agreement delegating the responsibility of managing the competitive process to the ANH. On 4 December 2023 , the ANH published the final version of the tender documents for the grant of POTs for FLOW projects in Colombia, which obliges the interested parties to demonstrate and comply with the requirements set forth in Resolution MME 40284 of 2022, as amended by Resolution MME 40712 of 2023.
The directorate for prior consultation of the Ministry of the Interior	Considers whether prior consultation with any indigenous and ethnic communities is required for each individual energy project.
The relevant environmental authority, which may be the ANLA	Issues environmental licences. The relevant authority may differ depending on various factors, including the capacity for each individual project, but will be the ANLA or one of the Regional Autonomous Corporations.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Colombia (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

   There are a number of consents/authorisations required for the development, construction and operation of a FLOW project in Colombia. They are as follows:

   - **Prior consultation.** A request must be filed to the Ministry of the Interior, which then determines whether the project requires prior consultation with any indigenous and ethnic communities that may be affected by the project. Such prior consultation may be required to obtain their consent, which is then required for the environmental licence.
   - **Preventive Archaeology Programme.** In order to obtain an environmental licence, an approval of a Preventive Archaeology Programme from the Colombian Institute of Anthropology and History is needed. The approval guarantees protection of the archaeological heritage in the event of archaeological findings.
   - **Overlap with other licensed projects.** To obtain an environmental licence, certificates from the relevant Regional Autonomous Corporation or the ANLA are also required. If there is an overlap with another licensed project, a coexistence agreement must be signed between the two parties. For example, overlap may occur with an offshore oil and gas project.
   - **Overlap with protected areas.** Certificates are required from the Colombian National Natural Parks to show that existing national parks, natural reserves, unique natural areas, flora and fauna sanctuaries, and roads to the park are not to be disrupted by the development of a project. A certificate must also be requested from the relevant Regional Autonomous Corporation to show potential overlap with existing protected areas. If development of a project is possible on an overlapping area, the certificate must be requested and obtained as a prerequisite to the development of the project.
   - **Environmental licensing.** An environmental licence issued by a different entity may be required, depending on various factors, including the project's generation capacity.
   - **Temporary occupancy permit.** This permit is required to perform pre-feasibility activities, including obtaining and analysing the information necessary for the development of the project. It is issued by DIMAR.
   - **Offshore concession.** This concession is required to obtain an exclusive right to build a project in the assigned area.
   - **UPME grid connection authorisation.** A permit must be granted to connect any project to the SIN. This authorisation grants capacity to transport power from an electricity generator to the SIN and is issued by the UPME.
   - **Grid connection contract.** An agreement must be entered into with the operator of the corresponding grid. Most projects will also require a transmission line to connect the project to the SIN, which requires an environmental permit. If the electricity produced has a voltage higher than 34KV, an environmental licence will also be required in addition to the project licence.

   a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

      In addition to the grant of an environmental licence which includes all environmental permits necessary for a project's development, FLOW projects will also need special permits from DIMAR.

   b. *Are consents required at a national level or state/municipal level?*

      Only the prior consultation detailed above must be carried out with local communities that may be affected by any proposed project. All other consents and licences listed above are required at a national level.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

The costs of such licences or connection charges of any project must be borne by the project developer and are not recoverable under any applicable subsidy or support scheme.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Colombia? Are these specific to FLOW, to offshore wind or renewables in general?*

There are general funding incentives administered by the Non-Conventional Energy Fund (FENOGE) in respect of Non-Conventional Renewable Energy Resources (NCER) programmes and FLOW will be considered as such. These funds may either be reimbursable or non-reimbursable.

The Single Fund for Energy Solutions (FONENERGÍA) allocates the remaining funds for the financing of projects which aim for the substitution of fossil fuel energy sources to mechanisms for NCER, among others.

Furthermore, certain energy projects in Colombia may be considered of "public utility and social interest", which grants them priority over other private projects. Subject to certain requirements, such a declaration may also grant the developer the right to access the land for development of the project, through expropriation proceedings, and provision of a legal right to impose easements and rights of way.

In respect of NCER, Colombia has the following tax incentives:

- **Income tax deduction.** Investors in NCER projects may deduct up to 50% of the total investment values from their tax revenues over the first 15 years of a project's operational lifetime, for income tax returns.
- **VAT exclusion.** Goods and services used to develop generation projects with NCER are excluded from VAT.
- **Exemption from import tariffs.** Owners of new investments or projects in NCER are exempted from paying import tariffs on machinery, equipment, materials and inputs used exclusively for investment and reinvestment in the projects.
- **Accelerated depreciation regime.** Generation activities from NCER benefit from the accelerated depreciation regime, which allows annual depreciation of up to 33.3% to be applied to assets. This allows developers to reduce their tax burden.

Moreover, Colombia has held three auctions awarding long-term contracts to electricity power generation projects, exclusively for NCRE sources. Such auctions match buyers and sellers to arrange long-term power purchase agreements (**PPAs**).

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

   Colombia provides designated rounds of funding, available for FLOW projects. FENOGE establishes at least two rounds of funding per year, starting in the second half of 2023, whereby funding requests for plans, programmes and projects can be submitted. Capacity limits are defined by the fund's investment, credit and financing policy adopted by the steering committee. Funding limits may therefore vary from time to time.

   Allocation of the funding is based on a competitive tender held among eligible applicants. FENOGE will prioritise certain projects depending on an assessment of the project's impact and attractiveness. The impact criterion compares the environmental, social, financial and energy benefits of different projects, while the attractiveness factor considers strategy alignment, such as cross-financing, innovation potential, scalability potential and risk minimisation.

   After granting priority to certain projects, FENOGE's steering committee approves or rejects the request for allocation of funding. Projects which have not been successful may be resubmitted in the next round.

   To date, FENOGE has participated in the financing of various projects and initiatives. FENOGE financed the pre-investment studies and design of cost-efficient investment and financing mechanisms to fund projects which promote the development and adoption of green and blue hydrogen. No funding limit was pre-established for the projects submitted.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   Such support schemes are available at the national level. Although it is not expressly stipulated, the allocated funding cannot be modified. This is a result of the criteria for allocation, which considers the financial impact of the funds and minimisation of risk. The funds are allocated for developing the projects and are not impacted by changes in wholesale electricity prices.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Colombia (e.g. is there a state owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    Electricity transactions in Colombia are carried out under the following arrangements: the Energy spot market; bilateral contracts; firm energy auctions; and long-term supply contracts which are assigned through an auction process carried out by the government.

    Generation companies in the wholesale energy market can freely enter into any of the mentioned mechanisms, subject to their respective requirements. The Colombian electricity market is divided into regulated and unregulated divisions. The CREG sets forth the tariffs applicable to the regulated market according to a specific formula. Unregulated market prices are agreed by the parties under a PPA. In the case of long-term contracts, a price per kilowatt is defined in advance by the parties.

    The use of offtake agreements has yet to be proposed for use in respect of FLOW projects.

11. *Are there any restrictions on foreign companies participating in FLOW projects in Colombia? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Colombia?*

    In Colombia, there are no restrictions on foreign companies seeking to participate in FLOW projects. However, to carry out permanent activities in Colombia, such as obtaining any type of concession, incorporation of a local branch or subsidiary is required. Government auctions may also have their own participation requirements, which will be defined in the specific terms and conditions the ANH must prepare.

    Neither the Resolution 40712 nor the final tender documents establish a minimum participating interest of the state entity in the project. However, the final tender documents do require the MME to verify the terms and conditions of such association prior to the POT adjudication. This would suggest that clarification with the MME regarding its requirements with respect to such minimum participating interest should be a priority action.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Colombia)?*

    All electric energy companies in Colombia may undertake integrated generation, distribution and commercialisation activities. However, under the current legislation, integration of transmission with other value chain segments is not allowed. Public energy transmission may only be provided by a company whose exclusive corporate purpose is transmission.

    In addition, under the CREG's Resolution No. 001 of 1994, energy transmission companies must allow access to their grids to any user, trader or generator, subject to the legal and technical regulations issued by the CREG and the UPME.

    The National Development Plan Bill currently filed before the Colombian Congress will authorise electric energy companies to vertically integrate their generation, transmission, distribution and commercialisation activities regarding electric energy. The integration of generation and transmission services would only be authorised if such electric energy is generated from NCER, and for companies that have been performing integrated generation and transmission activities before the enactment of Laws 142 and 143 of 1994.

    Private entities may also construct and own transmission assets for their own benefit, such as to connect their project to the closest SIN point. However, UPME is the only entity that may permit construction of transmission lines for the SIN through the competitive process.

    Pursuant to Resolution MME 40284 of 2022, FLOW projects in Colombia refer to the offshore wind energy generation activities including its interconnection to the SIN, if required. With that in mind, by definition, FLOW projects specifically include the offshore substation in the project. That is, at least inter-array cables will be part of the transmission assets to be included in the FLOW project. However, neither Resolution MME 40284 of 2022, nor the draft terms and conditions for the POT competitive process published on 27 October 2023, specifies in detail the transmission assets to be included as facilities of the FLOW project.

    Based on Resolution MME 40284 of 2022, the maritime concession to be granted to a developer includes the works related to the transmission assets (inter-array cables, substation and interconnection to the SIN, if required). Thus, the proponent to whom the maritime concession is awarded will be required to undertake all activities stipulated in the administrative act issued by DIMAR. In other words, the proponent is obligated to construct and operate the transmission assets specified in the concession, following the award of the maritime concession.

    It has been clear from the beginning that maritime concessions requested after the expiration of the awarded POT will be granted by DIMAR, as it is the entity authorised to grant concessions on maritime beaches and low-tide lands. The Colombian Constitution categorises these as state-owned public use goods. Consequently, once the maritime concession expires, the beaches and low-tide lands, as well as any infrastructure built on the conceded public use goods, must revert to the state.

That said, every transmission asset built in the conceded area must revert to the state without any compensation to the concessionaire upon expiration of the maritime concession. This is based on the understanding that the private investor has recovered its investment over the duration of the concession through the operation of the facilities.

13. *Are there any requirements in Colombia for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    There are currently no specific registration requirements for marine structures that comprise a FLOW farm. However, based on the existing regulatory definition of naval artifacts, marine structures that include a FLOW farm may be considered as naval artifacts, creating a duty to register naval artifacts with DIMAR.

14. *Are there any local content requirements in Colombia in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    In general, there are no local content requirements related to the procurement of goods and services for FLOW projects. However, in practice, commitments are usually made by investors to prioritise the goods and services available in the region as part of their strategy to engage project stakeholders. While there are no regulations mandating the hiring of local labour, this can be introduced as a condition of the environmental licence.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees regarding failure to meet contracted performance)?*

    Project developers for FLOW projects will be required to provide the following guarantees:

    - **Bid bond.** A guarantee or insurance policy must be submitted to cover the bid bond. DIMAR defines the bond's value in the specific bidding documents. The value must be proportional to the installed capacity of the bid. The guarantee is executed if the successful bidder revokes its bid or modifies it unilaterally.
    - **Performance guarantee concerning the POT.** The successful bidder must provide a guarantee of compliance with the obligations of the POT in favour of DIMAR. The guarantee's value is defined during the administrative issuance of the occupancy permit. The guarantee may be executed for delays in the "S" curve or schedule if they are not justified by authorised causes, or if there is evidence of non-compliance with any of the obligations under the temporary occupation permit.
    - **Performance guarantee regarding the offshore concession.** The successful bidder must provide DIMAR with a compliance guarantee together with the offshore concession application. The guarantee's value is defined by DIMAR in the administrative issuance of the temporary occupation permit. The guarantee may be executed for unjustified delays in the "S" curve or the schedule, or if there is evidence of non-compliance with the obligations of the maritime concession.

- **Dismantling guarantee.** The successful bidder must provide a guarantee in favour of DIMAR to cover the dismantling of equipment and infrastructure associated with the project. The guarantee's value is defined by DIMAR in the maritime concession. The guarantee may be executed if there is evidence of partial or total non-compliance with the schedule of the dismantling plan, or if there are damages.

  If the project has a connection capability that allows it to be connected to the grid, the following guarantee must be in place (which also applies to other NCER projects).

- **Capacity reserve guarantee.** To guarantee the use of the allocated transmission capacity, the interested party must pay the guarantee equivalent of US$10 for each KW of allocated transmission capacity. The value must be updated annually according to the variation in the producer price index. The guarantee may be executed in the event of a default or if the project is not connected to at least 90% of the allocated capacity at the date of commissioning.

16. *Are there any particular regulatory incentives for using FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    There are no particular regulatory incentives for using FLOW for green hydrogen production or electrification of oil and gas platforms in Colombia. Hydrogen production projects are considered green even if they take electricity directly from the SIN, as long as they have NCER back-up. The NCER back-up must have a signed bilateral NCER energy supply contract.

17. *Please summarise any other relevant points about the development of FLOW projects in Colombia. For example, is there an existing offshore oil and gas industry in Colombia given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    Colombia has developed its offshore oil and gas industry on the country's north coast, which has the best conditions for developing offshore wind projects. This could allow synergies in developing floating wind energy projects in that area.

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Costa Rica

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Costa Rica (such as announced procurement goals and awards of individual projects or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Costa Rica?*

   The FLOW industry in Costa Rica is still in its preliminary stages, with the government conducting research into the environmental conditions of the North Pacific coast and encouraging investments into the marine-coastal infrastructure.

   Research into the industry includes a joint investigation by the Central American Bank for Economic Integration (**CABEI**) and the Republic of Korea. CABEI and the Republic of Korea, through the Korea-CABEI Single Donor Trust Fund (**KTF**), have approved a non-reimbursable technical cooperation grant to the value of US$600,000. The KTF was granted to the Costa Rican Electricity Institute (ICE) and the Costa Rican government and will soon be used to undertake a financial analysis to identify the potential challenges, risks and opportunities in the development, installation and operation of offshore wind farms.

   The technical cooperation grant encompasses the design of a buoy monitoring system for data collection, and evaluation of the marine-coastal infrastructure for the development of offshore wind energy projects, which includes market analysis, technical engineering and design recommendations, as well as their respective financial analysis.

   Costa Rican authorities have estimated the technical potential for offshore wind energy to be 14GW in total, of which approximately 1GW is bottom-fixed and 13GW is FLOW.

   The results of the government's investigations will shape the plans for the country's FLOW industry and aid in developing a roadmap for its development.

2. *What challenges are faced by the FLOW industry in developing FLOW projects in Costa Rica (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   The Costa Rican government needs to obtain sufficient information from these preliminary studies to consider whether the country has the necessary environmental conditions to develop offshore wind projects, and to encourage marine-coastal infrastructure investments that are required for the development of offshore wind energy. It needs then to analyse the existence of social opposition, the meteorological environment, procurement processes and grid connections etc. The preliminary stage will determine the viability of projects.

   The Regulation for the Rational Use of Energy Law (Law No. 7,447 of 1994), the Framework Law on Concessions for the Use of Hydroelectric Power for Hydroelectric Generation (Law No. 8,723 of 2009), the Law for Promotion and Regulation of Distributed Energy Resources from Renewable Sources (Law No. 10,086), the National Energy Plan for 2015-2030 (Executive Decree No. 40,038-MINAE) and the Law Authorising Autonomous or Parallel Electricity Generation (Law No. 7,200 of 1990) all assert that public bids must take place for the development of offshore wind projects, if the country determines such projects are viable. Depending on the type of project, a different type of public bid procedure will be applicable according to the General Public Procurement By-Laws and Law (Law No. 9,986 of 2022 and By-Law No. 43,808).

   The main obstacles confronting the FLOW industry are related to energy demand and the discretion of the ICE to designate private generation projects. Costa Rica has a monopoly in the energy sector which is controlled by ICE. Hence, the only supplier vis-à-vis the consumer is ICE. For these reasons, interested parties have two options:

- participate and qualify as a candidate in these public bids according to Law No. 9,986 of 2022 and By-Law No. 43,808; or
- via a Private-Public Partnership (**PPP**) funded between the private investor and ICE.

PPPs in Costa Rica are currently only awarded through a bidding process mandated by the Concessions Law, as the country does not have exclusive legislation for them. This could change if the project is financed through an international organisation and a public loan law is required, in which case the loan approval law could designate a different contracting process (e.g. IDB, CABEI, etc.). This would require a joint process that must be coordinated between the candidate and ICE for the Declaration of Eligibility under Chapter I of Law No. 7,200. This involves the preparation of a technical report which the investor must submit to qualify for ICE's Declaration of Eligibility. Regardless of the path taken, any project development must demonstrate a need for energy demand and the feasibility of the offshore wind project. This documentation would later be filed before the Costa Rican Public Utilities Regulatory Authority (**ARESEP**) which will determine a tariff based on the results of the studies submitted. It is important to note that, according to the Costa Rican Law of public bids (Law No. 9,986 of 2022 and By-Law No. 43,808), any party involved in the development of a public bid is explicitly prohibited from participating as a bidder.

3. *Is there a World Bank Offshore Wind Roadmap for Costa Rica or any announced plans by the government of Costa Rica such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   There is no World Bank offshore wind roadmap specific to Costa Rica. However, the government is working on preliminary studies over a period of 18 months (expected to be completed by 2024), where two teams of national and international experts will determine the social, legal, environmental and infrastructural conditions required for the development of a supply chain to support offshore wind projects, as well as the governance structure of future offshore wind energy developments.

   The studies will also play a crucial role in shaping project financing. The funds for these projects will be sourced from the initial issuance of a CABEI Blue Bond. This bond is designed specifically to support sustainable investments related to the ocean and wind, as well as to support the development of the region's blue economy, which encompasses areas such as fisheries, marine energy, ports and river rehabilitation.

   The studies aim to evaluate the field database and environmental conditions in the North Pacific coast of Costa Rica, to encourage investments into marine-coastal infrastructure that are required for the development of offshore wind energy, to clarify and evaluate the environmental conditions of the North Pacific, and to assess the project's viability with this world-class technology. Research in areas such as environmental and social analysis will be conducted to evaluate the feasibility of implementing FLOW technology in Costa Rica. Notably, Costa Rica has been recognized by CABEI as a leading country in the region. The outcomes of these studies will shape Costa Rica's engagement with and development of FLOW technology within the region.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Costa Rica.*

   Given the nascent status of the FLOW industry in Costa Rica, there are no specific regulations governing such projects. Specific regulations are likely to be imposed when the development of projects becomes feasible. Reforms will also be made to existing legislation regarding energy generation from renewable sources, as established in Law No. 7,200 Authorising Autonomous or Parallel Electric Generation and Law No. 7,508 Reform to the Law Authorising Autonomous or Parallel Electric Generation.

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

Given the nascent status of the FLOW industry in Costa Rica, there are no specific regulations governing such projects. However, according to the Constitution of Costa Rica, the seabed is considered part of the public domain of the country. To grant a lease or licences within such domain, the government must issue a law clearly stating their scope. Once the Law is issued and approved by the President, this could pave the way for FLOW development in Costa Rica.

b. *Is there a specific legal/regulatory regime for FLOW projects in Costa Rica, as opposed to broader offshore wind or renewables projects in general?*

Given the nascent status of the FLOW industry in Costa Rica, there are no specific regulations governing such projects or for the offshore wind energy sector in general. This report analyses other concessions granted to current energy projects (see Question 12) only as a reference as to how these issues work in Costa Rica. Based on this, it can be inferred that some form of concession might be applicable to FLOW projects, though the specifics cannot yet be determined.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Costa Rica intended to enable fast-track development of floating wind projects and technologies?*

Given the nascent status of the FLOW industry in Costa Rica, there are no specific regulations governing such projects or for offshore wind projects in general.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

Given the nascent status of the FLOW industry in Costa Rica, there are no specific regulations governing such projects or for the offshore wind sector in general.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Costa Rica?*

The authorities responsible for regulating the development of FLOW projects will be:

Government body/ authority	Role
ICE	Ensures secure and sustainable energy, connectivity and digital services for Costa Rican residents.
Ministry of Environment and Energy (**MINAE**)	Formulates, plans, directs, coordinates, executes, supervises and evaluates the National Environmental Policy, applicable to all levels of government.
ARESEP	Regulates and oversees the provision of public services, including their pricing and delivery. This activity is carried out through the sector-specific inspectorates: Water, Energy and Transportation.
Executive Branch of Costa Rica (if changes are made via decrees)	Administers and manages the state, creates and implements policies in accordance with which laws are applied, oversees public institutions and represents the country in its diplomatic relations with other states.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Costa Rica (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

   Given the nascent status of the FLOW industry in Costa Rica, there are currently no specific regulations governing such projects or for the offshore wind sector in general. However, only as a reference as to how these issues work in Costa Rica, the following may be applicable:

   - a potential licence or concession might be required for the use of the seabed which is considered as a public domain according to the Costa Rican Constitution;
   - grant of a concession by MINAE and ARESEP as outlined in Question 12;
   - a licence issued by the National Environmental Technical Secretariat (SETENA) might be required, due to the involvement of FLOW with the natural environment and its possible effects;
   - a feasibility study would likely be required in a public bid and necessary for PPPs in Costa Rica.

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

   Given the nascent status of the FLOW industry in Costa Rica, there are no specific regulations governing such projects or for the offshore wind sector in general.

b. *Are consents required at a national level or state/municipal level?*

   Given the nascent status of the FLOW industry in Costa Rica, there are no specific regulations governing such projects. Nevertheless, consents would be required at a national level (to be specified in a potential new law) for use of the seabed due to its status as public domain. Additionally, licences would need to be obtained from SETENA, ARESEP and MINAE.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

   Given the nascent status of the FLOW industry in Costa Rica, there are no specific regulations governing such projects.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Costa Rica? Are these specific to FLOW, to offshore wind or renewables in general?*

   There are no financial incentives or support schemes specifically applicable to FLOW projects. However, under Law No. 7,447 Regulation of the Rational Use of Energy, renewable energy projects benefit from a general exemption from selective consumption tax, and ad valorem and sales tax, for certain equipment and materials, regardless of whether the goods have been imported or manufactured domestically.

   The Executive Branch of Costa Rica, through joint action and in agreement with MINAE and the Ministry of Finance, may modify the list of exempted materials and equipment considering any new scientific findings. The list may also be amended to include more materials or equipment which contribute to the saving and efficient use of energy, or such materials or equipment that promote the development of renewable energy sources and reduce the country's dependence on fossil fuels. As the FLOW industry develops,

   industry-specific infrastructure such as FLOW platforms and mooring structures may be added to this list, thus benefiting from the tax exemption.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

   FLOW projects in Costa Rica currently do not benefit from any funding programmes. In the national electricity industry, there are currently

no funding programmes. Most of the energy projects in recent years have been built with private financing as PPP contracts or Build-Operate-Transfer (BOT) agreements, or with specific international financing when built directly by ICE.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   The Costa Rican government has not established any subsidies or support schemes for FLOW as they are still researching the feasibility of its development in the country. Schemes applicable to other energy sectors would not be applicable in an analogous manner, unless there is express legislation in this regard.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Costa Rica (e.g. is there a state owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    The Costa Rican government has not yet proposed a revenue structure or route to market for FLOW projects. Given the state monopoly that works in favour of ICE in the energy field, the ICE calls for a public tender whereby generators engage in a public bidding process and compete with other bidders, unilaterally determining the conditions of this tender proceeding (in turn of the future contract). The winner with the best bid executes a BOT agreement with ICE for a term of approximately 20 years. After this period, the generator will have to transfer the project to ICE or extend the contract, hence the concessions (MINAE, ARESEP etc.). BOT agreements are based on bidding clauses and, on matters of price, they refer to applicable legislation. Such agreements impose an obligation on the generator to sell their energy exclusively to ICE under fees determined by ARESEP. Since it is a monopoly, the entire energy produced must be sold to ICE, and it is not possible for the concessionaire to dispose of it. Tariffs are defined by ARESEP according to a formula and previously established parameters. Since the FLOW market in the country has not been defined, such elements are not yet available.

11. *Are there any restrictions on foreign companies participating in FLOW projects in Costa Rica? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Costa Rica?*

    Foreign companies may participate in FLOW projects in Costa Rica, but they are subject to certain restrictions. Article 3 of Law No. 7,200, states that companies developing a project in Costa Rica must have at least 35% of their capital stock belonging to Costa Rican individuals.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Costa Rica?*

    There are no restrictions on the ownership or construction of transmission assets relating to FLOW projects. However, at the end of the BOT contract, all assets and properties must be transferred to ICE. The developer operates with concessions for the use of resources to generate energy, such as water if it is hydroelectric generation.

    As an example, in Costa Rica, water is considered a public property that is subject to the control of MINAE (specifically the Water Authority (Dirección de Aguas (DA)). Therefore, any private entity planning to use Costa Rica's marine resources must apply for a concession from this authority. This process requires compliance with the requirements and procedures established in the Framework Law for the Use of Hydraulic Forces for Hydroelectric Generation.

The requirements include presenting a contract to ICE, obtaining environmental feasibility approval for the project, carrying out hydrological and hydraulic technical studies, and detailing the plans of the generation plant. The process also involves holding hearings with any other relevant government authorities, publishing notices in the Official Gazette to give third parties a 30-day opposition period and conducting technical analyses by DA officials, all of which lead to the issuance of the resolution that formally grants the concession for a maximum term of 20 years. Feasibility and environmental impact studies are also required (the process and requirements are explained below), and a concession to generate power granted by ARESEP must be obtained (the process and requirements mirror the process required in respect of the ICE concession). In conclusion, for a prospective FLOW project that intends to adhere to the regulatory pathways of existing energy projects, a developer would likely need a generation concession from ARESEP and a concession for the utilisation of marine resources. As of now, no other concessions are required (this also applies to other projects as FLOW is currently not regulated).

13. *Are there any requirements in Costa Rica for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    There are no specific requirements for the registration of marine structures in Costa Rica.

14. *Are there any local content requirements in Costa Rica in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    Costa Rica has several environmental requirements. SETENA considers the environmental impact of production processes. It is responsible for analysing the EIAs and making recommendations to minimise the impact on the environment and communities. It achieves this by imposing environmental and viability guarantees. It is also necessary to hire duly registered environmental consultants, in addition to the potential need to have trained technical personnel (engineers, lawyers etc.) who must also be certified in Costa Rica. With respect to infrastructure/equipment, there are usually no nationality restrictions.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    As established in the general framework, every BOT contract requires a performance bond (issued by a bank or by the contracting party and endorsed by national banks to be held during the execution and termination of the contractual relationship) during the development of the project, as well as environmental and viability guarantees.

    Private energy generation in Costa Rica is regulated by Law No. 7,200 Authorising Autonomous or Parallel Electric Generation, along with its amendments and regulations. Consequently, all contracts are executed in accordance with the provisions of this law, specifically Chapter I (Autonomous or Parallel Generation) or Chapter II (Energy Purchase) under the competitive regime, as amended by Law No. 7,508.

    In cases of the contracting or selection processes governed by Chapter I, these are considered special competition conducted as part of ICE's regular activities. This authority allows ICE to carry out a selection process, via a PPP with developers for new projects or plants. One characteristic of PPPs is that all candidates must be on a level playing field, ensuring the optimal satisfaction of the public interest in having energy as the predominant criterion for such partnerships. Given the lack of special regulation of PPPs and their referral to the Concessions Law, this means that the process will be practically the same as a bidding process, with ICE taking the initiative to unilaterally define the parameters. A prequalification stage (financial or technical) may take place, but it is not mandatory.

    As per the above, if the selection process is to be conducted under the auspices of Chapter I, ICE sets the terms of reference, along with the amount of the performance bond to support the project's commitment, just as in the bidding

process for BOT projects operated under Chapter II. Furthermore, ARESEP's concession for granting the service of electricity will be regulated by Law No. 7,593 of 1996.

Another crucial process for such projects is the environmental feasibility application that is filed with SETENA. Considering the nature of FLOW, a SETENA licence is likely to be required. This licence must be requested prior to the concessions, as it is a prerequisite for obtaining them. The process consists of an initial stage highlighting the project plans and subsequently, during the execution stage, there is a phase of monitoring and enforcing minimum environmental standards. Non-compliance could result in the loss of feasibility and the suspension of the project.

This application process mirrors the procedure for concessions, requiring the fulfilment of obligations at the time of filing (including plans, technical studies and the submission of project formalities), followed by SETENA's technical analysis until the resolution granting feasibility is obtained. The difference in this procedure lies in the requirement for a registered environmental manager (third party professional technician to be hired by the developer) who will be accountable to SETENA for the project. As mentioned above, obtaining the resolution initiates a second phase of contract execution which involves maintaining records and submitting periodic reports to SETENA (all part of the manager's duties). This process also involves the payment of an environmental guarantee of up to 1% of the total investment, which is only returned at the end of the project, following the technical closure and verification of the environmental impact.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    Costa Rica does not have any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Costa Rica. For example, is there an existing offshore oil and gas industry in Costa Rica given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    Currently, Costa Rica does not have an offshore oil and gas industry. By a presidential decree

    No. 41,578-MINAE, oil exploration and exploitation are banned in Costa Rica until 2050, and it is not anticipated that offshore oil and gas activities will be allowed in the country in the future.

    The Costa Rican government has recognised the potential of green hydrogen, as signified by the draft Law No. 22,392 For the Promotion and Implementation of a Green Hydrogen Economy in Costa Rica. However, such production is currently not a priority for the government, and therefore the overlap with FLOW is unlikely to occur.

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1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in India (such as announced procurement goals and awards of individual projects or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in India?*

   India has no operational offshore wind farms, whether bottom-fixed or floating projects. However, the government has created a number of initiatives in preparation for future offshore wind projects and no specific distinction has been made between non-FLOW and FLOW projects. So, unless specifically excluded, current policies on offshore wind projects will be applicable.

   The Ministry of New and Renewable Energy (**MNRE**) announced India's first-ever draft tender document for seabed leasing for offshore wind energy projects on 14 November 2022 (the release of which has been subsequently deferred to the end of March 2024) (**MNRE Draft Tender**). The scope of work under the MNRE Draft Tender envisages:

   - a selection of offshore wind power developers (**OWPDs**) for leasing of seabed areas equivalent to 4GW of offshore wind power projects off the coast of Tamil Nadu, India through international competitive bidding;
   - grid connectivity and long-term open access/access to the grid under a general network access framework; and
   - the energy generated from offshore wind power projects will either be consumed in captive mode or sold to third parties under an open access framework or sold through a merchant sale/power exchange.[32] The MNRE Draft Tender makes no distinction between bottom-fixed and FLOW projects.

   Initial assessment of offshore wind energy potential within the identified zones has been estimated to be about 70 GW off the coast of Gujarat and Tamil Nadu[33] and recent reports have estimated that India's market for offshore wind will reach 8GW by 2035, based on an assessment of project pipelines, long-term targets and current policies.[34] As no distinction has been made between bottom-fixed and FLOW projects, there is no current indication of how this estimate will be broken down between the two.

   India has also initiated preliminary offshore wind development works under EU-funded projects. The MNRE and the Danish Energy Agency (**DEA**) have also established the Centre of Excellence for Offshore Wind and Renewable Energy as a joint initiative. It aims to facilitate and accelerate the implementation of the Indian offshore wind strategy through various initiatives for the spatial planning and permitting process, financial framework and auction design, grid and supply chain infrastructure, technical standards and rules.

   The DEA and the MNRE have published a conceptual plan with a pipeline identifying 15 locations for offshore wind in India. The conceptual plan also provides substantial inputs to the current stakeholder dialogue on the recently released MNRE Draft Tender. The MNRE, on 26 September 2023, published a revised strategy paper on Strategy for Establishment of Offshore Wind Energy Projects (**MNRE Strategy**

32. 'Draft Tender Document for Seabed leasing for offshore wind energy projects' (MNRE, 14 November 2022) <https://india-re-navigator.com/public/tender_uploads/wind_policy-63737b697f92e.pdf> accessed 9 January 2024.
33. 'Year End Review 2023 of Ministry of New & Renewable Energy' (MNRE, 3 January 2024) <https://pib.gov.in/PressReleasePage.aspx?PRID=1992732> accessed 9 January 2024.
34. Deepak Sriram Krishnan, Akhilesh Tilotia, Vaisakh Suresh Kumar, Anya Bharadwaj, and Kajol, 'Winds of Change: Learnings for the Indian Offshore Wind Energy Sector' (National Investment and Infrastructure Fund, June 2022) <https://www.niifindia.in/uploads/insights/2206%20NIIF%20WRI%20Offshore%20Wind%20in%20India%20-%20report.pdf> accessed 11 December 2023.

Paper).[35] This strategy paper proposes three models for setting up offshore wind energy projects that will fast-track the process of development of offshore wind farms in India – mainly now aimed at Tamil Nadu and Gujarat. Based on a multi-criteria approach involving assessment of various parameters, such as wind resource, bathymetry etc., eight zones off the coast of Tamil Nadu and five zones in Gujarat were identified as potential offshore wind energy zones.[36] Once again, none of these initiatives distinguishes between bottom-fixed and FLOW projects. So, we assume that FLOW projects will be included.

In addition, RWE Renewables GmbH, one of the world's leading OWPDs, and Tata Power of India have agreed a partnership to explore the potential development of offshore wind projects in India. A corresponding memorandum of understanding has been signed between Tata Power Renewable Energy Limited, a 100% subsidiary of Tata Power, one of India's largest integrated power companies.[37]

2. *What challenges are faced by the offshore wind industry in developing FLOW projects in India (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   Offshore wind projects include FLOW and this is a greenfield untested area. As of now, no projects are operational. So, these are only some of the indicative factors, where the following areas remain uncertain: project costs for implementation; financing costs; and regulation. More generally, the following challenges may be faced by the offshore wind industry in developing offshore wind farms in India:

   - **Resource characterisation and subsea cabling.** Resource characterisation plays an important role as it helps to measure and assess the available wind resources that further helps in determination of the development, siting and operation of a wind energy plant.[38] As an offshore wind project is an unexplored and new sector in India, the preliminary characterisation of the winds will have to be reliable and accuracy may be a challenge. Undersea/subsea cables encounter multiple, detrimental challenges such as damage from natural disasters, marine threats and capacity limitations, and therefore protection of subsea cables shall be a concern throughout. Subsea cabling infrastructure will need to be significantly ramped up to support offshore wind projects.
   - **Turbine manufacturing infrastructure and environmental impact.** Offshore wind turbines require longer blades and transporting them over long distances is not viable. Ports in Tamil Nadu and Gujarat would have to be developed such that blades can be manufactured near the closest port to the offshore site.
   - **Higher costs.** Offshore wind energy is more expensive than onshore wind and solar power, and offshore wind projects are not currently economically viable as standalone projects. Based on preliminary studies described in the report by Lok Sabha's 17th Standing Committee on Energy,[39] it is estimated that the per megawatt cost of the offshore wind turbine would be two to three times the cost of onshore wind turbines.

35. 'Strategy for Establishment of Offshore Wind Energy Projects' (MNRE, 26 September 2023) <https://cdnbbsr.s3waas.gov.in/s3716e1b8c6cd17b771da77391355749f3/uploads/2023/09/2023092710309585 32.pdf> accessed 11 December 2023.
36. 'Year End Review 2023 of Ministry of New & Renewable Energy' (MNRE, 3 January 2024) <https://pib.gov.in/PressReleasePage.aspx?PRID=1992732> accessed 9 January 2024.
37. 'RWE and Tata Power collaborate to explore potential for development of offshore wind projects in India' (TATA Power, 21 February 2022) <www.tatapower.com/media/PressReleaseDetails/1919/rwe-and-tata-power-collaborate-to-explore-potential-for-development-of-offshore-wind-projects-in-india> accessed 11 December 2023.
38. 'Wind Resource Assessment and Characterization' (Office of Energy Efficiency & Renewable Energy, undated) <https://www.energy.gov/eere/wind/wind-resource-assessment-and-characterization> accessed 11 December 2023.
39. 'Wind Resource Assessment and Characterization' (Office of Energy Efficiency & Renewable Energy, undated) <https://www.energy.gov/eere/wind/wind-resource-assessment-and-characterization> accessed 11 December 2023.

- **Distribution companies (DISCOMs).** DISCOMs in India are loss-making and unable to build infrastructure to help transition to renewable energy sources.[40] DISCOMs would have to buy expensive power produced by offshore wind plants, which would be subsidised by the government, to prevent excess costs being passed onto the consumer. While the transmission system operators (TSOs) would likely build connecting infrastructure beyond the onshore connection point, the role of DISCOMs directly purchasing power in few states cannot be ruled out.
- **Risk of adverse weather conditions during construction.** Waves and high winds, particularly during monsoon seasons, can damage wind turbines and limit installation and onsite maintenance.
- **Complex development process.** Development of an offshore wind project requires diverse and complex workstreams. Project developers will have to work with various stakeholders, some of whom may be adversely impacted by the project and also have to obtain various approvals through a lengthy process.
- **Financing.** Initial offshore projects in India require significant institutional funding support for development.
- **Installation costs.** Local component manufacturers, installation vessels and trained workers are scarce in India. Likewise, port infrastructure is insufficient to support both bottom-fixed and FLOW construction and installation activity without significant additional investment.
- **Clearances.** Multiple Indian ministries and departments will be required to grant clearances for offshore wind power projects as these projects will involve authorities including electricity, oil and gas, environment, defence, shipping and ports etc. The consenting process could be protracted, resulting in delays as well as cost overruns. Fears about project impacts on communities which rely on marine ecosystems are one of the challenges facing India's push for offshore wind energy development. People living in coastal communities depend heavily on the sea and seafood for their livelihoods. The sea is not under the control of coastal people, despite the fact that many tribal people argue that forest land should be given to them. As a result, when the governments implement their coastal construction projects, these people are forced to leave their work and homes. Additionally, local conflicts may arise due to interference with occupations prevalent in the coastal zone. Therefore, it is suggested to include a buffer time period to help fill in for any delays caused due to such issues.
- **Evacuation of power.** As per the MNRE Strategy Paper, the offshore wind energy developer is entirely responsible for evacuation of power up to the offshore meeting/interconnection point.[41] Such developer is required to set up the offshore wind project including inter-array cables to connect the project to the offshore substation at the specified voltage level (to be decided by the central transmission utility). This is untested as it will be a greenfield project and could lead to severe time and project execution challenges.

3. *Is there a World Bank Offshore Wind Roadmap for India or any announced plans by the government of India such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   There is no World Bank offshore wind roadmap for India, but GWEC has published a Tamil Nadu Wind Energy Roadmap. The roadmap identifies more than 100GW of wind energy generation potential across onshore and offshore wind. The report suggests that the state may consider incentivising offtakers and industrial consumers to procure power from these projects. The Tamil Nadu Report, in the section on skill areas on which to focus, refers to fixed and floating concepts for low-cost foundations to be developed as part of harnessing offshore wind projects.

40. 'Turning around the Power Distribution Sector' (NITI Aayog, RMI and RMI India), August 2022) <https://www.niti.gov.in/sites/default/files/2021-08/Electricity-Distribution-Report_030821.pdf> accessed 11 December 2023.
41. 'Strategy for Establishment of Offshore Wind Energy Projects' (MNRE, 26 September 2023) <https://cdnbbsr.s3waas.gov.in/s3716e1b8c6cd17b771da77391355749f3/uploads/2023/09/202309271030958532.pdf> accessed 11 December 2023.

India has a coastline of about 7,600km providing good prospects for harnessing offshore wind energy. As such, the government published the "National Offshore Wind Energy Policy" as per the gazette notification dated 6 October 2015 (**Offshore Wind Policy**).

Offshore wind can play a prominent role in India's energy transition, especially given the country's target of 500GW of renewable energy by 2030 across different technologies. The Indian government has set an offshore wind target of 30GW by 2030. However, no significant development pursuant to the issuance of this policy has taken place. As a result, India still has no offshore wind project deployed to date. However, the offshore wind industry in India is expected to move at a very fast pace following the issuance of the MNRE Draft Tender.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in India.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

Seabed leases are subject to a competitive tender process in India. The MNRE Draft Tender includes contractual agreements for seabed leasing to carry out studies/surveys and subsequent development of offshore wind projects under open access/captive/third party sale.

To award the tender, a single stage and two-envelope bidding procedure will be adopted. The MNRE Draft Tender[42] specifies that no e-reverse auction will be conducted for bidding of offshore wind blocks. While a bidder can submit bids for all the blocks, it should provide a separate and independent financial bid for each block. For the evaluation of bids, the technical bid will be scrutinised to establish techno-commercial eligibility and then the responses of the techno-commercially qualified bidders to the questionnaire shall be opened. These responses will be scored and bidders with scores equal to, or more than, the minimum score specified in the MNRE Draft Tender will be considered for financial bid opening. Finally, the financial bids with the "quoted lease rental" for each block will be evaluated with the highest scoring bidder declared as the winning bidder.

Further, as per Model C (Non-VGF and without exclusivity over seabed during the study/survey period) set out in the MNRE Strategy Paper, once the developer has identified the offshore wind site within the EEZ excluding the sites considered under Model A or Model B (as defined in (b) below) and carried out studies and surveys, the government will then come up with a bid for project development/allocation of the seabed in such area. The bidding may include any one of the following methods:

- Bidding on lease/allocation fee or revenue-sharing in case of projects for captive consumption/third party sale/sale through exchange under open access mechanism.
- Tariff-based competitive bidding in case of power procurement by DISCOMs, or central or state governments.
- Any other transparent bidding mechanism identified by the government.

42. 'Draft Tender Document for Seabed leasing for offshore wind energy projects' (MNRE, 14 November 2022) <https://india-re-navigator.com/public/tender_uploads/wind_policy-63737b697f92e.pdf> accessed 9 January 2024.

b. *Is there a specific legal/regulatory regime for FLOW projects in India, as opposed to broader offshore wind or renewables projects in general?*

No. There is only the broader policy as of now. India has enacted specific legislation for regulating its electricity sector, namely the Electricity Act, 2003 (Electricity Act). The Electricity Act consolidates the laws for generation, transmission, distribution and trading of electricity. It is expected that some of the requirements for onshore wind projects will also apply to offshore wind projects.

The Offshore Wind Policy specifies India's rights to develop offshore wind projects and conduct research and development in India's EEZ, which extends up to 200 nautical miles seaward from the baseline.

The Offshore Wind Policy[43] identifies the exploration and promotion of deployment of offshore wind farms in the EEZ, including those under public private partnership, as one of the objectives behind its issuance.

The MNRE also published the "Guidelines for Offshore Wind Power Assessment Studies and Surveys" which were approved and issued by the National Institute of Wind Energy (**NIWE**) in September 2018 to guide stakeholders who are interested in carrying out study/survey activity for the development of offshore wind energy projects.[44]

The MNRE Strategy Paper set out the models for the development of offshore energy projects in Tamil Nadu and Gujarat. The models are as follows:

Model	Description
Model A VGF Model	This approach will be followed for demarcated offshore wind zones for which MNRE/NIWE has carried out or proposed to carry out detailed studies/surveys. MNRE, through its implementing agencies, will come up with bids for procurement of offshore wind power capacity under this model. Necessary central financial assistance in the form of Viability Gap Funding (**VGF**) would be available to achieve a predetermined power tariff.
Model B (Non-VGF but with exclusivity over seabed during the study/survey period)	This approach will be followed for sites identified by NIWE. Proposed offshore wind sites demarcated within identified zones would be allocated for a fixed period on a lease basis through single-stage two-envelope bidding. Project development shall be carried out by the prospective developer on these sites without any Central Financial Assistance (**CFA**). The power generated from such projects shall be either used for captive consumption under open access mechanisms or sold to any entity through a bilateral power purchase agreement (**PPA**) or through power exchanges. The government may also call for bids for procurement of power for DISCOMs on the basis of a tariff after two years. Benefits such as the provision of power evacuation infrastructure from the offshore pooling delivery point, waiver of transmission charges, renewable energy credits with multipliers, carbon credit benefits etc. as determined by the government/state government from time to time shall be applicable.

43. 'National Offshore Wind Energy Policy' (The Gazette of India, 7 October 2015) <https://cdnbbsr.s3waas.gov.in/s3716e1b8c6cd17b771da77391355749f3/uploads/2022/12/2022122033.pdf> accessed 9 January 2024.
44. 'Guidelines for Offshore Wind Power Assessment Studies and Surveys' (NIWE, 2018) <https://niwe.res.in/assets/Docu/Guidelines_for_Offshore_Wind_Power_Studies_and_Surveys.pdf> accessed 9 January 2024.

Model	Description
Model C (Non-VGF and without exclusivity over seabed during the study/survey period)	In this model, the developer may identify any offshore wind site within the EEZ excluding the sites considered under Model A and Model B, and carry out studies and surveys. The government will come up with bids for project development/allocation of the seabed. The bidding may include any one of the following methods: • Bidding on lease/allocation fee or revenue-sharing in case of projects for captive consumption/third party sale/sale through exchange under open access mechanism. • Tariff-based competitive bidding in case of power procurement by DISCOMs, or central or state governments. • Any other transparent bidding mechanism identified by the government. The government may also designate any central/state government agency to carry out the bidding on its behalf, wherein the concerned agency assures the power offtake from the proposed offshore wind project. The developer who has conducted the study/survey of respective sites may also submit the proposal for project development and allocation of offshore sites under this model. In this case, site-specific bidding would be conducted with a first right of refusal to the developer who had conducted the study/survey. However, project development shall be carried out by the prospective developer in this zone without any CFA. Benefits such as the provision of power evacuation infrastructure from the offshore connecting point, waiver of transmission charges, renewable energy credits with multipliers, carbon credit benefits etc. as determined by central or state governments from time to time shall be applicable.

Finally, the MNRE has issued the Offshore Wind Energy Lease Rules 2023 to regulate the allocation of offshore wind sea blocks to developers on December 19, 2023.[45]

As mentioned above, the MNRE Strategy Paper is aimed at offshore wind projects as a whole and currently no distinction has been made.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of India intended to enable fast-track development of floating wind projects and technologies?*

The Offshore Wind Policy provides that there are two main maritime areas in which structures, such as offshore wind farms, can be built:

- Indian territorial waters, which generally extend up to 12 nautical miles from the baseline; and
- EEZ, beyond the 12 nautical miles limit and up to 200 nautical miles where, under international law, India has the right to construct structures such as wind farm installations.

Additionally, the MNRE Strategy Paper has identified offshore wind energy zones which have been made subject to three different models for development of such projects. Presently, part of identified Zone B3 (365km2) equivalent to 0.5GW off the coast of Gujarat and 0.5GW equivalent off the Tamil Nadu coast is being considered in Phase 1 of Model A. Further, for Model B, it is anticipated that a total of 7GW is to be commissioned by 2025. Therefore, a total of 8GW is proposed to be commissioned by 2025.

Again, there is no distinction between FLOW and bottom-fixed offshore wind projects in the identification of these areas or zones, and in the allocation of projects to them.

45. 'Offshore Wind Energy Lease Rules 2023' (MNRE, 19 December 2023) <https://cdnbbsr.s3waas.gov.in/s3716e1b8c6cd17b771da77391355749f3/uploads/2023/12/202312208216880.pdf> accessed 9 January 2024.

d. *re there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

Foreign direct investment (**FDI**) of up to 100% under the automatic route is allowed in India for renewable projects and for port development projects.[46] While there is no prohibition on construction activities, offshore wind developers are required to procure requisite approvals from various government authorities. Please also see the response to Question 6. Specifically in relation to using ports for the purposes of setting up offshore wind projects, the Ministry of Shipping (**MoS**) provides clearances to operate outside the international and national sea route, utilisation of national ports and permission for utilisation of vessels and ships for offshore wind power projects.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in India?*

The government authorities listed below are an indicative but not exhaustive list which are likely to have a role in regulating the industry once it becomes operational.

Government authority	Roles
MNRE	Nodal ministry for the development of offshore wind energy in India and for the development and use of maritime space within the EEZ of the country.
NIWE	Nodal agency for the development of offshore wind energy in the country. NIWE is strengthened to carry out the activities for offshore wind power development in the country. It is tasked under the Offshore Wind Policy to seek proposals for development of offshore wind power projects in the identified blocks under competitive bidding. NIWE will accept applications for clearances/no objection certificates (NOCs) from the project developers and coordinate with concerned ministries/departments for the clearances/NOCs. However, NIWE will only act as a facilitator for getting clearances/NOCs and applications will be dealt in entirety by the concerned ministry/departments.

46. 'Private Investment in Maritime Infrastructure' (Ministry of Ports, Shipping and Waterways, 5 April 2022) <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1813610#:~:text=Upto%20100%25%20Foreign%20Direct%20Investment,allowed%20for%20Port%20development%20projects> accessed 11 December 2023.

Government authority	Roles
Central/State Electricity Regulatory Commission (**CERC/SERC**)	Electricity regulatory commissions have been established to regulate tariff, transmission of electricity and to grant licences in relation to transmission. These commissions are also responsible for advising the Indian government in terms of electricity and tariff policy formulation. The CERC is established at a central level and governs the interstate supply and transmission of power while, at each state, there are SERCs whose roles are limited to the above functions with respect to supply and transmission of power within the relevant state. The CERC is likely to have jurisdiction as it usually falls outside the state's jurisdiction. However, if there is any consumption or transmission of power within a particular state, then the SERC could get involved to the extent there is intrastate wheeling, transmission and distribution of power. As per the law applicable in India, all lands, minerals and other things of value underlying the ocean within the territorial waters, or the continental shelf, or the EEZ, of India shall vest in the union and be held for the purposes of the union. Accordingly, there is no concept of state territorial waters in India.
Central Electricity Authority (**CEA**)	An authority established pursuant to the Electricity Act, tasked with supporting the Ministry of Power for implementation of schemes and initiatives for enhancing the electricity system. The CEA would specify the technical standards for electrical lines and cables including inter-array cables and grid connectivity, safety standards for construction, operation and maintenance of electrical lines.
Central/State Transmission Utility (**CTU/STU**)	Transmission utilities have been established at union and state level. The CTU is responsible for transmission of electricity through the interstate transmission system and to plan and coordinate in relation to the interstate transmission system with the STUs, the government of India, state governments and generating companies. STUs are responsible for undertaking electricity transmission within the relevant state and undertaking planning and coordination of functions at an intrastate level. While the OWPD will usually have to transfer the offshore transmission assets to the CTU, if there is any consumption or transmission of power within a particular state, then the STC could get involved to the extent there is intrastate transmission.
National/Regional/State Load Dispatch Centre **(NLDC/RLDC/SLDC)**	The NLDC has been established under the Electricity Act to undertake scheduling and dispatch among RLDCs. RLDCs have been established with a view to ensuring regional power system integration for regions identified by the Indian government, while the SLDCs have been organised at state level to ensure integrated operations of the power system at state level.

Government authority	Roles
Offshore Wind Energy Steering Committee	Under the chairmanship of the Secretary of the MNRE, will steer the offshore wind energy development in the country by providing policy guidance and will oversee the execution and effective implementation of specific offshore wind energy activities.
Department of Telecommunications[47]	Grants a company laying submarine cables in Indian territorial waters a valid International Long Distance (**ILD**) licence and International Long Distance Operators for setting up a cable landing station. Submarine cables in Indian territorial waters must hold a valid ILD licence issued by the Department of Telecommunications.

Ministries	Roles
Ministry of Environment and Forest (**MoEF**)	Its role will be to provide clearances for EIAs and coastal zone regulations.
Ministry of Finance (**MoF**)	Allocates finances for offshore wind power development in budgets and brings amendments in case of tax exemptions and other financial incentives.
Ministry of Petroleum and Natural Gas (**MoPNG**)	Provides clearances for utilisation of the seabed outside the oil and gas exploration zone and pipeline route.
MoS	Provides clearances to operate outside the international and national sea routes, utilisation of national ports, and permission for utilisation of vessels and ships for offshore wind power projects.
Ministry of Defence (**MoD**)	Provides security clearances for projects. The naval department under the MoD holds the right to offshore area data utilisation for bathymetry, geophysical and geotechnical activities.

47. 'Consultation Paper on Licensing Framework and Regulatory Mechanism for Submarine Cable Landing in India' (Telecom Regulatory Authority of India, 23 December 2022) <https://www.trai.gov.in/sites/default/files/CP_23122022.pdf> accessed 11 December 2023.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in India (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

   There are no specific statutory regulations other than the policy framework governing offshore wind in general, let alone FLOW in particular, but the following permits or approvals are some of the indicative but not exhaustive ones that are likely to be required for the construction and operation of offshore wind projects, including FLOW projects.[48]

   - Connectivity approval is required from CTU/STUs to supply electricity from the FLOW to the end consumer. Note that approval will usually be required from the CTU unless power is being procured by the STU directly for distribution within the state through the state DISCOM.
   - EIA and clearance for coastal regulatory zone to be obtained from the Ministry of Environment, Forests and Climate Change.
   - Clearances for defence and security aspects related to army, navy, air force, and Defence Research and Development Organisation to be obtained from the MoD.
   - Clearance to establish projects within India's maritime zone to be obtained from the Ministry of External Affairs. This is the case even if these are located in zones designated under the Offshore Wind Policy or the MNRE Strategy Paper.
   - Clearance for assignment of foreign nationals to offshore wind projects to be obtained from the Ministry of Home Affairs.
   - Approval for construction in the vicinity of aviation, radar or aerodrome facilities to be obtained from the Ministry of Civil Aviation. MoD for military radar will also be required and the OWPD will be obliged to pay for upgrades to radar if performance is adversely impacted by turbines as a condition of consent. This will depend on the actual terms and conditions of the approval that will be issued.
   - In the event the installation is proposed in existing oil and natural gas blocks, then a clearance is required from the MoPNG. For other locations, an NOC is required.
   - Clearance required from MoS for projects situated in proximity to major ports. Additionally, an NOC is mandatory when operating outside designated shipping lanes.
   - Security clearance is required with regards to installations managed by the Department of Space to ensure compliance with safety distance requirements of such installations.
   - An NOC must be acquired from the Department of Telecommunications to operate outside the designated subsea communication cable zones.
   - An NOC must be obtained from the Ministry of Mines to conduct operations outside mining zones.

   MNRE and NIWE will act as nodal agencies for the facilitation of such approvals.

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

   Environmental licences are required for offshore wind projects in India but as yet there are no specific environmental licences for FLOW projects. As no distinction has been made between bottom-fixed and FLOW projects, presently we believe that one will need to adopt a wait-and-see approach to understand if FLOW projects will get specifically excluded from standard environmental licences that are required for all offshore wind projects. As mentioned above, EIAs and coastal regulatory zone clearances are to be obtained from the

48. 'Consultation Paper on Licensing Framework and Regulatory Mechanism for Submarine Cable Landing in India' (Telecom Regulatory Authority of India, 23 December 2022) <https://www.trai.gov.in/sites/default/files/CP_23122022.pdf> accessed 11 December 2023.

Ministry of Environment, Forests and Climate Change. FLOW projects as offshore wind projects will be considered as greenfield projects and clearances could take additional time, although it is hoped that, as FLOW projects cause less environmental impact than bottom-fixed offshore wind projects, such additional time will be reduced. However, this is an untested area.

b. *Are consents required at a national level or state/municipal level?*

Consents are required at a national level, state level and from the relevant local authorities. It is likely that the onshore substations may be located within port areas of specific states and the transmission infrastructure may pass through local or state-monitored areas. In such cases, state consents and local consents will be required.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

A nominal fee is required for obtaining such licences and there is no support scheme for reimbursement of the licence fee.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in India? Are these specific to FLOW, to offshore wind or renewables in general?*

Under the MNRE Draft Tender, bidders for offshore wind projects, including FLOW projects, will be free to take advantage of such fiscal incentives that are available for onshore wind projects in India, such as accelerated depreciation, concessional customs and excise duties, tax holidays, etc. It should be noted that 100% FDI is allowed for the renewable energy sector in India under an automatic route, and no prior government approval is required.

As per the MNRE Strategy Paper (released in July 2022), for the initial offshore wind power projects under Model A, it is envisaged that VGF or any other financial incentive as decided by the government of India may be made available to bridge the gap between the actual tariff determined through the competitive bidding process and the power purchase tariff by the designated entity (it being noted that the amount of VGF funding for FLOW projects may be greater given the increased cost of their construction and deployment).[49] Also, pursuant to the MNRE Draft Tender, benefits such as the provision of power evacuation infrastructure from the offshore pooling delivery point,[50] waiver of transmission charges, renewable energy credits with multipliers, carbon credit benefits etc., as determined by the government of India or state governments from time to time, may be applicable.

Further, the MNRE Strategy Paper suggests that Model A shall be funded as a VGF model wherein necessary CFA in the form of VGF will be available to the developer to achieve a predetermined power tariff. Once the VGF scheme is actually formulated and announced, further details may be available subsequently.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

The allocation methodology prescribed is based on a competitive tender process. Pursuant to the MNRE Draft Tender, the bidders which meet the minimum qualifying requirements will be shortlisted for the next stage of tender for techno-commercial and quoting lease fee per km2 towards allocation of blocks.

49. 'Strategy for Establishment of Offshore Wind Energy Projects' (MNRE, 26 September 2023) <https://cdnbbsr.s3waas.gov.in/s3716e1b8c6cd17b771da77391355749f3/uploads/2023/09/2023092710309585 32.pdf> accessed 11 December 2023.
50. It has not been specified in detail in the MNRE Strategy Paper whether this multi-purpose offshore substation and export cable can service more than one offshore wind project in the same zone. We believe that this will be on the same basis as the present regime for onshore pooling delivery points. Since this will be within the scope of the developer, this may vary from project to project.

However, the MNRE is considering the provision of incentives to offshore wind energy projects, such as the waiver of transmission charges, renewable energy credits, carbon credits benefits etc.[51]

VGF has been proposed to be provided by the central government for all projects that are to be allotted based on Model A as per the MNRE Strategy Paper. As no distinction has been made between bottom-fixed and FLOW projects, presently we believe that one will need to adopt a wait-and-see approach to understand if FLOW projects will get specifically excluded from VGF schemes.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   The union government plans to bring a production-linked incentive scheme to promote the manufacture of offshore wind turbines. As no distinction has been made between bottom-fixed and FLOW projects, presently we believe that one will need to adopt a wait-and-see approach to understand if FLOW projects will get specifically excluded from future production-linked incentive schemes. The development assumes significance considering the long-term target of adding 30GW of offshore wind energy capacity by 2030.[52] Model A proposed by the MNRE for allotment of seabed licences can be carried out with the support of central government through CFA in the form of VGF to help the developer achieve the predetermined power tariff.

   Standard PPAs of government-owned distribution licensees contain change in law clauses which protect the developer from any increase in the cost of the project due to the enactment of a new law.[53] The MNRE Draft Tender also provides for a change in law provision whereby if as a result of a change in law, the OWPD is obliged to incur additional costs, the parties shall meet and mutually agree on an arrangement that would restore the OWPD to the same economic position as if such a change in law had not occurred. The term "change in law" under the MNRE Draft Tender has been defined to mean the occurrence of any of the following events after the date of submission of the concession agreement:

   - the enactment of any new applicable law;
   - the repeal, modification or re-enactment of any existing applicable law;
   - Any change in the interpretation or application of any Indian law by a judgment of a court of record which has become final, conclusive and binding as compared to such interpretation or application by a court of record prior to the date of the concession agreement; or
   - any changes in the rates of any of the taxes that have a direct effect on the project.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in India (e.g. is there a state owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    Pursuant to the MNRE Draft Tender, energy generated from offshore wind projects is required to be consumed in captive mode or sold to third parties under an open access framework, or sold through merchant sale/ power exchange. No distinction is made between bottom-fixed and FLOW. The OWPD shall be required to set up offshore wind projects, with the primary objective of using the power in captive mode or sale of power to third parties under open access, through merchant

51. 'Centre considers incentives for offshore wind energy' (Livemint.com, 12 July 2022) <https://www.livemint.com/news/india/centre-considers-incentives-for-offshore-wind-energy-11657729612815.html> accessed 11 December 2023.
52. 'Wind Industry Push: PLI Scheme for Offshore Wind Turbines Under Purview' (Swarajya, 12 August 2022) <https://swarajyamag.com/infrastructure/wind-industry-push-pli-scheme-for-offshore-wind-turbines-under-purview> accessed 11 December 2023.
53. Diksha Sharma and Muskaan Aggarwal, 'Change in Law Clause in Power Purchase Agreements: Issues and Challenges' (India Journal of Projects, Infrastructure and Energy Law, 7 January 2022) <https://ijpiel.com/index.php/2022/01/07/change-in-law-clause-in-power-purchase-agreements-issues-and-challenges/> accessed 11 December 2023.

sale or through power exchange as per the regulatory framework under the Electricity Act. As per the MNRE Draft Tender, the OWPDs can enter into a PPA or a power sale agreement (**PSA**) with any third party under open access, for merchant sale or for sale on power exchange. A copy of a standard PPA or PSA to be executed between the power consumer and the selected OWPD will be made available on the ISN-ETS portal. The copies of such bilateral agreements, PPAs or energy wheeling agreements signed for captive purposes shall be deposited with the NIWE/MNRE within 60 days from their execution. Consumption on captive basis will be required to meet the definition of "captive" under the Electricity Act, 2003. At present under the Indian Electricity Act, 2003 and the Electricity Rules, 2005, a power project is considered "captive" if the consuming entity or entities consume at least 51% of the power generated and own at least 26% of the equity, but this definition is likely to be amended. These plants operate off-grid or they can be connected to the electricity grid to exchange excess generation.

Under the MNRE Draft Tender document, there is a concept of a fixed contracted capacity which has been defined to mean the alternate current capacity in MW contracted with NIWE for development of offshore wind projects at the delivery point from the project, based on which the PPA/PSA or energy wheeling agreement is to be executed with a third party or with CTU/STUs.

11. *Are there any restrictions on foreign companies participating in FLOW projects in India? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in India?*

In view of the MNRE Draft Tender, a foreign company can either participate as a bidder on a standalone basis or as a member of a consortium. If participating on a standalone basis and selected as the successful bidder, the foreign company has to form a special purpose vehicle (**SPV**) (i.e. an Indian company registered under the Companies Act, 2013 as its subsidiary company, with at least 51% shareholding in the SPV) before signing any contractual agreements under the project. The successful foreign company must also comply with all the laws and provisions related to FDI in India.

In line with the office memorandum issued by the Department of Expenditure, MoF, vide

No. 6/18/2019-PPD dated 23 July 2020 and subsequent amendments and clarifications thereto, any bidder from a country which shares a land border with India will be eligible to bid in the tender, but only if the bidder is registered with the competent authority (as defined in the office memorandum referred to above). The competent authority under the office memorandum shall be the registration committee constituted by the Department for Promotion of Industry and Internal Trade.[54]

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in India)?*

Currently, no policy exists for delivery and ownership of offshore transmission systems. However, a hybrid of the generator and TSO model is preferred in India. In the hybrid model, the offshore grid connection is built by the developer and subsequently transferred to the TSO.

The standard transmission services agreement entered into by TSOs is on a "build, own, operate and maintain" basis and not on a "build, own, transfer" basis. In other sectors that deal with concessions on a "build, own, transfer" basis, typically the developer is entitled to debt due and full equity (sometimes up to 150%) adjusted for inflation. So, the extent of transfer payments will be linked to project costs, as may be approved by the TSO. This will usually be part of the detailed contract or a services agreement that is to be executed between the project developer and the TSO. We have no visibility on the same at present and will depend on the drafts that will be furnished by the TSO, in future.

In India, the Electricity Act is the principal legislation on generation, transmission, distribution, trade and use of electricity. As per section 14 of the Electricity Act, the appropriate

54. 'Order (Public Procurement 1), Restrictions under Section 144 (xi) of the General Financial Rules, 2017' (MoF, 2017) <https://doe.gov.in/sites/default/files/OM%20dated%2023.07.2020.pdf> accessed 9 January 2024.

commission (CERC/SERC/joint commission) on an application made to it under section 15 of the Electricity Act may grant a licence to any person:

- to transmit electricity as a transmission licensee;
- to distribute electricity as a distribution licensee; or
- to undertake trading in electricity as an electricity trader, in any area as may be specified in the licence.

As per section 38 of the Electricity Act (Central Transmission Utility and Functions), the central government may notify any government company as the CTU, provided that the CTU shall not engage in the business of generation of electricity or trading in electricity.

The CTU/STU shall be deemed to be a transmission licensee for the purposes of the Electricity Act. A person intending to act as a transmission licensee shall, immediately on making the application, forward a copy of such application to the CTU/STU, as the case may be. Every transmission licensee shall comply with such technical standards of operation and maintenance of transmission lines, in accordance with the grid standards, as may be specified by the CEA.

Under the MNRE Draft Tender, the OWPD is required to set up the offshore wind power project and the dedicated transmission network up to the onshore delivery point at its own cost. All approvals, permits and clearances required for setting up the offshore wind power project and/or dedicated transmission network up to the delivery point, including those required from state government and local bodies, shall be in the scope of the OWPD. The conditions precedent required to be satisfied by the OWPD include executing and procuring execution of the connectivity agreement with the CTU. Whether the cost of permits is recoverable on the transfer by the OWPD to the TSO of the offshore transmission assets and whether a fee is payable for the seabed lease for the cable corridor will usually be part of the detailed contract or services agreement that is to be executed between the project developer and the TSO.

13. *Are there any requirements in India for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

Yes, it is likely that there could be some registration requirements in future. The Director General of Shipping in the past, whilst dealing with floating storage units and FPSOs etc., has treated them as offshore platforms requiring registration, flagging and classing. There are specific guidelines for the same. This could be the approach that may be adopted in future for offshore wind projects.

The Offshore Wind Policy stipulates the clearances/NOCs required from MoD, MoS/ State Maritime Board/state government, MoPNG, MoEF and other agencies before commencing installation in the sea (survey or wind turbine generator).

A list of related ministries and departments where a clearance or an NOC will be required is provided in Annexure A of the Offshore Wind Policy and briefly mentioned in the response to Question 6. Work related to studies and surveys or construction in offshore projects cannot be commenced until the relevant "clearance" is granted by concerned ministries or departments. However, in cases where an NOC is required, the same will be deemed as granted upon expiry of the stipulated period. Besides the clearances or NOCs, the OWPD, while planning the project, is required to consider the impact of the project on the livelihood of local fishing communities and make all efforts to stay out of the fishing grounds in and around the development site. In extreme cases, where fishing grounds/fishing colonies are to be relocated, the developer will provide adequate compensation to the aggrieved communities in line with the central/state government policies on the subject.

14. *Are there any local content requirements in India in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

The MNRE (Wind Energy Division) issued a draft Indian Wind Turbine Certification Scheme on 5 November 2018[55] to streamline the development of wind power projects in India. As per the guidelines, the Indian Type Approved Model (**ITAM**) is a procedure for Indian wind turbine manufacturers to enlist the wind turbine models to be installed in India. The documentation requirements to obtain ITAM mandate that the type and quality certifications by an internationally accredited certification body shall be a mandatory requirement for manufacturers of wind turbines and components, and both certifications should mandatorily include hub and nacelle assembly/ manufacturing facilities in India.

Large potential for offshore wind exists off India's coastline, which can support multiple players who will look to set up facilities in India, not just for local supply but also to function as a regional export hub. In addition, the wind sector in India already has 90% local content, which will catalyse further localisation. It may be desirable to rely on imports for the first few tranches of projects in order to see the kind of technology that can come into India and use that knowledge to improve local manufacturing. Long-term assurances regarding taxes and concessions for these imports are desirable. [56] Local content requirements mandatorily include hub and nacelle assembly/manufacturing facilities in India. No specific exemptions have been provided for FLOW projects.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

As per the Offshore Wind Policy, where NIWE decides to grant a seabed lease for a proposed offshore wind farm (whether bottom-fixed or floating), it will also include a condition requiring the developer/owner to submit a decommissioning and site restoration programme to NIWE before any offshore construction works begin. The programme shall be a part of the EIA for the project, and necessary clearances will be required from the MoEF. A deposit or a financial guarantee will be submitted by the OWPD to ensure proper decommissioning. This obligation will pass on to the valid transferee of the offshore wind farm post-transfer.

Furthermore, the MNRE Draft Tender document provides for the submission of a bank guarantee by the OWPD towards the earnest money deposit (**EMD**). NIWE has agreed to accept the EMD in the form of an unconditional and irrevocable bank guarantee instead of the cash deposit, with the clear position intimated to the bidder that the EMD bank guarantee shall be cashable for being appropriated by NIWE in terms of the guarantee as in the case of appropriation of the cash deposit lying with NIWE.

The MNRE Draft Tender also requires the OWPD to provide a bank guarantee in the form of a security deposit in the format prescribed under the MNRE Draft Tender. In case the successful bidder does not submit the requisite documents as per the requirements of the MNRE Draft Tender, or does not meet eligibility criteria upon submission of documents, or does not execute the agreement to lease within the stipulated time period, then the bank guarantee equivalent to the amount of the EMD shall be cashed from the bank guarantee available (i.e. EMD or security deposit) as liquidated damages not amounting

55. 'Draft Indian Wind Turbine Certification Scheme' (MNRE, 5 November 2018) <https://www.indianwindpower.com/pdf/Circular-dtd-5-11-2018-for-IWTCS.pdf> accessed 9 January 2024.
56. 'Year End Review 2023 of Ministry of New & Renewable Energy' (MNRE, 3 January 2024) <https://pib.gov.in/PressReleasePage.aspx?PRID=1992732> accessed 9 January 2024.

to penalty, and the selection of the successful bidder shall be cancelled.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022 (**Green Energy Open Access Rules, 2022**)[57] state that additional surcharge and cross-subsidy will not be applicable if renewable energy is utilised for the production of green hydrogen. However, the Ministry of Power notified the Electricity (Promoting Renewable Energy Through Green Energy Open Access) Amendment Rules, 2023 to amend Green Energy Open Access Rules, 2022. Some of the key important milestones of this new policy are as follows:

    - The credit for banked energy will not be permitted to be carried forward and should be adjusted in the same banking cycle.[58] Also, any unutilised surplus banked energy will be considered as lapsed at the end of each banking cycle.
    - Rule 9(1) provides charges that are to be levied on green energy open access and the same has been revised, adding banking charges and other fees and charges, such as load dispatch centre fees and scheduling charges, and deviation settlement charges as per the relevant regulations of the commission.
    - Where the power, which is produced from a non-fossil-fuel based on waste-to-energy plant, is supplied to an open access consumer (OAC), the cross-subsidy surcharge and additional surcharge will not be applicable.
    - Where electricity, which is produced from offshore wind projects (whether bottom-fixed or floating) that are commissioned up to December 2025 and supplied to an OAC, then the additional surcharge will not be applicable. Notice has to be given a day in advance before closure of the day-ahead market to avoid the standby charges, provided that the applicable standby charges are no more than 25% of the energy charges applicable to the consumer tariff category.[59]

17. *Please summarise any other relevant points in relation to the development of FLOW projects in India. For example, is there an existing offshore oil and gas industry in India given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    Offshore wind can play a prominent role in India's energy transition, especially given the country's target of 500GW of renewable energy by 2030 across different technologies. India's offshore wind policy framework has undertaken a few initiatives such as setting targets for the country (such as 30GW by 2030), but currently there are no offshore wind projects in India. India has started considering infrastructural requirements for the same, including the need for enhanced port infrastructure for the manufacture, assembly, integration and wet storage of FLOW farms.

    The GWEC Wind Energy Roadmap recommends a stable regulatory framework, focusing on repowering, focusing on nearshore projects and incentivising industrial consumers to procure power from offshore wind projects.

57. 'Ministry of Power notifies Green Energy Open Access Rules to accelerate ambitious renewable energy programmes' (Ministry of Power, 19 July 2022) <https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1842737> accessed 11 December 2023.
58. It is an arrangement where surplus power generated in a particular period is fed into the grid. This surplus energy, known as banked energy, is then supplied back during periods of low renewable energy generation. Banking has been an essential complement to open access purchase of renewable energy.
59. 'Electricity produced from a non-fossil fuel/offshore wind projects exempted from additional surcharge vide Electricity (Promoting Renewable Energy Through Green Energy Open Access) Amendment Rules, 2023' (SCC Online Blog, 27 January 2023) <https://www.scconline.com/blog/post/2023/01/31/ministry-of-power-notified-electricity-promoting-renewable-energy-through-green-energy-open-access-amendment-rules-2023-to-amend-electricity-promoting-renewable-energy-through-green-energy-open-acce/> accessed 11 December 2023.

Recent reports have identified key ports that need to be developed further in Gujarat and Tamil Nadu to support offshore wind activity (FOWIND 2016). Grid interconnections are a key factor in the development of the offshore sector and, for onshore renewables, the government is already implementing a Green Energy Corridor scheme. The government, with MNRE as the nodal agency, can take responsibility for developing part of the offshore wind power evacuation. In terms of scope, CTU or Power Grid Corporation of India manages offshore pooling stations, export cables and onshore pooling substations. Developers are responsible for constructing inter-array cables and delivering them at specified voltage levels to the CTU offshore pooling station. This will improve investor confidence as the investment needed will be reduced. Recent reports have estimated that India's market for offshore wind will reach 8GW by 2035, based on an assessment of project pipelines, long-term targets and current policies. India's offshore wind policy framework has ticked a few boxes: setting targets for the country (i.e. 30GW by 2030) and identifying the nodal agency for procedural and regulatory matters. As this is an offshore installation, there will be overlaps with other ministries and government authorities requiring necessary clearances for operations, workforce, visa, tax applicability etc. as set out in Question 6 above.

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Ireland

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Ireland (such as announced procurement goals and awards of individual projects or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Ireland?*

The Irish government has set an ambitious objective to install 7GW of offshore wind generation by 2030 and intends to achieve this target through three distinct phases of CfD auctions.

Phase 1 recently saw the first offshore wind CfD auction held under the Renewable Electricity Support Scheme (***ORESS 1***), resulting in the selection of four projects with a combined capacity of nearly 3,100MW.

The first Phase 2 auction is set to launch by the end of 2023 with the government recently publishing the regulatory framework applicable to projects participating in this second phase of offshore wind development.

While it is expected that the initial focus will be primarily on fixed wind turbines, the government aims to create 2GW of FLOW, a target which Phase 3 is focused on achieving. The government is currently developing an Offshore Renewable Energy Development Plan, which will build a framework to support FLOW.

The sustainable energy authority of Ireland is currently developing a test site to facilitate the testing of FLOW technology at both 100m and 50m water depth off the west coast of Ireland but testing of FLOW devices has yet to begin at the time of writing. The first potential deployment of offshore wind at the test site is earmarked for 2025. By May 2022, there was said to be a pipeline of approximately 4GW of projects.[60]

The outlook beyond 2030 is equally ambitious with the government increasing the offshore wind targets to 20GW by 2040 and at least 37GW by 2050.

2. *What challenges are faced by the FLOW industry in developing FLOW projects in Ireland (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

The challenges faced by the FLOW industry in developing FLOW projects in Ireland include:

- **Procurement/market barriers.** While there are several FLOW projects in the pipeline, they are not anticipated to be operational until after 2030. This delay is due primarily to existing market obstacles such as competition for grid capacity, planning permission periods and the still-evolving nature of this technology which comes with high capital costs in Ireland.[61]
- **Inadequate infrastructure.** Current port facilities in Ireland fall short of the necessary standards to manage FLOW operations. Significant political backing at national, regional and EU levels is required to upgrade these ports.[62] As it stands, Belfast Harbour is the sole deepwater port in a position to assist with FLOW turbine construction. This underlines the critical requirement for additional port development, which would subsequently enhance capacity for transporting wind-generated electricity for distribution to other markets.[63]

60. Floating Offshore Wind Centre of Excellence International Market Opportunities Summary Report May 2022, p 31.
61. 'Harnessing our potential – Investment and jobs in Ireland's offshore wind industry' (Carbon Trust, March 2020) <https://windenergyireland.com/images/files/final-harnessing-our-potential-report-may-2020.pdf> accessed 11 December 2023.
62. 'Floating offshore wind energy - A policy blueprint for Europe' <https://windeurope.org/wp-content/uploads/files/policy/position-papers/Floating-offshore-wind-energy-a-policy-blueprint-for-Europe.pdf> accessed 11 December 2023.
63. Stephen Collins, 'Political determination to develop offshore wind platforms has been shamefully lacking' (Irish Times, 10 March 2023) <www.irishtimes.com/opinion/2023/03/10/stephen-collins-political-determination-to-develop-offshore-wind-platforms-has-been-shamefully-lacking/> accessed 11 December 2023.

- **Grid connection access.** Substantial obstacles exist when it comes to securing market access and setting up distribution pathways for FLOW projects (the optimal sites for FLOW are located off the less populous west coast). Additional resources are essential to establish grid reinforcements and develop new grid infrastructure that can facilitate the connection of FLOW energy.[64]

3. *Is there a World Bank Offshore Wind Roadmap for Ireland or any announced plans by the government of Ireland such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   There is no specific World Bank Offshore Wind Roadmap for Ireland.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Ireland.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

   Please see Question 6.

b. *Is there a specific legal/regulatory regime for FLOW projects in Ireland, as opposed to broader offshore wind or renewables projects in general?*

   The main piece of legislation governing FLOW (or any offshore wind) projects in Ireland is the Maritime Area Planning Act 2021 (**MAPA**) which contains a new permitting regime for planning and seabed rights and provides for the establishment of the Maritime Area Regulatory Authority (**MARA**) which is responsible for, amongst other things, the issuance of seabed rights permits.

   The preferred route to market for renewable energy projects in Ireland has been through government-supported subsidy schemes awarded through open auctions. The most recent template for onshore projects, called the Renewable Energy Support Scheme (**RESS**) has been to adopt the CfD template commonly used in European markets. Essentially, this involves a project bidding in a strike price and a market mechanism (funded through a public services obligations (**PSO**) levy on electricity bills) pays the project where revenues fall below the strike price and has the project reimburse the PSO where revenues exceed the strike price.

   The RESS scheme has been adapted to include offshore renewable energy support schemes (**ORESS**) and the first ORESS auction was launched in 2022.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Ireland intended to enable fast-track development of floating wind projects and technologies?*

   Whilst there are no areas designated for the "fast tracking" of FLOW projects in Ireland, the MAPA provides for the creation of Designated Maritime Area Plans which will determine the area(s) in which ORE projects can be developed. The first of these plans proposes an offshore location off the south coast of Ireland and will be finalised through a stakeholder engagement process. This process supports Ireland's move towards a plan-led development of offshore industry.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

   There is no specific legislation relating to these activities for FLOW projects.

64. Elaine Traynor, 'The potential for floating offshore wind in Ireland' (Energy Ireland, 29 April 2021) <www.energyireland.ie/the-potential-for-floating-offshore-wind-in-ireland/> accessed 11 December 2023.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Ireland?*

The following public bodies are responsible for the regulation of FLOW in Ireland:

Key regulatory bodies	Role
Department of Energy, Climate and Communications (**DECC**)	Designates areas for development and oversees the permitting process for projects.
Minister for the Environment, Climate and Communications	As the head of the DECC, works closely with regulatory bodies and stakeholders.
The Commission for Regulation of Utilities (**CRU**)	Independent regulatory body responsible for regulating Ireland's energy and water. This includes: • implementing policy and regulating the energy market; • ensuring electricity generated from wind is integrated; • coordinating with DECC, EirGrid (the state-owned electric power transmission operator) and other stakeholders on the interlinked processes for consent, auctions and grid connection for offshore generation; and • regulating network and market operator licence holders in Ireland, including generation licensees as well as the system operator licensees such as EirGrid and the Electricity Supply Board.
The Minister for Housing, Local Government and Heritage	Engages with local stakeholders and groups responsible for marine and coastal management.
MARA	Responsible for managing and regulating activities within Ireland's maritime area and administering the licensing and permitting process for seabed area rights.
An Bord Pleanála (the **Board**)	Independent statutory body responsible for considering planning applications and appeals for strategic infrastructure developments, and ensuring compliance with relevant regulations and permits.
EirGrid plc	State-owned electric power transmission system operator in Ireland, with a role in facilitating the integration of renewable energy into the national electricity grid, and planning and managing the development of the electricity grid.
ESB Networks	Part of the ESB Group licensed to build, operate and maintain, and develop the electricity network. Its role includes facilitating grid connections and working closely with regulatory bodies to ensure compliance with technical and safety standards.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Ireland (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

Rights to occupy and use space in the Irish maritime area for marine-based projects have been streamlined and are now regulated by the MAPA. MAPA overhauled the existing foreshore leasing regime from the Irish Foreshore Act 1933 (as amended) and created two new forms of seabed leasing rights:

- **Maritime Area Consent (MAC).** Allows its holder to occupy (on an exclusive or non-exclusive basis) part of the maritime area to carry out a specified activity (in the context of an offshore wind project, this covers the project life cycle from construction, operation to decommissioning).
- **Licence.** Allows its holder to carry out activities with limited impact on the environment (in the context of an offshore wind project, this would cover pre-construction surveying work on a seabed).

The MAPA also sets out a bespoke planning regime for specified categories of maritime-based developments. This means that offshore renewable projects now require planning permission under the Planning and Development Act 2000 and may require the carrying out of an EIA. The Board is the body responsible for the granting of planning permissions for offshore renewable projects under the new regime. As part of the pre-application process, applicants may consult with the Board regarding the scope and level of detail required to be submitted with their applications.

Additionally, an environmental licence is required under the Environmental Protection Agency Act 1992, as amended. This is issued by the Environmental Protection Agency and is required for any activity with the potential to impact the environment.

Additional licences may be required, depending on the project. A project located in a Special Project Area or Special Area of Conservation may require approval from the National Parks and Wildlife Service under the Wildlife Acts 1976 to 2018. Where a project requires an installation of underwater cables or other infrastructure, additional permissions may be required from the Commission for Communication Regulation under the Communications Regulation Act 2002.

b. *Are consents required at a national level or state/municipal level?*

Consents are required at both a national level and at a state/municipal level.

- **National level.** FLOW projects require a MAC, planning permission and environmental permits etc. which are issued by national bodies.
- **State/municipal level.** Additional consents may be required depending on the location of the project (in particular the onshore works) and the requirements of relevant local authorities – see comments above in relation to planning permissions, environmental licences and other permissions.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

No. Please refer to the description of the ORESS support scheme which is the primary commercial support provided to projects.

8. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Ireland? Are these specific to FLOW, to offshore wind or renewables in general?*

The primary commercial support scheme for renewable energy in Ireland is the RESS. This provides financial support through a CfD for power generated by new renewable projects. The RESS aims to enact a market-liberalised mechanism, where the cost will be determined by a competitive bidding process. It includes specific auctions dedicated solely to offshore projects, ensuring they do not compete with onshore projects in the ORESS auctions.

9. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

   The allocation methodology used for the different stages of the ORESS scheme are set out here.

   The cost of the ORESS programme is primarily funded through the PSO levy, which is a charge on electricity bills in Ireland. This is collected by electricity suppliers from their customers. The amount of the PSO levy is set each year by the CRU.

10. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

    ORESS (discussed above) is a national initiative in Ireland.

    The terms of the first ORESS auction entitled winning bidders to:

    - receive support payments from the PSO, to the extent market revenues[65] fall below the ORESS strike price; and
    - receive Unrealised Available Energy Compensation for curtailment during periods where there is excess renewable energy on the grid.

    ORESS strike prices are subject to indexation for the construction costs and limited OpEx indexation.

11. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Ireland (e.g. is there a state owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    The wholesale electricity market in Ireland is liberalised. Generators are free to enter contracts for physical supply with utilities, with hedging arrangements through the ORESS CfDs or corporate PPAs.

12. *Are there any restrictions on foreign companies participating in FLOW projects in Ireland? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Ireland?*

    There are no generally applicable restrictions on foreign companies participating in FLOW projects in Ireland, nor is there a requirement for domestic ownership.

    A proposed piece of legislation, the Screening of Third Country Transactions Bill 2022, is expected to be passed into law which, alongside the EU's Foreign Direct Investment Regulation (Regulation (EU) 2019/452), will establish a regime in Ireland for screening foreign investment, which is defined in the law as meaning any investor based or controlled outside the EU, EEA or Switzerland. For example, US or UK investors would fall within the remit of the proposed law. Certain transactions with foreign investors may be notifiable and the government has the power to prohibit transactions on national security grounds, or impose conditions on the transaction. Expressly falling within the proposed law are "critical infrastructure, whether physical or virtual, including energy..."

13. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Ireland)?*

    DECC has published a framework for the country's future offshore electricity transmission system. The framework provides for a phased transition from a decentralised offshore transmission system model to a centralised model over the course of this decade, with the phases aligned with the country's three scheduled ORESS auctions. Within this transition,

65. The market reference price is the hourly day-ahead market price.

the ownership of offshore transmission system assets will be assigned to EirGrid, Ireland's existing electricity transmission system operator.

Transmission system assets to be owned by EirGrid will include the high-voltage transmission circuits and associated onshore and offshore transmission infrastructure connecting offshore generation sites to the existing onshore transmission system, as well as any necessary offshore reinforcements to accommodate electricity flows.[66]

14. *Are there any requirements in Ireland for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    No.

15. *Are there any local content requirements in Ireland in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    There are no local content requirements in the ORESS Terms and Conditions for the construction of offshore wind projects, though applicants are required to provide details regarding their supply chain contracting strategy in their bid submission.

    However, successful applicants are required to ensure that the operation and maintenance services for their projects will be primarily provided by a port in Ireland or Northern Ireland.

    The ORESS Terms and Conditions also require successful projects to establish an ORESS 1 Community Benefit Fund Committee which shall ensure the successful operation and delivery of Community Benefit Funds for its relevant ORESS 1 Project and community participation in fund decision-making for the allocation of funds in the relevant Community Benefit Fund for the onshore RESS competitions under the onshore RESS.

16. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    Yes. Bidders into the ORESS auction are required to submit a bid bond and winning developers are required to post performance security under the terms of the ORESS Implementation Agreement with the Minister for the Environment, Climate and Communications.

17. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    No specific regulatory incentives have yet been implemented regarding FLOW but may possibly be announced in the near future.

    ORESS is intended to provide an incentive for the development of offshore wind projects through removing market price risk in respect of the electricity generated.

18. *Please summarise any other relevant points in relation to the development of FLOW projects in Ireland. For example, is there an existing offshore oil and gas industry in Ireland given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    There is an existing (though diminishing) offshore oil and gas industry in Ireland – its supply chain is expected to participate in the market and the development of an Irish FLOW industry. However, University College Dublin concedes that "existing ports are not sufficient to handle FLOW today and converting existing ports will require significant political support at national, regional and EU level".[67] Similar sentiments are echoed by GWEC although, as it says, nearby ports and supply chains in other countries could be used and key stakeholders recognise this.[68] There are also long- and short-term plans to modernise the transmission grid in Ireland.[69] GWEC has noted that the Northern Atlantic Ocean bordering

66. Adrijana Buljan, 'Irish Government Puts EirGrid in Charge of Offshore Grid Assets' (Offshorewind.biz, 13 May 2021) <www.offshorewind.biz/2021/05/13/irish-government-puts-eirgrid-in-charge-of-offshore-grid-assets/#:~:text=Transmission%20system%20assets%20to%20be,necessary%20offshore%20reinforcements%20to%20accommodate> accessed 11 December 2023.
67. University College Dublin Energy Institute, 'Floating Offshore Wind – an Opportunity for Ireland', p 3.
68. Global Wind Energy Council Report, 'Offshore Wind: A Global Opportunity', p 50.
69. Global Wind Energy Council Report,'Offshore Wind: A Global Opportunity', p 50.

Ireland provides optimal conditions for FLOW, with water depths ranging from 100-150 metres and wind speeds between 10 and 11m/s. With four viable locations off the Irish coast, GWEC has distinguished it as a premier market for FLOW, indicating a promising future for this renewable energy sector in Ireland.[70]

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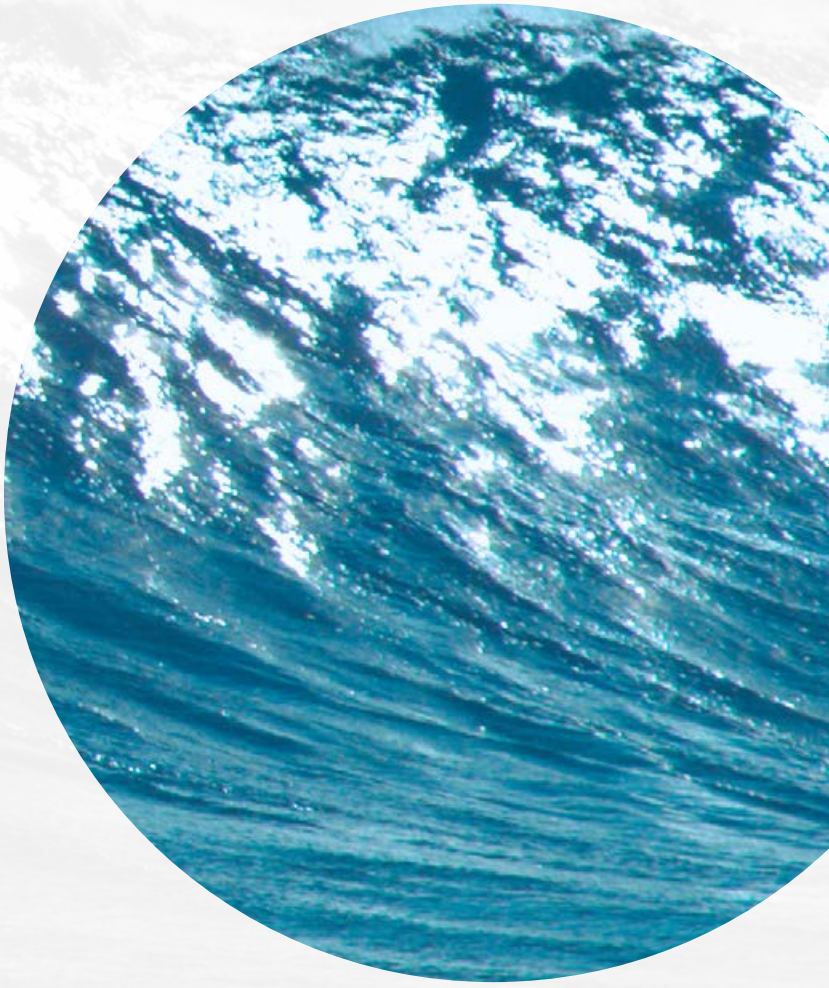

70. Global Wind Energy Council Report, 'Offshore Wind: A Global Opportunity', p 27.

Italy

1 *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Italy (such as announced procurement goals and awards of individual projects or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Italy?*

There are currently no operational FLOW plants in Italy. The only offshore wind park in operation is a 20MW park located near the coast of Taranto (Apulia) which is a bottom-fixed project.

The currently active but outdated National Integrated Energy and Climate Plan (**PNIEC**) has set an extremely low target of only 900MW of offshore wind energy to be achieved by 2030. However, the PNIEC was created at a time when floating technology was not yet sufficiently advanced, thus there was limited incentive to increase renewable energy capacity and reduce the use of fossil fuels. It is now widely recognised that FLOW is the most suitable offshore technology in Italy, due to its relatively deep seabed and lack of natural limitations compared to onshore wind.

The new draft PNIEC that the Italian government has submitted to the European Commission provides for an increased target of 2.1GW. The draft plan, now being examined by EU bodies, will be the subject of discussions within the Italian Parliament and the various regions of Italy, and approval of the final text should be concluded by June 2024.

The new (proposed) target of 2.1GW still appears to be very low compared to the country's potential which expert institutions such as the *Politecnico di Torino* estimate to be 200GW. This is also modest compared to the Energy Agreement among EU countries which has set the cumulative EU offshore goals at 109-112GW by 2030, 215-248GW by 2040 and 281-350GW by 2050.[71] This non-binding agreement was concluded in January 2023 between EU countries as part of the EU Strategy for Offshore Renewable Energy and is aimed at increasing the targets set by the European Commission in November 2020. The EU Strategy for Offshore Renewable Energy also defined the maritime installation basins and included Italy in both newly drawn-up Mediterranean basins.

Project developers anticipated both the technological and political developments but certainly expected significantly higher targets than those set out in the new draft PNIEC. Despite the incomplete regulatory framework, in the last two years there has been significant development, and an enormous number of requests for grid connection solutions have been filed with the transmission grid operator TERNA. TERNA noted that, as of 31 October 2022, 95GW of connection requests for offshore wind projects had been submitted, with 80% of them located in southern Italy and its islands. While the government has submitted the new, very modest target of 2.1GW to the European Commission, TERNA has been drawing up plans for 22GW of offshore wind connections and developing a significant upgrade of onshore infrastructure. TERNA aims to invest around €4 billion in southern Italy over the next five years, and €18 billion nationwide over the next 10 years. Moreover, according to a recent Renewable UK report, Italy has a FLOW project pipeline of 40GW. Only one 90MW project has started an EIA procedure. Most of them have started a preliminary procedure before the Ministry of Environment and Energy Security (*Ministero dell'Ambiente e della Sicurezza Energetica* (**MASE**)) in order to better understand the planning documents to be submitted during the EIA procedure and the next steps to take to obtain the required permits.

71. Directorate-General for Energy, 'Member States agree new ambition for expanding offshore renewable energy' (European Commission, Energy, 19 January 2023) <https://energy.ec.europa.eu/news/member-states-agree-new-ambition-expanding-offshore-renewable-energy-2023-01-19_en> accessed 11 December 2023.

The government published a draft market framework in March 2023, which includes price support mechanisms and auctions to be held between 2023 and 2026, including for offshore wind power. Italy plans to implement a CfD auction model fixing revenues at an agreed strike price. The draft requires developers to have completed environmental permitting, in order to participate in the auction. Obtaining the permit is therefore key and the EU has requested that member states speed up the permitting process of large-scale renewable energy projects. The draft regulation proposed a price cap of €165/MWh for FLOW projects, but industry group *L'Associazione nazionale energia del vento* has suggested that a higher price of €190/MWh will be needed for smaller projects. This potential cost from either price point explains why the government exercises caution when establishing ambitious offshore wind targets.

In contrast to the targets put forward by the government, developers have shown much more ambition in the Italian FLOW sector. Italian developer Renexia aims to build the 1GW Med Wind floating wind farm in Sicily by 2025. A consortium (including Eni and Copenhagen Infrastructure Partners (**CIP**)) is developing two projects with a combined capacity of 750MW offshore Sicily and Sardinia. Italian group Falck Renewables and BlueFloat Energy also entered into a partnership to develop six projects for almost 6GW of capacity in Sardinia, Puglia and Calabria.

Additionally, according to information and drafts circulated, the Italian government, with the adoption of an upcoming decree on energy development, will allocate resources for the construction of two ports in southern Italy that will host yards equipped to build FLOW platforms.

2 *What challenges are faced by the FLOW industry in developing FLOW projects in Italy (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

- **Authorisation procedures.** Similar to other European countries, the authorisation procedures are the main obstacle to the development of FLOW projects. However, in recent years, governments have undertaken to simplify the authorisation framework. With regards to offshore facilities, under Legislative Decree No. 199/2021, the state property concession (*concessione demaniale*) by the maritime authority is no longer required to initiate the procedure. Instead, it will be issued within the same permitting procedure.

  In order to achieve the goals agreed at EU level (which are to be implemented in Italy by the PNIEC), a more simplified set of procedures is desirable.

- **Inadequate infrastructure.** Another constraint is the lack of adequate infrastructure in ports. As reported by various operators, the infrastructure must be adapted to the needs of the industry. Such operators also highlighted the lack of an adequate supply chain to meet the needs of the industry. In this respect, it must be considered that the Italian government will adopt a Decree on Energy Development in Italy (*Decreto Energia*). This Decree will include specific provisions on port infrastructure for the development of offshore wind plants. In particular, the latest draft states that, within six months of the Decree's entry into force, two ports in southern Italy will be identified where shipyards will be installed to build the floating wind platforms and related infrastructure. For this purpose, financial resources of €80 million for the year 2024, €170 million for the year 2025 and €170 million for the year 2026 will be allocated to MASE. These funds should be used for investments in shipbuilding for the production and assembly of floating platforms, and the development of an offshore wind farm designed to produce energy serving one of the identified areas.

- **NIMBY.** The NIMBY ("not in my backyard") phenomenon may also create issues in the development of projects. Multiple local associations have been formed in recent years to prevent the creation of projects in their geographical areas, as they are considered to be against the local interest. This phenomenon also has relevance to FLOW projects. Indeed, in particular

at the local level, citizens associations and even political parties are working to prevent permits for FLOW projects from being granted, as they denounce the negative effects on the protection of marine fauna and flora, landscape values and activities such as fishing conducted by local fishermen. Therefore, society must be involved in the process of reaching agreements on the possible benefits to the area, as well as the wider benefits of renewable energy production.

3 *Is there a World Bank Offshore Wind Roadmap for Italy or any announced plans by the government of Italy such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

There is no roadmap for Italy by the World Bank and no specific targets for FLOW. As stated above, the current PNIEC sets a target of 900MW by 2030 and the new draft PNIEC proposed to the European Commission in June 2023 increased this to only 2.1GW.

However, the GWEC has published a map of the offshore wind technical potential in Italy and identified a potential of 183GW for floating and 6GW for fixed installations, which align with the *Politecnico di Torino's* estimate of 200GW. Market operators are lobbying to increase the target from 2.1GW to 20GW by 2050.

4 *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Italy.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

A concession of the designated maritime state property area is required. Under Article 36 of the Navigation Code, this must be issued by:

- the Ministry of Transport for concessions lasting more than 15 years; or
- the competent Maritime Directorate for concessions lasting more than four years and less than 15 years. In order to obtain such concession, the proposer shall apply directly to the abovementioned public bodies.

Article 12 of Legislative Decree No. 387/2003 governing the Single Authorisation, as amended by Legislative Decree No. 199/2021, also states that this consent must be issued within the Single Authorisation procedure referred to in Question 6(b).

b. *Is there a specific legal/regulatory regime for FLOW projects in Italy, as opposed to broader offshore wind or renewables projects in general?*

The permitting procedure is the same for floating and bottom-fixed offshore wind farms. However, unlike the procedure for the majority of renewable plant projects, the procedure for offshore wind farms is entirely at a national level.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Italy intended to enable fast-track development of floating wind projects and technologies?*

Article 23 of Legislative Decree No. 199/2021 states that areas identified by the Maritime Space Management Plan (**PGSM**) pursuant to Article 5, paragraph 1, letter (c), of Legislative Decree No. 201 of 17 October 2016 and the Prime Ministerial Decree of 1 December 2017, containing the "Approval of the guidelines containing the addresses and criteria for the preparation of the Maritime Space Management Plans", are suitable for the installation of offshore energy generation plants.

Even before the adoption of the PGSM, the following areas have been considered as suitable:

- disused oil platforms, including areas within two nautical miles from each platform, except as provided for in the Minister of Economic Development's Ministerial Decree of 15 February 2019;
- ports, for wind power plants of up to 100MW, subject to the adoption of a variant of the Port Master Plan (*piano regolatore portuale*) (if relevant) within six months of the application.

The Ministry of Transport launched a public consultation for the adoption of the PGSM in September 2022, but it has not yet been adopted.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and*

assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?

Pursuant to Article 68 of the Navigation Code, activities within ports and the maritime state property are subject to the supervision of the Harbour Master. After consultations with the trade unions, the head of the district may require the activities to be registered in special registers and may impose other limitations.

The regulation of port activities is contained in Law 84/1994, as last amended by Legislative Decree No. 199/2021. Port authorities must contribute to the development of the PGSM and adopt planning tools aimed at the development of port infrastructure for renewables (including FLOW plants). There are no exemptions provided by law.

There are no specific limitations for foreign ownership in the development of offshore wind and FLOW.

5 *Which government authorities/public bodies are responsible for the regulation of FLOW in Italy?*

In addition to the legislative authorities, the following bodies also regulate FLOW in Italy:

Body/authority	Role
MASE	Responsible for the authorisation procedure and EIAs.
The Energy, Grid and Environment Regulatory Authority	Governs grid connection profiles.
Ministry of Economic Development	Regulates aspects related to incentives awarded for the production of renewable energy, if provided by law.

6 *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Italy (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

No. There are no separate authorisations other than those required for standard offshore wind farms.

A concession of the maritime state property area is still required.

The environmental permit is also required for the development, construction and operation of FLOW projects. It is issued by MASE after the EIA procedure pursuant to Legislative Decree No. 152/2006.

b. *Are consents required at a national level or state/municipal level?*

The authorisation procedure is defined at national level and carried out under the direction of MASE. MASE issues the Single Authorisation pursuant to Article 12 of Legislative Decree No. 387/2003, after consulting the Ministry of Infrastructure and Sustainable Mobility and the Ministry of Agricultural Policies.

Both national and regional administrations are involved in the permitting process.

MASE also leads the EIA procedure. It is carried out at a national level, as offshore wind power plants are included in Annex II of the Environmental Code, for which a national EIA is required.

The Single Authorisation issued by MASE covers all the connection works both offshore and onshore, including the onshore cable and substation up to the connection point with the electricity grid.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

An annual fee for concession of the maritime state property area must be paid, under Article 16 of Presidential Decree No. 328/1952. The fee is defined each year by a ministerial decree that considers the price indices set out by the National Institute of Statistics. No support schemes are currently in place.

7 *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Italy? Are these specific to FLOW, to offshore wind or renewables in general?*

Legislative Decree No. 199/2021 states that a special ministerial decree must be adopted to define the incentive measures for renewable energy projects (**FER 2**). Such incentives could become a significant driver for the development of the plants. The draft of this decree, which was initially expected to be issued in Q3 2023, contained plans for auctions for FLOW totalling 5GW between 2022 and 2026. These auctions would grant subsidies as CfDs over a 25-year period. The first auction would have an auction price cap of €165/MWh. So far, however, the draft decree is still pending and it is uncertain when the final decree will be issued.

8 *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among*

pre-qualified applicants, direct purchase or negotiated purchase?).

The Italian National Recovery and Resilience Plan (**PNRR**) included specific investment to support innovative developments of ORE production systems, to generate at least 200MW of total installed capacity by 2026. FLOW power plants were included in this figure. MASE launched a public consultation in August 2022 to allocate €675 million under the PNRR. Only fully permitted projects are able to apply for these grants by September 2023.

As of today, no FLOW power plants have been authorised and the government has recognised that there would be an inadequate number of projects benefiting from the grants. As a result, the Italian government, on 7 August 2023, submitted to the European Commission an official proposal to amend the PNRR and excluded this type of investment from those envisaged it.

9 *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

No support schemes applicable to FLOW projects are currently in place. The abovementioned FER 2 decree, if and when it enters into force, would be a support scheme at a national level for all renewable energy projects.

10 *What is the revenue structure/offtake arrangement proposed for FLOW projects in Italy (e.g. is there a state owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

There are no state-owned or mandated electricity offtakers for offshore wind plants in Italy.

Energy can be freely sold to third parties at rates established under written contracts. There are no specific regulations governing offtake restrictions under Italian law and offtake contracts do not need to be approved by any regulator.

11 *Are there any restrictions on foreign companies participating in FLOW projects in Italy? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Italy?*

There are no specific limitations on foreign ownership in the offshore wind sector. General limitations to foreign investments may still apply, such as reciprocity rules or golden power approvals, which may be required since the energy sector is considered a strategic sector by Italian regulation on foreign direct investments (**FDI**). According to Italian regulation, the government has the power to limit or stop (i) FDIs and (ii) corporate transactions involving Italian strategic assets. For as long as it remains unclear whether FLOW projects are subject to the golden power regulation, it may be advisable for foreign investors to carry out the so-called pre-notification procedure (pre-notifica) pursuant to Prime Minister Decree No.133/2022 in order to ascertain whether or not the investment falls within FDI regulation.

12 *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Italy)?*

The owner and operator of the transmission infrastructure in Italy is TERNA, which is a private-law corporation that exercises monopolistic functions. It governs all facilities that generate electricity, including FLOW plants. A permit from MASE is also required for grid connection works. The applicant can autonomously carry out the authorisation procedure or delegate it to TERNA. The permit is issued in the context of the aforementioned Single Authorisation procedure. The works can be constructed either by TERNA or the applicant, which must subsequently transfer them to TERNA free of charge.

13 *Are there any requirements in Italy for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

There are no requirements for FLOW platforms to be registered in any local ship or marine structure register. However, Legislative Decree No. 457/1997 requires registration of shipping servicing offshore platforms in the international shipping register, following authorisation from the Ministry of Transport.

Wind turbines must comply with the relevant European legislation, in particular Directive 2004/108 on electromagnetic compatibility, Directives 95/2006 and 42/2006, and Regulation 305/2011. They must be subject to the CE marking procedure before being put into service.

The relevant technical regulation in Italy is CT 88 "Wind Turbine Generating Systems" of Comitato Elettrotecnico Italiano (CEI).

14 *Are there any local content requirements in Italy in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

There are no specific legal provisions that impose requirements in this context. Any compensation for local communities is decided during the authorisation procedure, in which local authority representatives participate.

15 *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

Italian law does not provide for such requirements, as there are currently no support schemes in place for offshore wind power plants. Once the support schemes are enacted, we expect them to include a requirement for the provision of security for the effective construction and completion of offshore wind farms.

16 *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

Legislative Decree No. 36/2022 grants subsidies on renewable electricity used for the production of green hydrogen. The implementation of this regulation was delegated by a Ministerial Decree adopted on 21 September 2022 by the Ministry of Ecological Transition (now MASE). These benefits, which may be cumulated with other incentives, consist of an exemption from payment of part of the general system charges for renewable electricity used to power green hydrogen production plants.

The green hydrogen production plants must be connected to the renewable electricity production plants through a grid with compulsory connection to third parties, or use electricity produced by renewable plants directly connected to the electrolyser (i.e. by a private wire), pursuant to Article 4 of the Ministerial Decree of 21 September 2022.

17 *Please summarise any other relevant points in relation to the development of FLOW projects in Italy. For example, is there an existing offshore oil and gas industry in Italy given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

The Italian framework for the development of FLOW energy is still incomplete and is yet to be developed. The complexity of the authorisation procedures and the lack of incentivising policies are the main obstacles to the growth of the sector.

However, submissions to MASE to obtain project authorisation are demonstrating growing interest from market players, such as the joint venture between Eni and CIP to develop FLOW projects in Italy mentioned in Question 1. European renewable energy developer Galileo and Hope Group have also formed a joint venture to develop a 1,100MW FLOW project in Italy's Adriatic Sea.

Despite the careful and measured moves of the Italian government, utilities, investment funds and developers appear to anticipate significant development in this sector. They are investing in this potential, trusting that the government will support these advancements.

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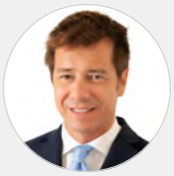

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Kenya

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Kenya (such as announced procurement goals and awards of individual projects, or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Kenya?*

   There are currently no proposed FLOW developments in Kenya (whether in terms of any public announcements establishing a national role for offshore wind in general or FLOW in particular or any policies or laws intended to support such an objective) and no projected outlook for FLOW beyond 2030. However, see the response to Question 3 below.

2. *What challenges are faced by the FLOW industry in developing FLOW projects in Kenya (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   As indicated in Question 1 above, there are currently no FLOW/offshore wind projects in Kenya, however, FLOW projects in Kenya may encounter challenges similar to those faced by power projects in Kenya generally:

   - Lack of support from the community in project locations, e.g. rejection of the project which may result in conflict due to lack of community engagement, inadequate incentives and negative impacts on the environment and communal lifestyle.
   - Difficulties in obtaining land and wayleaves for onshore power infrastructure.
   - Inadequate technical capacity and skillset.
   - High upfront costs for wind power generation equipment.
   - High capital investment for transmission lines due to the distance between potential areas for development and the grid and load centres.
   - Insufficient data on the wind regime.
   - Inadequate local supply-chain to support FLOW deployment.
   - Inadequate standards for the wind energy industry due to the fast-changing nature of technologies.
   - Competing land uses (i.e. The absence of marine spatial planning leading to difficulties in addressing potential conflicting demands from various users of the same marine area. For instance, there could be competing interests among fishermen, navigation routes, or even conflicting land uses for onshore activities.)
   - Lack of port infrastructure suitable to support FLOW deployment .
   - The single buyer model whereby all power is sold to the Kenya Power and Lighting Company.
   - Lack of coordination among government entities and agencies.
   - Inadequate legal framework. In 2017, VR Holding AB's proposal to build a 600MW wind project in the Indian Ocean in Kenya was rejected by the government. VR Holding AB encountered challenges including an inadequate legal framework and insufficient market demand. Kenya's renewable energy framework provides only for small and medium-sized projects, thus the authorities directed VR Holding AB to construct a smaller capacity project.

3. *Is there a World Bank Offshore Wind Roadmap for Kenya or any announced plans by the government of Kenya, such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   The World Bank has published a map showing the offshore wind technical potential in Kenya, highlighting the regions of Kilifi, Malindi and Lamu as potential areas for FLOW farms.

   34GW has been identified in respect of floating technical potential and 9GW in relation to bottom-fixed technical potential.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Kenya.*

Legal regime

There are no laws specifically governing the development of FLOW or offshore wind projects in Kenya. General laws regulating the energy sector are applicable as follows:

The Constitution of Kenya, 2010	The legislation ensures sustainable exploitation, utilisation, management and conservation of the environment and natural resources. The state is also obligated to utilise the environment and natural resources for the benefit of the population.
The Energy Act, 2019	This consolidates existing laws relating to energy. It also provides for the National and County Government functions relevant to energy; the establishment, powers and functions of the energy sector entities; and promotes the use of renewable energy. The Act also establishes the Energy and Petroleum Regulatory Authority (**EPRA**).
The Environmental Management and Coordination Act, 1999	This establishes the National Environment Management Authority, which exercises general supervision and coordination over all environment-related matters. The authority is the principal instrument for the government to implement policies related to the environment.
The Maritime Zones Act, 1999	This consolidates legislation relating to the territorial waters and the continental shelf of Kenya. It establishes the boundaries of the EEZ and provides for the exploration, exploitation, conservation and management of resources from the maritime zones.
Sessional Paper No. 4 of 2006	This lays out the policy framework upon which cost-effective, affordable and high-quality energy services are made available to the domestic economy on a sustainable basis over the period 2004-2023.
The Feed-in-Tariffs Policy, 2012	This promotes the generation of electricity from renewable energy sources, by enabling power producers to sell electricity generated at a pre-determined tariff for a given period.
Public Procurement and Asset Disposal Act, 2005	This and related regulations govern the public procurement process in power projects by setting out the procedures for efficient public procurement and asset disposals by public entities.

Governance framework

The Ministry of Energy	The Ministry of Energy has the mandate to develop and implement policies for efficient operation and growth of Kenya's energy sector. It further sets strategic directions to facilitate growth of the sector, while also providing a long-term vision for the players in the sector.
EPRA	EPRA regulates the generation, importation, exportation, transmission, distribution, supply and use of electrical energy, including electricity generated by wind. It also has the power to issue, renew, modify, suspend or revoke licences and permits for all undertakings and activities in the energy sector. The Authority is established under the Ministry of Energy.
The Maritime Authority	The Authority is established under Section 3 of the Kenya Maritime Authority Act, 2006. The principal objects of the Authority are to regulate, coordinate and oversee maritime affairs.
The Energy and Petroleum Tribunal	The tribunal is established by the Energy Act. It has jurisdiction to hear and determine all matters referred to it that relate to the energy and petroleum sector, excluding criminal offences.
Rural Electrification and Renewable Energy Corporation	The tribunal has jurisdiction to decide on civil disputes between a licensee and a third party, or between licensees. It also has the power to grant equitable reliefs, including but not limited to injunctions, penalties, damages and specific performance.

The organisational framework and other players in the Kenyan energy sector

Kenya Electricity Transmission Company PLC (KETRACO)	KETRACO is a 100% government-owned corporation. Its mandate is to plan, design, construct, own, operate and maintain the high voltage electricity transmission grid and regional power interconnectors which form the backbone of the National Transmission Grid.
Kenya Electricity Generating Company (KenGen)	KenGen is the leading electric power generating company in East Africa. Its mandate is to generate electricity through the development, management and operation of power plants. KenGen manages and develops all of the public power electricity generating facilities. It sells electricity in bulk to Kenya Power and Lighting Company.
Kenya Power and Lighting Company (KPLC)	KPLC owns and operates most of the electricity transmission and distribution system in the country and sells electricity to consumers. Its mandate is to plan for sufficient electricity generation and transmission capacity to meet demand. It also builds and maintains the power distribution and transmission network and retail electricity to its customers. The government owns 50.1% of KPLC.

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

   There is currently no legal framework for the issuance of operational licences or seabed leases for FLOW or any other offshore wind farm.

   Land law in Kenya is governed by the Constitution of Kenya, the Land Act (2012) and the Land Registration Act (2012). Section 12(2)(c) of the Land Act (2012) prohibits the allocation of public territorial sea. However, the law permits reservation of public land located within marine waters in the territorial sea and the EEZ by the National Land Commission (the authority regulating land) for the public interest. Such reservation may be made following a request by the national government or county government, by an order in the Kenya Gazette. Whether or not it would be in the public interest for the NLC to lease any such public land for the purposes of the development of an offshore wind farm (including a FLOW project) would be entirely at the discretion of the NLC. As Kenya has not publicly announced any national role for offshore wind as part of its future energy mix or from a socio-economic perspective, it is unclear whether the allocation of seabed usage rights to an unsolicited FLOW project would be regarded as for the public interest.

b. *Is there a specific legal/regulatory regime for FLOW projects in Kenya, as opposed to broader offshore wind or renewables projects in general?*

   There is no legal or regulatory regime specific to offshore wind including FLOW projects in Kenya.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Kenya intended to enable fast-track development of floating wind projects and technologies?*

   There are no designated areas within the territorial sea or the EEZ for the development of offshore wind farms including FLOW projects.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

   There are no specific legal or regulatory regimes relating to access to ports and permitted activities within ports. However, the Kenya Ports Authority Act establishes the Kenya Ports Authority and delineates its functions and powers. Part X of the Act contains offences relating to port activities.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Kenya?*

   Please refer to our answer to question 4 (ii) as there is no dedicated authority or public body which specifically regulates FLOW in Kenya.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Kenya (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

Licence obtained from EPRA	A generation station is any station for generating electricity including any buildings and plants used for such purpose and the site thereof, but does not include any station for transforming (save for generator transformers), converting or distributing electrical energy. A generation licence authorises operation of the generating station or plant and connection to a distribution or transmission network in accordance with the provisions of the Energy Act (2019) (or the regulations made thereunder). All generation activities exceeding 1MW require a generation licence. A transmission system is a system, works, plant or equipment for the transmission of electricity, but does not include power plant or a distribution system. A transmission licence authorises a person to transmit electrical energy in the manner described in such document or instrument. Such licence may also entitle the licensee to carry out system operations of the grid. It is not clear how the generation and transmission elements of a FLOW project in Kenya would be regulated i.e. whether the project company would be permitted to hold both generation and transmission licences or whether it could build and commission both and then transfer the transmission assets to KETRACO or whether KETRACO would be required to build and commission the transmission assets from the outset despite having no subsea experience.
Licences/approvals obtained from the National Environment Management Authority	• The Environmental Impact Assessment Licence is issued once the authority is satisfied that the project will have no negative impacts on the environment. In order to be so satisfied, the National Environment Management Authority is likely to require extensive marine environmental surveys • Noise and/or vibration permit is to be obtained by any person who is likely to be involved in activities that emit noise or excessive vibrations beyond the permitted levels. • An annual licence is issued to own/operate a waste treatment or disposal site (if any) at the project site.
Permits and approvals obtained from the County Government	• Annual single business permits. • Fire clearance certificate. • Development permissions and building plans approvals.

Licences and approvals from the National Construction Authority	• Construction Workers and Supervisors Accreditation to ensure that all individuals undertaking various construction works are qualified, and to foster high professional standards and accountability. • Registration of contractors. Such licences and approvals will also be required for the construction of the port facilities and infrastructure where the FLOW components will be manufactured, assembled and integrated.
Water permit from the Water Resources Authority	The Authority is established under the Water Act (2016), which provides for the regulation, management and development of water resources, water and sewerage services. The water permit is required for: • any use of water from a water resource (excluding exemptions under Section 37 of the Act, which are not relevant for the proposed projects); • the discharge of a pollutant into any water resource; and • any other purpose in relation to a water resource. A water resource includes sea water and transboundary waters within the territorial jurisdiction of Kenya as defined in Section 2 of the Water Act,2016.
Other required approvals/licences	• Annual practising licence for persons undertaking engineering work. • Certification from the Kenya Bureau of Standards and Pre-Export Verification of Conformity Programme Inspection for goods and equipment imported into Kenya, issued at the port of origin, unless exempted. • Approval of the height of any structure from the Civil Aviation Authority, if the project is located adjacent to an airport or an airstrip. • Approval from the Civil Aviation Authority if the wind turbines interfere with civil radar.
Grid Connection Agreement	A connection agreement is entered into by a Kenya national transmission system operator or a transmission network service provider and a user. A power generation licence authorises the licensee to connect to a distribution or transmission network.

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

   There are no separate licences required for FLOW projects.

b. *Are consents required at a national level or state/municipal level?*

   Consents in the Kenyan power industry generally are required at both national and municipal levels.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

   The costs of licences are not recoverable under any subsidies or support schemes.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Kenya? Are these specific to FLOW, to offshore wind or renewables in general?*

   There are no financial incentives or support schemes specifically applicable to FLOW projects. There are however tax incentives for general investments that could apply to FLOW projects.

   - **Accelerated capital allowances.** Machinery used for the generation, transmission and distribution of electricity will benefit from the Investment Deduction, at the rate of 50% in the first year of use. This includes machinery used for generation, transmission and distribution of electricity.
   - **Withholding Tax (WHT).** Interest payments on loans from foreign sources for investing in the energy sector are exempt from WHT. Payments made to non-residents for services rendered under a Power Purchase Agreement (**PPA**) are also exempt from WHT.
   - **VAT.** Specialised equipment for the generation of wind energy may be exempted from VAT, subject to the opinion of the Cabinet Secretary responsible for energy-related matters.
   - **Import duties.** Specialised equipment for the generation of wind energy is exempt from import duties.
   - **Stamp duty.** The Stamp Duty Act exempts stamp duty for instruments executed on transactions involving loans from foreign sources in the infrastructure development sector.
   - **Industrial building deduction allowance.** This allowance is granted to an investor who incurs capital expenditure on an industrial building, at the rate of 10% of the cost (net of investment deduction, if any).
   - **Computer software.** An investor who incurs capital expenditure on the purchase of the right to use computer software, used for business purposes, is entitled to a straight-line deduction at the rate of 20% of the cost.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

   There are no government funding programmes in place.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   Fiscal incentives are available at the national level and administered by the Kenya Revenue Authority (KRA) on a self-assessment basis. The tax incentives are not adjustable to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer. They apply based on the actual investment cost incurred.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Kenya (e.g. is there a state-owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates*

from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?

There are no revenue structure/offtake arrangements proposed for FLOW projects in Kenya. KPLC (majority-owned by the government) is currently the electricity offtaker in Kenya.

Generally, for offtake agreements in Kenya, an independent power producer (IPP) must first express its interest by writing to the Cabinet Secretary of the Ministry of Energy, prior to obtaining necessary approvals for power production. The Ministry will then direct the IPP to negotiate a PPA with KPLC after reviewing its Expression of Interest.

Until September 2021, PPAs implemented a "take or pay" mechanism. Current PPAs are long-term agreements with a term of 20-30 years.

In September 2021, the former president Uhuru Kenyatta placed a moratorium on new PPAs in line with the recommendations of the Taskforce report on PPAs.

The Taskforce was created to review various aspects of the PPAs between KPLC and IPPs, with the aim of lowering costs of electricity for consumers.

On 28 February 2023, the Kenyan Cabinet lifted the moratorium on PPAs. The Cabinet further approved a framework for the engagement of IPPs in keeping with the Renewable Energy Auction Policy.

The policy applies to all solar and wind power projects, as well as other renewable energy projects with capacity greater than 20MW. The Ministry of Energy, through the Renewable Energy Auctions Committee, will be responsible for its implementation.

The auctions will be announced by the Ministry of Energy. They will involve a two-stage bidding process. The first will be the prequalification stage with a preliminary evaluation. The second stage will include a detailed technical and financial evaluation.

The Ministry of Energy, EPRA and KPLC are planning to develop new policies with regards to PPAs. Until the policies are fully developed, interested investors are advised to write to the Cabinet Secretary of the Ministry of Energy, expressing their interest in energy production.

11. *Are there any restrictions on foreign companies participating in FLOW projects in Kenya? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Kenya?*

    There are no restrictions specifically applicable to foreign companies involved in FLOW projects in Kenya. General requirements for foreign companies involved in businesses in Kenya are set out below:

    - A foreign company must either register a branch in Kenya or incorporate a subsidiary in Kenya, in order to carry out business in the country.
    - A foreign company which registers a branch in Kenya must have at least one local representative. The local representative will be responsible for all legal obligations of the company and is personally liable to a penalty for a contravention of, or failure to comply with, the Companies Act, 2015 if the court is satisfied that they should be so liable.
    - A foreign company which registers a branch in Kenya must maintain a registered office in Kenya to which all communications and notices may be addressed.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Kenya)?*

    One must obtain a transmission licence to provide transmission services.

    There are no restrictions on ownership or construction of transmission assets specifically applicable to offshore wind projects in Kenya.

    The construction of transmission assets or infrastructure which form part of the Kenya National Transmission System (**KNTS**) should comply with the requirements of the Kenya

National Transmission Grid Code (**KNTGC**). The KNTGC establishes the technical aspects of planning, connection, operation and use of the KNTS.

13. *Are there any requirements in Kenya for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    There are no such requirements.

14. *Are there any local content requirements in Kenya in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    There are no local requirements specifically applicable to FLOW. There are local content requirements under part IX of the Energy Act which apply to all participants of an undertaking under the Act. Players in the energy sector must submit an annual and long-term local content plan to EPRA for approval.

    The local content plan must consider:

    - services provided within the counties, and goods manufactured in the country, including whether the goods meet set quality standards;
    - availability of skilled and qualified Kenyans at all levels of the employment chain; and
    - adequate training of employees.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    Project developers are not required to provide any security or guarantee to KRA.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    There are no such regulatory incentives. There are no financial incentives specifically applicable to green hydrogen production or electrification of oil and gas platforms.

    The draft National Green Fiscal Incentives policy seeks to identify and prioritise the implementation of a coherent suite of green fiscal reforms which will allow the country to explore opportunities for a low emission development path, while also enhancing climate resilience and environmental sustainability. The government has undertaken to provide various fiscal incentives to private investors in the energy sector investing in the generation of electricity from green sources. It is likely that the output from offshore wind farms including FLOW projects, being renewable energy, would be regarded as qualifying for such fiscal incentives although this requires clarification as no offshore wind projects have been commissioned to date.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Kenya. For example, is there an existing offshore oil and gas industry in Kenya given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    There are currently no offshore mining activities of oil and gas in Kenya. There have been unsuccessful explorations of the Kenyan seabed in search of oil and gas in the past.

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Mexico

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Mexico (such as announced procurement goals and awards of individual projects, or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Mexico?*

   In 2013, Mexico published a constitutional energy reform plan which increased the participation of private companies in the generation and commercialisation of electricity, with the state maintaining control of the transmission, distribution and operation of the grid to guarantee open access to all permit holders and users.

   As part of the reform, the Electricity Industry Law and corresponding Regulations (jointly **LIE**) were enacted to regulate the sector. The Energy Transition Law (**ETL**) was also enacted to promote investments into renewable energy projects in Mexico and achieve the target goals of clean electricity generation. Clean electricity generation is expected to reach 35% by 2024, 39.9% by 2033 and 50% by 2050. This sets an intention to contribute, as a country, to the reduction of greenhouse gas emissions.

   Under the LIE and ETL, offshore wind projects are considered clean energy. Such projects would be eligible for several incentives, including: (a) a preferential tariff for energy transmission; (b) dispatch priority, which is currently under judicial review by the Supreme Court of Justice; and (c) a net metering scheme for small-scale residential and industrial projects, which offsets the cost of electricity used against the amount of energy contributed to the national grid. The state electricity utility (Comisión Federal de Electricidad or **CFE**) is evaluating a new methodology for calculating the consideration of such offsets but this should not impact large-scale projects.

   There are no current or proposed FLOW developments in Mexico. However, the current legislation covers the development of wind projects more generally and private companies may explore the field which may in itself contain inherent risks for early adopters.

2. *What challenges are faced by the offshore wind industry in developing FLOW projects in Mexico (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   - The main challenge is the lack of specific legislation, as LIE, ETL and other legislation (such as interconnection manuals) cover the development of wind projects more generally. Since 2018, the Energy Policy of Mexico has been issuing certain regulations and interpretations which could impact renewable energies, including FLOW projects.
   - Specific regulation for the FLOW industry will need to be harmonised along with other legal frameworks which cover maritime, ports and diverse local regulation. Permits and waivers may be required from authorities and third parties (such as port operators, offshore oil projects, etc.), which could increase the number of stakeholders involved in the development of such projects.
   - The projects would also require environmental and/or social impact studies.

3. *Is there a World Bank Offshore Wind Roadmap for Mexico or any announced plans by the government of Mexico, such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   The Energy Sector Management Assistance Programme, a global knowledge and technical

assistance programme administered by the World Bank, prepared an offshore wind technical potential map to show the technical potential for bottom-fixed (402GW) and FLOW (467GW) in Mexico, in terms of installed power capacity within 200km of the shoreline.[72]

The foregoing does not preclude that Mexico rejects the possibility of such collaboration with the World Bank.

In addition, the North American Development Bank, a bi-national financial institution established by the governments of the United States and Mexico, has financed onshore wind farms.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Mexico.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

Seabed leases are subject to federal permits issued by the Ministry of Environment and Natural Resources (**SEMARNAT**) and the Secretariat of the Navy (**SEMAR**).

b. *Is there a specific legal/regulatory regime for FLOW projects in Mexico, as opposed to broader offshore wind or renewables projects in general?*

There is no specific legal or regulatory regime for FLOW projects in Mexico. However, the projects may require additional permits than the ones required for onshore wind or other renewables projects.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Mexico intended to enable fast-track development of FLOW projects and technologies?*

There are no designated areas or zones for fast-track development of FLOW projects and technologies.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

Under the Law of Ports, the relevant port authority manages a port through a concession from the Ministry of Infrastructure, Communications and Transport (**SICT**). This concession may be partially assigned to a third party for a terminal or facility within the port. The port authority has a cap of 49% foreign investment, while the companies holding assignments of concessions do not have a cap (however, caps may be set by other activities).

A concession for building a terminal outside a port and an authorisation for marine works are also required.

72. 'Offshore Wind Technical Potential in Mexico' (World Bank Group, March 2020) <https://documents1.worldbank.org/curated/en/540571586840981675/pdf/Technical-Potential-for-Offshore-Wind-in-Mexico-Map.pdf> accessed 11 December 2023.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Mexico?*

The following authorities may be involved in an offshore project:

Element	Authority
Energy permits	Energy Regulatory Commission, which is the regulator for the electricity sector Ministry of Energy (SENER), which is the authority for social impact studies
Marine and port permits	• SICT, for port permits • Port authority, as applicable • SEMAR and SEMARNAT, for the use of seabed and beaches
Connecting to the grid	• Centre for Control of Energy (CENACE), the national grid independent operator
Overall strategy, policy and legislation	• SEMARNAT, for the environmental impact authorisation • Ministry of Economy (SE) and Ministry of Foreign Affairs, for foreign investment and permits related to real estate holdings on shoreline, as applicable • Tax Management Service, for import permits • Federal Economic Competition Commission if authorisation obligations may be trigged due to merger control or acquisition of assignments for port concessions, or co-investing through joint ventures for developing projects

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Mexico (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

As indicated above, the law and regulation on electricity covers the development of offshore wind projects. The environmental impact authorisation may also impose other conditions and requirements for the protection of the environment.

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

The legal framework on electricity does not differentiate between onshore and offshore projects for wind farms. Maritime and port regulation would also be relevant for FLOW projects.

b. *Are consents required at a national level or state/municipal level?*

Offshore infrastructure is subject to federal jurisdiction. Works for connecting the project to the grid or ancillary facilities may also require state or municipal permits.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

No special subsidies are applicable to offshore wind projects. However, the projects may apply for subsidies applicable to renewable energies more generally.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/*feed-in premiums*/ contracts for difference, tax incentives or other forms of subsidy) in Mexico? Are these specific to FLOW, to offshore wind or renewables in general?*

In addition to the tax incentives described below in Question 16, Mexico has further financial incentives:

- **Bank of Mexico's Energy Efficiency and Rural Finance Programme:** It uses financial and non-financial instruments to guarantee that the savings generated by the projects recover the costs involved. It validates suppliers and projects through a technology-certifying body, and provides a contract that establishes energy commitment, monitoring, reporting and validation of energy savings. The financial instruments include lines of credit and trust funds for rural development guarantees, and financial incentives for wind energy equipment; and
- **Trust Fund for the Development of Electric Energy (FIDE):** FIDE offers five programmes for the different energy demand sectors. They contain diverse financing possibilities, including competitive rates with the support of government institutions for Timely Payment Guarantees, and loans below market prices.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among*

   pre-qualified applicants, direct purchase or negotiated purchase?).

   Each finance programme has specific rules for the allocation of funding, which may be adapted according to the allocation of funds in the Federal Budget. Usually, allocation of funds is based on applications submitted, which are then authorised by the officers in charge of each programme.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   Support may not be available during times of negative wholesale electricity pricing. Schemes are available at the federal level and there may be specific support schemes available at the state/municipal level.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Mexico (e.g. is there a state-owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    As derived from the energy reform, the CFE and private suppliers can purchase power under market conditions and tenders from any generator. Likewise, users consuming more than 1MW may also buy directly from the wholesale electricity market (MEM) or a supplier. Under the LIE, there are no specific offtake arrangements proposed for FLOW projects in Mexico.

    Offtake arrangements between private companies (in most cases, the CFE) could also be negotiated. If the power is sold to the CFE or another supplier (such as for selling to homeowners, small industrial users and services, etc.) in a tender process, the terms are based on the tender format PPA and the price is based on the bidding offer, according to the specific rules of each tender.

    Excess generation which is not commercialised must be sold to the MEM.

11. *Are there any restrictions on foreign companies participating in FLOW projects in Mexico? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Mexico?*

    A Mexican company is required to hold certain permits (such as generation, etc.). However, there is no restriction on foreign investment, except for the case where a foreign company purchases land close to the shoreline, where it will only be permitted to hold the land through a bank trust.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Mexico)?*

    Yes. Under the LIE, only state utilities may own transmission assets for any generation project. Currently, transmission assets are the property of the CFE. Generally, interconnection studies determine the interconnection point for the project, so any infrastructure beyond the interconnection point will be considered a transmission asset. Regarding construction, the developer of the project must carry out an interconnection process in which CENACE requests the interconnection infrastructure and works involved. Construction may be completed by the CFE or a third party, but it must be validated by the CFE and CENACE, and assigned to the CFE. In addition, SENER has the authority to call for joint ventures, private public partnerships or similar models, as well as to sign contracts with private parties to develop infrastructure for transmission and distribution.

    The transmission operator is only obligated to construct assets that are included in the transmission program. Developers of generation projects have several options at their disposal: they can request to add projects to the National Grid's Development Program, collaborate with other generators to construct transmission assets collectively, or undertake the building process independently. In this context, if delays occur in the interconnection date, the law provides liquidated damages to the transmission operator. Furthermore, damages may be sought from the infrastructure builder. However, considering development and building risks associated with offshore wind farms, it would be important to thoroughly evaluate each project before determining any action that could proceed.

    As part of the interconnection process, the generator is also required to assign the transmission assets, as dictated by the interconnection studies, at no cost. This stipulation arises from the fact that transmission is a state-reserved activity. Developers typically account for this assignment as part of their interconnection costs.

13. *Are there any requirements in Mexico for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    While the Maritime Law does not explicitly mention offshore wind projects, the projects will be classified as "extraordinary specialisation", due to their technical characteristics. They may be registered at SEMAR, which will issue the registration certificate. This classification may impose another challenge as SEMAR is required to start a particular analysis of it.

14. *Are there any local content requirements in Mexico in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    There are no specific requirements for FLOW projects. However, the associations and contracts for transmission and distribution services called by SENER may require minimum national content.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    Yes. The permit holder must provide a guarantee to CENACE to secure the interconnection infrastructure and works. The guarantee is cancelled if construction is completed before the commercial operation date. A new guarantee is then provided to secure MEM's obligations regarding the operation. If the offtake arrangement is agreed during the tender process, a guarantee would be requested by the offtaker. Additional guarantees may also be requested by private purchasers, construction contractors or lenders.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

There are no particular incentives for FLOW. The incentives for standard renewable projects may still be eligible, such as:

- A 100% tax deduction on the purchase of machinery and equipment used in the generation of renewable sources or co-generation of efficient energy, under the Income Tax Law (**ITL**). Generation must be maintained for at least five years after the deduction has been granted.
- ITL authorises to set up a special profit account for investment in renewable energy projects, apart from the regular tax profit account, for persons engaged in the generation of energy from renewable sources or efficient electricity co-generation systems to keep tracking of such investment, and apply the benefits.
- In July 2023, the Mexican government announced the Unique Registry for Investment Projects, intended to offer comprehensive support for projects equal to or larger than US$100 million. The Registry is in the process of being implemented by SE and will coordinate other ministries and agencies that could be involved in a relevant project. Given the challenges of developing an offshore project, this Registry may coordinate the diverse proceedings and authorisations needed to achieve the commercial operation date.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Mexico. For example, is there an existing offshore oil and gas industry in Mexico given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

Following the energy reform, public and private developers have increased their share of electricity projects infrastructure. However, Mexico has been developing offshore projects for several decades, forming a skilled workforce for offshore wind which can cooperate with companies with experience in the development and operation of similar projects.

Mexico also has potential for offshore wind projects in several locations which can be developed to meet the increasing demand for the national grid.

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Morocco

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Morocco (such as announced procurement goals and awards of individual projects, or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Morocco?*

   In a report identifying potential FLOW markets, Morocco was selected as one of five countries with appropriate conditions to position itself as a global leader in the offshore wind industry by 2030.[73]

   However, with the exception of the recently announced award of €2 million grant funding from the European Investment Bank (**EIB**) to finance an offshore wind feasibility study to be performed by the Moroccan Agency for Sustainable Energy (**MASEN**) that could pave the way for an initial small-scale offshore wind pilot project, there are no current or proposed bottom-fixed offshore wind and FLOW projects under development in Morocco.

   Further, there is no specific legislation relating to offshore wind in general or FLOW in particular. In the absence of such legislation, it is likely that any proposed offshore wind or FLOW project would be developed under the existing renewable energy (**RE**) legislation and regulations.

   The RE strategy has facilitated the enactment of Law No. 13-09, which is geared towards accomplishing the objectives set by the RE strategy. This new legal framework is designed to guide and stimulate RE projects in Morocco. Furthermore, Law No. 40-19, which amends and supplements Law No. 13-09 on renewable energies, was officially published on 10 February 2023.

   Within Article 1 of Law No. 13-09, the law defines RE sources as all natural RE sources, with the exception of hydropower, unless the power generated is less than 30MW. This definition encompasses wind energy.

   Although there is no specific reference to offshore wind development projects, they remain under the scope of the aforementioned law which was introduced to ensure that RE development projects are regulated by an appropriate legal framework guaranteeing flexibility and guidance as part of the RE strategy objectives.

   This RE strategy which was accompanied by legislative and institutional reforms has already demonstrated its effectiveness and flexibility today, given the radical changes which have taken place since its inception. This demonstrates its considerable adaptability in incorporating offshore wind power, which is further bolstered by the Moroccan government's dedication to RE and the country's inherent potential for generating wind power.

2. *What challenges are faced by the offshore wind industry in developing FLOW projects in Morocco (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   It is too early to say whether there will be opposition to particular FLOW projects as most concerns are location-specific, such as environmental threats or concerns relating to competing use of the relevant maritime space/seabed area. However, as with FLOW projects in other countries, logistical hurdles such as the need to develop port infrastructure to facilitate the fabrication and assembly of floating foundations and the integration of turbines will be a major issue requiring significant investment, along with the development of local maritime services to facilitate the installation of

73. 'Floating-Offshore-Wind-A-Global-Opportunity' (Global Wind Energy Council, 2022) <https://gwec.net/wp-content/uploads/2022/03/GWEC-Report-Floating-Offshore-Wind-A-Global-Opportunity.pdf> accessed 11 December 2023.

FLOW mooring systems and the performance of operation and maintenance services and cable repairs.

Also, it is likely that FLOW projects will be located in the southern provinces of Morocco where wind conditions are most favourable. Unfortunately, this is where the onshore grid is least developed and investment to strengthen the grid infrastructure will be required to accommodate the output of such projects and to transport it to load centres in the northern provinces.

The installation of wind turbines, including for offshore wind and FLOW projects, also generates conflicts of use. The Dahir of 12 May 2003 relating to the protection and enhancement of the environment and Law No.13-09 provides that wind turbine projects must be subject to both an environmental and an energy impact study as, due to its nature, size and location, it may produce negative impacts on the biophysical and human environment.

Furthermore, Law No. 11-03 establishes a maritime environmental regime dedicated to the preservation and protection of marine areas and resources. This includes any factors that could potentially harm or damage fauna, flora, and the general maritime environment. Article 1 states that "the purpose of this law is to lay down the basic rules and general principles of national policy in the field of environmental protection and enhancement". This legislation also necessitates a study to evaluate the environmental impact of a project and its compatibility with requirements for environmental preservation, as outlined in Article 49.

As previously stated, although there is no specific references to offshore wind and FLOW projects, both fall under the legal framework of Law Nos. 13-09, 11-03 and the Dahir of 12 May 2003, relating to the protection and enhancement of the environment. For instance, Law No. 11-03 within Article 49 states that "when the implementation of developments, works or projects is likely, by virtue of their size or impact on the natural environment ... the project owner or applicant for authorization is required to carry out a study to assess the environmental impact of the project and its compatibility with environmental protection requirements". Moreover, Law No. 13-09 regulating RE projects also requires an authorisation by the governing body for the project to take place, which requires within Article 8 that "measures are to be taken to protect the environment, including a commitment to carry out an impact study". As such, such laws would apply to the maritime activities of construction and subsequent operation and decommissioning of offshore wind and FLOW projects as they fall within the scope of their legislative framework.

3. *Is there a World Bank Offshore Wind Roadmap for Morocco or any announced plans by the government of Morocco, such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   There is a World Bank roadmap for offshore wind in Morocco which has not been formally endorsed.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Morocco.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

   The seabed belongs to the maritime public domain of Morocco. The Dahir of 13 November 1918 relating to the temporary occupation of the public domain (Official Bulletin, 20 January 1919) will thus be applied.

   Any request for temporary occupation of any parcel of public property must be addressed to the General Director of Public Works.

   The seabed is classified as public domain (maritime public domain). Any use of this space requires a temporary occupation of public domain authorisation, in accordance with the Dahir of 13 November 1918, which pertains to the temporary usage of the public domain (Official Bulletin, 20 January 1919). This authorisation is granted in the form of a right.

   The abovementioned Dahir states that "there is no reason to refuse to communities or individuals, when they can be given without damage to the public interest, authorizations for temporary occupation of some of these parcels".

However, Article 3 of the same Dahir indicates that the General Director of Public Works will review applications and, if necessary, consult with relevant departments and authorities potentially affected by the occupation and the property department head prior to signing off on the authorization. This implies that such rights to occupy are generally not granted on a case-by-case basis as long as it is ensured that the occupation does not infringe upon public interest.Additionally, to carry out the works to which a right to occupy relates, the public or private legal entity or natural person who wishes to apply must demonstrate appropriate technical and financial capacity as evidenced by Article 8 of Law No. 13-09.

There is no apparent experience of competitive auctions for the award of such rights, as these rights may be awarded to any individual or entity who submits an application and provides all required information. Additionally, the construction, operation, capacity extension or modification of facilities producing electricity from RE sources with an installed capacity of 2MW or more is subject to the Ministry of Energy's authorisation. Competitive tender processes or direct negotiations cover the project itself and not the granting of operational licences or seabed leases.

Pursuant to Article 28 of Law No. 13-09, electricity generated from RE sources is exported via the national transmission grid. As such, an agreement must be made with the national transmission grid operator. The law further states that "where the capacity of the national transmission grid and interconnections is insufficient, the operator may be authorized to build and use direct transmission lines for his own use, under a concession agreement to be concluded with the national transmission grid operator".

b. *Is there a specific legal/regulatory regime for FLOW projects in Morocco, as opposed to broader offshore wind or renewables projects in general?*

In Moroccan law, there is no specific regime for offshore wind turbines. The laws regulate wind turbines in general without specifying whether they are onshore or offshore wind turbines.

Law No. 13-09 stipulates that RE projects using wind or solar energy with a cumulated power equal of 2MW or more need to be implemented in the geographical locations specified under Paragraph 8 of Article 1. These areas are proposed by the "body responsible for developing renewable energies, the local authorities concerned and the national electricity transmission system operator". These onshore zones have been defined by Ministerial Order No. 2657-11 of 19 September 2011. Although these onshore zones do not encompass offshore wind or FLOW projects, these projects are nonetheless protected under this law given its lack of explicit exclusions against them.

As stated above, offshore projects are a newly introduced concept in Morocco and are yet to be covered under a legal framework. As such, the current electricity transmission networks law does not cover or restrict offshore transmission cables.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Morocco intended to enable fast-track development of FLOW projects and technologies?*

There are no designated areas of the territorial sea or EEZ of Morocco intended specifically to enable fast-track development of floating wind projects and technologies.

The Law No. 71-18 on port policing states within Article 2 that the provisions of the law apply to all ports in the Kingdom of Morocco with the exception of areas and quays reserved for the Royal Navy, as well as military ports and related port facilities. This includes the presence of exclusion zones. However, the project will need to be within the geographical area defined by Morocco's economic exclusive zone and outside the aforementioned zones.

Following Ministerial Order No. 2657-11 of 19 September 2011, the Ministry of Energy identified six onshore zones that could accommodate wind power generation facilities for the production of electricity from wind energy sources with a maximum combined output of 2MW or more. These are

Tangier-Tétouan-Chefchaouen; Taza; El Jadida-Safi-Essaouira-Agadir; Midelt-Talsint; Tiznit-Guelmin; Tan-Tan-Tarfaya-Laâyoune-Boujourd Dakhla-Lagwira.

Morocco is yet to have any marine spatial planning regulations. The only current maritime legal framework is the Code de Commerce Maritime (26 May 1919). A Ministerial Order designating offshore zones for offshore wind and FLOW projects could be imminent given the high interest Morocco is attributing to renewable energies and the RE strategy it has adopted. This will allow for the possibility to accommodate another type of RE source which is becoming highly utilised around the world.

From an investment incentive point of view and in general, the Moroccan new Investment Charter (Law No. 03-22) updates all the investment aid and support systems, whether for Moroccan or foreign companies. To be eligible for the aid, the investor must create at least 150 permanent jobs (with no minimum amount invested) or invest at least MAD 50 million (€4.5 million) for a minimum of 50 permanent jobs created.

The law does not explicitly state whether the jobs created must be direct employees of the project developer. It only mentions the requirement to create stable jobs as part of the employment quota stated above. According to Article 1 of Decree No. 2-31-1 (16 February 2023), stable jobs are defined as "any job covered by an employment contract concluded for a period of at least eighteen (18) consecutive months that the investor creates directly during the operation of his investment project. Employees recruited within this framework must be Moroccan nationals and registered with the Caisse Nationale de Sécurité Sociale (CNSS)".

The Charter details five types of cumulative common bonuses, the first being an amount ranging from 5% to 10% of the investment and relating to the jobs created and the capital employed.

A second bonus is gender-related and amounts to 3% if the female payroll exceeds 30% of the total. A third type of bonus relates to the "businesses of the future" (biotech, 5G, automobile, electric vehicle, fintech, aeronautics, rail etc.) and amounts to 3%.

A fourth bonus relates to sustainable development criteria (energy saving, renewable energies etc.). The company must put in place water-saving or recycling measures to claim it. This premium amounts to 5% of the eligible investment made.

Finally, the fifth bonus, also 3%, relates to the level of local integration.

All of these bonuses can be combined up to 30% of a project.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

There are no specific legal or regulatory regimes relating to access to ports and permitted activities within ports, such as construction and assembly activities required for FLOW projects.

There are no restrictions on foreign ownership

5. Which government authorities/public bodies are responsible for the regulation of FLOW in Morocco?

The government authorities responsible for the regulation of renewable energy and especially offshore wind turbines and which may intervene are:

Ministry of Energy Transition and Sustainable Development	Responsible for developing and implementing policies to promote RE, sustainability and environmental conservation. Some of its primary objectives include: • drawing up a multi-year plan for the development of renewable energies and ensuring its implementation; • follow-up, coordination and supervision of development programmes, projects and actions in the field of renewable energies, in consultation with the administrations concerned; • drafting and updating legislation and regulations relating to renewable energies; • preparation of standards for equipment using renewable energies; • examination of applications for authorisations to build power generation facilities using RE sources.
Ministry of Economy and Finance	Manages the country's fiscal and economic policies, including budgeting, taxation and financial regulations to support economic growth and stability. RE projects are supported through MASEN, which offers a "one-stop shop" for private project developers, bringing together permitting, land acquisition and financing aspects, as well as securing a state guarantee for the investment. Plays a crucial role in financing the transition to RE sources in Morocco.
Ministry of Transport and Logistics	Operates in numerous sectors, namely transportation by road, air, train, sea and the supervision of logistics and governance in general. One of its key goals is to enhance security and safety within ports and along the coasts of Morocco. Plays a role in promoting sustainable mobility with renewable energies in the country.

Ministry of Agriculture, Maritime Fisheries, Rural Development, Water and Forests	Its primary goals include improving agricultural productivity, supporting rural communities and managing natural resources in the context of sustainable development. Promoting renewable energies and supporting farmers' transition to renewable energies. Responsible for promoting and regulating agricultural development, ensuring food security and enhancing the country's rural economy through policy formulation and implementation.
The National Office of Electricity and Water (ONEE)	A major player, in charge of the public service, generation, transmission and distribution of electricity. Continues to play a central role in the organisation of the electricity market. Moroccan Law No. 13-09, as amended, allows private producers of wind-generated electricity to enter into a contract with a consumer or group of consumers connected to the LV, MV, HV or VHV grid. The surplus can be exported in return for an operating fee paid to the state.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Morocco (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

   Under Law No. 13-09 relating to RE, authorisation is required for the realisation, exploitation, capacity expansion or modification of facilities producing electrical energy from RE sources with an installed capacity of 2MW or more.

   A prior declaration is also required for the aforementioned operations up to installation for the final production of electrical energy, where the installed capacity per site or group of sites belonging to the same operator is less than 2MW.

   It should be noted that any facility producing electricity from RE sources must be connected to the national low-voltage, medium-voltage, high-voltage or extra-high-voltage electricity grid, within the limits of its capacity.

   Also, realisation of the construction of power generation facilities based on RE sources is subject to an authorisation granted by the authorities (please see paragraph below), following technical advice from the national transmission system operator and the relevant electricity distribution system operator, if the facility is connected to the electricity distribution system.

   The main authorisation as part of the construction of power generation facilities based on RE sources in Morocco is typically granted by the Ministry of Energy, Mines and Sustainable Development, as it is responsible for overseeing and regulating the energy sector, including RE projects. MASEN is also a principal authority as stated above in the energy sector in Morocco, which has seen some of the powers of the previous monopoly (ONEE) transferred to it. Moreover, the Moroccan Energy Authority is also responsible for granting authorisations and monitoring the free market in electricity generated from renewable resources.

   For offshore wind and FLOW projects, additional authorities may be involved in delivering the authorisation, such as the Ministry of Transport

and Logistics, which shall ensure that the project promotes sustainable mobility while ensuring safety along the coastline of Morocco. Additionally, this may also include working with maritime and environmental agencies to assess the environmental impact of the project as stated in Law No. 11-03 relating to the protection and development of the environment, which requires national/regional EIA committees to authorise or deny projects based on their environmental impact.

A private legal entity that can demonstrate the appropriate technical and financial capabilities, and that has made the request, must submit to the administration, for project approval, a file specifying in particular:

- the nature of the work and the lead time for the various stages of installation;
- the RE source(s) to be used;
- the location of the production site(s);
- the technical, town planning and secretary arrangements for building the installations;
- measures to be taken to protect the environment, including a commitment to carry out an EIA;
- participation in national capacity-building and technology transfer; and
- bank guarantees and sureties to guarantee completion of the project for which authorisation is requested. The amount of this security is set by regulation.

Authorisation to proceed with the project is notified to the applicant after receiving the "assent" of a technical commission, chaired by the government authority in charge of energy. This must be within a maximum period of two months from the date of receipt of the technical opinion of the national electricity transmission system operator and, where applicable, the technical opinion of the electricity distribution system operator concerned.

If the installation of RE sources is not completed within three (3) years of notification, the authorisation lapses.

No later than three (3) months after completion of the construction work, the holder of the construction permit is required to submit an application for an operating permit for the facility concerned.

The operating permit is valid for a maximum of twenty-five (25) years from the date of issue and may be extended once for the same period.

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

There are no separate marine/environmental licences or adaptations from standard licences required for FLOW projects.

Since the installation of the offshore wind turbine will be carried out at sea, Law No. 11-03 relating to the protection and development of the environment will be applied. Thus, the applicant for authorisation will have to carry out a study to assess the impact on the environment of the project and its compatibility with the requirements of environmental protection. This will be examined by a national and regional committee of environmental impact studies in addition to an emergency plan developed by the administration in collaboration with local communities and authorities concerned (see also Question 4(a)).

b. *Are consents required at a national level or state/municipal level?*

The abovementioned authorisations are granted on a national basis (and on a regional basis for authorisations relating to environmental impacts below a certain threshold). The threshold is dependent on the committee examining the environmental impact. For example, under Articles 3 and 13 of Decree No. 2-04-563 on the powers and operation of the national and regional EIA committees, the national committee is responsible for examining the EIAs of projects whose investment threshold exceeds MAD 200 million, or when the project involves more than one region of Morocco regardless of the amount of the investment, or if the project is cross-border irrespective of the size of the investment. The regional committees are responsible for examining EIAs for projects with an investment threshold of less than or equal to MAD 200 million.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

Only the application for authorisation to temporarily occupy the public domain of Morocco requires the payment of an annual or semi-annual fee, the amount of which will be set by the authorisation order. There is no applicable subsidy or aid scheme that provides for the reimbursement of such fees.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Morocco? Are these specific to FLOW, to offshore wind or renewables in general?*

The financial incentives concern the RE sector more generally. Thus and as previously provided, the Investment Charter has provided a premium for investment in RE set at MAD 30 million.

In 2009, the Ministry of Energy Transition and Sustainable Development created an Energy Development Fund to support the national policy of developing electricity production from RE sources and energy efficiency.

The EIB and MASEN have also agreed a grant of €2 million to finance a feasibility study that could pave the way for an initial small-scale offshore wind pilot project in Morocco.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

For now and as explained in Question 7, only a cooperation agreement signed between the EIB, the Climate Bank and MASEN is financing the feasibility study that could pave the way for a small-scale offshore wind pilot project in Morocco.

No funding programmes or allocation methods have been developed yet.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

There is still no assistance programme.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Morocco (e.g. is there a state-owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

There are to date no specific revenue structure/ offtake arrangements proposed for FLOW projects in Morocco.

However, according to general provisions of Moroccan law, private legal entities are permitted to participate in electricity production.

For the marketing of electrical energy produced from renewable energies, the operator shall have the right of access to the national low-voltage, medium-voltage, high-voltage and extra-high-voltage electricity network, within the limits of the available technical capacity of such network.

The terms and conditions for access to the national low-voltage, medium-voltage, high-voltage and extra-high-voltage electricity network are set out in an agreement between the operator and the national transmission system operator.

Meeting the electrical energy needs of the national market through an RE production facility operator involves entering into an agreement with either Morocco or an authorised representative. This agreement will outline its duration and the commercial terms for supplying the electricity generated by the operator.

The operator may also supply electricity to a consumer or group of consumers connected to the national medium-voltage, high-voltage and extra-high-voltage electricity grid. This is

under a contract that provides the commercial terms of the supply of electrical energy, as well as the obligations of such consumers to use and consume the electricity supplied to them.

11. *Are there any restrictions on foreign companies participating in FLOW projects in Morocco? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Morocco?*

    The applicant for authorisation must meet the following conditions:

    - be a legal entity under private law;
    - be incorporated as a company with its head office in Morocco, or have one of its subsidiaries with its head office in Morocco;
    - not be in receivership or liquidation;
    - be in good tax standing;
    - be in good standing with the Caisse Nationale de Sécurité Sociale (National Social Security Fund) in accordance with current legislation; and
    - be qualified to produce electricity using RE sources.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Morocco)?*

    Please see Question 11.

13. *Are there any requirements in Morocco for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    To date, there are no requirements in Morocco for specific marine structures comprising a FLOW farm.

14. *Are there any local content requirements in Morocco in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    There are no requirements in Morocco in relation to the procurement of goods and services for FLOW projects.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    There are still no specific provisions under Moroccan law relating to any security or guarantees to the government agency administering any support scheme for FLOW projects.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    There are no particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Morocco. For example, is there an existing offshore oil and gas industry in Morocco given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    There is an offshore oil and gas industry in Morocco. The country has approximately 272 onshore and 36 offshore wells, mainly in the shallow marine area.

    47 onshore exploration permits have been issued and 59 offshore, in addition to six onshore reconnaissance authorisations, three offshore and 10 concessions.

    In total, 29 operators are present in the country, including Total, Repsol, Dana Petroleum, Anadarko, Kosmos, EOGI international company, Cabre, MPE, Oil & Gas and Circle Oil.

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New Zealand

1. *Summarise the status of any current and proposed floating offshore wind (FLOW) developments in New Zealand (such as announced procurement goals and awards of individual projects, or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in New Zealand?*

   In 2022, the New Zealand government announced the development of a "regulatory framework" for ORE. The proposed framework reflects the approach in New Zealand's Emissions Reduction Plan which aims to ensure that, by 2024, New Zealand has the regulatory settings in place to enable investment in ORE. The Ministry of Business, Innovation and Employment (**MBIE**) is currently seeking consultation/submissions on proposed regulations to enable ORE development through its "consultation on advancing New Zealand's energy transition".[74] This consultation closed on 2 November 2023.

   There are at least four offshore wind developers currently interested in developing offshore wind energy in New Zealand:

   - Australian firm Oceanex and Copenhagen Offshore Partners, which have teamed up with the New Zealand Super Fund for a feasibility study located at the South Taranaki Bight.
   - Parkwind, a Belgian company which has identified New Zealand as a region with potential for offshore wind investment and appointed a country manager for New Zealand and Australia.
   - A joint venture between the Spanish company BlueFloat, the Australian company Energy Estate and a New Zealand company called Elemental Group. In November 2022, the consortium announced plans for a multi-billion-dollar investment in offshore wind projects in South Auckland and West Waikato.
   - BlueFloat Energy, in partnership with the Elemental Group, is also working on a South Taranaki project, which is designed to be a ~900MW offshore wind development using bottom-fixed technology located to the west of Beach Energy's Kupe platform in the South Taranaki Bight. The project is currently in the feasibility stage, but the partnership believes that construction could commence before 2030.

2. *What challenges are faced by the FLOW industry in developing FLOW projects in New Zealand (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   As outlined above, there is currently no regulatory framework in New Zealand that deals with offshore wind projects or FLOW. Developers must obtain consents for offshore wind under either:

   - the Resource Management Act 1991 (RMA) for development within 12 nautical miles of the coast; or
   - the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (**EEZA**) for development between 12 and 200 nautical miles of the coast.

   Neither of these consenting processes are particularly well suited to regulating offshore wind development. Consent applications are processed in the order in which they are received (i.e. on a "first-in, first-served" basis), do not provide a system for assessing the suitability of ORE developers to operate in New Zealand and do not allow for the comparison of proposed developments against each other.

   Other challenges that are likely to be encountered include the following:

74. 'Consultation on advancing New Zealand's energy transition' (Ministry of Business, Innovation & Employment, 2023) <www.mbie.govt.nz/have-your-say/consultation-on-advancing-new-zealands-energy-transition/> accessed 11 December 2023.

- Although there are synergies with offshore oil and gas, specifically in terms of skill and occupational groups, it is unclear whether New Zealand has enough specialist resource for offshore wind.
- The indigenous Maori people of New Zealand have a broad range of interests in the ocean, including their role as kaitiaki (guardians) of the ocean, and legally recognised customary interests under the Te Takutai Moana Act 2011 and Ngā Rohe Moana o Ngā Hapū o Ngāti Porou Act 2019 (takutai moana legislation) and Treaty of Waitangi settlement legislation.
- New Zealand is a signatory to the United Nations Convention on the Law of the Sea 1982 which imposes obligations on member states for development within the territorial sea and EEZ.

3. *Is there a World Bank Offshore Wind Roadmap for New Zealand or any announced plans by the government of New Zealand, such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   No plans or targets have been announced by the New Zealand government specifically for FLOW. However, the government recognises that floating foundations offer the potential for offshore wind turbines to move into deeper waters and believes such development is likely to become cost-competitive with fixed foundation wind farms by early to mid-2030.

   GWEC has published a map outlining the offshore wind technical potential in New Zealand. The map identified the potential for 2,104GW of FLOW and 148GW for fixed.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in New Zealand.*

   As set out above, there is no tailored regulatory framework and/or clear government policy for securing rights for offshore wind development at present. The two main pieces of legislation that would be applicable to any offshore wind farm development are the RMA and EEZA.

   The EEZA currently applies to offshore wind development from 12 to 200 nautical miles out from New Zealand's coast. However, as a wind farm in the EEZ will run transmission cables back through the territorial sea, the RMA will also be applicable to offshore developments. Developments will require marine consents, which are processed by the Environmental Protection Authority (under the EEZA) and the applicable regional council (under the RMA). Applications contain an assessment of environmental effects and are generally publicly notified. A hearing is held and there is a right of appeal (to the Environment Court under the RMA and to the High Court under the EEZA).

   The RMA, which contains New Zealand's environmental and planning laws, has been replaced with a new resource management system under the Natural and Built Environment Act 2023 (**NBEA**) and the Spatial Planning Act 2023. However, the transitional provisions in the NBEA retain most of the RMA in place, allowing for a long and staged change to the new system spanning nearly a decade. It should also be noted that the New Zealand election day results place the National Party as the next to govern, with official results (and any coalition agreements) to follow in November once all votes are counted. The National Party has promised that if elected to government it will repeal the new resource management legislation within its first 100 days in office and will make a fresh start on new reform. This means that the current system under the RMA, which governs how natural and physical resources are managed, will be subject to change in the near future.

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

   Consent applications under the RMA and the EEZA are processed on a "first-in, first-served" basis. The focus is on assessing effects and promoting the sustainable management of natural resources.

   The NBEA introduces new resource allocation principles around sustainability, equity and efficiency that will shift the first-in, first-served approach.

b. *Is there a specific legal/regulatory regime for FLOW projects in New Zealand, as opposed to*

broader offshore wind or renewables projects in general?

There is no specific legal regime for FLOW projects but the government hopes to have one in place by 2024.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of New Zealand intended to enable fast-track development of floating wind projects and technologies?*

No.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

The Overseas Investment Act 2005 (OIA) applies to the acquisition of sensitive assets by foreign investors. For assets that are seen to be of strategic importance to New Zealand, including electricity generation and distribution businesses, and significant ports, the consent process is likely to be closely scrutinised.

Construction activities, particularly those involving the construction of any structures and any discharges to the coastal marine area, may also require resource consent under the RMA.

5. Which government authorities/public bodies are responsible for the regulation of FLOW in New Zealand?

The following public bodies are responsible for the regulation of FLOW:

Environmental Protection Authority	The Environmental Protection Authority (EPA) issues marine consents under the EEZA.
Regional councils	Regional councils issue any coastal permits or consents required within 12 nautical miles.
Overseas Investment Office	The Overseas Investment Office is responsible for processing the applications for any necessary approvals under the OIA.
Electricity Authority	The Electricity Authority administers and enforces the Electricity Industry Participation Code which is a set of rules that governs New Zealand's electricity sector including generation, transmission, distribution and other market arrangements.
Maritime New Zealand	Maritime New Zealand administers and enforces the Maritime Rules (which may apply to FLOW infrastructure in some circumstances) and the Health and Safety at Work Act 2015 (on "ships").
WorkSafe	*WorkSafe enforces compliance with the electrical codes of practice which protect people, property and works from electrical shock, physical injury and fire on land.*

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in New Zealand (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

   The following approvals may be required:

   - EEZA – marine consents.
   - RMA – possible coastal permits, discharge consents and land use consents for port-related activities.
   - OIA – foreign investment approvals.

   A new regulatory framework is currently being developed by the New Zealand government and is expected to be in place by 2024. This framework, once developed, is expected to provide the necessary clarity for regulation of the development, construction and operation of a FLOW project in New Zealand.

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

   No, a standard marine consent or coastal permit is required.

b. *Are consents required at a national level or state/municipal level?*

   Marine consents are issued by the EPA (a government agency) and coastal permits are issued by regional councils.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

   No.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in New Zealand? Are these specific to FLOW, to offshore wind or renewables in general?*

   The government has established a NZ$400 million Green Investment Fund (managed by New Zealand Green Investment Finance (**NZGIF**)), a NZ$27 million National New Energy Development Centre (**Ara Ake**) and multiple renewable energy investments via the NZ$3 billion Provincial Growth Fund.

   However, there are currently no specific financial incentives/support schemes for the development of FLOW projects.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

   NZGIF acts as an independent investor and follows a typical professional investment process. NZGIF is not a grant funding agency and does not have an application process. Applicants are required to provide a business model and information setting out how the proposed investment would materially fulfil NZGIF's investment mandate to accelerate investment in emissions reductions in New Zealand in a commercial manner.

   Steps in the investment process

   - Market assessment and engagement, including research.
   - Origination – identifying opportunities and counterparties.
   - Eligibility screening – does the opportunity fit with NZGIF's mandate?
   - Investment assessment and structuring, including negotiation and analysis.
   - Due diligence – formal assessment to assess commercial potential.
   - Final approval and execution.
   - Ongoing monitoring and management.

   Ara Ake launched in 2020 to help energy innovators in New Zealand to develop and commercialise. It offers a range of services, facilitates its own projects, and provides resources and guidance. Ara Ake works with developers to help them commercialise new energy developments and enter the market. From start-ups to large organisations, it works with businesses to facilitate and support demonstration projects of new and emerging technologies across New Zealand. It provides

funding and investment support, energy research and insights, project support and development.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   The support schemes above are not region-specific and are not normally capable of adjustment for increased costs.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in New Zealand (e.g. is there a state-owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    The Electricity Authority develops policy, code provisions and systems for the buying and selling of wholesale electricity and for managing security of supply. Transpower (a state-owned enterprise) is contracted by the Electricity Authority to operate the wholesale electricity market through which generators sell electricity to retailers who then supply consumers. Transpower ensures supply (provided by generators) matches demand (by electricity users). This is done in real time – 24 hours a day, 365 days a year, via the National Coordination Centre.

11. *Are there any restrictions on foreign companies participating in FLOW projects in New Zealand? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in New Zealand?*

    Approval is likely to be required under the OIA.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in New Zealand)?*

    Transpower owns and operates New Zealand's national electricity transmission network. A connection application is required.

    Currently in New Zealand, Transpower takes a leading role as opposed to a developer-led approach. Transpower and a developer can enter into a Transpower Works Agreement (TWA) which is used where Transpower is requested to build and commission new grid-connected assets for a customer project, such as a new connection to the grid or an upgrade of an existing connection to the grid. The costs to be paid under a TWA are the actual delivery costs, plus interest during construction and (where applicable) financing costs.

    The MBIE discussion document on developing a regulatory framework for ORE highlights that the funding and delivery approach to new transmission infrastructure is split between connection and interconnection assets and adapting the current approach in order to take into account FLOW could work as follows:

    - **Interconnection.** Any new or upgrades to existing interconnection infrastructure (the core national grid "backbone") to support ORE would be built, owned and operated by Transpower. The upgrades would be recovered via the Transmission Pricing Methodology, which is a beneficiary-based charge that would fall on developers and consumers. As upgrades would be in excess of NZ$20 million, they would require Commerce Commission approval.
    - **Connection.** ORE projects would also require new connections (one-way flow between the generation asset and the national grid). The developer would apply to Transpower through the connections process and the new connection would be delivered through a TWA. This is funded by the developer but is typically built, owned and operated by Transpower.

MBIE recognises that it could be more efficient for developers to fund and build the offshore transmission infrastructure and that there are opportunities for joint connection infrastructure. However, at this stage these are only questions for consultation (open until 2 November 2023), so further discussions, development and approach testing is yet to occur in the transmission asset area.

Offshore projects could either be directly connected to load (for example, a single industrial user) or they could be connected to the national grid. If connecting to the national grid, new transmission infrastructure will be required to transport the electricity generated to the grid onshore. This infrastructure is typically split into four main parts: inter-array cables; offshore substation; export cables; and onshore connection. Further advice would be required from Transpower as to whether inter-array cables would be considered a transmission asset.[75]

13. *Are there any requirements in New Zealand for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    Registration may be required under the Ship Registration Act 1992.

14. *Are there any local content requirements in New Zealand in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    No.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    Bid bonds are not currently a feature of New Zealand government procurement, but performance guarantees in respect of a failure to meet contracted performance may be required.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    No.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in New Zealand. For example, is there an existing offshore oil and gas industry in New Zealand given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    There is an existing offshore oil and gas industry off the coast of Taranaki. There are more than 30 existing mining permits for offshore oil and gas (including 22 for exploration) in New Zealand. There is currently a ban on the issue of new oil and gas exploration permits. The National Party has promised that, if elected to government later this year, it will repeal the ban.

    Interested parties should take into account shipping logistics for materials and plant, as well as access from the project site to a nearby port. Capacity constraints within the local workforce should be considered. Dedicated immigration pathways may be available for certain categories of skilled workers, if required.

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75. 'Developing a Regulatory Framework for Offshore Renewable Energy' (Ministry of Business, Innovation & Employment, August 2023) <https://www.mbie.govt.nz/dmsdocument/26913-developing-a-regulatory-framework-for-offshore-renewable-energy-pdf> accessed 11 December 2023.

Norway

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Norway (such as announced procurement goals and awards of individual projects or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Norway?*

   The Norwegian government has set a target to open up areas that will generate 30GW of offshore wind by 2040. A specific goal for FLOW has not been set. According to the Norwegian Offshore Energy Act, an area for offshore wind production will initially have to be opened by the authorities. The tender process for the area is then announced, specifying the process for awarding the area. The award will provide an exclusive right to proceed with a project, including rights to undertake impact assessments and apply for a licence.

   Two areas for offshore wind production were opened on 12 June 2020: Sørlige Nordsjø II phase 1 (bottom fixed foundation)and Utsira Nord (FLOW). On 29 March 2023, announcements were made to formally open the allocation processes for Sørlige Nordsjø II phase 1[76] and Utsira Nord.[77] Around 20 consortia have indicated that they will participate in the competition.[78]

   The current deadline for submitting prequalification applications for Sørlige Nordsjø is 1 November 2023, whilst for Utsira Nord the application deadline will be announced at a later stage. The Norwegian Ministry of Petroleum and Energy has indicated that the deadline will be set during the first quarter of 2024.[79]

   The prequalification process at Sørlige Nordsjø II phase 1 is planned to lead to the prequalification of a group of six to eight prequalified bidders,[80] who will be competing for the award of a CfD with the Norwegian government for a single 1,500MW fixed bottom project.[81] At Utsira Nord, three 500MW FLOW projects will be awarded following a qualitative competition, based on a wide set of criteria including documented experience, execution capability, cost effectiveness, technical development and innovation, sustainability and positive industrial ripple effects.[82] Only two areas of the Utsira Nord will be provided with state aid, competition for which will begin following the maturation and impact assessment of all three.[83] The government will host its next licensing round in 2025.

76. 'Updated announcement documentation for Sørlige Nordsjø II' (Regjeringen, 7 November 2023) <www.regjeringen.no/no/tema/energi/landingssider/havvind/sorlige-nordsjo-ii/id2967231/> accessed 11 December 2023.
77. 'Updated announcement documentation for Utsira Nord'(Regjeringen, 27 October 2023) <hwww.regjeringen.no/no/tema/energi/landingssider/havvind/utsira-nord/id2967232/ > accessed 11 December 2023.
78. Report: Floating Offshore Wind: The Next Five Years.
79. https://www.inspiratia.com/renewables/regions/europe/norway/region-insight/article/norway-offshore-wind-update> accessed 11 December 2023.
80. 'Prequalification criteria for Sørlige Nordsjø II' <www.regjeringen.no/contentassets/bd4d260de2c242beb661494550b8d7a3/vedlegg-4-beskrivelse-av-prekvalifiseringskriterium-for-forste-fase-av-sorlige-nordsjo-ii.pdf> accessed 11 December 2023.
81. 'Norway Offshore Wind Update' (Inspiratia, 23 May 2023) <https://www.inspiratia.com/renewables/regions/europe/norway/region-insight/article/norway-offshore-wind-update> accessed 11 December 2023.
82. 'Description of qualitative criteria for Utsira Nord' (Royal Norweigan Ministry of Petroleum and Energy, undated) <www.regjeringen.no/contentassets/94b9f178d05849a1a5852ce129693f27/appendix-4-description-of-qualitative-criteria-for-utsira-nord.pdf> accessed 11 December 2023.
83. 'Norway Offshore Wind Update' (Inspiratia, 23 May 2023) <https://www.inspiratia.com/renewables/regions/europe/norway/region-insight/article/norway-offshore-wind-update> accessed 11 December 2023.

2. *What challenges are faced by the FLOW industry in developing FLOW projects in Norway (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   A report by Menon Economics[84] outlines some challenges for developing FLOW industry projects in Norway. Limited production capacity and access to a competent workforce have been outlined by multiple companies as major barriers to FLOW. As several companies operate in both FLOW and oil and gas sectors, high activity levels within the oil and gas sector brings capacity challenges, and higher margins from the oil and gas sector may lead to a stronger focus on oil and gas projects compared to FLOW projects.

   The offshore wind industry has identified the slow and bureaucratic regulatory and permitting processes as one of the main barriers to accelerating the deployment of offshore wind in Norway. The process of granting a licence, including any subsequent appeals, may take up to eight years. EIAs and public hearings can extend the overall process duration.[85] The industry has also highlighted the uncertainties around grid connection, and discussions on whether offshore wind projects are to be connected to the Norwegian mainland or to Europe. These discussions have now been settled, and both Utsira Nord and Sørlige Nordsjø II phase 1 will be connected to the Norwegian mainland. The Norwegian transmission system operator, Statnett, will be system operator for the export cables at both sites, whereas the developers will finance and own the cables, with a possibility for Statnett to assume ownership of the cable assets at a later stage if certain criteria are fulfilled.

3. *Is there a World Bank Offshore Wind Roadmap for Norway or any announced plans by the government of Norway such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   There is no specific World Bank Offshore Wind Roadmap for Norway. As stated above in Question 1, the Norwegian government has set targets around offshore wind developments to be achieved by 2040. To achieve its aims, the Norwegian government announced that state aid would be granted for Sørlige Nordsjø II phase 1 and has indicated that state aid will be granted to two of the three projects at Utsira Nord.

   The GWEC has published a map identifying the amount of offshore wind technical potential as 60GW for bottom-fixed and 1,416GW for floating.[86]

   The area at Utsira Nord will be awarded on the basis of qualitative criteria.[87] Factors considered include cost certainty and future cost reduction estimates from innovation and technology development.[88] This will encourage technological developments in FLOW and the projects will be considered for state aid as part of the licensing process.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Norway.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

   Under the Norwegian Offshore Energy Regulation, the Ministry of Petroleum and Energy decides whether allocation of a project area takes place by auction, or another medium which must still be objective and non-discriminatory, or a

84. 'Menon-publication Report 53/2022' (Menon Economics, May 2022) <'Norway Offshore Wind Update' (Inspiratia, 23 May 2023) <https://www.inspiratia.com/renewables/regions/europe/norway/region-insight/article/norway-offshore-wind-update> accessed 11 December 2023. www.menon.no/wp-content/uploads/2022-53-Flytende-havvind-2.pdf> accessed 11 December 2023.
85. 'Norway Offshore Wind Update' (Inspiratia, 23 May 2023) <https://www.inspiratia.com/renewables/regions/europe/norway/region-insight/article/norway-offshore-wind-update> accessed 11 December 2023.
86. 'Offshore-Wind-Technical-Potential in Norway' (Global Wind Energy Council, June 2021) <https://gwec.net/wp-content/uploads/2021/06/Norway_Offshore-Wind-Technical-Potential_GWEC-OREAC-1.pdf> accessed 11 December 2023.
87. 'Description of qualitative criteria for Utsira Nord' Qualitative criteria for Utsira Nord (Royal Norweigan Ministry of Petroleum and Energy, undated) <https://www.regjeringen.no/contentassets/94b9f178d05849a1a5852ce129693f27/appendix-4-description-of-qualitative-criteria-for-utsira-nord.pdf> accessed 11 December 2023.
88. 'How Norway's upcoming offshore wind auctions could challenge even experienced developers' (Aegir, 15 February 2023) <www.aegirinsights.com/news/how-norways-upcoming-offshore-wind-auctions-could-challenge-even-experienced-developers> accessed 11 December 2023.

combination of both. The initial announcement on the opening of the tender process must clearly set out the methodology of awarding and the factors considered.

b. *Is there a specific legal/regulatory regime for FLOW projects in Norway, as opposed to broader offshore wind or renewables projects in general?*

The Norwegian Offshore Energy Act and the Offshore Energy Regulation apply to all ORE production and do not include specific regulations on FLOW projects. The announcement on the opening of the tender process for Sørlige Nordsjø II and Utsira Nord clarified that the method of awarding areas for Utsira Nord, which is expected to have floating wind projects, differs from the method used for Sørlige Nordsjø II, which is expected to use bottom-fixed wind turbines.

For Sørlige Nordsjø II phase 1, there will be a prequalification process and applicants will be required to have experience in developing, constructing and operating high-voltage direct current offshore grids. This is because Sørlige Nordsjø II Phase 1 is located 170km from the Norwegian shore.[89] Prequalified applicants will then participate in a price-based auction to enter a two-sided CfD and the applicant with the lowest offered contract price will win.[90] For Utsira Nord, three areas will be awarded to three different applicants on the basis of qualitative criteria. Once the area is awarded, three applicants will then compete for a support scheme, based on a two-sided CfD. One of the applicants will not receive any state funding to ensure competition.[91]

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Norway intended to enable fast-track development of floating wind projects and technologies?*

There are no designated areas of territorial sea or the EEZ in Norway intended for the fast-track development of FLOW projects and technologies. However, the Offshore Energy Act enables the Ministry of Petroleum and Energy to allocate an area for offshore wind production upon receiving an application, without announcing a tender process or competition. However, this is limited to "special cases". The provisions have been applied for test sites and demonstration projects. The exception was applied to Marin Energi Testsenter AS, which was granted a licence to build and operate a demonstration facility for FLOW turbines outside the baseline of Karmøy.

According to Section 1-2 (sixth subparagraph) of the Offshore Energy Act, the Act may not apply when it pertains to installations or objectives and operations at sea that are regulated by other legislation. The Ministry of Petroleum and Energy has been delegated the authority, under this subparagraph, to exempt the application of the Act in individual cases. The exclusion has been applied in cases where offshore wind installations are considered accessories to petroleum installations, in which case the Petroleum Act regulates the construction and operation of the offshore wind farm.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

The Act relating to harbours and fairways (the **Harbour Act**) governs maritime territory and inland waters, and some of its rules apply in the Norwegian economic zone. Measures that may affect safety, traffic or defence and emergency preparedness interests cannot be implemented without prior permission, although this requirement does not apply in the Norwegian economic zone. A separate regulation based on the Harbour Act governs the marking and establishment of safety zones associated with equipment for renewable energy production. These rules apply in internal waters, maritime territory, Norway's economic zone and on the continental shelf.

89. 'How Norway's upcoming offshore wind auctions could challenge even experienced developers' (Aegir, 15 February 2023) <www.aegirinsights.com/news/how-norways-upcoming-offshore-wind-auctions-could-challenge-even-experienced-developers> accessed 11 December 2023.
90. 'How Norway's upcoming offshore wind auctions could challenge even experienced developers' (Aegir, 15 February 2023) <www.aegirinsights.com/news/how-norways-upcoming-offshore-wind-auctions-could-challenge-even-experienced-developers> accessed 11 December 2023.
91. 'How Norway's upcoming offshore wind auctions could challenge even experienced developers' (Aegir, 15 February 2023) <www.aegirinsights.com/news/how-norways-upcoming-offshore-wind-auctions-could-challenge-even-experienced-developers> accessed 11 December 2023.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Norway?*

Responsible government authority	Aspect of process
Ministry of Petroleum and Energy	Oversees facility licensing and enforcement, grid licensing and enforcement, and overall strategy, policy and legislation. In respect of facility licensing and enforcement, the authority to approve detailed plans is delegated to the Norwegian Water Resources and Energy Directorate (**NVE**). NVE monitors compliance with the Offshore Energy Regulation. In respect of grid licensing and enforcement, the authority to approve detailed plans is also delegated to NVE. NVE monitors whether the Offshore Energy Regulation has been complied with in rules and decisions.
Statnett SF	Connecting to the grid. Assigns a connection point and a grid connection agreement to be entered into with the grid company.
NVE	Provides the plant licence for grid facilities within the baseline.
The Norwegian Energy Regulatory Authority (**RME**)	Provides the trading licence.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Norway (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

   The development, construction and operation of a FLOW project in Norway requires four licences:

   - According to the Offshore Energy Act Section 3-1, a production facility licence from the Ministry of Petroleum and Energy.
   - A grid installation licence from the Ministry of Petroleum and Energy, according to the Offshore Energy Act Section 3-2.
   - Grid facilities within the baseline will call for a plant licence for grid facilities within the baseline from NVE, in accordance with the Norwegian Energy Act.
   - The sale of energy from the FLOW project requires a trading licence from RME.

   a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

      No.

   b. *Are consents required at a national level or state/municipal level?*

      Consents are required at a national level.

   c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

      No.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Norway? Are these specific to FLOW, to offshore wind or renewables in general?*

   Support schemes for the development of FLOW projects are announced during the opening of the tender process for new areas. For Utsira Nord, the government will propose that support is granted by means of a two-sided CfD for 500MW, with a duration of 15 years

from the production start date. The CfD will be awarded from competition and guarantees will be required.

Please also see Question 4(b) above.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

   Please see Question 7 above.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   Support schemes are provided at the national level. Detailed provisions of the CfD have not yet been provided.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Norway (e.g. is there a state owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    The FLOW project must apply to the grid company for a grid connection, which links the project to the onshore grid. Whether Statnett will be responsible for the system operation for the offshore grid has not yet been decided, but it is likely that Statnett will be granted the role. FLOW projects will be subject to a market-based offtake arrangement and there is no obligation to sell power to a state-owned operator.

11. *Are there any restrictions on foreign companies participating in FLOW projects in Norway? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Norway?*

    A licence under the Offshore Energy Act may be granted to a legal entity that is established under Norwegian law and is registered in the Business Register.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Norway)?*

    According to the Norwegian Energy Act, an onshore grid system that is classified as a transmission grid may only be operated and owned by Statnett, the national electricity transmission system operator in Norway. RME stated that similar provisions must be included in the Offshore Energy Act, to provide for Statnett's ownership of offshore grids classified as transmission grids.

13. *Are there any requirements in Norway for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    There are no requirements for a FLOW farm to be registered in any local ship register. Floating devices may, with permission from the Norwegian Maritime Directorate, be entered in the ship register at the owner's request.

14. *Are there any local content requirements in Norway in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    The criteria for the tender process of Utsira Nord included positive impacts at the local and regional level. Sustainability was also considered, for a sustainable development of offshore wind that minimises consequences for the climate and the environment.[92] The criteria for Sørlige Nordsjø II were amended on 17

92. 'How Norway's upcoming offshore wind auctions could challenge even experienced developers' (Aegir, 15 February 2023) <www.aegirinsights.com/news/how-norways-upcoming-offshore-wind-auctions-could-challenge-even-experienced-developers> accessed 11 December 2023.

October 2023 upon feedback from the EFTA Surveillance Authority, including amending the criterion "positive local ripple effects" to "positive ripple effects". Moreover, "sustainability" and "positive ripple effects" have been removed from the prequalification criteria and are now included as minimal requirements.[93] It is not unlikely that similar amendments will be made to the Utsira Nord qualification criteria. In assessing the application, sustainability and local impacts will be weighted at a 10% proportion for each.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    The government will require project developers to provide guarantees[94] in the form of bank guarantees and parent company guarantees for failure to comply with the CfD.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    No specific regulatory incentives have been implemented regarding FLOW for green hydrogen production or electrification of oil and gas platforms. However, FLOW projects which are regulated by petroleum legislation (please see Question 4(c) above) may have investments governed by the Petroleum Tax Act, which writes off expenses up to approximately 16% per year. FLOW projects regulated under the Petroleum Act may also be eligible for state aid provided by Enova SF. Enova SF is a state enterprise fully owned by the Norwegian state via the Ministry of Climate and Environment. Enova SF has granted individual investment aid of NOK2,229.6 million to the Hywind Tampen FLOW Project. The state aid was aimed at supporting electricity generation from renewable energy sources for oil and gas installations at the Snorre and Gullfaks oil and gas fields, by replacing part of the existing gas turbines.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Norway. For example, is there an existing offshore oil and gas industry in Norway given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    There is an existing offshore oil and gas industry in Norway and its supply chain is expected to participate in the market and the development of a Norwegian FLOW industry. The Norwegian Offshore Wind Cluster aims to establish the strongest global supply chain for FLOW.[95] As mentioned above, FLOW projects have been considered for the electrification of Norway's offshore oil and gas platforms. In addition to Equinor's existing Hywind Tampen Project (at 88MW currently the largest operational FLOW project in the world), Equinor and partners had also looked at building the 1GW Trollvind FLOW Project to provide electrical power to run the Troll and Oseberg fields. Unfortunately, due to rising costs this project was cancelled earlier this year.

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93. 'Updated Announcement for Offshore Wind at Sørlige Nordsjø II and Utsira Nord' (Regjeringen, 17 October 2023) <www.regjeringen.no/no/aktuelt/oppdatert-utlysning-for-havvind-i-sorlige-nordsjo-ii-og-utsira-nord/id3001301/> accessed 11 December 2023.
94. Guarantees of BNOK 2 required, primarily bank guarantees but up to BNOK 1 may be in form of a PCG.
95. Norwegian Offshore Wind <https://www.norwegianoffshorewind.no/about> accessed 11 December 2023.

Romania

1. *Summarise the status of any current and proposed floating offshore wind (FLOW) developments in Romania (such as announced procurement goals and awards of individual projects, or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Romania?*

   On 17 July 2023, the Ministry of Energy published a new draft law on the necessary measures for the exploitation of offshore wind energy as well as amending and supplementing certain laws in the energy sector (the Draft Bill). The current form of the Draft Bill was approved by the Romanian government on 21 December 2023. The Draft Bill incorporates an important new element by introducing a support scheme based on contracts for difference (**CfD Scheme**) (in Romanian: *contracte pentru diferență*) for the construction and operation of offshore wind power plants with a capacity of up to 3GW until 2035.

   The Draft Bill is part of the Ministry of Energy's commitments within the National Recovery and Resilience Plan and includes provisions on the competent authorities responsible for facilitating and coordinating the implementation process of offshore wind energy production projects; the rules and conditions regarding the establishment and concession of the sea bed areas within the parameters of which the exploration and exploitation of the offshore wind potential can be carried out; the rules and conditions regarding the granting of permits and licences by the competent authorities; information regarding legal easements and access rights; information on the tax and royalty regime; conditions and obligations regarding the connection to the electricity transmission network; obligations regarding the decommissioning of the offshore wind power plant; and contraventions and sanctions.

   The main regulatory authorities involved in the implementation of offshore wind projects will be the Ministry of Energy, the Competent Authority for Offshore Oil and Gas Operations in the Black Sea (**ACROPO**) and the National Energy Regulatory Authority (**ANRE**). Please see more detail in Question 5.

   According to public statements of the Ministry of Energy, the Draft Bill is expected to be adopted by the Romanian Parliament in early 2024.

   Nonetheless, even in the absence of a regulatory framework, foreign and local investors have announced their intention to develop offshore wind projects. A joint venture agreement has been signed between Masdar, a leading developer and operator of utility-scale renewable energy projects, and Hidroelectrica, the biggest Romanian power producer. In 2020, Hidroelectrica announced an intention to invest in 300MW of offshore wind power in Romania by 2026 (out of 600MW of wind power in total). At the end of 2021, WPD Offshore, a German renewable energy project developer, became the first company to officially apply for the development of two offshore wind projects in Romania, totalling 1.9GW. As an innovator in this space, WPD Offshore is in discussions with government authorities to support the drafting of the Draft Bill. A report from the Energy Policy Group in 2023 suggests Romania and Bulgaria are working together to build an energy island in the Black Sea – such a project has the potential to connect future offshore wind capacity from other countries around the Black Sea.

2. *What challenges are faced by the FLOW industry in developing FLOW projects in Romania (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   The main challenges are as follows:

   - **Offshore wind is not politically prioritised.** Despite the publication of the Draft Bill, offshore wind remains a low-priority for Romania and is currently regarded, at best, as a marginal energy source. Romania's national renewable energy strategy does not include offshore wind technologies. As such, there is no regulatory framework. Even after the enactment of the Draft Bill, a comprehensive legislative framework will need to be adopted to address connection of offshore wind generation assets to the grid, and environmental and ecological assessments, amongst other things.

     Romania's bureaucratic aversion to offshore wind is demonstrated by its delay in publishing maritime spatial plans as required by all coastal member states under the framework of the Maritime Spatial Planning Directive 2014/89/EU. Finalising and adopting the national maritime spatial plans that were due in March 2021 will need to be prioritised and should identify areas suitable for the development of offshore wind energy.

     Following the European Commission's offshore renewable strategy, the Romanian Energy Policy Group conducted a study on offshore wind in the Black Sea.[96] They found that strong resistance to offshore wind by stakeholders was due not only to vested economic or political interests, but also to a lack of knowledge about the technologies.

   - **Lengthy administrative processes.** The administrative and licensing procedure in Romania is long and inconsistent,[97] resulting in an increased capital expenditure of projects and deterring project developers. Such barriers exist despite a dedicated Article 15 in the Renewable Energy Directive II (Directive 2018/2001/EC) requiring member states to create a one-stop shop to authorise renewable power installations.

   - **Geopolitical instability.** The Black Sea is bounded by Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine. The Black Sea basin is particularly suited for floating technologies but, due to the Russia-Ukraine war, the region is plagued by geopolitical unpredictability. However, Romania's NATO membership means its maritime territory remains protected.

   - **Connecting to the grid.** Grid infrastructure in Romania is underdeveloped and lacks investment. Renewable energy projects are often abandoned in the first two to three years of the project due to issues relating to grid connections. FLOW projects will require the transmission system operator (TSO) to commission the installation of completely new grid infrastructure, as the main areas of electricity demand are in the centre and western parts of the country. The Romanian government proposes the installation of a high-voltage direct current interconnector under the Black Sea in cooperation with Georgia, Azerbaijan and Hungary to facilitate the transmission of electricity produced by any offshore wind farms.

     A study in 2020 by the Energy Policy Group suggested that offshore wind farms will have to be connected to the grid in Dobrogea, an area where a large part of the country's power generation assets are connected, or planned to be connected to the grid, while the area itself has limited energy demand.

   - **Technology.** Existing offshore turbines may need to be adapted to the maritime and wind conditions of the Black Sea. Developing FLOW will require new offshore underwater cables, the installation of substations for electricity transmission and dispatch centres to control electricity flows and losses.

96. Bălan et al., 2020.
97. Banasiak et al., 2022.

3. *Is there a World Bank Offshore Wind Roadmap for Romania or any announced plans by the government of Romania, such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   The World Bank Offshore Wind Roadmap for Romania is available here. It highlights a potential of 22GW installed capacity from fixed offshore wind projects and 54GW installed capacity from FLOW projects, with a RISE score of 68. In addition, the Ministry of Energy underlined Romania's potential of 25GW in shallow waters in the Black Sea with a total of 77GW. According to the study conducted by Bălan et al. in 2020, Romanian shores can host 94GW of offshore wind at 100 metres, mostly with floating turbines (72GW). There is potential for FLOW in Romania, but the Romanian government does not indicate a strong desire to drive offshore wind development in this region. As mentioned above, legislation on the development of offshore wind law is to be enacted and the national renewable energy strategy does not include prospects for offshore wind technologies.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Romania.*

a. *Are the granting of operational licences or seabed usage rights subject to a competitive tender process or direct negotiation?*

   The Draft Bill provides an express prohibition to carry out any construction or exploitation works without obtaining a permit from ACROPO, as well as to execute any exploration, exploitation and building works outside the perimeters of designated offshore areas established by the Ministry of Energy or in the absence of a concession agreement.

   According to the provisions of the Draft Bill, by 30 June 2025 the Ministry of Energy is expected to approve the procedures for granting the concession and exploration permit, both by direct award and by tender. It is envisaged that concessions will be granted for an initial period of 30 years with the possibility for extension for a further period of 10 years.

b. *Is there a specific legal/regulatory regime for FLOW projects in Romania as opposed to broader offshore wind or renewables projects in general?*

   Even though the legislation for the development and operation of offshore wind projects is not yet enacted, the Draft Bill contains a specific regulatory regime for the development of offshore wind farm projects.

For example, the Draft Bill covers:

- granting rights of access to state-owned land and/or to land owned by individuals or private legal entities;
- providing certification of wind turbines;
- regulating the requirement pursuant to which licences for offshore activities are issued based on maritime spatial planning, among others;
- establishing grid connection norms and cost allocation;
- regulating the liability of wind farm developers and of the TSO; and
- decommissioning wind farms.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Romania intended to enable fast-track development of floating wind projects and technologies?*

   Currently, no such areas have been identified, although the Draft Bill envisages that the Ministry of Energy will initiate a study to identify such areas and the relevant tender procedure for exploration and exploitation of the same within three months of the Draft Bill becoming effective.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

   According to the provisions of Government Ordinance 22/1999 regarding ports administration and waterways, utilisation of marine transport infrastructure from the public domain, as well as the performance of marine transport in ports and interior waterways (**GO 22/1999**), the Ministry of Transport's prior approval is required for the performance of

construction works and/or installations located in the maritime safety zone or inland waterway safety zone. GO 22/1999 does not specifically deal with offshore wind activity. In addition, the development of offshore wind projects requires secondary legislation to be enacted which could also refer to any regulatory regime being applicable for access to ports and permitted activities for offshore wind projects.

Regarding the restrictions on foreign ownership, no special rules are applicable to EU investments in Romania, except for investments in strategic fields by EU entities that are controlled by people or entities from outside the EU. In such cases, a scrutiny procedure is performed by the National Defence Security Council (**CSAT**) to ensure that such operation does not affect national security. In cases where the CSAT finds that such investment threatens national security, it shall inform the Romanian government which may issue a decision prohibiting the respective investment.

Beginning in early 2022, non-EU investments are subject to the rules enacted by the Government Emergency Ordinance No. 46/2022 regarding the measures for the implementation of Regulation (EU) 2019/452 of the European Parliament and of the Council of 19 March 2019 establishing a framework for the examination of foreign direct investment in the European Union and for the amendment and completion of the Competition Law No. 21/1996 (GEO 46/2022).

In cases of economic concentration where the aggregate turnover of the undertakings concerned exceeds the equivalent in RON of €10 million and, if there are at least two undertakings involved in the operation that generate in Romania, each in part, a turnover exceeding the equivalent in RON of €4 million, a notification to the Competition Council is required, and competition clearance is a condition precedent to the closing of the transaction.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Romania?*

The main authority in the field is the Ministry of Energy. Under the Draft Bill the Ministry of Energy has been designated as the single point of contact for potential developers of offshore wind farms and will be responsible for coordinating the responses of other relevant public authorities such as:

Government authority/public body	Role
ACROPO	The competent authority for granting permits for the construction and decommissioning of offshore wind power plants, by derogation from Construction Law No. 50/1991.
ANRE	The competent authority to issue the electricity generation licence and any related documentation.
Maritime Hydrographical Direction from the Ministry of National Defence (**the Maritime Hydrographical Direction**)	The competent authority for marking the coordinates of any designated offshore seabed area.
Ministry of Energy	The competent authority for the granting of concessions for the exploration, construction and operation of offshore wind power plants within the parameters of designated offshore seabed areas and organising tenders for granting such concessions.
Romanian government	*The competent authority for the implementation of government decisions or government emergency ordinance and related normative deeds for the development of the FLOW project (for example, the CfD Scheme, the Maritime Spatial Plan).*
The Ministry of Development, Public Works and Administration	*The competent authority to elaborate the Maritime Spatial Plan.*

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Romania (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

   - The Draft Bill stipulates that the concession contract for the construction and exploitation of an offshore wind farm would be entered into between the Ministry of Energy and the developer. Following the conclusion of the concession contract, the developer may request the Ministry of Energy to grant a permit for the exploration of the relevant offshore area that is the subject of the concession. Such exploration permit will have a two-year validity term which may be extended by an additional period of six months upon application by the developer. During the term of the exploration permit, an EIA is to be made (see below) and a report will be prepared by the developer.
   - If the report is endorsed by the Ministry of Energy, the developer can request the permit for the construction of the offshore wind farm which will be granted by ACROPO. Once the construction works are finalised and commissioned in accordance with a procedure to be enacted by the Romanian government, the developer may request an electricity generation licence to sell the electricity produced by the offshore wind farm. Such generation licence will be issued by ANRE.
   - The works for the construction of offshore wind projects will be performed under the conditions provided by GEO 57/2007 regarding the regime of natural protected areas, conservation of natural habitats, wild fauna and flora.
   - The permit for the construction of the offshore wind farm will detail the conditions for it to be connected to the grid. The connection will be performed by the TSO and a separate connection agreement is to be concluded between the TSO and the developer.

   a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

      Note that there are currently no offshore wind projects under development in Romania, as the legislation is in an early stage. An EIA prepared under Order of the Ministry of Environment, Water and Forests No. 269/2020, which refers to the Convention for the Protection of the Marine Environment of the North-East Atlantic regarding the "Assessment of the environmental impact of offshore wind farms" should, nonetheless, be required. This would suggest that a separate environmental authorisation would be necessary, but this is subject to the enactment of relevant legislation in the future.

   b. *Are consents required at a national level or state/municipal level?*

      The permits and licences are generally issued by the following authorities:

      - At a national level, the Ministry of Energy, ACROPO, ANRE and the Maritime Hydrographical Direction will perform their roles as stated above in Question 5. The Romanian Border Police also approves the works that are within the maritime border area.
      - At a county level:
        - the County Council (practically the counties of Tulcea or Constanta), on whose territory the project will be located, will issue the urbanism certificate for the onshore construction works; and
        - other municipal authorities which issue the approvals and consents required under the urbanism certificate.
      - Separate consents will be required from the owners of lands affected by the construction of the project.

   c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

      Currently, we are not aware of the possibility of recovering such costs.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Romania? Are these specific to FLOW, to offshore wind or renewables in general?*

   - The Romanian government approved the memorandum on CfD Scheme in 2020, while the Ministry of Energy initiated a public debate to adopt the final version the CfD Scheme.
   - On 7 August 2023, the Ministry of Energy published the draft Government Decision on the approval of the general legal framework for the implementation and operation of the mechanism of support through Contracts for Difference for low-carbon technologies (the **Draft GD**).
   - An information note for bidders (the **Note**) has also been published by the Ministry of Energy presenting an estimation concerning the first tender process expected to take place starting with the autumn of 2023 (the initial estimation was for September 2023).
   - As per the Draft GD, the following electricity production mechanisms are eligible for CfD: onshore wind resources; offshore wind resources; photovoltaic solar resources; hydro resources; nuclear resources; hydrogen; and energy storage.

   Considering that the law for offshore wind is not yet in place, the first CfD tender scheme for onshore wind and solar PV technologies is to begin in the Q4 2023, based on a CfD Scheme for which the CfD liquidity fund is obtained by using the amounts secured by the Ministry of Energy from the Modernisation Fund and the CfD contribution collection mechanism, which will be promptly transferred to the CfD liquidity fund, subject to state aid approval by the European Commission.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

   Currently there are no funding programmes or allocation methodology in force. However, as per the Draft GD, two CfD mechanisms will be implemented, namely:

   - state aid ad hoc CfD, on which basis the Ministry may grant CfD ad hoc contracts for electricity production projects for which a competitive selection may not be organised. The terms and conditions of such contracts will be established through direct negotiation and are subject to obtaining EC approval after its notification; and
   - tender CfD organised based on a CfD Scheme:
     - the strike price is determined following a public tender and may not exceed the maximum strike price established in the initiation order of the CfD tender; and
     - the reference price will be established by the CfD counterparty in accordance with the methodology to be established by ANRE.

   The term of the CfD will be for a maximum of 15 years from the payment start date.

   Considering that the law for offshore wind is not in force, there are no capacity limits or designated rounds mentioned by the Draft GD or by the Note for offshore wind projects. However, as per the provisions of the Draft Bill, a support scheme shall be available for 3GW of offshore wind projects provided that they are commissioned within a maximum period of 8 years from signing the relevant concession contract.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   In principle, the support schemes are granted at national level to avoid competition distortion.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Romania (e.g. is there a state-owned or mandated electricity offtaker who is the sole purchaser*

of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?

The electricity market is liberalised in Romania and the power purchase agreements are freely concluded by the parties (producers and offtakers in this case) on the market, based on the form of the contract upon which the parties agree. As an alternative, the electricity may be sold or acquired through the markets administered by OPCOM, which is a TSO subsidiary. In this case, the price is established based on the market rules, while a template agreement enacted by OPCOM is used.

A fully regulated and mandatory centralised electricity acquisition and sale mechanism, operated by OPCOM, is applicable between 1 January 2023 and 31 March 2025. Producers of electricity with an installed capacity of at least 10MW must notify their expected output, at various intervals, and are obliged to sell all or part of that output, determined in line with the consumption requirements notified by certain electricity suppliers to OPCOM, at the fixed price of RON 450/MWh (€90). Certain categories of producers are excluded from this obligation, namely:

- producers of electricity from renewable sources, as listed under Law No. 220/2008 for establishing the system for promoting the production of electricity from renewable sources (i.e. hydropower capacities up to 10MW, wind, solar, geothermal, biomass, bioliquids, biogas etc.);
- electricity production capacities commissioned after 1 April 2022; and
- producers operating capacities for production of electricity and thermal energy in co-generation that deliver thermal energy into centralised supply systems.

The electricity purchased by OPCOM from the producers is subsequently sold at the same price of RON 450/MWh to electricity suppliers that have contracts with end consumers, as well as to the transport and system operator and the distribution system operators, for covering the technical consumption of the electricity grids operated by them. Even if such mechanism should not, in principle, be applicable to offshore wind projects, it has effects over the energy market in general.

A question remains in respect of the ability of the Romanian grid to take the entire output generated by the offshore wind farm and whether a part of the output will be transferred outside Romania through the

high-voltage direct current interconnector mentioned at Question 2 above. If this occurs, a higher regulation of the contractual mechanism could be required.

11. *Are there any restrictions on foreign companies participating in FLOW projects in Romania? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Romania?*

    According to the provisions of the Electricity and Natural Gas Law 123/2012, entities holding supply and trading licences issued by other EU regulatory authorities can make use of them in Romania, in line with EU rules. For other activities specific to the sector (such as production, distribution, transmission), the developer must have a licence issued by ANRE in accordance with the provisions in force. The operation of an offshore wind farm project is performed based on various licences and approvals issued by the Ministry of Energy and by other relevant authorities. The Draft Bill provides that the concession agreement is concluded between the Ministry of Energy and one or various Romanian or foreign entities or the association of legal persons or legal person. However, operating this type of project requires holding certain land rights and applying for permits, making the setting-up of a Romanian company a necessity. Furthermore, Romania benefits from a more favourable tax regime than other EU countries. There is no restriction in respect of the nationality or citizenship of the shareholders.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Romania?)*

    In Romania, currently the transmission assets are owned by Transelectrica which is a state-owned company. The transmission and system operation are a natural monopoly.

    According to the Draft Bill, the developer ensures the functioning, at its own expense, of the internal network of the offshore wind farm up to the connection point. A separate agreement between the developer and TSO regarding the property limits, costs allocation, risks and maintenance of the connection point is required. All information regarding property limits and ownership will be described in a tender announcement.

13. *Are there any requirements in Romania for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    No such information is available, due to the absence of legislation regarding the development of offshore wind projects.

14. *Are there any local content requirements in Romania in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    There is no minimum local content obligation to procure equipment from local companies, contract with them or employ local employees. When the construction works start, the floating wind turbines should be certified by an authorised company chosen by the developer from a list approved by ANRE.

    It is also possible for entities holding licences issued by EU member states to use them in Romania, subject to EU and Romanian law.[98] The Romanian requirements are applicable regarding the authorisation and certification of the experts allowed to countersign various regulatory documents which must be submitted to various Romanian authorities (for example, the technical documentation, whether civil or electrical, must be countersigned by Romanian experts). Therefore, authorised experts that can sign the various documents required for the construction of a wind farm must be registered on ANRE's official list.

    Additionally, one of the criteria assessed during the tender procedure considers various aspects pertaining to innovation and environmental protection.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    It is customary that a tenderee and/or the winner of the tender procedure is required to submit a bid, bond or a bank letter of guarantee to secure the fulfilment of the obligations undertaken in the concession agreement.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    Currently, no such incentives are available.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Romania. For example, is there an existing offshore oil and gas industry in Romania given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    As part of EU climate targets, Romania has proposed an exit from coal power generation by 2030 in an emergency law adopted in June 2022. This proposal is delayed from the original deadline of 2032, as stipulated in the national recovery and resilience plan submitted in September 2021. Offshore wind offers a decarbonisation possibility to the power sector and provides a motivation to modernise coastal areas, although previous attempts to phase out coal from power generation and abandon coal-mining activities have been met with social and political opposition. FLOW as a labour-intensive industry could enable the establishment of new local supply chains such as renewable hydrogen

98. The energy law allows trading and supply activities in Romania by an EU-based legal entity holding a valid licence from its home state's authority, provided that they commit to comply with Romania's technical and commercial rules for that activity.

production. The combination of the two energy resources could, in turn, create new business opportunities for energy storage, bunkering and transport.

Romania has operational offshore oil and gas platforms, with approximately 96,470 barrels of oil produced per day. For 2023, natural gas production is expected to be 9.2 bcm, while crude oil production is estimated to be 3.09 mtoe (minus 2.3% compared with 2022).

The oil and gas industry could provide early market development opportunities for offshore wind capacity. On the other hand, FLOW installations could supply off-grid offshore oil and gas platforms.

As explained above, offshore wind potential in Romania is in its infancy. Investors are awaiting the establishment of stable legislation and the approval of the maritime spatial plan before making investment decisions.

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South Africa

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in South Africa (such as announced procurement goals and awards of individual projects or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in South Africa?*

   Currently, no laws or policies exist specific to FLOW energy projects in South Africa. There are, however, frameworks in place governing renewable energy. This includes wind energy and provides a legislative framework on health, safety and the environment in relation to FLOW energy projects.

   There are currently no goals or awards, nor is there any specific legislation in place to govern FLOW. FLOW has received little attention compared to onshore wind projects.

   By way of illustration, the Integrated Resource Plan 2019 (**IRP**), a government policy document, guides the national planning of the demand and supply of electricity (power) in South Africa. It provides for wind in general as one of the sources of renewable energy in South Africa. According to the IRP, 14,400MW of wind power is expected to form part of South Africa's energy mix by 2030 (constituting 17.8% of South Africa's energy mix).

   The implementation of the IRP has seen the commissioning of several onshore wind projects in the last few years. By contrast, no FLOW projects have been licensed or commissioned.

   Nevertheless, the outlook for FLOW is still reasonable. At least two projects are in the planning phase, the most prominent of which was announced by Hexicon, a Swedish developer, which formed a joint venture with a South African company in order to explore FLOW projects in the country. Seven potential projects have since been identified and are still ongoing, despite slowing down during the COVID-19 pandemic.

2. *What challenges are faced by the FLOW industry in developing FLOW projects in South Africa (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   There are significant challenges that need to be addressed before South Africa can begin development of any FLOW projects. Examples of challenges include:

   - **Policy.** There are varying opinions regarding what South Africa's optimum energy mix should look like, as well as concerns about what would constitute a fair energy transition for the country's constituents. As it stands, the coal industry is a major economic contributor and employer, making up 70% of the energy mix. The impacts flowing from foreign policy and greylisting provide further concerns for investment in the FLOW industry. Greylisting refers to the Financial Action Task Force's practice of publicly identifying countries with strategic Anti-Money Laundering and Countering the Financing of Terrorism (AML/CFT) deficiencies. In 2021, South Africa was greylisted due to it being deemed to have too many weaknesses in its legal framework. Since then, various laws have been amended, most notably the Companies Act 71 of 2008, which now contains stricter disclosure and reporting requirements, specifically in relation to ultimate beneficial ownership.
   - **Infrastructure.** Specifically, a constrained national power transmission grid, and the related commercial cost of production challenges relative to onshore wind or other renewables, lead times and general feasibility of implementation.
   - **Lack of awareness.** There is a lack of awareness of both the strengths and

weaknesses of FLOW energy in comparison to other forms of wind or renewable energy.

- **Societal opposition.** Occasional societal opposition to wind energy in general, with environmental challenges occasionally arising.

The main societal concern regarding wind energy is how its utilisation affects biodiversity and the environment in general. Pushback is often seen in relation to the effects that wind farms have on rare plants and birds. However, it is not within our competency to express any legal views on the question of societal impact, nor on the relative impact of FLOW sites compared to onshore sites.

In a report identifying FLOW as a potential solution to the electricity crisis, severe grid congestion and the difficulty of operating in harsh wave conditions were also recognised as challenges for South Africa.[99]

Despite the above challenges, based on a conspectus of policies, studies, project implementation and communications, South Africa's marine and terrestrial environment and its critical need for power, FLOW remains attractive.

Firstly, FLOW developers are not precluded from developing private generation and supply capacity. There is no state monopoly in this regard, but there are certain licences that must be obtained and conditions that must be met, not least in respect of use of the marine environment and national (coastal) territory.

Secondly, under the IRP, provision has been made for 6GW of solar and 14.4GW of wind to be added to the national grid.

Thirdly, under the Renewable Energy Independent Power Producer Procurement Programme (**REIPPPP**), a national programme and policy has been implemented for more than a decade. This aims to bring new generation capacity (specifically from renewables) onto the electricity grid through competitive, transparent tenders for private sector investment in solar, wind, biomass and small hydro. Under this system, the tenderer sells the produced power to Eskom, a parastatal entity that functions as the purchaser.

That said, in the last round of tender awards under the REIPPPP (Bid Window 6), five of the six preferred bidders were solar projects totalling 860MW, despite there being 4.1GW of wind bidders, ostensibly on account of the fact that the electricity grid in the locations of the wind projects could not accommodate them.

3. *Is there a World Bank Offshore Wind Roadmap for South Africa or any announced plans by the government of South Africa such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

There is a World Bank Roadmap on Offshore Wind for South Africa. It suggests that South Africa has a technical potential to produce 850GW of power from FLOW projects, but has not been formally endorsed or implemented. However, as explained above, the South African government has expressed its desire to explore a range of renewable energy sources.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in South Africa.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

There are no tender processes specific to FLOW. There are tender processes applicable to power projects in general, which include renewables such as wind. This can be taken to include FLOW, although they are not FLOW-specific.

As discussed in Question 4(b) below, the Electricity Regulation Act, 4 of 2006 (**ERA**) requires the National Energy Regulator of South Africa (**NERSA**) to consider applications for licences and provides that NERSA may issue licences for (i) the operation of generation, transmission or distribution facilities, (ii) the import and export of electricity and (iii) trading. The issuing of such licences is not subject to any competitive tender process or direct negotiation.

99. 'Offshore wind could help solve electricity crisis in South Africa' (Aegir, 18 January 2023) <www.aegirinsights.com/news/offshore-wind-could-help-solve-electricity-crisis-in-south-africa> accessed 11 December 2023.

However, section 34 of the ERA allows the Minister of Electricity, in consultation with NERSA, to determine that new generation capacity is needed to ensure the continued uninterrupted supply of electricity. Determinations under section 34 of the ERA have resulted in the creation of various programmes dedicated to the procurement of electricity from independent power producers (**IPPs**), most notably the REIPPPP (focused on renewable energy), the Risk Mitigation Independent Power Producers Procurement Programme (technology-agnostic) and the Standard Offer Programme (focused on co-generation, biomass and landfill). Section 34 determinations allow the Minister, in consultation with NERSA, to require new generation capacity to be established through a tendering procedure which is fair, equitable, transparent, competitive and cost-effective.

It is important to note, however, that Section 34 merely allows the Minister of Electricity to make the relevant programme subject to such a requirement, but does not require that a tender procedure be utilised in all instances.

We note in this regard that the procurement of electricity by an organ of state will almost always require that a tender procedure be followed due to the requirements under the Municipal Finance Management Act 56 of 2003 and the Public Finance Management Act 1 of 1999, which apply to organs of state contracting for goods and services. In certain instances, however, a tender procedure may be dispensed with if certain requirements are met, such as it being impractical to follow a tender procedure in the case of municipalities.

Regarding seabed leases, the position is not clear and not contemplated under any South African legislation. However, the Mineral and Petroleum Resources Development Act 28 of 2002 (**MPRDA**) may provide some guidance, or at the very least an indication, as to what the position might be. The MPRDA deals with, inter alia, applications for prospecting, exploration and mining rights on land and the seabed. The granting of such rights is not subject to a competitive tender process and, if more than one application is received for any such rights, they are dealt with in order of receipt. If an application is received on the same day, preference is given to applications from historically disadvantaged persons. In light of the aforementioned, we can only say that the same approach could be followed with regard to the granting of a seabed lease, but there is currently no definitive position in this regard.

b. *Is there a specific legal/regulatory regime for FLOW projects in South Africa, as opposed to broader offshore wind or renewables projects in general?*

There is no legal/regulatory regime specific to FLOW. However, the main piece of legislation that regulates the electricity supply industry in general is the ERA, which would apply to FLOW projects. The custodian and enforcer of the regulatory framework provided for in the ERA is NERSA, established by section 3 of the National Energy Regulator Act, 40 of 2004.

Section 4 of the ERA provides for the powers and duties of NERSA, which requires NERSA to consider applications for licences and provides that NERSA may issue licences for (i) the operation of generation, transmission or distribution facilities, (ii) the import and export of electricity and (iii) trading.

The ERA provides the following useful definitions:

- **generation** is defined as "the production of electricity by any means";
- **transmission** is defined as "the conveyance of electricity through a transmission power system excluding trading", and **transmission power system** is defined as "a power system that operates above 132kV";
- **distribution** is defined as "the conveyance of electricity through a distribution power system excluding trading", and **distribution power system** is defined as "a power system that operates at or below 132kV"; and
- **trading** is defined as "the buying or selling of electricity as a commercial activity".

The ERA also provides for registration with NERSA in circumstances where licensing (as opposed to mere registration) is not required. Schedule 2 of the ERA further exempts certain activities from licensing (but not registration), and certain activities from both licensing and registration. It is important to note that

Schedule 2 of the ERA also introduces the concept of "wheeling", which is defined as the "conveyancing of electricity from the Point of Connection to a point of consumption through a third-party transmission or distribution network".

A noteworthy activity exempt from licensing (but not registration) is "the operation of any generation facility with or without energy storage, irrespective of size or capacity, with a point of connection on the transmission or distribution power system, in circumstances where: the generation facility is operated to supply electricity to one or more customers by wheeling; and the generator has entered into a connection agreement with the holder of the transmission or distribution licence in respect of the power system over which the electricity is to be wheeled".

A noteworthy activity exempt from licensing and registration is where "the generation facility is operated to supply electricity to one or more customers and there is no wheeling of that electricity".

In light of the above, it is possible to operate a generation facility (subject to meeting the aforementioned requirements of Schedule 2) without a licence or registration and, although not specific to FLOW, the aforementioned legal regime would apply to any FLOW project.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of South Africa intended to enable fast-track development of floating wind projects and technologies?*

No.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

As explained above, there are no such requirements or regimes specific to FLOW. Generally, the National Environmental Management Act, 1998 (**NEMA**) requires persons performing certain specified activities to apply for environmental authorisation for such activities. While listed activities requiring environmental authorisation under NEMA do not expressly include FLOW, they do require persons to apply for an environmental authorisation if they are involved in the development of infrastructure or a facility for power generation from renewable energy.

Similar requirements apply in respect of operations in or access to ports, as regulated by the National Ports Act (2005) (**NPA**). In relation to foreign ownership, the port regulations promulgated in terms of the NPA provide that the Ports Authority (as defined in the NPA) must take into account any relevant sector code of good practice promulgated in terms of the Broad-based Black Economic Empowerment Act, 2003 (**BBBEE Act**) in the issuing of any licence or the granting of any concession or authorisation in terms of the NPA. We note that the BBBEE Act was enacted to facilitate, inter alia, the meaningful participation of black South Africans in the economy.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in South Africa?*

There are no government authorities/public bodies which are specifically responsible for the regulation of FLOW in South Africa. As mentioned above, the key regulators in the case of renewable energy, such as wind, are NERSA, the Department of Mineral Resources and Energy (the department responsible for the regulation of energy, including wind to power) and the sundry regulators, such as the environmental regulator in the Department of Environment, Forestry and Fisheries and the occupational health, labour and safety regulator in the Department of Labour. This does not include the local or provincial level regulators with regulatory powers over specific activities such as construction and water resource usage.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in South Africa (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

There is no legal framework which specifically applies to FLOW. There are, however, a number of laws of general application which will be relevant. For example:

- connection to the transmission or distribution grid will require connection agreements and compliance with the relevant technical codes and standards;
- as regards environmental consents, NEMA requires EIAs in the case of FLOW given they are generators of electricity with a potentially material environmental impact;
- the Integrated Coastal Management Act (2008) (**ICMA**) and Marine Living Resources Act (1998) also require marine coastal use permissions, primarily for approvals of an environmental nature falling under NEMA, but also for marine construction and coastal waters use (planning) permissions. Note this latter requirement may entail concurrent or delegated approvals required from municipalities under their planning laws rather than from a national or provincial government under NEMA or ICMA;
- depending on whether the structure constitutes a maritime vessel or marine craft construction, operation and safety licences and permissions may also be required.

b. *Are consents required at a national level or state/ municipal level?*

Yes. See Question 6(a).

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

Yes. See Question 7.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in South Africa? Are these specific to FLOW, to offshore wind or renewables in general?*

There is a range of direct and indirect incentives/ support schemes which are not targeted at FLOW but are nonetheless beneficial to FLOW development. As listed below:

- **Grant, concessional or blended funding arrangements.** These are available to the state and to the parastatal grid owner and primary power provider (Eskom). Their purpose is to promote renewable energy production, reduced emissions pledges and a transition to low carbon, sustainable power generation. An example was the US$8 billion package of loans and grants from the Interpublic Group following COP26.
- **Sovereign guarantees.** These are in favour of power producers in the REIPPPP, effectively guaranteeing the financial performance of the offtaker/purchaser under the programme, namely Eskom, which reduces investment risk to lenders and developers.
- **Tax incentives.** These were introduced into the Income Tax Act 58 (1962) allowing certain capital and revenue costs incurred by taxpaying producers and consumers of renewable energy to qualify for tax deductions. In certain cases, these were up to 125% of the costs incurred.
- **Feed-in tariffs.** For completeness, and though it does not relate directly to FLOW but may in future, we are aware of South Africa's intention to develop and implement a feed-in-tariff (**FIT**) on a national scale, aimed at acquiring electricity through a range of sources, including surplus electricity from new and existing generators. The details of this have not yet been determined and the possibility of such a FIT under the current legal framework is still being considered. By way of example, the City of Cape Town (**CoCT**) has a FIT scheme, but this is only aimed at existing and new solar PV installations. The CoCT FIT requires that participants consume more electricity from the network than what they put back in over the course of a year. The CoCT FIT offsets the electricity bill and the excess power that is generated back into the CoCT's grid is used to balance out the participant's monthly bill. We mention this as an example only of how FLOW could be within the ambit of a future FIT scheme.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

As previously noted in Questions 2 and 7, there are designated bidding rounds initiated by the Minister of Electricity (acting in concurrence with NERSA). These parties collectively determine the quantity and type of power that will be procured under the REIPPPP, which is then subject to competitive bidding processes, prequalification, preferred bidder awards and a round of limited negotiations which subsequently lead to prescribed form Power Purchase Agreements (**PPAs**) and other contract documents being executed and subject to financial close thereafter. At all times in the process, the state acts as the procurer of the renewable energy and Eskom the purchaser thereof.

The process described in the previous paragraph relates only to the REIPPPP and determinations pursuant to section 34 of the ERA as explained above. Private procurement and development of wind power generation is at the discretion of the parties concerned, save that certain registration, licensing and consents may have to be obtained (depending on the scale and nature of the project) as in the case of the REIPPPP as described above.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

In respect of the support schemes generally, refer to Question 7.

For the purposes of this paragraph, answers are provided in the context of the REIPPPP, as opposed to private PPAs and offtake, where the terms of support and financial arrangements are the subject of negotiation. For the purposes of this answer, the reference to "developer" in the question is also construed as a reference to the entity who is the seller of energy under a PPA, and not extraneous parties (for example, partners, lenders or others in co-venture who are distinct from the seller). As framed in the question, "matters beyond the control of the project developer" can have an extremely wide and complex meaning and application in the context of the PPAs with many related and interdependent (and, at times, conflicting) provisions and exceptions to provisions.

Matters beyond the reasonable control of the developer are catered for in the following:

- In the "*force majeure*" provisions of the PPAs that deal with a range of reasonably unforeseeable and unavoidable provisions. This includes the usual "acts of God", such as weather, strikes, pandemics, even unavoidable lapses of permits/consents, in which event performance obligations are excused. In certain specified instances, limited time extensions afforded to the seller and compensation may also be payable to the seller.
- Provision is made for events constituting "unforeseeable conduct". This arises from unforeseeable and unavoidable lawful powers being exercised by the purchaser or certain authorities which result in general or specific adverse effects on the project and/or the seller or like projects and sellers falling outside the force majeure. It is to be noted that adverse taxation changes or effects which are of general application and not specific to the seller or project do not qualify as unforeseeable conduct. Qualifying unforeseeable conduct entitles the seller to compensation (above a prescribed minimum threshold value) to restore it to an equivalent position it would have occupied under the PPA but for the unforeseeable conduct. It is to be noted that the provisions on unforeseeable conduct apply both ways. Unforeseeable conduct that unduly favours the seller (again above a certain threshold value) is restored to the purchaser. A related provision exists in the definition and application of "change of law", which caters for new, unforeseen laws or changes in application of existing laws contrary to habitual practice, but which exclude a change in tax laws. In this case, the seller is entitled to recover the additional capex or opex incurred through an extension of time of the "expiry date" not exceeding 10 years.
- Provision is made for "system unavailability events" in the form of breakdowns, interruptions and inoperability of the facility or project in defined, limited circumstances.

In this case, limited compensation and/or extensions of time are enjoyed by the seller. It must be noted that cost recovery and cost overruns are generally irrecoverable, as pricing in the PPAs is subject to a complex pricing and cost recovery framework. The framework does, outside the event-driven instances dealt with above, make limited provision of annual and escalating costs (including inflationary costs) based on formulae and base values stipulated in the PPA when concluded.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in South Africa (e.g. is there a state owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    As noted above, in terms of the ERA and REIPPPP, Eskom as a state-owned company in South Africa is generally the mandated offtaker/purchaser of the power from IPPs. Standard form PPAs have been in use for several rounds of energy procurement under the REIPPPP. The regulations under the ERA set out certain requirements that the PPA must meet. The requirements are:

    - value for money;
    - appropriate technical, operational and financial risk transfer to the seller;
    - effective mechanisms for the implementation, management, enforcement and monitoring of the PPA; and
    - satisfactory due diligence in respect of the buyer's representative and the proposed seller in relation to matters of their respective competence and capacity to enter into the PPA.

    In relation to price, the ERA provides that contracts regarding the sale of energy must be cost-effective to the organ of state purchasing the energy. The ERA also provides that the government may determine how much energy is needed and to whom the energy is to be sold. It appears that the predetermined persons can change as the ERA provides that the government has other powers which are incidental to the aforementioned determination and these powers are not a closed list.

    Section 34 of the ERA provides that the Minister of Electricity in consultation with NERSA may determine that (i) new generation capacity is needed to ensure the continued uninterrupted supply of electricity, (ii) the types of energy sources from which electricity must be generated, (iii) the percentages of electricity that must be generated from such sources, (iv) that electricity thus produced may only be sold to the persons or in the manner set out in such notice, and (v) that electricity thus produced must be purchased by the persons set out in such notice. Section 34 determinations are essentially a mechanism under the ERA that allow for the Minister of Electricity, in consultation with NERSA, to allow private generators to sell electricity to a designated mandatory buyer of electricity (usually Eskom, the national state-owned utility) and is a means to bringing new electricity onto the grid to supplement Eskom's capacity constraints.

11. *Are there any restrictions on foreign companies participating in FLOW projects in South Africa? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in South Africa?*

    As provided in Question 4 above, there has been no bid which has been required for FLOW in South Africa. We therefore cannot specify ownership requirements which apply to FLOW projects specifically. However, in the context of public procurement of renewable energy projects generally, South African ownership of the project company (particularly ownership by black people) as well as the economic development of local enterprises and suppliers, are key qualification requirements in terms of the REIPPPP. As illustrated in Question 4(d), certain licences also require South African, more specifically black, ownership of the project company.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in South Africa)?*

    Under ERA, transmission activity requires a licence from NERSA. Eskom is the state-owned monopoly owner and operator of the transmission networks under licence from NERSA. Tying into the transmission infrastructure will require a grid connection agreement with Eskom.

    There is currently no guidance on what would be considered as the transmission assets forming part of a FLOW project, as no FLOW projects have been developed in South Africa as yet.

    As mentioned above, there is only one transmission licensee in South Africa (being Eskom) and it would be the obligation of Eskom to build FLOW-specific transmission assets. The FLOW project would need to pay use of system charges for the use of the transmission infrastructure and obtain permission from Eskom to tie into any transmission infrastructure. Should it tie into any local municipality infrastructure (in the main, its distribution network), it would require similar permissions from the municipality. In all instances, it would need to satisfy the various technical requirements and standards in the main as set out in the relevant transmission or distribution codes which are part of the electricity regulatory framework in South Africa.

    In respect of FLOW, we anticipate that any transmission assets would be built (and owned) by Eskom as the only transmission licensee in the country. While there is currently no requirement that transmission assets must be sold to the transmission operator (given there is no existing FLOW industry in South Africa), that position may change in future as Eskom appears to be reducing its capital expenditure due to financial constraints.

13. *Are there any requirements in South Africa for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    Please refer to Question 6(a). We are not aware of any other FLOW-specific requirements at this time.

14. *Are there any local content requirements in South Africa in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    As noted already, there have been no FLOW projects to date and we therefore cannot specify any local content requirements specific to FLOW projects. However, as stated in Question 11, the economic development of local enterprises and suppliers is one of the key qualifications in terms of the REIPPPP and public procurement.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    As already noted, there are no specific requirements in the context of FLOW public procurement.

    In relation to renewables and wind procurement generally under the REIPPPP, project developers must tender certain performance undertakings backed by financial instruments. Examples include certain bid guarantees to qualify for consideration at the various stages of the public bid rounds, as well as rehabilitation guarantees to secure the performance of any decommissioning and rehabilitation obligations. In addition, the PPAs sometimes require the provision and maintenance of commercial insurance. Against this, sellers are required to draw in certain events and perils and, in terms of the funding agreements, a party must be nominated which can assume and secure the obligations of the seller under the PPA in the event of default.

    In the context of private PPAs, these terms are not mandated and are of course subject to negotiation and agreement between the parties. However, they may be applicable when required as a condition of regulatory consents, such as decommissioning guarantees similar to those required in the case of public PPAs.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    The incentives are the same as for other forms of low carbon and renewable production. Green hydrogen is a key potential area of production and industrialisation for South Africa, with the government announcing the formation of a fund to attract investment in that sector.

    A heads of agreement pertaining to the aforementioned fund was concluded on 20 June 2023 during the visit of the Prime Ministers of both the Netherlands and Denmark to South Africa. The fund will be supported by Climate Fund Managers and Investment International B.V., Sanlam Limited, the Development Bank of Southern Africa, Industrial Development Corporation of South Africa and other strategic partners. The aim is to raise US$1 billion in South Africa and through other channels.

    However, none of the above is specific to FLOW or targeted at the conversion/pivot of traditional oil and gas producers to the use of FLOW, nor is it targeted at the electrification of oil and gas platforms as the upstream oil and gas industry is marginal at best.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in South Africa. For example, is there an existing offshore oil and gas industry in South Africa given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    There is an existing offshore oil and gas industry that may provide some transferable skills and useable infrastructure. However, the industry is marginal and the benefits to FLOW are likely to be minimal.

    As noted above, in the South Africa energy mix, FLOW ranks behind other forms of energy and is unlikely to see significant growth in the immediate future.

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Spain

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Spain (such as announced procurement goals and awards of individual projects, or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Spain?*

Spain's offshore wind energy strategy aligns with the "EU Strategy on Offshore Renewable Energy". In a broader context, Spain's commitment to achieving net zero emissions is outlined in the Spanish Strategic Framework for Energy and Climate (the **Framework**), with a particular focus on the Integrated National Energy and Climate Plan (**PNIEC**) for the years 2021-2030.

In accordance with its commitment to fulfilling the Framework's objectives, Spain has established a domestic objective of installing 3GW of offshore wind facilities by 2030. To attain this target, Spain is required to install 200 sizeable offshore wind turbines each with a capacity of 15MW.[100] In February 2023, the government selected 5,000km2 of maritime areas for offshore wind development. The National Maritime Spatial Planning (**MSP**) delineated 19 zones for offshore wind projects across five regions: the North Atlantic; the South Atlantic; Estrecho and Alborán; the Canary Islands; and Levantine-Balearic.

The government is now preparing to launch the first offshore wind auction in the near future, and is in the process of setting out the relevant permits, regulations and auction model. The auction is expected to focus on the Canary Islands, with following auctions off the coast of mainland Spain. The total MSP area has the potential to generate 20GW. In order to speed up deployment, the government is considering allocation of lease areas, subsidised power contracts and grid connections in a single combined auction.[101]

PNIEC foresees renewables taking up at least 42% of final energy consumption and 74% in electricity. It establishes energy efficiency targets of around 59GW of additional renewable electricity generation within the decade, including an increase of 25.7GW in wind power capacity. 1-3GW of the newly installed wind capacity will originate from offshore wind farms.

Prototype floating turbines have been trialled by Spain in the Canary Islands[102] and off the Basque Coast.[103] Iberdrola is planning the development of up to 2,000MW of FLOW off the coasts of Galicia, Andalusia and the Canary Islands.[104] Greenalia and a partnership between Norway's Equinor and Spain's Naturgy have also announced separate project plans for floating turbines in Spain. Greenalia has begun the permitting process for five floating wind farms off the Canary Islands, each with a capacity of more than 50MW, and has expressed an

100. 'Spain urged to expedite laws or risk missing floating wind target' (Reuters, 10 May 2023), <www.reutersevents.com/renewables/wind/spain-urged-expedite-laws-or-risk-missing-floating-wind-target?utm_campaign=NEP%20WIN%2010MAY23%20Newsletter&utm_medium=email&utm_source=Eloqua> accessed 11 December 2023.
101. 'Spain urged to expedite laws or risk missing floating wind target' (Reuters, 10 May 2023), <www.reutersevents.com/renewables/wind/spain-urged-expedite-laws-or-risk-missing-floating-wind-target?utm_campaign=NEP%20WIN%2010MAY23%20Newsletter&utm_medium=email&utm_source=Eloqua> accessed 11 December 2023.
102. 'Spain urged to expedite laws or risk missing floating wind target' (Reuters, 10 May 2023), <www.reutersevents.com/renewables/wind/spain-urged-expedite-laws-or-risk-missing-floating-wind-target?utm_campaign=NEP%20WIN%2010MAY23%20Newsletter&utm_medium=email&utm_source=Eloqua> accessed 11 December 2023.
103. Adnan Durakovic, 'Spain Receives First Floating Offshore Wind Power' (Offshorewind.biz, 18 September 2023) <www.offshorewind.biz/2023/09/18/spain-receives-first-floating-offshore-wind-power/> accessed 11 December 2023.
104. 'Offshore renewables: An action agenda for deployment (A contribution to the G20 Presidency)' (International Renewable Energy Agency, 2021) <www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/Jul/IRENA_G20_Offshore_renewables_2021.pdf?rev=9e3ad6549dd44dc9aaaaedae16b747bb> accessed 11 December 2023.

interest in developing projects in Galicia. Orsted, which is the world's largest offshore wind developer, has recently partnered with Spanish oil group Repsol to combine their strengths in developing FLOW projects in Spain. EDPR and Engie have also formed a joint venture, Offshore Wind, which partnered with the Canary Islands specialist DISA Group in order to develop FLOW projects around the islands.

In September 2023, Spain's DemoSATH FLOW project, situated two miles off the Basque coast with a 2MW turbine, successfully connected to the national electrical grid, marking a significant milestone as the country's first operational offshore wind facility.[105]

2. *What challenges are faced by the FLOW industry in developing FLOW projects in Spain (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   The main problems facing the development of offshore wind energy in Spain arise from social opposition, the geophysical configuration of Spanish coasts and the absence of a developed regulatory framework for the implementation of the projects.

   - **Social opposition.** This stems from concerns relating to the potential effects of offshore wind facilities on the environment and on traditional marine activities, including fishing, navigation and tourism. The Maritime Spatial Management Plans (further discussed in Question 4(b) below) have thus been drafted with a view to minimising environmental impact and sea space.
   - **Port infrastructure.** Spain also has few ports that have sufficient water depths to handle floating wind technologies, but innovation and technological developments may reduce the need for new port infrastructure. For example, Spanish group Gazelle Wind Power has developed a floating wind platform which reduces draft requirements.
   - **The regulatory framework.** This is being modified to encourage offshore wind energy installations. The reform covers permitting issues as well as access and connection rights of the installations.

   However, there are concerns that the environmental review process may take several years and some areas could face resistance from local fishing groups and tourism associations.

3. *Is there a World Bank Offshore Wind Roadmap for Spain or any announced plans by the government of Spain, such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   There is no World Bank Offshore Wind Roadmap specific to Spain. As discussed in Question 1 above, the Spanish government has announced several plans under the Framework.

   The GWEC has published a map identifying the amount of offshore wind technical potential in Spain as 207GW for floating and 12GW for fixed.

   The Spanish government also approved the "Roadmap for development of offshore wind and marine energy in Spain" (**Roadmap**), setting the objective of:

   - making Spain a European reference hub for technological development and environmental innovation in the field of marine renewable energy;
   - making Spain an international benchmark in industrial capacities and in the sector value chain;
   - boosting the sustainable development of offshore renewables, with an environmental as well as a social approach; and
   - establishing a state-level framework for the orderly deployment of offshore renewables.

   Under the Roadmap, the government plans to invest €200 million on research and development in FLOW over the next three years. The Roadmap also estimates up to €1 billion of port investment will be required by 2030.

105. Adnan Durakovic, 'Spain Receives First Floating Offshore Wind Power' (Offshorewind.biz, 18 September 2023) <https://www.offshorewind.biz/2023/09/18/spain-receives-first-floating-offshore-wind-power/> accessed 11 December 2023.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Spain.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

The current permitting framework for the processing of offshore wind and marine energy facilities is contained in the Royal Decree 1028/2007, dated 20 July 2007, which establishes the Administrative Procedure for the Processing of Applications for Authorisation of Electricity Generation Facilities in the Territorial Sea (**RD 1028/2007**). There have been detailed amendments and the original version of the legislation is no longer applicable to new offshore wind facilities.

Although details of the new administrative procedure are unknown, the Roadmap specifies that the procedure will entail competitive processes managed by the General State Administration (Ministry for the Ecological Transition and Demographic Challenge). It will consider criteria encompassing environmental and energy aspects, as well as criteria segmented across multiple zones. An applicant must also obtain the relevant "public concession" granted by the state for occupying maritime-terrestrial public domain.

b. *Is there a specific legal/regulatory regime for FLOW projects in Spain, as opposed to broader offshore wind or renewables projects in general?*

As discussed in Question 4(a) above, offshore wind facilities have a specific permitting regime regulated by RD 1028/2007, which is currently under review. Regulations applicable to offshore wind facilities will also have specific requirements regarding the access and connection of the projects to the transmission or distribution grid.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Spain intended to enable fast-track development of floating wind projects and technologies?*

On 28 February 2023, the Council of Ministers passed Royal Decree 150/2023 which approved the Maritime Spatial Management Plans for five maritime areas (North Atlantic, South Atlantic, Estrecho and Alborán, Levantine-Balearic and Canary Islands).

The Maritime Spatial Management Plans set out the distribution of activities, both for current and future applications, in Spain's marine waters. It distinguishes between: (i) priority areas for activities of general renewable energy interest; and (ii) high-potential areas for sector-specific activities and areas prioritised for future renewable energy potential, including offshore wind energy development.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

The regulations on ports are incorporated within Law 27/1992 on State Ports and the Merchant Marine, (enacted on 24 November 1992) as amended from time to time. Law 27/1992 establishes a model for the management of ports of general interest, utilising public bodies known as Port Authorities. These authorities have legal status and assets, operate independently of the state and possess full legal capacity. They operate under the Ministry of Public Works and Economy, Ports of the State.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Spain?*

Authority	Roles
The Ministry for Ecological Transition and the Demographic Challenge (MITECO)	Responsible for drafting legislation on energy, developing national energy policy and measures for ensuring energy supply, coordinating with other ministries and monitoring the developed energy policies. The Ministry is also responsible for granting concessions required for the occupation of maritime public domain (through the Directorate General for the Coast and the Sea) and for the assessment of environmental impacts of the projects (through the Directorate General for Environmental Quality and Assessment).
The National Authority for Markets and Competition *(Comisión Nacional de los Mercados y la Competencia or* **CNMC**)	Independent authority in charge of competition and regulatory matters in Spain. The CNMC merges the antitrust authority and sector-specific regulatory authorities, which include the energy sector. The CNMC is fully independent from the government, public administration and market players. It has organisational autonomy and is subject to judicial and parliamentary control.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Spain (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

   As mentioned in Question 4(a), the current permitting framework for managing offshore wind and marine energy facilities is undergoing substantive amendments and is no longer applicable in its original form for new offshore wind facility applications.

   RD 1028/2007 provides for a competitive procedure in which applicants are granted reservation of geographical areas to investigate the feasibility of the offshore facilities. These reserves could lead to administrative concessions in these areas for future operationalisation of offshore wind facilities.

   Applicants must still obtain the relevant authorisations and permits for the construction and operation of the production facilities.

   a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

      Any development of offshore facilities will require a public concession to be granted by MITECO, to allow occupation of the territorial sea (a public domain asset) and subsequent operation of the production facility.

      Administrative and environmental authorisations are also required.

   b. *Are consents required at a national level or state/municipal level?*

      The main authorisations and permits are granted by national authorities. Review of the applicable regulations will determine whether the regional (comunidades autónomas) and local authorities are also involved in the permitting process.

   c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

      No subsidies or support schemes will cover the costs of such licences.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Spain? Are these specific to FLOW, to offshore wind or renewables in general?*

   There is no support scheme available for the development or operation of commercial offshore facilities. There may be mechanisms or incentives in the future for testing prototypes or pre-commercial wind farms. MITECO has published a document which sets out state grants for the development of pilot projects for marine renewable energy. The grants, which total €200 million, will facilitate the establishment of testing infrastructure and prototype demonstrations, including FLOW technology. They will be awarded on a competitive basis as non-refundable grants.[106]

   The European Union has also set out measures to assist in the expansion of clean tech manufacturing facilities and the loosening of stringent rules around state aid.[107]

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

   There are currently no national funding programmes available for offshore facilities.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   As mentioned above, there are currently no national funding programmes available for offshore facilities.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Spain (e.g. is there a state-owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    The revenue structure/offtake arrangement applicable to offshore wind facilities has not yet been enacted. The remuneration mechanism for these facilities is expected to be based on the "Economic Regime for Renewable Energy" (Régimen Económico de Energías Renovables) applicable to other renewable technologies. This scheme is based on long-term recognition (currently 12 years) of a fixed price for the energy generated by the facility and is granted through a competitive bidding procedure in which the electrical energy, the installed capacity or a combination of both are auctioned, and the remuneration price used to bid ("pay as bid").

11. *Are there any restrictions on foreign companies participating in FLOW projects in Spain? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Spain?*

    The general foreign direct investment regime applies to investments in offshore wind facilities. Investments must be authorised if, as a result of the investment: (i) the investor holds a stake equal to or greater than 10% of the share capital of a Spanish company; or (ii) the investor acquires control of the company, provided one of the circumstances below occurs:

106. 'Spain Adopts Regulatory Framework for EUR 200 Million Grant Programme for Marine Renewables' (Offshorewind.biz, 8 December 2022) <www.offshorewind.biz/2022/12/08/spain-adopts-regulatory-framework-for-eur-200-million-grant-programme-for-marine-renewables/> accessed 11 December 2023.
107. 'Spain urged to expedite laws or risk missing floating wind target' (Reuters, 10 May 2023) <www.reutersevents.com/renewables/wind/spain-urged-expedite-laws-or-risk-missing-floating-wind-target?utm_campaign=NEP%20WIN%2010MAY23%20Newsletter&utm_medium=email&utm_source=Eloqua> accessed 11 December 2023.

- the investment is carried out by residents of countries outside the EU and the European Free Trade Association (EFTA); or
- the investment is carried out by residents of EU/EFTA countries whose real ownership (i.e. owner or controller of 25% of the investor's share capital or voting rights, or who otherwise controls, directly or indirectly, the investor) belongs to residents of countries outside the EU or EFTA; and
- the investment is carried out by residents of EU/EFTA countries whose real ownership belongs to residents of countries within the EU or EFTA, and the investment is made in companies listed in Spain, or in unlisted companies, but the value of the investment exceeds €500 million.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Spain)?*

    No, there are no restrictions on production activities. Transmission and distribution facilities are regulated assets that can only be operated by the transmission operator (Red Eléctrica de España) or by the distribution company that is authorised to operate in the area where the generation facility is connected to the distribution grid.

13. *Are there any requirements in Spain for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    No, offshore wind facilities do not have to be registered with any ship registers.

14. *Are there any local content requirements in Spain in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    As mentioned above, the regulation governing the authorisation and operation of offshore wind farms has not yet been approved. There has been previous legislation assessing the social, environmental and technical aspects of allocation of access to the transmission grid, but it cannot be confirmed that such criteria will apply to production facilities of offshore wind projects.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    As mentioned above, the regulation governing the authorisation and operation of offshore wind farms has not yet been approved. Guarantees have been required in the past for the commissioning of the installation of production facilities in relation to the allocation of the Renewable Energy Economic Regime. It cannot be confirmed that such criteria will apply to production facilities for offshore wind projects.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    No, there are currently no such incentives in Spain.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Spain. For example, is there an existing offshore oil and gas industry in Spain given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

Spain's role as a global onshore wind development hub provides the country with a competitive advantage for the development of offshore wind energy. It is the second European country and the fifth country in the world for wind power capacity, following China, the US, Germany and India. Spain is also one of the three European countries with excellent industrial wind power capacity as well as research and development investment in the sector. It also possesses expertise in shipbuilding, the maritime-port sector, civil engineering capabilities, as well as a wealth of materials and equipment for the development of marine renewable technologies.

The Spanish wind, steel and shipbuilding industries, with domestic developers and suppliers of goods and services, have already contributed to the development of offshore renewables. Spain is also a prominent exporter of wind industry components, including floating wind turbine foundations and concepts.[108]

The wind, steel and shipbuilding sectors in Spain, along with local developers and suppliers of products and services, have played an integral role in advancing ORE. The market for offshore renewable energies within Spain will help maintain the competitive standing of the Spanish offshore industry, contribute to the country's Gross Domestic Product (GDP) and generate skilled employment. Offshore wind has already contributed to business diversification and workload stabilisation in associated industrial sectors.

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108. 'With several manufacturers already, Spain has potential to be a floating wind hub' (Aegir, 11 May 2022) <www.aegirinsights.com/news/with-several-manufacturers-already-spain-has-potential-to-be-a-floating-wind-hub> accessed 11 December 2023.

Tunisia

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Tunisia (such as announced procurement goals and awards of individual projects, or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Tunisia?*

   The location of Tunisia offers great opportunity for the exploitation of renewable energy (**RE**) resources, particularly solar and wind. In 2023, RE power plants in Tunisia represented 2.4% of the current electrical energy mix.

   Wind energy has garnered interest from Tunisian authorities since 2000 when the first onshore wind power plants were installed. Wind power projects currently operating in Tunisia consist of utility-scale wind farms producing a total capacity of 223MW of electricity (in 2023).

   There are currently no offshore wind farm projects and offshore wind was not included in the 2030 RE plans and targets issued by the Tunisian Ministry of Energy. However, the African Development Bank has recently invited consulting firms to express their interest in assisting the Tunisian Electricity and Gas Company (**STEG**) in conducting a feasibility study for an offshore wind energy project (ranging from 250MW to 500MW) with energy storage in Tunisia.[109]

   The Energy Transition Fund (**ETF**) had previously arranged an offshore wind training course in cooperation with the Tunisian National Agency for Energy Conservation and the DOB Academy.[110] ETF aims to support countries in the Middle East and North Africa, including Tunisia, in transitioning to a more sustainable energy supply.

   Tunisia's geographic location and coastline are favourable to offshore wind power. The north, north-east, central and southern coastal regions show many sites with viable wind energy potential.

2. *What challenges are faced by the offshore wind industry in developing FLOW projects in Tunisia (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

   The development of FLOW projects in Tunisia faces several challenges, mainly:

   - the absence of a dedicated strategy for development;
   - the absence of a legal framework;
   - the economy is experiencing strain marked by ongoing:
     * high unemployment rates and levels of emigration (especially youth emigration);
     * increase of public debt and related fiscal challenges; and
     * impacts of the COVID-19 pandemic (especially on strategic sectors like tourism);
   - limited resources in the country to invest in wind energy projects, which are characterised by high capital expenditure;
   - potential conflicts over maritime spatial areas with other activities (such as fishing, offshore oil and gas);
   - little to no local capacity for production of offshore wind equipment, in comparison with manufacturing capabilities for onshore wind projects; and

109. 'Recruitment of advisory services to support the Tunisian electricity and gas company (STEG) in supervising the preparation of a feasiility study for an offshore wind power plant' (African Development Bank Group, 2023) <https://www.afdb.org/sites/default/files/reoi-consultant-firm-wind-offshore-tunisia.pdf> accessed 11 December 2023.
110. 'Tunisia takes first steps towards offshore wind energy' (10 March 2021) <https://english.rvo.nl/news/tunisia-takes-first-steps-towards-offshore-wind-energy> accessed 11 December 2023.

- lack of available port capacity to support the manufacture, assembly and integration of FLOW components.

3. *Is there a World Bank Offshore Wind Roadmap for Tunisia or any announced plans by the government of Tunisia, such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   In 2019, the World Bank published a map of the offshore wind technical potential in Tunisia with an estimated capacity of production of 258GW, including 90GW fixed wind and 169GW in floating.[111]

   The Tunisian government has not included FLOW in the agenda of the RE strategy for 2030, but it has previously shown interest in cooperation initiatives with the Netherlands.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Tunisia.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

   FLOW projects will occupy maritime areas at designated locations which are part of the maritime public domain. Permission to occupy such a maritime space will take the form of a concession agreement with the Tunisian state, in accordance with Articles 25 and 26 of Law No. 95-73 dated 24 July 1995 as amended by Law No. 2005-33 dated 4 April 2005. Such a concession can be granted for a duration of a maximum of 30 years.

   The granting of the concession is made through a competitive tender process, in accordance with Law No. 2008-23 dated 1 April 2008 relating to the concession regime, and Decree No. 2020-316 dated 20 May 2020 setting the conditions and procedures for the granting of concessions. However, concessions can be granted through direct negotiation in some circumstances, including when the purpose of the activity can be realised by a specific entity only or a holder of a patent.

   Initiating the tender process for a concession is generally down to the granting authority but spontaneous concession offers can be made by private project owners approaching the authority directly.

b. *Is there a specific legal/regulatory regime for FLOW projects in Tunisia, as opposed to broader offshore wind or renewables projects in general?*

   The RE policy adopted by Tunisian authorities is based on the Tunisian Solar Plan (TSP) which defines strategy targets. The goal is to increase the total share of renewables in the electricity generation mix from 2.4% today to 30% by 2030. The TSP's 2030 targets in terms of total installed capacity are 1,755MW for wind energy, 1,150MW for solar PV and 460MW for concentrated solar power. In order to reach these targets, Tunisia has implemented a new regulatory framework through the 2015 enactment of Law No. 2015-12 relative to electricity generation from RE sources, which details three regulatory schemes:

   self-consumption, "authorisations" through call for projects, and "concessions" through call for tenders.

   There is no specific legal/regulatory regime for FLOW projects. RE projects, either solar or wind projects, are governed by the same legal/regulatory framework which is based mainly on the following texts:

   - Law No. 1996-27 of 1 April 1996 which completes Decree Law No. 62-8 of 3 April 1962 relating to the creation and organisation of the national electricity company, STEG, and which envisages the granting of concessions for the production of electricity by independent private producers;
   - Decree No. 96-1125 of 20 June 1996 setting the conditions and modalities for the granting of concessions for the production of electricity by private persons;
   - Law No. 2015-12 of 11 May 2015 relating to the production of electricity from RE sources, as amended by Law No. 2019-47 of 29 May 2019 related to the improvement of the investment climate and Decree Law No. 2022-68 of 19 October 2022;

111. 'Offshore Wind Technical Potential in Tunisia' (World Bank Group, March 2020) <https://documents1.worldbank.org/curated/en/976791586851275050/pdf/Technical-Potential-for-Offshore-Wind-in-Tunisia-Map.pdf> accessed 11 December 2023.

- Decree No. 2016-1123 of 24 August 2016 setting the conditions and modalities for the realisation of RE projects, as amended by Decree No. 2020-105 of 25 February 2020;
- Order of the Ministry of Energy of 9 February 2017 which approves several specification books (grid connection to low, mid and high voltage networks, standard power purchase agreements (PPAs) for projects governed by the authorisation regime and self-consumption projects);
- Order of the Ministry of Energy, Mines and Renewable Energies of 30 August 2018 which approves a revised standard PPA for projects governed by the authorisation regime.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Tunisia intended to enable fast-track development of floating wind projects and technologies?*

There are no designated areas of the territorial sea or EEZ in Tunisia for FLOW purposes.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

According to Article 23 of the Code of maritime ports enacted by Law No. 2009-48 of 8 July 2009, in cases where the occupation of the public port domain requires the construction of buildings, works or fixed equipment, such occupation can only be granted by way of a concession. Such concession shall be governed by an agreement and a specifications book[112] which sets the conditions of construction of the buildings, works and equipment as well as the conditions of their exploitation.

The concession relating to a public port domain can be granted for a duration of a maximum of 30 years, with the possibility of renewal for a further maximum period of 20 years. Please also see Question 4(a) above.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Tunisia?*

The main institutional organisations in charge of the RE sector are the following:

Government authority/public body	Roles
Ministry in charge of Energy/ Electricity and Renewable Energy General Directorate	In charge of issues relating to RE. This entity publishes the different calls for projects and tenders in the RE sector.
The National Energy Management Agency	Designs and promotes energy efficiency and RE development programmes. Its mission consists of implementing the state policy for energy management and, thus, the promotion of energy efficiency, RE and energy substitution.
STEG	A state-owned company and the historical electricity producer in Tunisia. Initially a vertically integrated monopoly, it is today a dominant energy producer, the unique purchaser of all power produced in Tunisia and has a monopoly on transmission, commercialisation and distribution of electricity in Tunisia.

112. Contractual document which sets out the rights and obligations of each party to the concession.

Government authority/public body	Roles
The Technical Commission of private renewable power generation	Provides opinions on authorisation project requests, on the extension and the withdrawal of the authorisation, and studies all issues related to RE development submitted by the Ministry of Energy, as well as on concession projects.
The Specialised Authority	Handles issues and claims relative to projects developed within the framework of Law No. 2015-12 including rejection or withdrawal of the ME approval and authorisation, disputes between the project company and STEG regarding the execution or the interpretation of PPAs.

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in Tunisia (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence, etc.)?*

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

There are no separate marine/environmental licences or adaptions from standard licences required for FLOW projects.

b. *Are consents required at a national level or state/municipal level?*

The implementation of an RE project is subject to various authorisations and consents to be obtained from different authorities as summarised as follows:

	Authorisation/permit	Public authority	Timeframe
Permits and authorisations required during construction phase			
1.	Environmental impact study	National Agency of Environment Protection	3 months
2.	Notice of information regarding protected or classified monuments	National Heritage Institute of Tunisia	1 to 4 months depending on site location
3	Permit for temporary occupation of the state domain (if the project site is part of the state domain)	Ministry of State Domains and Land Affairs	Not specified
4.	Authorisation for temporary occupation of the hydraulic state domain (if the project site is part of the hydraulic state domain)	Ministry of Agriculture	2 months
5.	Authorisation of temporary occupation of the state forest domain (if the project site is part of the state forest domain)	Ministry of Agriculture	30 days

	Authorisation/permit	Public authority	Timeframe
Permits and authorisations required during construction phase			
6.	Authorisation for temporary occupation of the public road domain (if the project site is part of the public road domain)	Ministry of Equipment	15 days
7.	Authorisation for access to closed military areas (if the project site is part of an area of military operation)	Ministry of Defence	Not specified
8.	Authorisation as regards any eventual aeronautical easements on the site	Ministry of Transport/ Office of Civil Aviation and Airports	45 calendar days, except for national projects and other projects that contain several aspects
9.	Prevention certificate (if the building is subject to the regime of prevention from fire, explosion and panic risks in buildings)	National Office for Civil Protection	10 days
10.	Building permit	Municipality (for communal areas) or Governor (for the rest of the zones)	Between 21 and 60 days, depending on the case
11.	Approval of connection to public sewerage networks	National Office of Sanitation	1 to 3 months
12.	Exceptional transport permit (for special vehicles whose total weight and dimensions exceed regulatory limits when they carry indivisible objects)	Ministry of Equipment	3 days
13.	Certificate of conformity of the construction to the building permit (required for the homologation of the plant by STEG)	Municipality	2 months
14.	Authorisation for the import of certain products	Ministry of Commerce	Not specified
15.	Authorisation for the import, installation and use of telecommunications and broadcasting equipment using radio frequencies	National Agency for Radio Frequencies	60 days
16.	Work permits (for foreign nationals)	Ministry of Labour	15 days
17.	Authorisation to use video surveillance measures on the site	National Authority for the Protection of Personal Data	30 days

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

There are no costs of licences or connection charges that are recoverable under any subsidy or support scheme.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Tunisia? Are these specific to FLOW, to offshore wind or renewables in general?*

There are financial incentives/support schemes which are dedicated to the RE sector in general. There is no specific scheme for FLOW projects.

Credit lines are granted to Tunisian banks by certain development institutions (such as the French Development Agency, International Finance Corporation and European Investment Bank) in relation to the development of the green economy and to finance energy transition projects and the RE sector.

In the application of Law No. 2016-71 enacting the Investment Law and Decree No. 2017-389 of 9 March 2017, investments made in the RE sector enjoy a number of incentives.

For projects which are considered of "national interest" (i.e. having an investment cost of a least TND50 million or likely to create at least 500 jobs during the first three years of activity), such a project can benefit from the following advantages:

- deduction of all profits from income tax for 10 years;
- investment premium (i.e. a public subsidy paid to the investor) equal to a third of the investment costs, capped at TND30 million;
- contribution by the Tunisian state to infrastructure-related expenses (such as construction of roads, hospitals, schools, etc.).

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

The application for financial incentives identified above shall be subject to the below processes.

These are the conditions for accessing the incentives:

- The declaration of the direct investment operation and the legal incorporation operation of the project company has been made.
- Filing of the investment declaration before starting the implementation of the direct investment operation.
- Adoption of a project financing scheme including a minimum of 30% equity of the investment cost.
- Creation of at least 10 permanent jobs.
- Keeping of regular accounts and tax situation being in good standing.

Procedure for applying for incentives:

- Submit a written application no later than one year from the date of filing the investment declaration:
  * to the Tunisian Investment Authority for projects costing more than TND15 million; or
  * to the Agency for the Promotion of Industry and Innovation for projects which cost less than TND15 million.
- The application must be supported by a feasibility study (location, financing, legal form, foreign participation, timetable, number of jobs to be created, list of equipment to be acquired, estimated infrastructure expenses).

The review and award of incentives:

- The examination of the requests for granting the incentives are made by:
    * a national commission created by the Tunisian Investment Authority (if the investment cost exceeds TND15 million); or
    * national (or even regional) commissions created by the organisation concerned with the project (if the investment cost is less than TND15 million).
- The premiums and capital participations are granted by a decision of the Minister in charge of Energy supported by the opinion of the commissions described above.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   Support schemes are available at the national and regional level according to the importance of the project (as described above).

   Incentives granted to investors are not subject to any adjustments. However, the release of the incentives granted under the Investment Law are made in two installments:

   - 40% after completing 40% of the approved investment cost; and
   - 60% at the start date of the project.

   The investor may have to forfeit incentives in the following cases:

   - non-compliance with the provisions of the Investment Law;
   - non-realisation of the investment programme during the first four years from the date of the declaration of investment; or
   - illegal detour from the original purpose of the investment.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Tunisia (e.g. is there a state-owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    Except for projects designed for export purposes, the electricity produced by renewable energy projects is purchased by the national electricity company, STEG.

    For projects subject to the authorisation regime,[113] the PPA is a standard contract adopted through the Order of the Ministry of Energy, Mines and Renewable Energies of 30 August 2018 and its terms are non-negotiable. The purchase price is fixed by ministerial order.

    Projects with a capacity exceeding the maximum limit set by decree (10MW for solar PV, 30MW for wind) fall under the concession regime. This regime provides that projects shall be subject to a public tender procedure by the state and that the various conventions relating to the grant of each project need to be approved by a special committee at the People's Assembly. The prequalification procedure is followed by a restricted tendering procedure. The sponsor selected at the end of this procedure must establish a project company, that will design, finance, build, own, operate and maintain the project throughout the period of the concession agreement, which is concluded between the Ministry of Energy and the project company. The energy produced will be sold to STEG as part of a PPA concluded between the two parties for a duration of 20 years (extendable for a period of five years, with the agreement of the parties).

113. Under Law No. 2015-12 of 11 May 2015, renewable energy projects can be implemented through self-consumption, an authorisation regime (for local market needs within certain power limits, such as 30MW for wind), or a concession regime (for export or projects exceeding set power limits). Both authorisation and concession regimes involve public tender procedures.

11. *Are there any restrictions on foreign companies participating in FLOW projects in Tunisia? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Tunisia?*

    RE projects can be 100% owned by foreigners.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Tunisia)?*

    Transmission assets are considered as those enabling connection between the point of delivery of the power plant and the point of consumption linked to the grid, which includes both inter array cables and export cables. The status of these assets in relation to FLOW projects will be governed by the provisions of the concession agreement (or any other relevant contract document) and its specifications book concluded in accordance with Law No. 2008-23 dated 1 April 2008, relating to the concession regime, and which generally provides that fixed assets and buildings become the ownership of the granting authority, while equipment and machinery will be owned by the concession holder.

    The aforementioned law categorises concession assets (including transmission assets) into returnable assets, trade-in assets, and proprietary assets. The concession contract stipulates the categories of assets that the concession holder will utilise over the contract's term based on this classification.

    - **Returnable assets** encompass land, buildings, structures, permanent installations and movable property provided at no charge to the concession holder by the granting authority or built or procured by the concession holder in line with the terms of the concession contract. Given their substantial contribution to public service operation underpinned by their magnitude, these assets must be returned free of charge to the granting authority upon conclusion of a concession contract without any encumbrances like rights or mortgages.
    - **Trade-in assets** are movable properties that facilitate effective service operation covered by a concession contract. These may transition into ownership of granting authority post-contract if it exercises its right for trade-in against compensation payment to the concession holder for a sum determined in accordance with the concession contract.
    - **Proprietary or own-assets** remain under ownership of the concession holder following termination of the concession contract

    Where the transmission operator is in charge of the construction of the transmission assets, the contractual provisions may include liquidated damages in the case of late delivery.

13. *Are there any requirements in Tunisia for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    Given the absence of any specific legal framework for FLOW farms, there are no specific requirements.

14. *Are there any local content requirements in Tunisia in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    There are no local content requirements in Tunisia in relation to FLOW.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    This does not apply in Tunisia.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    This does not apply in Tunisia.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Tunisia. For example, is there an existing offshore oil and gas industry in Tunisia given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    There is an offshore oil and gas industry in Tunisia which is subject to hydrocarbon regulations, mainly the Hydrocarbon Code, which was promulgated by Law No. 99-93 dated 17 August 1999, as amended most recently by Law No. 2017-41 of 30 May 2017.

    Tunisia has strong foundations for the development of offshore wind. The country has experience in the installation of wind power systems in the north, resulting in substantial local capability for the development, installation and operation of wind energy systems.

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1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in the United States (such as announced procurement goals and awards of individual projects or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in the United States?*

Although there has been significant investment in the United States (**US**) in offshore wind generally (nearly 50GW across 250 offshore projects),[114] to date there are not yet any floating wind projects under development in the US. Among other things, floating wind projects face the additional key barriers of significantly higher building costs and the need for substantial infrastructure development, including port expansion and transmission.[115] However, because two-thirds of total US offshore wind resource potential are over deep waters,[116] the Department of Energy (**DOE**) has aimed to reduce costs and promote investment in floating wind as part of its goal to generate 30GW of US offshore wind by 2030, half of which (15GW) would be FLOW energy.[117] The administration stated it will focus on developing new FLOW platforms in deep waters along the West Coast and in the Gulf of Maine.[118]

As part of the DOE's Energy Earthshots Initiative under the Biden Administration, the US Department of the Interior (**DOI**), DOE, Department of Commerce and Department of Transportation (**DOT**) have launched a major FLOW initiative called the Floating Offshore Wind Shot (**Wind Shot**). The Wind Shot aims to drive US leadership in FLOW design, development and manufacturing while reducing the cost of FLOW in deep waters by more than 70% to US$45 per MWh by 2035.

FLOW activity in the US is currently focused in three specific geographic areas: California, the Northern Atlantic seaboard and the Gulf of Mexico. In 2022, the Bureau of Ocean Energy Management (**BOEM**), the federal agency authorised to issue leases for offshore wind, conducted its first auction for coastal California.[119] In that auction, 43 companies competed for leases across five lease areas and more than 470,000 acres to build floating wind farms off Morro Bay and Humboldt County. According to Aegir Insights' article "The not so wild west: California lease sale bidding behaviors and results", the leases in Humboldt recorded the highest prices, in view of its abundant wind resources and shallower water. The Humboldt lease area was won by Copenhagen Infrastructure Partners. The Californian lease areas are considered very deep, representing a new challenge for the nascent floating wind technology. However, the auction saw the most bidding activity for one of the deepest leases, evidencing industry appetite for deep floating acreage.

Each bidder was able to participate in multiple bidding rounds but was limited to acquiring only one lease in the auction. First, bidders were required to submit a bid deposit of US$450,000

114. 'Advancing Offshore Wind Energy' (US Department of Energy, March 2023) <https://www.energy.gov/sites/default/files/2023-03/advancing-offshore-wind-energy-highlights.pdf> accessed 11 December 2023.
115. 'How the US is Planning to Boost Floating Wind Power' (E&E News Renewable Energy, 23 February 2023) <https://www.scientificamerican.com/article/how-the-u-s-is-planning-to-boost-floating-wind-power/> accessed 11 December 2023.
116. 'Briefing on the Floating Offshore Wind Shot and Deployment Goal (citing Offshore Wind Market Report: 2022 Edition)' (energy.gov, 2023) <https://www.energy.gov/eere/wind/floating-offshore-wind-shot> accessed 11 December 2023.
117. 'Offshore Wind Energy Strategies Report' (US Department of Energy, January 2022) <https://www.energy.gov/sites/default/files/2022-01/offshore-wind-energy-strategies-report-january-2022.pdf> accessed 11 December 2023.
118. The UK offshore renewables supply chain' (ReEnergise, Autumn 2022) <https://ore.catapult.org.uk/wp-content/uploads/2022/12/ReEnergise-Autumn2022-DV.pdf> accessed 11 December 2023.
119. Nadia Lopez, 'First-ever California offshore wind auction nets US$757 million' (7 December 2022) <https://fisheries.legislature.ca.gov/sites/fisheries.legislature.ca.gov/files/3a%20First-ever%20California%20offshore%20wind%20auction%20nets%20%24757%20million.pdf> accessed 11 December 2023.

for each lease on which they intended to bid. Secondly, lessors could inflate their bids using qualifying credits. A bidding credit for 5% of the cash bid commitment was made available in exchange for executing a Lease Area Use Community Benefit Agreement (**CBA**) from entities impacted by potential offshore wind development. Additionally, any bidders committed to a qualifying General CBA, which covers impacts not enumerated in the Lease Area Use CBA, were entitled to a 5% bidding credit. Another 20% bidding credit was offered for bidders supporting FLOW workforce training or supply chain development. Finally, the payment of the balance of the bonus bid was due within 10 days after the notification of lease acceptance. In the end, the auction generated US$757 million in leasing revenues.

The recent California offshore wind auction demonstrates both a governmental commitment to supporting the development of FLOW and significant interest from developers. The provisional winners include RWE Offshore Wind Holding LLC, California Floating LLC, Equinor Wind US LLC, Central California Offshore Wind LLC and Invenergy California Offshore LLC.

There is also growing interest in deploying FLOW turbines along the coast of Maine. The Maine Offshore Wind Roadmap proposes the construction of the first FLOW port on the East Coast and is set for 2025-2030.[120] Recently, the BOEM approved Maine's research application for a floating wind project about 45 miles off Portland's coast that will include 10-12 turbines on floating concrete platforms.[121] An auction for offshore leases similar to California's recent auction is expected to be held in 2024.

In February 2023, the DOI announced a proposal for a similar offshore wind lease sale for three lease areas in the Gulf of Mexico.[122] The Gulf of Mexico is already a hub for fixed offshore energy development. There are also many synergies that may be leveraged by oil and gas companies operating in the area that are looking to diversify and support efforts to grow FLOW. In March 2023, Entergy Corporation and RWE announced that they had entered into a Memorandum of Understanding to jointly evaluate the delivery of clean energy from offshore wind to industrial customers in Texas and Louisiana seeking to define an optimal route to market for offshore wind in the Gulf.[123]

2. *What challenges are faced by the FLOW industry in developing FLOW projects in the United States (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics, etc.)?*

   The development of FLOW projects faces a number of similar challenges to the development of fixed or non-FLOW development in the US, as well as additional challenges specific to floating wind projects. These include the following:

   - **Planning/regulatory approvals.** The regulatory approval and permitting process for offshore wind generally, including FLOW, is complex, lengthy and costly. No single regulatory authority at the federal, regional or state level would have broad or sole responsibility over a FLOW project in the US and any particular project may be subject to multiple overlapping federal, state and local regulatory requirements. The specific location of a FLOW project will determine the nature and extent of required state and federal regulatory approvals and permitting requirements.
   - **Technology readiness.** While large-scale commercial projects are being planned, FLOW is in a nascent stage of technological development and no major commercial project has yet been developed. To deploy offshore wind in deep ocean waters, mature wind turbine technology must be paired with new types of floating platforms, in

120. 'Maine Offshore Wind Roadmap, Executive Summary' (February 2023) <https://www.maine.gov/energy/sites/maine.gov.energy/files/inline-files/Maine_Offshore_Wind_Roadmap_February_2023_ExSum.pdf> accessed 11 December 2023.
121. 'Floating Offshore Wind Project off Maine Moves Ahead' (AP News, 19 January 2023) <https://www.maine.gov/energy/sites/maine.gov.energy/files/inline-files/Maine_Offshore_Wind_Roadmap_February_2023_ExSum.pdf> accessed 11 December 2023.
122. 'Gulf of Mexico' (BOEM, October 2023) <https://www.boem.gov/renewable-energy/state-activities/gulf-mexico-activities> accessed 11 December 2023.
123. 'RWE and Entergy partner to define route to market for offshore wind in the Gulf of Mexico' (Entergy, 30 March 2023) <https://www.entergynewsroom.com/news/rwe-entergy-partner-define-route-market-for-offshore-wind-in-gulf-mexico/> accessed 11 December 2023.

some cases based on concepts that have successfully been used in the offshore oil and gas industry.

- **Port infrastructure.** Investing in substantial upgrades to coastal deepwater ports in some states, such as Oregon, is a prerequisite to unlocking the full economic development potential associated with deploying wind projects off the coast. Where there are existing ports, such as Long Beach and Humboldt, it will take several years to implement upgrades to expand capability to accommodate the manufacturing, shipment and delivery of floating platforms, integration of turbines into the platforms and towing out of larger turbines to their ocean locations. There is also a lack of suitable ports in other coastal areas, including the Morro Bay areas in Central California.
- **Transmission grid.** Currently, projects typically develop their own project-specific grid connection plans. Substantial upgrades to the onshore coastal electric transmission grid will also be required to accommodate large-scale development of offshore wind, including FLOW, especially for the Humboldt offshore wind sites in the north of California. The interconnection of a FLOW project to the US mainland presents both financial and timing challenges. First, the interconnection of offshore facilities is likely to require significant investment in "network upgrades" to the onshore grid to address system constraints, prevent overloads and maintain system reliability. The amount of necessary network upgrades is dependent, in part, on the amount of power being interconnected, and the availability and location of capacity on the interconnected onshore system. Therefore, the estimated costs of these network upgrades are subject to change as other projects enter or exit the interconnection queue. Secondly, the process for a generator to interconnect to the onshore grid involves complex and lengthy studies on a project's impact on the electrical system and the cost of upgrades needed to integrate the project. Currently, the queues for evaluating and approving generator interconnection requests (for any generation resource, including offshore wind) face significant backlogs that could add a year or more to the development and construction timelines of a FLOW project.
- **Power offtake agreements.** Attracting the capital investment necessary to upgrade port and grid infrastructure and develop the offshore wind projects themselves will require sufficient economic benefits and returns, such as a combination of tax and other incentives and revenues from sales of electricity to public- or investor-owned utilities or commercial/industrial customers. The scale of these projects likely outstrips the near-term energy need of any single utility and, in most cases, likely requires a consortium of buyers to collaborate on cooperative power offtake agreements – potentially including out-of-state utilities or large industrial customers.
- **Equipment cost and supply chain issues.** In the near term, FLOW projects are likely to face similar cost and supply chain issues as those faced more broadly by the rest of the US energy sector. On 24 February 2023, the DOE released a deep-dive assessment of the land-based and offshore wind supply chains in the US today, highlighting both challenges and opportunities.[124] The Wind Energy Supply Chain Deep Dive Assessment finds that the US wind supply chain is nascent for offshore wind and mature for land-based wind, but US competitiveness is declining in key wind turbine components. Continued decarbonisation of the US grid and economy with domestically supplied wind technology will require innovation to increase US manufacturing competitiveness, investment, infrastructure and policies to provide a strong and stable demand signal to support accelerated investment in the wind supply chain. Recently, a number of fixed offshore wind developers, including Shell and Ørsted, announced that they were

124. 'Securing the U.S. Supply Chain for the Wind Energy Industry' (energy,gov, 2023) <https://www.energy.gov/eere/wind/securing-us-supply-chain-wind-energy-industry> accessed 11 December 2023.

pulling out of projects on the East Coast due to rising interest rates and costs, and supply-chain-related delays.[125]

- **Route to market.** As noted above, the US offshore wind sector generally, and the FLOW sector in particular, are still in the early stage of development and implementation. The route to market is not clear in all areas that would be ideal for offshore wind development, as is illustrated by the Entergy/RWE initiative to define a route to market for offshore wind in the Gulf of Mexico. Likewise, the State of California has made no commitment to introduce financial support mechanisms such as power purchase agreements or offshore renewable energy credits or ORECs.
- **Technological risks.** FLOW projects still pose a number of technological risks. Technical factors which will be challenging during the expansion of FLOW include mooring systems, dynamic cables, the assembly of the turbines themselves and foundation fabrication. Anchors will need to be designed for extra-long mooring lines and high vertical loads.[126] The mooring of the turbines is a separate challenge to consider since it is unique to the floating turbines and not necessary in the bottom-fixed sector. However, experience gained within the oil and gas industry can aid in its development. Considering the electric cables, even with bottom-fixed turbines, there have been many issues and claims arising out of or in connection with the performance of high-voltage cables. With FLOW, dynamic cables are required which need to withstand additional impairments such as continuous movement of the turbines and adverse weather conditions. Their performance might bring even more difficulties than is the case for cables of bottom-fixed turbines. Above all, the FLOW sector is quite new and untested.
- **Environmental challenges.** Like any energy infrastructure, FLOW developments pose risks to the surrounding environment. FLOW platforms have their own unique environmental challenges compared to fixed platform offshore wind turbines.
  - **Wildlife entanglement.** So far, most floating wind turbines are designed sit atop large platforms, which are secured to the seabed by mooring lines and anchors. Inter-array power cables connect the turbines to one another and may be buried or remain suspended in the water. Entanglement on floating wind's mooring lines and cables themselves likely poses a low risk, because these lines and cables are large and relatively rigid.
  - **Animal displacement.** FLOW farms may also displace marine animals from crucial habitat areas. Some seabirds, fish and marine mammals may avoid FLOW farms due to noise, vessel traffic or other disruptions. The extensive underwater cabling of floating wind farms may also result in animals avoiding the area.
  - **Collisions with vessels and turbines.** Collisions with FLOW turbines or maintenance and construction vessels can also prove fatal for seabirds, whales and turtles. Vessel collisions are already a leading cause of mortality for marine mammals and sea turtles. Constructing and operating FLOW turbines will increase vessel traffic, as vessels are needed to transport materials and personnel from shore to wind farms and back. With higher levels of vessel traffic comes an increased risk that vessels will hit whales, sea turtles and other marine wildlife. Many floating turbines will be installed farther offshore – where winds blow at higher speeds – than bottom-fixed turbines. Birds show different flight

125. 'Shell exits US SouthCoast wind farm contract, agrees to pay penalty' (Reuters, 2 November 2023) <https://www.reuters.com/business/energy/shell-exits-us-southcoast-wind-farm-contract-agrees-pay-penalty-2023-11-02> accessed 11 December 2023.; 'Orsted scraps 2 offshore wind power projects in New Jersey, citing supply chain issues' (AP news, 1 November 2023) <https://apnews.com/article/offshore-wind-orsted-new-jersey-cancelled-b30049502ac14ca6b46e2d3386a350fd> accessed 11 December 2023.
126. 'Offshore wind in California faces four main challenges: Depth, waves, ports and grid connection' (Aegir, 10 February 2022) <https://www.aegirinsights.com/offshore-wind-in-california-faces-four-main-challenges-depth-waves-ports-and-grid-connection> accessed 11 December 2023.

behaviours in faster-blowing winds, which may increase turbine collision risk.

- **Siting and permitting conflicts and complexity.** There are complex siting and permitting challenges associated with locating large-scale wind projects in US deep ocean waters that involve lengthy processes to address. A complex system of federal, state and local rules and regulations are in place to evaluate and address potential adverse effects on current ocean and land users, the marine environment and cultural resources. Conflicts and trade-offs are yet unquantified.

3. *Is there a World Bank Offshore Wind Roadmap for the United States or any announced plans by the government of the United States such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

   There is no World Bank Offshore Wind Roadmap specific to the US. As stated above in Question 1, the US government has ambitious plans with regards to FLOW. In addition to the initiatives described in Question 1, the DOE announced nearly US$50 million – including support from the Bipartisan Infrastructure Law – for research, development and demonstration funding:

   - **Floating Offshore Wind Readiness Prize.** The DOE announced a US$6.85 million prize competition that challenges competitors to optimise floating platform technologies and work to get them ready for wide-scale domestic manufacturing and commercialisation.
   - **Floating Offshore Wind Array Design Project.** The DOE announced a US$3 million project funded by the Bipartisan Infrastructure Law to develop a set of modelling tools to help industry and researchers design commercial-scale FLOW farm arrays in US waters, including their anchors, mooring lines and subsea power cables.
   - **West Coast Ports Analysis.** The DOE announced a nearly US$1 million project funded by the Bipartisan Infrastructure Law to reduce key infrastructure challenges by outlining a network of West Coast ports and upgrades needed to deploy commercial-scale FLOW.
   - **West Coast Transmission Analysis.** The DOE announced an analysis to review existing transmission studies and identify research gaps related to offshore wind integration in California, Oregon and Washington. This work will help inform future analysis efforts that will aid in transmission planning and build-out.
   - **Atlantis II.** The DOE's Advanced Research Projects Agency-Energy intends to announce US$31 million in funding through phase two of its Aerodynamic Turbines, Lighter and Afloat, with Nautical Technologies and Integrated Servo-control (**ATLANTIS**) programme. The ATLANTIS programme focuses on novel forms of systems engineering for FLOW systems to drive down costs. This second phase of the ATLANTIS programme will focus on experimental testing in ocean, lake, and tank and tunnel environments to further develop new technology for FLOW turbines.
   - **Environmental Research Award.** The DOE and BOEM announced a US$1.6 million project to support the coexistence of FLOW with bats on the West Coast.
   - **Ocean Co-Use and Transmission Research Awards.** The National Offshore Wind R&D Consortium, a partnership established with funding from the DOE and the New York State Energy Research and Development Authority (**NYSERDA**), announced five projects totalling US$3.5 million to facilitate ocean area coexistence with marine mammals and fishing and to support offshore wind transmission for both bottom-fixed and floating technologies.

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in the US.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

In the planning and analysis stage for offshore wind leases, the BOEM identifies priority wind energy areas (**WEAs**) offshore and processes applications for leases for these areas through a

programmatic-level environmental review. It should be noted that there may or may not be a point of interconnection to the electric grid that is convenient to any particular WEA. In the leasing phase, BOEM determines if competitive interest exists. If competitive interest exists, BOEM notifies the public and developers of its intent to lease through sale notices before holding a lease sale for potential lessees to bid against one another. If competitive interest does not exist, the BOEM negotiates a lease.

In assessing the leases, BOEM considers the environmental and technical impacts. It must ensure that projects comply with the environmental laws, including the National Environmental Policy Act, the Endangered Species Act, the Migratory Bird Treaty Act and the Coastal Zone Management Act. The BOEM also established Intergovernmental Renewable Energy Task Forces in several states, to engage states and obtain public input on projects.

b. *Is there a specific legal/regulatory regime for FLOW projects in the US, as opposed to broader offshore wind or renewables projects in general?*

Presently, there is no legal or regulatory regime for FLOW that is distinct and separate from fixed offshore wind. Offshore resources do have regulatory requirements that are distinct from the requirements of onshore renewable projects. The US Submerged Lands Act tasked the DOI with oversight of the sea that falls within the jurisdiction of the federal government, as well as the mineral and land rights of those waters. The Energy Policy Act of 2005 **(EPAct**) grants DOI oversight over all of the nation's ocean energy resources within federal jurisdiction, including offshore oil and gas drilling and offshore wind. Section 388 of the EPAct authorised the Secretary of the Interior, in consultation with other federal agencies, to grant leases, easements or rights-of-way on the Outer Continental Shelf (**OCS**) for wind energy development. While the EPAct clarified the legal authority for federal review and approval of various offshore energy-related projects, federal agencies with permitting authority under other federal laws retained their jurisdiction under the EPAct. Pursuant to the retention of authority by other federal agencies, offshore development requires a permit from the US Army Corps of Engineers (**Corps**) – pursuant to the Rivers and Harbors Act. Federal agencies that take action with respect to energy development must also comply with environmental review requirements and species protection laws.

Permits are also required from the National Marine Fisheries Service, the Fish and Wildlife Service, and the Federal Aviation Administration. The Secretary of the Interior consults with other agencies when granting permits to ensure a cohesive permitting process.

Regulations adopted by the DOI delegate to the BOEM authority to grant leases, easements and rights-of-way in federal waters to entities planning to produce and transmit renewable energy in the nation's waters. Permits are granted after consideration of factors including safety, protection of the environment, prevention of interference with reasonable uses of the OCS, environmental impacts and protection of national security interests. There are four steps in the BOEM's regulatory framework for developing offshore wind:

- planning and analysis;
- leasing;
- site assessment; and
- construction and operations.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of the US intended to enable fast-track development of floating wind projects and technologies?*

Although the BOEM identifies priority WEAs, there does not appear to be a separately designated area for FLOW as distinct from fixed offshore wind.

d. *Are there any specific legal or regulatory regimes relating to access to ports* and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?

The Jones Act restricts the transportation of merchandise between points in the US to qualified Jones Act vessels. For a vessel to qualify, it must be registered in the US, built in the US and owned and operated, absent an exception, by US citizens. At one point, it was thought that this act applied to all offshore wind development activities. However, in April 2022, the US Customs and Border Protection issued a ruling stating that the Jones Act does not apply to several specific offshore wind activities which permit those activities to be performed by foreign vessels. Thus, some activities fall under the restrictions of the Jones Act, while others do not. The lack of availability of vessels qualified under the Jones Act may represent an obstacle to offshore development. It is still possible to move construction materials and work crews originating abroad from foreign vessels to US-qualified vessels once they arrive in US territorial waters, in order to allow transportation of materials and work crews to project development sites.

Under US foreign investment rules, the acquisition of US infrastructure assets or businesses may be subject to either a mandatory or voluntary filing with the Committee on Foreign Investment in the US (**CFIUS**). This is specifically the case where such projects involve connections to the US electrical power grid or involve any investments in US seaports or other ports. In addition, there are certain geographic zones of the coastal US that have specific restrictions related to foreign investment. These restrictions are more fully detailed in Dentons' Foreign Investment review tool, available at https://publisher.dentons.com/experience/fdi-comparison-tracker, and apply to both investments in operating businesses as well as real estate acquisitions.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in the United States?*

Aspect of process	Federal involvement	State involvement
Licensing and enforcement authority	Secretary of the Interior of the DOI has the authority to grant leases, easements or rights-of-way on the OCS wind energy development. This authority has been delegated to the BOEM. Offshore development also requires a permit from the Corps.	
Seabed ownership and development area leasing process	The first 12 nautical miles from the US coastline is the US territorial sea.	Most states have jurisdiction over water, appendant land and natural resources within three nautical miles of their coastlines. Some States and Territories have jurisdiction that extends to nine nautical miles of their coastlines.
Connecting to the grid	To the extent the offshore wind connects to an intrastate transmission line, the Federal Energy Regulatory Commission (**FERC**) would have jurisdiction.	To the extent the offshore wind connects to state facilities, the utility commission of the relevant state would be involved.
Overall strategy, policy and legislation	Various federal agencies, such as the Environmental Protection Agency and the DOE, have policies relevant to renewables.	Many state governments have adopted some form of renewable portfolio standard.
Environmental regulation	The US Environmental Protection Agency	State environmental agencies

6. *What consents/authorisations/licences etc. are required for the development, construction and operation of a FLOW project in the United States (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation and transmission licence etc.)?*

   As noted above, the permitting and licensing requirements for the development of offshore wind, including FLOW may have federal, state and local components. Under the current BOEM leasing programme, after the BOEM grants an offshore lease, the lessee must submit a Site Assessment Plan (**SAP**) and a Construction and Operations Plan (**COP**) either simultaneously or with the SAP being submitted prior to the COP. For both the SAP and the COP, the BOEM encourages a lessee to conduct pre-survey meetings with the BOEM and relevant stakeholders to develop lease stipulations. The BOEM then conducts an evaluation of potential environmental issues before approving the SAP.

   An SAP describes the initial activities necessary to characterise a lease site, resource assessment surveys or technology testing activities that involve the installation of bottom-fixed facilities. SAPs must include data from physical characterisation surveys, such as geological and hazard surveys, and from baseline environmental surveys, such as biological or archaeological surveys.

   A COP describes all proposed activities and planned facilities that a lessee intends to construct and use for a project under a commercial lease. The COP must include a description of all planned facilities, including onshore and support facilities, as well as anticipated project easements needed for the project. The BOEM has adopted a "design envelope" approach, in order to provide flexibility in allowing design changes during the installation process. A lessee must receive approval of both its SAP and its COP. If the BOEM approves the COP, it will specify terms and conditions to be incorporated into the COP to mitigate environmental impacts.

   Before beginning any construction activity, whether under the COP or related to site surveying outlined in the SAP, lessees must submit more specific details in a Facility Design Report, and Fabrication and Installation Report.

   A lessee must also coordinate with the National Oceanic and Atmospheric Association and the National Marine Fisheries Service, and participate in consultations pertaining to the Magnuson-Stevens Fishery Conservation and Management Act, the Marine Mammal Protection Act, the National Historic Preservation Act and the Endangered Species Act.

   A lessee must also receive the following permits and participate in the following consultations:

   - a permit for subsea cables under the Clean Water Act from Corps;
   - a permit for navigational lighting from the US Coast Guard;
   - siting with the US Department of Defense and the Federal Aviation Administration;
   - permits for air quality and pollution prevention from the US Environmental Protection Agency and the Corps; and
   - authorisation for incidental take or harassment under the Marine Mammal Protection Act, Endangered Species Act, Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and the Magnuson-Stevens Fishery Conservation and Management Act.

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

   The licences required for FLOW are described above in the first part of Question 6. There do not appear to be separate marine or environmental licences required for FLOW as compared to fixed offshore wind.

b. *Are consents required at a national level or state/municipal level*?

   Both the federal and state governments would be involved in the permitting of FLOW. The extent of the involvement turns on where the offshore wind is built. Most states have jurisdiction over water, appendant land and natural resources within three nautical miles of their coastlines. Some States and Territories have jurisdiction that extends to nine nautical

miles of their coastlines. Offshore wind sited past the jurisdiction of states would fall within the jurisdiction of the federal government. However, even if the energy is generated within the jurisdiction of the federal government, the energy will eventually be transmitted over state waters and into state electric grids. An offshore wind developer would need to seek approval from either the federal government or a state government in order to site and construct an offshore wind project.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

The federal government provides certain support schemes for offshore wind such as tax credits for renewable energy and funding for research and development. However, there are no programmes aimed specifically at subsidising or providing for recovery of licensing fees or connection charges for FLOW.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in the United States? Are these specific to FLOW, to offshore wind or renewables in general?*

The current financial incentives for the development of FLOW in the US are generally in the form of grants and tax incentives, rather than state-sponsored feed-in-tariffs. The Inflation Reduction Act provides an investment tax credit and production tax credit (**PTC**) for wind that becomes a technology-neutral credit in 2025. The Congress also created a new 30% investment tax credit exclusively for offshore wind, for which projects that begin construction between 1 January 2017 and 31 December 2025 are eligible. With funds from the Inflation Reduction Act, the DOE is launching a new West Coast Offshore Wind Transmission Study, a

20-month analysis examining how the country can expand transmission to harness power from FLOW for West Coast communities. The study will use its findings to develop practical plans through 2050 to address transmission constraints that currently limit offshore wind development along the nation's West Coast. It is also expected to evaluate multiple pathways to reaching offshore wind goals while supporting grid reliability, resilience and ocean co-use.

The DOE has also announced the following research investments and collaborations:

- **Expansion of National Offshore Wind Research and Development Consortium (NOWRDC).** NOWRDC, a research consortium funded by the DOE and others, announced that California is becoming the seventh state, and first state located along the West Coast, to join the consortium. Pending final approval, California and the consortium will collaborate to fund R&D projects that directly respond to critical, near-term offshore wind development priorities. California's addition to the consortium will bring a new focus on reducing the costs of FLOW for ratepayers.
- **Initiation of Offshore Wind Operations and Maintenance Roadmap.** The DOE and its Sandia National Laboratories and National Renewable Energy Laboratory (**NREL**) announced the development of an industry-informed roadmap for new operations and maintenance technologies and processes to enhance the cost-effectiveness, efficiency and reliability at offshore wind sites.
- **Lidar Buoy Deployment in Hawaii.** The DOE's Pacific Northwest National Laboratory and the BOEM have deployed a floating scientific research buoy located approximately 15 miles east of Oahu, Hawaii to collect offshore wind resource, meteorological and oceanographic data.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among* pre-qualified applicants, direct purchase or negotiated purchase?)

The US DOE Wind Energy Technologies Office (**WETO**) funds research nationwide to enable the development and deployment of offshore wind technologies that can capture wind resources off the coasts of the US and convert that wind into electricity. WETO focuses on technological development to improve the reliability and affordability of wind energy and address

barriers to wind energy deployment. WETO funds research and development activities through competitive solicitations. It maintains a solicitation site, detailing the requirements of FLOW funding opportunities, available here: https://www.energy.gov/eere/wind/wind-energy-funding-opportunities.

Similarly, to date NOWRDC has held three competitive solicitations, resulting in 52 projects across a range of offshore wind technical challenge areas. NOWRDC's most recent Solicitation 2.0 resulted in 11 project awards and approximately US$7 million in project funding. These projects are focused on developing the US offshore wind supply chain, improving asset monitoring and inspection, facilitating ocean area coexistence and advancing transmission. NOWRDC maintains a solicitation database, available here: https://nationaloffshorewind.org/solicitations/. The US DOE established NOWRDC in 2018 to address research priorities for offshore wind as defined in the National Offshore Wind Strategy, which was developed jointly by the DOE and the DOI's BOEM. The DOE competitively selected NYSERDA to administer NOWRDC, with the DOE and NYSERDA each providing US$20.5 million to fund high-impact research projects that lower the costs of US offshore wind. State agencies in Maryland, Virginia, Massachusetts, Maine and New Jersey have since joined, resulting in a total investment of around US$48 million. NOWRDC's members include major entities in the offshore wind industry.

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

Through the DOE's Energy Earthshots Initiative, the Biden Administration established a national goal of deploying 30GW of offshore wind in the US by 2030. The DOE estimates that the nascent offshore wind industry could employ more than 44,000 workers, support 33,000 additional jobs and drive US$109 billion in financial activity. The DOE has also created the Wind Shot which seeks to reduce the cost of FLOW energy by more than 70% to US$45 per MWh and deploy 15GW of floating wind by 2035.

State governments also drive market demand for offshore wind through state-level, technology-specific mandates to procure offshore-wind-generated electricity. These state initiatives can be specific offshore wind energy mandates or targets set through procurement processes or broader policies, such as a state renewable portfolio standard or decarbonisation goal. Three basic offshore wind procurement models are presently in use:

- Connecticut, Massachusetts and Rhode Island utilise power purchase agreements (PPAs);
- Maryland, New Jersey and New York use Offshore Wind Renewable Energy Certificates (OREC); and
- Virginia's Dominion Energy operates in a vertically integrated, utility-owned model that is currently unique to the US offshore wind industry.

These models are for offshore wind generally and do not differentiate between fixed and FLOW.

The coastal states involved in offshore wind projects have also established policies and procurement methods calling for various levels of in-state economic activity associated with offshore wind project development. This creates a significant local-content mandate for US projects, especially in states utilising ORECs, which require significant local economic development commitments and can result in higher procurement prices. Maryland is often seen as the state with the highest net economic benefit requirements – in its first solicitation, it received guarantees from developers to spend 19% and 34% of their capital expenditures in the state. Massachusetts officials, often seen on the other side of the spectrum, are looking to reform their bidding process to capture more economic development commitments.

Additionally, coastal states typically require the use of in-state ports for the construction, operation and maintenance of offshore wind projects supplying power to each respective state. Currently, at least 19 ports along the East Coast have been designated for offshore wind

usage, creating enormous logistical challenges and necessitating significant state or private capital investments to ensure the ports can handle the large and heavy components.

As noted above, the current US federal and state programmes and measures to support FLOW development generally operate at a macro level. We have not found any programmes that specifically subsidise developer cost increases or address negative wholesale pricing concerns.

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in the United States (e.g. is there a state-owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

There is no single or uniform offtake arrangement or structure appliable to offshore wind projects in the US, including FLOW. Putting aside the economic support provided by funding grants and tax incentives, it is up to individual developers to make arrangements for the sale of power to offtakers or the wholesale power market. There is limited revenue data available in connection with FLOW projects in the US. For example, the five companies that won leases in a 2022 FLOW energy auction led by the BOEM did not have any firm-committed offtake arrangements in place. We expect that FLOW developers will pursue negotiated sales with one or more offtakers or deliver their energy into organised wholesale energy markets. FLOW energy sold to a customer for resale or delivered into wholesale energy markets or the interstate transmission grid generally would be subject to regulation by the FERC, unless applicable exemptions apply. FLOW energy that is sold to an end-user (i.e. a retail sale) would be subject to regulation by the state in which such retail energy is sold.

Currently, states with restructured competitive electricity market structures primarily drive offshore wind procurement in the US. State agencies hold offshore wind competitive solicitations, review project proposals and negotiate with winning proposals for a fixed quantity of capacity based on price and other criteria identified in the solicitation. State agencies also review and approve long-term contracts to ensure they comply with state laws and do not have an unjust impact on ratepayers. States have employed two primary contract instruments:

- PPAs provide for the sale and purchase of energy and energy services. Typically, a PPA is between the project owner and the utility offtaker (e.g. electric distribution utility). The PPA contains the terms and conditions that govern the payment, delivery and performance of the project. The PPAs do not cover capacity or ancillary services, but those services can be provided separately by the project owner to the wholesale market. In addition, PPAs can bundle energy with the sale and purchase of environmental attributes (e.g. renewable energy credits (RECs)) to the electricity supplier, who then sells them in the wholesale market. Under the PPA structure, the project owner receives a predetermined payment, regardless of the price the power gets in the wholesale market.
- ORECs are issued by states to comply with offshore wind-specific renewable portfolio standards. ORECs, unlike RECs, can include energy, capacity, ancillary services and environmental attributes. Generally, under an OREC structure, the project owner sells energy into the wholesale market and ORECs to an intermediary who then sells to the electricity supplier. There are two types of ORECs: Fixed (Premium) and Index, with differences in hedging benefits, cost of financing and grid/ratepayer impacts.

There is one example of a vertically integrated utility owning an offshore wind project. Dominion Energy has planned, developed and constructed a pilot offshore wind project off the coast of Virginia. Dominion Energy has also received approval to build out the commercial-scale wind farm to include approximately 180 turbines that are scheduled to be built and put online from 2024-2026. As proposed, the energy from each

wind turbine will be "bundled" together at one of three offshore substations and undersea cables will deliver the energy onshore at a location and overhead transmission line route to an existing substation approved by the state agency to deliver the energy to the broader electric grid.

11. *Are there any restrictions on foreign companies participating in FLOW projects in the United States? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in the United States?*

    Under US foreign investment rules, the acquisition of US infrastructure assets or businesses may be subject to either a mandatory or voluntary filing with the CFIUS. This is specifically the case where such projects involve connections to the US electrical power grid or involve any investments in US seaports or other ports. In addition, there are certain geographic zones of the coastal US that have specific restrictions related to foreign investment. These restrictions are more fully detailed in Dentons' Foreign Investment review tool, available at https://publisher.dentons.com/experience/fdi-comparison-tracker, and apply to both investments in operating businesses as well as real estate acquisitions.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in the United States)?*

    There is no national electricity transmission system operator in the US. Rather, the US is divided into 10 regions for electricity market purposes, with seven of those regions having regional energy markets governed by a regional transmission organisation (**RTO**) or an Independent System Operator (**ISO**), and three of the regions having no centralised market or transmission system operator, instead having a more traditional vertically integrated utility model with bilateral contracting rather than a structured market.[127]

    Offshore transmission assets are considered to be the components (e.g. substation(s), export cables, transformers) of a FLOW facility that are needed to transmit the power to the point of interconnection with the onshore grid. Generally, there are two types of offshore transmission configurations: (i) a gen-tie transmission line; and (ii) a shared network transmission line (e.g. backbone). A gen-tie transmission line represents dedicated infrastructure for each offshore wind facility. Larger offshore wind projects may require multiple

    gen-tie lines to deliver all of the power to the point of interconnection. A gen-tie line is most likely to be constructed and owned by the utility offtaker or the owner of the wind facility. If it is the utility offtaker, the gen-tie line may be subject to state or federal jurisdiction. If it is the owner of the offshore wind facility, a gen-tie line is considered a generator interconnection facility and not subject to the jurisdiction of FERC. In contrast, a backbone line can not only connect more than one offshore wind facility, but it can also provide access to multiple onshore interconnection points and the flexibility to pick landing spots that avoid onshore congestion and directly address system reliability needs. A shared network configuration would likely be subject to FERC's open-access rules. This means that third parties can reserve available capacity on the backbone for other offshore wind facilities to interconnect to the transmission system to get power to the onshore grid. To date, no offshore backbone or shared network transmission system has been built in the US.

    Onshore transmission assets are considered to be the components (e.g. substations, transmission lines, transformers) from the point of interconnection with the generator interconnection facilities to, and including, the distribution and/or wholesale electrical system. There is no single, centralised transmission-owning entity in the US. Transmission assets may be owned by investor-owned utilities, merchant transmission companies, municipally-owned utilities, rural electric cooperatives, or federal or state agencies. In the US, wholesale transmission assets are not owned by the RTO or ISO. Rather, transmission owners in the specific RTO/ISO's territory transfer operational control to the RTO/ISO. By doing so, these transmission assets are subject to the RTO's/ISO's planning processes and coordination. Not all areas of the US are in

127. For example, see https://www.ferc.gov/electric-power-markets.

the territory of an RTO or ISO – much of the US has no central transmission system operator at all. Typically, these onshore transmission assets would be owned by the utility offtaker, but they could also be owned by an independent, merchant, transmission company. The application of state or federal oversight of operations, planning and rate recovery for these onshore transmission assets will depend, in part, on whether they are used to serve load at the local/distribution level or at the interstate transmission level, respectively. That said, within their borders, states retain their jurisdiction over the physical transmission facilities, their specific siting and construction. There may also be a patchwork of local government land use and related permits that may be required with coastal zone management overlays.

13. *Are there any requirements in the United States for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

    There do not appear to be requirements that marine structures that comprise a FLOW farm be registered in a local ship register. As explained in Question 4, offshore wind projects need approval from several government agencies before construction commences.

    As noted below, states have required the use of an in-state port to marshal components and install and operate offshore wind projects supplying power to that state.

    There are national legal requirements for using a Certified Verification Agent for projects in federal waters.[128]

14. *Are there any local content requirements in the United States in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

    The US has several ongoing efforts to promote the development of offshore wind technical capabilities and supply chains in the US, both as incentives and as requirements. The Biden Administration is working to implement the Inflation Reduction Act clean energy tax credits in conjunction with its offshore wind Energy Earthshot Initiatives.[129] The Inflation Reduction Act designates approximately US$370 billion for energy and climate spending, including modifications to the Internal Revenue Code to include tax benefits for "green" energy technologies, such as offshore wind equipment manufacturing and deployment. The Inflation Reduction Act also bolsters the PTC for eligible wind facilities by extending these tax credits at potentially maximum rates through at least the end of 2033 (based on the beginning of construction).

    Additionally, the Inflation Reduction Act offers a new advanced manufacturing PTC for applicable green technology components produced in the US or a US territory. Finished equipment and component parts of both onshore and offshore wind power generation facilities and offshore wind vessels are eligible for the PTC, including blades, nacelles, towers and foundations. To support specialised shipbuilding, the DOT's Maritime Administration designated offshore wind vessels as the first category to receive priority for review through the Federal Ship Financing Program.[130] The DOE is also providing financial support to the offshore wind supply chain, including through the DOE's Loan Programs Office[131] and the Advanced Materials

128. 'Input to roadmap for offshore wind' (Danish Energy Agency, September 2020) <https://ens.dk/sites/ens.dk/files/Globalcooperation/d5_-_input_to_roadmap_for_offshore_wind_development_in_vietnam_full_report_english_final_2020-09-21.pdf> accessed 11 December 2023.
129. 'White House, Inflation Reduction Act Guidebook' (The White Huse, 21 September 2023) <https://www.whitehouse.gov/cleanenergy/inflation-reduction-act-guidebook/> accessed 11 December 2023.
130. 'US Department of Transportation, DOT Joins Federal-State Partnership to Expand Domestic Offshore Wind Supply Chain' (transportation.gov, 24 June 2022) <https://www.transportation.gov/briefing-room/dot-joins-new-federal-state-partnership-expand-domestic-offshore-wind-supply-chain> accessed 11 December 2023.
131. 'US Department of Energy, LPO Tech Talk: Offshore Wind' (energy.gov, 12 January 2022) <https://www.energy.gov/lpo/articles/lpo-tech-talk-offshore-wind> accessed 11 December 2023.

and Manufacturing Technologies Office,[132] and working with industry and state partners to fill key gaps identified by the US Offshore Wind Supply Chain Roadmap.[133]

Meeting the offshore wind deployment goals set by the Biden Administration will require a substantial scale-up of existing domestic supply chains and an estimated US$12 billion in project capital investment per year in bottom-fixed and FLOW turbines combined. According to NREL, investments are needed in port upgrade efforts, new US factories for each major wind farm component, more than 10,000 tons per year of permanent magnets, additional cumulative supply of more than 7 million tons of steel and the construction of specialised turbine installation and operations vessels in US shipyards. Establishing the domestic supply chain and deploying offshore wind at scale in the US will result in an estimated 44,000 jobs on both US coasts, providing economic stimulation in the highly populated coastline communities most likely to be negatively impacted by the effects of climate change. Nearly 33,000 additional jobs will be created in communities across the country supported by offshore wind activity due to increased demand for domestically produced materials, such as domestically produced steel.

Moreover, a number of states have encouraged or required local content targets for minority- and women-owned business enterprises (**MWBE**).[134] Maryland, for example, requires significant MWBE procurement commitments from developers and that they make "serious, good-faith efforts" to solicit MWBE investors on their projects. As a result, the state secured MWBE goals of approximately 15% and 29% from wind project developers (but ultimately failed to recruit any MWBE investors). Maryland law further requires its offshore wind development grant and capital programmes to support MWBEs.

New York requires that at least 35% of funds invested in clean energy benefit disadvantaged communities, a mandate that includes state-level funding for training and development. Massachusetts recently reformed its procurement process to place a larger focus on equity. Developers are workshopping potential programmes and outreach efforts to achieve these goals. Ocean Wind, a project off the New Jersey coast, created the Pro-NJ Grantor Trust with US$15 million to give grants to small MWBEs working to break into the industry. States such as Maryland, New Jersey and Virginia are also funding Foundation 2 Blade, a business training programme to help companies better understand where they fit into the offshore wind supply chain and the contracting process. While the training is open to all businesses within these three states, outreach is prioritised to MWBEs.

In the US, the procurement process can be subject to content requirements at both the federal and state levels. At the federal level, offshore wind shipbuilding and vessel operations are subject to the Jones Act, which mandates that ships moving between US points of call be constructed domestically, manned by a US crew and be US-flagged. In addition, while federal agencies are required to use renewable resources, any such energy procurement is limited to a 10-year PPA, which is half the term of a normal offshore wind procurement agreement. Further, the recent Build Back Better legislation tied tax credits to domestic content requirements and required developers to pay prevailing wages to qualify for the full tax credit. As noted above, states are the primary drivers for awarding contracts for new offshore wind projects and, as part of their policies and procurement processes, have imposed various levels of in-state economic activity and capital expenditures, especially in states utilising ORECs that require more local economic development commitments. For example, state procurement can incentivise developers to invest in new or utilise existing in-state factories, encourage or

132. 'US Department of Energy, US Department of Energy Announces US$30 Million for Materials and Manufacturing to Lower Costs of Large Wind Turbines' (energy.gov, 10 February 2023) <https://www.energy.gov/articles/us-department-energy-announces-30-million-materials-and-manufacturing-lower-costs-large> accessed 11 December 2023.
133. 'US Department of Energy, National Offshore Wind Research and Development Consortium Announces US Offshore Wind Supply Chain Roadmap' (energy.gov, 23 January 2023) <https://www.energy.gov/eere/articles/national-offshore-wind-research-and-development-consortium-announces-us-offshore-wind> accessed 11 December 2023.
134. Rebecca Karp, ;Commentary: Equitable Procurement, Hiring Crucial to Offshore Wind Growth' (Energy News Network, 14 April 2021) <https://energynews.us/2021/04/14/commentary-equitable-procurement-hiring-crucial-to-offshore-wind-growth/> accessed 11 December 2023.

require local content requirements for MWBEs, and training and development programmes to reach these equity goals. Further, states have required the use of an in-state port to marshal components and install and operate offshore wind projects supplying power to that state.

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    Governmental auctions of offshore land leases to FLOW developers have typically involved certain bidder eligibility and financial assurance requirements. For example, in 2022, the BOEM conducted an auction of leases to develop commercial-scale floating wind farms off the West Coast. Prior to the auction, the BOEM published a list of eligible bidders that it had determined were legally, technically and financially qualified to hold a commercial wind lease offshore California. Additionally, each bidder was required to provide a bid deposit of US$5 million prior to engaging in the auction. Moreover, winning bidders were required to provide the BOEM with a lease-specific bond or another BOEM-approved financial assurance instrument in the amount of US$100,000. We expect that these types of financial assurance and deposit requirements will be used in additional governmental FLOW leases in the future.

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    There has been attention given to the potential for green hydrogen production from offshore wind by US federal and state governments. For example, in 2022, the BOEM issued a report that determined that offshore wind could be a significant source of support for utility-scale hydrogen production in the US. Moreover, the BOEM has issued requests for information regarding the viability, economic or otherwise, of using offshore wind to power green hydrogen production in the Gulf of Mexico, on which it later relied to propose a bidding credit to incentivise green hydrogen in certain coastal areas. Despite the general interest in offshore wind's application to green hydrogen production, there are no explicit regulatory incentives for the use of green hydrogen production or electrification of oil and gas platforms from FLOW assets.

    The Inflation Reduction Act established a separate credit for clean hydrogen production. Industry innovators view the hydrogen production credit as operating in tandem with the DOE's offshore wind initiatives because green hydrogen can be produced using electricity generated by offshore wind (via onshore or offshore electrolysers). In fact, offshore wind projects could be an integral element in "hydrogen hubs" – extensive regional centres that will transform green electricity into hydrogen-based fuels for use in transportation, agriculture, manufacturing and energy generation. The DOE is advancing the hydrogen hub concept with nearly US$8 billion in grants and credits made available from the Infrastructure Investment and Jobs Act (IIJA). IIJA has also clarified that storage of energy other than oil and gas can occur on the OCS, a critical change that would allow for the potential development of hydrogen production and storage by offshore wind turbines on the OCS.

17. Please *summarise any other relevant points in relation to the development of FLOW projects in the United States. For example, is there an existing offshore oil and gas industry in the United States given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    In the US, the offshore wind industry is less mature than the onshore wind industry. The FLOW industry is even less mature and is still in the early development stages. While existing technologies and infrastructure from the offshore wind and oil and gas industries might help with pace and efficiencies, the development of the FLOW industry in the US is going to require significant new, upfront investment. For example, FLOW facilities will require a new set of wind turbine design specifications to handle the additional hydrodynamic (i.e. waves) and aerodynamic (i.e. wind) forces that will affect the buoyancy and stability of these top-heavy floating structures.

Further, to support the growth of the floating offshore industry, there will be a need for, among other things:

- fabricating specialised vessels for deeper waters;
- upgrading and expanding the deepwater ports and harbours without height restrictions necessary for offshore wind usage;
- establishing manufacturing facilities for blades, towers, foundations and electric service platforms; and
- creating and administering workforce training programmes to address a skilled workforce gap.

So far in the US, certain large oil and gas companies, including Equinor, BP and Royal Dutch Shell, appear to be positioning themselves to be leaders in the offshore wind market.[135] The offshore oil and gas industry utilises floating substructures on which FLOW can capitalise.[136] In Oregon, a site earmarked for an LNG facility is now being assessed to support FLOW instead. Ports supporting offshore wind may also consider landing hydrogen from these wind farms.[137] Not only will existing ports need to be adapted, but separate ports may be required for building out FLOW facilities. [138]

BOEM case study[139]

There are several ongoing studies to assess how and to what extent existing infrastructure may aid the development of FLOW. For example, an ongoing 20-month study on how to build out transmission networks that link the West Coast's grid to FLOW projects was commissioned and funded by the Inflation Reduction Act. Additionally, transport conditions that must be examined include channel width and depth along with height restrictions. Skilled labour force, rail and road connection, and crane capacity are some of the infrastructure components also being studied. In California, there are large ports that may already allow for the utilisation of existing offshore equipment vessels and infrastructure, but there is likely a need to expand this capability to accommodate commercial-scale development and implementation of FLOW, including the development of wind-specific assembly facilities.

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137. Elaine Maslin, 'Offshore Renewable Energy: A Port Puzzle for Floating Offshore Wind' (Maritime Logistics Professionals, 8 December 2021) <https://www.maritimeprofessional.com/news/offshore-renewable-energy-port-puzzle-372617> accessed 11 December 2023.
138. 'Floating Offshore Wind Turbines Port Requirements for Construction' (SAGE journals, November 2022) <https://journals.sagepub.com/doi/epub/10.1177/14750902221078425> accessed 11 December 2023.
139. 'Infrastructure to Support Offshore Floating Wind: Focus on California, Bureau of Ocean Energy Management 2016 OCS Study' (BOEM, 1 November 2016) <https://www.boem.gov/sites/default/files/about-boem/BOEM-Regions/Pacific-Region/CORE/CORE-Phillips.pdf> accessed 11 December 2023.

Vietnam

1. *Summarise the status of any current and proposed floating offshore wind (**FLOW**) developments in Vietnam (such as announced procurement goals and awards of individual projects, or adoption of specific legislation). What is the projected outlook for FLOW beyond 2030 in Vietnam?*

   Currently, there are no operating FLOW projects in Vietnam. The first deep bottom fixed sea offshore project will commence commercial operations in or after 2026.[140] Recent developments suggest a growing interest in the sector. The Vietnamese government has set a target of 10GW of offshore wind capacity by 2030 and has shown increasing support for FLOW development. In December 2021, a 500MW offshore wind project off the coast of Binh Thuan province was approved. A memorandum of understanding was signed for a 3.6GW offshore wind project that includes floating turbines. Vietnam has a FLOW technical potential of 338GW.

   From the joint statement issued by Vietnam and Japan on development commitments to meet the target of Net Zero by 2050 at COP26, the Japanese government provided capital to Toda Corporation to study the potential of FLOW in the sea off Binh Thuan.[141] Separately, Vietnam has also set ideal sites for FLOW development, including one off Ninh Thuan. To the south of the Gulf of Tonkin, there is an area with a technical potential of 39GW for floating wind. There is also a very large area that runs from the south to the central region south of Hue, with a technical potential of 175GW. The outlook for FLOW developments in Vietnam appears promising, but progress may depend on overcoming regulatory and financial barriers.[142]

   The National Power Development Plan for the period from 2021 to 2030 (**PDP 8**) was approved and issued in May 2023, setting out the objectives and solutions regarding power sources and transmission grids. It aims to promote the development of renewable energy, although there are no particular projects included in the regulation. It will be possible to develop more than 6,000MW of offshore wind by 2030 if both the technology and transmission capacity, and costs are met. Provincial People's Committees will select investors for the power generation projects. The Ministry of Industry and Trade (MOIT) will formulate the implementation plan and prepare a draft amended Law of Electricity and a draft Law on Renewable Energy, to be submitted to the National Assembly next year. MOIT also plans to formulate direct Power Purchase Agreement (PPA) policies to submit to the government for consideration.

   The National Marine Spatial Plan (**NMSP**) for the period 2021-2030, outlining a vision extending to 2050, was approved by the National Appraisal Council on 29 September 2023.[143] This report maps out the sea area that will be prioritised for offshore wind power project development, and highlights the areas requiring Ministry of Defence approval for development. Most of the marine areas prioritised for offshore wind power projects are situated in Northern Vietnam, along the Gulf of Tonkin. The areas requiring Ministry of Defence approval are located in

140. Vietnam's Future Transition to Offshore Wind Auctions, Global Wind Energy Council.
141. Funding to research the potential of 'floating wind power' off the coast of Vietnam (Nang Luong, 22 December 2022) <https://nangluongvietnam.vn/chinh-phu-nhat-cap-von-cho-toda-nghien-cuu-tiem-nang-dien-gio-noi-ngoai-khoi-viet-nam-30045.html> accessed 11 December 2023.
142. Mamoru Tsuge, Tomoya Onishi, 'Vietnam offshore wind power sparks influx of foreign investment' (NIKKEI Asia, 6 January 2023) <https://asia.nikkei.com/Business/Energy/Vietnam-offshore-wind-power-sparks-influx-of-foreign-investment> accessed 11 December 2023.
143. 'The appraisal council unanimously approved the National Marine Spatial Plan for the period 2021-2030, with a vision to 2050' (vietnam,vn, 29 September 2023) <The appraisal council unanimously approved the National Marine Spatial Plan for the period 2021-2030, with a vision to 2050 - Vietnam.vn> accessed 11 December 2023.

the central and southern regions of Vietnam. Note that the NMSP shall be approved by the National Assembly prior to official issuance, hence the plan is subject to further updates, which could result in changes to the designated marine zones for offshore wind power project development. Please note that the NMSP does not specify the FLOW development areas, but rather covers the potential development areas prioritised for offshore wind power projects in general.

2. *What challenges are faced by the FLOW industry in developing FLOW projects in Vietnam (e.g. societal opposition, meteorological, procurement, grid connections, access to deepwater ports and port logistics etc.)?*

    - The FLOW industry in Vietnam faces challenges such as lack of a regulatory framework, financing difficulties, grid connections, access to deepwater ports and port logistics, meteorological conditions and opposition from local communities and environmental groups. .
    - There are also uncertainties around maritime spaces and usage rights among governmental agencies, including military jurisdiction over strategic waters for national defence purposes. For example, for investors wanting to conduct a site survey for a potential offshore wind power project, Vietnamese regulations do not provide exclusivity of a marine space (note that the NMSP, once approved, may bring clarity and pave the way for future regulatory developments). A specific site can only be secured through a marine space assignment decision from a state body. The high cost of FLOW technology, combined with the significant amount of infrastructure investments needed, such as grid connections and deepwater ports, could also make it difficult to secure financing.
    - Currently, there are a few deepwater ports in Vietnam that may have the capacity to import turbines and other project equipment, such as Cai Mep International Terminal (Ba Ria-Vung Tau in Southern Vietnam) and Lach Huyen International Port (Hai Phong in Northern Vietnam). Such ports may not have the existing facilities to assemble and manufacture FLOW turbines. However, PDP 8 focuses on offshore wind power project development, which may drive the private sector investment initiatives to update the existing deepwater port infrastructure to act as the manufacturing and assembly sites for FLOW projects. In terms of financing the development of such facilities development by the private sector, both local and international financing acc iswelcomed in Vietnam. This adds to the increasingly difficult procedure of obtaining a foreign loan imposed by cross-border financing regulations.[144]
    - Sovereign disputes over areas of the South China Sea adjacent to Vietnam may adversely impact particular project sites, which increases the risk associated with such projects'.
    - Vietnam's typhoon-prone climate may also pose challenges for the design,construction and operation of FLOW projects .

3. *Is there a World Bank Offshore Wind Roadmap for Vietnam or any announced plans by the government of Vietnam, such as targets for installed FLOW capacity by certain dates? Other than set out above, what does it suggest and has any of it been adopted?*

    The World Bank developed an Offshore Wind Roadmap for Vietnam in 2021. The roadmap provides an analysis of Vietnam's offshore wind potential and existing policy and regulatory frameworks, and outlines a pathway for developing a sustainable and commercially viable offshore wind industry in Vietnam. Key findings of the report include:

    - Vietnam has abundant offshore wind resources that are located close to demand centres and in relatively shallow water – although this roadmap focuses on areas further offshore which have higher wind speeds and energy yields; and
    - offshore wind could play a significant role in sustainably meeting Vietnam's rapidly growing electricity demand. It has

144. Dentons Luatviet, 'State Bank of Vietnam's new Circular on foreign loan registration' (21 October 2022) <www.dentonsluatviet.com/en/insights/articles/2022/october/21/state-bank-of-vietnam-new-circular-on-foreign-loan-registration> accessed 11 December 2023.

the potential to supply 12% of Vietnam's electricity by 2035, replacing coal-fired generation, which could help to avoid more than 200 million metric tons of CO2 emissions. It would also add at least US$50 billion to Vietnam's economy, by stimulating the growth of a strong, local supply chain, creating skilled jobs and exporting to offshore wind markets in other countries.

The roadmap states that achieving these targets will require significant investment in infrastructure, technology and human resources, as well as policy and regulatory reforms to create a supportive environment for offshore wind development. The roadmap also identified challenges that must be addressed to ensure the success of offshore wind development in Vietnam, including limited experience and capacity in offshore wind development, absence of a clear regulatory framework and insufficient grid infrastructure.[145]

4. *Outline broadly the legal/statutory/regulatory regime and organisational framework for the development of FLOW in Vietnam.*

a. *Are the granting of operational licences or seabed leases subject to a competitive tender process or direct negotiation?*

The operational licences or seabed leases for FLOW projects are not subject to a tender process and direct negotiation is often achieved through an application. The Private-Public Partnership Law permits renewable energy project investment through a proposal submitted by a private investor, or a tender process administered by the state.

b. *Is there a specific legal/regulatory regime for FLOW projects in Vietnam, as opposed to broader offshore wind or renewables projects in general?*

Vietnam does not have a specific legal or regulatory regime for FLOW projects. FLOW projects are subject to the same legal and regulatory framework as other renewable energy projects, as set out in the Law on Investment and the Electricity Law of Vietnam and their respective implementing regulations. The current regulatory regime for wind farms is focused on onshore wind farms.

c. *Are there any designated areas of the territorial sea or exclusive economic zone of Vietnam intended to enable fast-track development of floating wind projects and technologies?*

There are no designated areas in the territorial sea or in the EEZ of Vietnam that are intended for the fast-track development of FLOW projects and technologies.

d. *Are there any specific legal or regulatory regimes relating to access to ports and permitted activities within ports such as construction and assembly activities required for FLOW projects (e.g. restrictions on foreign ownership)?*

The main legal framework governing port operations is the Maritime Code, last updated in 2017. The law regulates port infrastructure, operations and management, and applies to all ports in Vietnam, including those that may be used for FLOW projects. The Vietnamese government has not yet developed specific laws or regulations on FLOW construction in ports. FLOW projects would still need to comply with existing regulations on port construction and operation.

145. 'OFFSHORE WIND ROADMAP FOR VIETNAM' (World Bank Group, June 2021) <https://documents1.worldbank.org/curated/en/261981623120856300/pdf/Offshore-Wind-Development-Program-Offshore-Wind-Roadmap-for-Vietnam.pdf> accessed 11 December 2023.

5. *Which government authorities/public bodies are responsible for the regulation of FLOW in Vietnam?*

Government authority/public body	Role
Prime Minister	Responsible for exercising uniform state administration of the power market.[146]
MOIT	Responsible for the development and implementation of policies related to energy and power generation, including offshore wind.
Ministry of Finance	Responsible for working with the MOIT to approve the schedule on power production price, wholesale price, power distribution, auxillary service price, etc. (**Electricity Fee Schedules**).[147] Responsible for collaborating with the MOIT to develop and introduce the average electricity retail price brackets, mechanism of price adjustment and structure of the electricity retail price list.[148]
Provincial People's Committee	Responsible for preparing the development plan for grid power supply, as well as carrying out the assigned missions for state administration within their respective localities.[149]
Electricity Regulatory Authority of Vietnam (**ERAV**)	Responsible for reviewing and assessing the draft Electricity Fee Schedules and submitting to MOIT and the Ministry of Finance for approval.[150]
Vietnam Electricity Corporation (**EVN**) and its subsidiaries	Responsible for preparing the draft Electricity Fee Schedules and submitting to ERAV for assessment.[151]

6. *What consents/authorisations/licences etc. are required for the development, construction, and operation of a FLOW project in Vietnam (e.g. seabed lease and survey and meteorological data collection licence, marine construction licence, habitats and wildlife protection licence, environmental impact assessment, grid connection agreement, electricity generation, and transmission licence, etc.)?*

a. *Are there separate marine/environmental licences or adaptations from standard licences required for FLOW projects?*

Vietnam does not have specific regulations or licensing requirements for FLOW projects. FLOW is subject to the same EIA and permit issued by the Ministry of Natural Resources and Environment, as applicable to other power projects. An approval of a seabed lease is required and the issuer for it can vary – it may be the Prime Minister, the Ministry of Natural Resources and Environment, or the Provincial People's Committee. A seabed lease will be required for the structuring and management of the necessary grid connection. A construction

146. Article 65.1 of the Electricity Law 2004 as amended and supplemented from time to time.
147. Ibid, Article 31.2.
148. Ibid, Article 31.1.
149. Ibid, Article 65.4.
150. Ibid, Article 31.2.
151. Ibid, Article 31.2.

permit is also required from the provincial Department of Construction. An electricity operating licence may also be required for electricity generation of sizeable plants and electricity transmission activities, from MOIT or the Electricity Regulatory Authority.

b. *Are consents required at a national level or state/municipal level?*

In Vietnam, a consent at the national level is generally required for offshore wind projects. MOIT, and the Ministry of Natural Resource and Environment, are responsible for granting approvals for offshore wind projects. There may also be permits or approvals required at the local level for specific aspects of the project. For example, if the project involves land-based infrastructure or requires access to ports, local authority permits may be required. Further, certain parts of the sea area would require Ministry of Defence approval.

c. *Are any costs of such licences or connection charges recoverable under any applicable subsidy or support scheme?*

There are no specific subsidies or support schemes available in Vietnam for the costs involved in obtaining licences and connection charges for offshore wind projects.

7. *Are there any financial incentives/support schemes for the development of FLOW projects (e.g. grant funding, feed-in tariffs/feed-in premiums/contracts for difference, tax incentives or other forms of subsidy) in Vietnam? Are these specific to FLOW, to offshore wind or renewables in general?*

There are no specific financial incentives or support schemes available for FLOW projects in Vietnam. However, there are general support mechanisms for renewable energy development from international, sovereign and institutional financing institutions, such as the Just Energy Transition Partnership,[152] Asia Development Bank financing package, which recently financed the onshore wind farm in Ninh Thuan province,[153] and state support such as income tax rate reduction and investment incentives set out under the Investment Law. Income from new investment projects in renewable energy production will be subject to corporate income tax at the rate of 10% for the initial 15 years, compared to regular income tax rates, the lowest of which would be 20%. There is also an exemption from import duty for goods imported to form fixed assets of the project, or raw materials and manufactured materials imported to service production of the project.

8. *Please also provide details of the relevant funding programme and the allocation methodology (i.e. are there designated rounds with funding or capacity limits and is allocation based on a competitive tender among pre-qualified applicants, direct purchase or negotiated purchase?).*

As above, there are no specific financial incentives or support schemes available for FLOW projects in Vietnam, other than the feed-in tariff for the offshore wind farm. However, the previous feed-in tariff system has expired and no feed-in tariff rates have been issued by the authority since then. Vietnam set a ceiling rate for direct negotiations between the generator and EVN which, under current regulations, has a monopoly over the transmission, distribution, wholesale and retail of electricity, and is the sole buyer in the market. Circular No. 15/2022/TT-BCT issued by MOIT on 3 October 2022 set out the framework for EVN to enter tariff negotiations with transitional wind energy project developers, with specified ceiling prices. The transitional wind energy projects refer to wind power projects which entered into a PPA with EVN before 1 November 2021, but were not eligible for the previous feed-in tariff which ended on 30 October 2021. The ceiling price for offshore wind farms is 1,815.95 VND/kWh, as provided in Decision 21/QD-BCT issued by the Prime Minister on 7 January 2023. As the feed-in tariff has now expired, it will be replaced with an auction-based system whereby the tariff for each wind power project is determined through a competitive bidding process. The MOIT is

152. '$15.5 billion in financing for green energy from Just Energy Transition Partnership' (Vietnam Investment Review, 7 February 2023) <https://vir.com.vn/155-billion-in-financing-for-green-energy-from-just-energy-transition-partnership-99573.html> accessed 11 December 2023.
153. 'ADB, BIM Wind Sign $107 Million Financing Package to Support Wind Energy in Viet Nam' (Asian Development Bank, 21 December 2022) <www.adb.org/news/adb-bim-wind-sign-107-million-financing-package-support-wind-energy-viet-nam> accessed 11 December 2023.

still in the process of developing the bidding regulations and it is unclear what the auction system will entail or when it will be finalised.[154]

9. *Are such support schemes made available at the national or state/municipal level? Once awarded, are such support schemes capable of adjustment to allow for increased costs of procurement, inflation, or other matters beyond the control of the project developer? Do such support schemes apply during periods of negative wholesale electricity pricing?*

   As above, there are no specific financial incentives or support schemes available for FLOW projects in Vietnam. Under the utility-scale project statutory-standard PPA,[155] payments from EVN to the project companies are made in Vietnamese Dong, then adjusted according to the official State Bank of Vietnam's VND/US$ exchange rate on the date of invoicing. However, payments may be made up to 25 business days after the invoice date and the PPA does not provide any guarantees on same-day conversion to US$, nor on the commercial availability of US$. There are therefore no adjustment mechanisms to reflect economic inflation or increases in production costs.[156]

10. *What is the revenue structure/offtake arrangement proposed for FLOW projects in Vietnam (e.g. is there a state-owned or mandated electricity offtaker who is the sole purchaser of power and renewable energy certificates from the project or the purchaser of a specified capacity)? If so, are offtake contracts negotiable or is there a specified price or required standard form contract? Does such offtake contract need to be approved by any regulator? Is the project free to dispose of the electricity in excess of any predetermined capacity quota or is it obliged to sell into a regulated wholesale market?*

    The revenue structure and offtake arrangements for FLOW projects depend on the statutory form of PPA. There is very little negotiation room under a feed-in tariff (subject to its conditions) reached between EVN and the developer. The projects that missed the commercial operation dates prior to the expiry of the previous feed-in tariff would need to go through the tariff negotiation with EVN at a ceiling rate. EVN is the sole buyer in the market for any offshore wind farm, but there may be other parties involved. For example, for rooftop solar installations, commercial customers are permitted to set rooftop solar PV gensets for self-consumption purposes, provided they do not dispose of the excess to the grid and subject to other conditions. For the avoidance of doubt, EVN is purchasing excess electricity generated from rooftop solar gensets which came online before 2021. Those that came online in or after 2021 are not allowed to dispatch excess electricity to the grid and EVN will not purchase electricity generated from these gensets. We may wait for market development to see the regulator's appetite in allowing offshore wind farms with wider offtaker options. Vietnam's recent plan to put a 1,000MW pilot direct PPA scheme allows the generator to sell electricity to private offtakers via a CfD/virtual PPA arrangement between the generator and the private offtaker. This pilot scheme is still pending approval from the Prime Minister.[157]

11. *Are there any restrictions on foreign companies participating in FLOW projects in Vietnam? For example, is domestic ownership of the company required (e.g. national shareholders) or is a foreign company required to establish a local branch in Vietnam?*

    Under Vietnamese law, there are no limits on foreign ownership or participation in wind energy project companies, allowing foreign investors to hold full equity ownership. Developers may also invest in a greenfield project. In practice, it is still common for foreign investors to form joint ventures with local partners.

154. Mayer Brown, 'Offshore Wind in Vietnam Harnessing the Country's Potential' (2022) <www.mayerbrown.com/-/media/files/perspectives-events/publications/2022/09/offshore-wind-in-vietnam--harnessing-the-countrys-potential.pdf> accessed 11 December 2023.
155. Circular No. 02/2019/TT-BCT of the Ministry of Industry and Trade dated 15 January 2019, as amended.
156. Mayer Brown, 'Vietnam Wind Energy Guide' (2021) <https://www.mayerbrown.com/-/media/files/perspectives-events/publications/brochures/2021/08/vietnam-wind-energy-guide.pdf> accessed 11 December 2023.
157. Mayer Brown, 'Vietnam's Direct PPA Pilot Scheme | Energy Market Update – June 2022' (June 2022) www.mayerbrown.com/en/perspectives-events/publications/2022/06/vietnams-direct-ppa-pilot-scheme-energy-market-update-june-2022> accessed 11 December 2023.

12. *Are there any restrictions on the ownership or construction of transmission assets relating to FLOW projects (e.g. can these only be constructed and owned by the national electricity transmission system operator in Vietnam)?*

The Electricity Law of Vietnam provides that state-owned EVN is responsible for the planning, development, operation and management of the national transmission grid. However, the Public-Private Partnership (PPP) Law and Decree No. 35/2021/ND-CP implies that the grids open for PPP exclude those that are monopolised by the state.

Currently, there are no regulations governing the transmission assets for FLOW projects per se. The relevant guidance applicable to onshore wind power projects may be taken as a reference for FLOW. If there is

non-concurrence between the government and EVN regarding the assumption of customary obligations for the development and operation of the transmission line associated with a FLOW project, the onus of undertaking said responsibilities and the concomitant risks should be incumbent upon the project sponsor. Taking the onshore wind power project as a reference, transmission assets that connect offshore wind farms to the national power grid comprise two parts:

- **The Interconnection Line.** This is the transmission line from the power plant to the grid connection point, including submarine power cables as part of offshore wind power project development.
- **The Grid Connection Line.** This is the transmission line from the grid connection point to the national power grid.

Therefore, inter-array cables (as they would be part of the Interconnection Line) and the export cables from the offshore substation to the onshore connection point would be considered transmission assets within a FLOW project in Vietnam. All developments must comply with the national power development master plan.

While there is no specific law setting out the payment of liquidated damages to the FLOW project developer if the transmission operator is late in delivering the transmission assets, this could potentially be covered under the terms of a PPA or other contractual agreements between EVN and the project developer.

The Vietnamese Electricity Law, as amended in March 2022, allows the sponsors of an offshore wind power project to invest, construct, operate and maintain the Grid Connection Line. The connection point is the demarcation of assets between the offshore wind power project and the power transmission unit, and each party is responsible for its own assets unless otherwise agreed. Therefore, transmission assets such as the Interconnection Line can be owned by an offshore wind power project.

However, the law does not provide clear guidelines on whether these assets must be sold to the transmission operator. The state holds the monopoly in operating the transmission grid, with exceptions for private investors who are encouraged to invest and construct transmission grids in line with the power master plan and are allowed to operate grids they have constructed. This suggests that private investors may retain ownership of the assets they develop unless there is a contractual or legal stipulation to transfer these assets to a transmission operator.

13. *Are there any requirements in Vietnam for any marine structures that comprise a FLOW farm to be registered in any local ship register or for a FLOW farm to be formally certified or classified?*

Currently, there are no specific regulations in Vietnam requiring FLOW farms or their marine structures to be registered in any local ship register, or to be formally certified or classified. Such requirements may be imposed in the future as development of offshore wind projects in Vietnam continues to grow.

14. *Are there any local content requirements in Vietnam in relation to the procurement of goods and services for FLOW projects or other non-price criteria for licensing or subsidy allocations such as sustainability, innovation and local community benefit requirements?*

For PPP projects, Decree No.35/2021/ND-CP requires foreign investors to use domestic goods, supplies, material and equipment to perform projects whose value accounts for 25% or more of their total investment, in order to benefit from a preference margin of 2% in the project's bid appraisal.[158]

15. *Are project developers required to provide any security or guarantees to the government agency administering any support scheme for FLOW projects or the regulator (e.g. bid bonds for non-delivery or performance guarantees in respect of failure to meet contracted performance)?*

    The PPP Law requires investors to lodge a bid security at a rate of between 0.5% and 1.5% of the total project investment value. This security is in addition to the general security to secure performance under the PPP documentation (at a rate of 1% and 3% of the project value). It will be forfeited if the investor withdraws from the tender process, violates the bid procedures (where such violation leads to bid cancellation), or if the successful proponent fails to sign the contract documentation within 30 days (other than due to force majeure).[159]

    The draft decision by the Prime Minister on offshore wind feed-in tariffs for the period of 2021-2023 also requires project developers to provide a bid bond which is worth 2% of the total investment for onshore projects and 3% of the total investment for offshore projects, as well as performance guarantees for failure to meet contracted performance, which may range from 10% to 20% of the total project value.[160]

16. *Are there any particular regulatory incentives for the use of FLOW for green hydrogen production or electrification of oil and gas platforms (e.g. investment allowances for oil and gas producers)?*

    There are no specific regulatory incentives in Vietnam for the use of FLOW for green hydrogen production or electrification of oil and gas platforms, other than those set out in the PPP Law and the Investment Law.

17. *Please summarise any other relevant points in relation to the development of FLOW projects in Vietnam. For example, is there an existing offshore oil and gas industry in Vietnam given the overlap with FLOW and the likelihood of suitable port facilities and skilled workforce?*

    Vietnam's existing offshore oil and gas industry could provide opportunities for the development of FLOW projects. The country's offshore industry has developed suitable port facilities and a skilled workforce in offshore construction, engineering and maintenance. FLOW projects may provide benefits to the oil and gas industry by reducing reliance on fossil fuels and creating a stable source of electricity for offshore facilities. Vietnam's long coastline and abundant wind resources make it suitable for the development of offshore wind projects, including FLOW projects. The government's commitment to renewable energy development and reduction of greenhouse gas emissions suggests a supportive policy environment in the future for the development of FLOW projects in Vietnam.[161]

158. 'Vietnam: Provided a preference margin to foreign investors in the PPP projects' (Global Trade Alert, 29 March 2021) <www.globaltradealert.org/intervention/99280/local-content-requirement/vietnam-provided-a-preference-margin-to-foreign-investors-in-the-ppp-projects> accessed 11 December 2023.
159. White & Case, 'Vietnam's new Law on Public-Private Partnerships' (26 October 2020) <www.whitecase.com/insight-alert/vietnams-new-law-public-private-partnerships> accessed 11 December 2023.
160. 'OFFSHORE WIND ROADMAP FOR VIETNAM' (World Bank Group, June 2021) <https://documents1.worldbank.org/curated/en/261981623120856300/pdf/Offshore-Wind-Development-Program-Offshore-Wind-Roadmap-for-Vietnam.pdf> accessed 11 December 2023.
161. 'Vietnam supply chain study' (Norweigan Embassy, September 2021) <www.norway.no/globalassets/2-world/vietnam/vietnam-supply-chain-study-final-report.pdf> accessed 11 December 2023.

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Glossary

Defined Term	Definition
ACCC	Australian Competition and Consumer Commission
ACOD	Atlantic Canada Offshore Developments
ACROPO	Competent Authority for Offshore Operations in the Black Sea
ANEEL	Agência Nacional de Energia Elétrica
ANH	National Hydrocarbons Agency
ANLA	National Authority for Environmental Licences
ANRE	National Energy Regulatory Authority
Ara Ake	National New Energy Development Centre
ARESEP	Costa Rican Public Utilities Regulatory Authority
ATLANTIS	Aerodynamic Turbines, Lighter and Afloat, with Nautical Technologies and Integrated Servo-control
BBBEE Act	Broad-based Black Economic Empowerment Act, 2003
BNDES	National Bank for Economic and Social Development
Board	An Bord Pleanála
BOEM	Bureau of Ocean Energy Management
BOT	Build-Operate-Transfer
CABEI	Central American Bank for Economic Integration
CBA	Community Benefit Agreement
CEA	Central Electricity Authority
CEN	Coordinador Eléctrico Nacional
CENACE	Centre for Control of Energy
CER	Canada Energy Regulator
CERC	Central Electricity Regulatory Commission

Defined Term	Definition
CFA	Central Financial Assistance
CfD	Contract for difference
CfD Scheme	Support scheme based on contracts for difference
CFE	Comisión Federal de Electricidad
CFIUS	Committee on Foreign Investment in the US
CIB	Canada Infrastructure Bank
CIP	Copenhagen Infrastructure Partners
CNE	National Energy Commission
CNMC	Comisión Nacional de los Mercados y la Competencia
CoCT	City of Cape Town
COP	Construction and Operations Plan
Corps	US Army Corps of Engineers
CREG	Energy and Gas Regulation Commission
CRU	Commission for Regulation of Utilities
CSAT	National Defence Security Council
CTU	Central Transmission Utility
DA	Dirección de Aguas
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DEA	Danish Energy Agency
DECC	Department of Energy, Climate and Communications
DIMAR	General Maritime Directorate
DIP	Declaration of Prior Interference
DISCOMs	Distribution companies
DOE	Department of Energy

Defined Term	Definition
DOI	Department of the Interior
DOT	Department of Transportation
Draft Bill	New draft law on the necessary measures for the exploitation of offshore wind energy published on 17 July 2023 (Romania)
Draft GD	Draft Government Decision on the approval of the general legal framework for the implementation and operation of the mechanism of support through Contracts for Difference for low-carbon technologies published on 7 August 2023
EEZ	Exclusive economic zone
EEZA	Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012
EFTA	European Free Trade Association
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EIF	Energy Innovation Fund
Electricity Act	Electricity Act, 2003
Electricity Fee Schedules	Schedule on power production price, wholesale price, power distribution, auxillary service price, etc.
EMD	Earnest money deposit
EPA	Environmental Protection Authority
EPAct	Energy Policy Act of 2005
EPRA	Energy and Petroleum Regulatory Authority
ERA	Electricity Regulation Act, 4 of 2006
ERAV	Electricity Regulatory Authority of Vietnam
ETF	Energy Transition Fund
ETL	Energy Transition Law
EVN	Vietnam Electricity Corporation
FDI	Foreign direct investment

Defined Term	Definition
FENOGE	Non-Conventional Energy Fund
FER 2	Special ministerial decree which must be adopted to define the incentive measures for renewable energy projects as per Legislative Decree No. 199/2021
FERC	Federal Energy Regulatory Commission
FIDE	Trust Fund for the Development of Electric Energy
FIRB	Foreign Investment Review Board
FIT	Feed-in-tariff
FLOW	Floating offshore wind
Framework	Spanish Strategic Framework for Energy and Climate
GO 22/1999	Government Ordinance 22/1999
Green Energy Open Access Rules, 2022	Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022
GWEC	Global Wind Energy Council
Harbour Act	Act relating to harbours and fairways
IAA	Impact Assessment Act
IBAMA	Brazilian Institute of Environment and Natural Resources
ICE	Costa Rican Electricity Institute
ICMA	Integrated Coastal Management Act (2008)
IIJA	Infrastructure Investment and Jobs Act
ILD	International Long Distance
IPP	Independent power producer
IRP	Integrated Resource Plan 2019
ISO	Independent System Operator
ITAM	Indian Type Approved Model
ITL	Income Tax Law
KenGen	Kenya Electricity Generating Company

Defined Term	Definition
KETRACO	Kenya Electricity Transmission Company PLC
KNTGC	Kenya National Transmission Grid Code
KNTS	Kenya National Transmission System
KPLC	Kenya Power and Lighting Company
KRA	Kenya Revenue Authority
KTF	Korea-CABEI Single Donor Trust Fund
LIE	Electricity Industry Law and corresponding Regulations
LTESA	Long-Term Energy Service Agreement
MAC	Maritime Area Consent
MAPA	Maritime Area Planning Act 2021
MARA	Maritime Area Regulatory Authority
Maritime Hydrographical Direction	Maritime Hydrographical Direction from the Ministry of National Defence
MASE	Ministero dell'Ambiente e della Sicurezza Energetica
MASEN	Moroccan Agency for Sustainable Energy
MBIE	Ministry of Business, Innovation and Employment
MINAE	Ministry of Environment and Energy
Minister	Minister for Climate Change and Energy
MITECO	The Ministry for Ecological Transition and the Demographic Challenge
MME	Ministry of Mines and Energy
MNRE	Ministry of New and Renewable Energy
MNRE Draft Tender	Draft tender document for seabed leasing for offshore wind energy projects
MNRE Strategy Paper	Strategy for Establishment of Offshore Wind Energy Projects
MoD	Ministry of Defence
MoEF	Ministry of Environment and Forest

Defined Term	Definition
MoF	Ministry of Finance
MOIT	Ministry of Industry and Trade
MoPNG	Ministry of Petroleum and Natural Gas
MoS	Ministry of Shipping
MPRDA	Mineral and Petroleum Resources Development Act 28 of 2002
MPS	Major Project Status
MSP	The National Maritime Spatial Planning
MWBE	Minority and women-owned business enterprises
NBEA	Natural and Built Environment Act 2023
NCER	Non-Conventional Renewable Energy Resources
NCRE	Non-Conventional Renewable Energy
NEMA	National Environmental Management Act, 1998
NERSA	National Energy Regulator of South Africa
NIWE	National Institute of Wind Energy
NLDC	National Load Dispatch Centre
NMSP	National Marine Spatial Plan
NOCs	No objection certificates
NOPTA	National Offshore Petroleum Titles Administrator
Note	Information note for bidders
NOWRDC	Expansion of National Offshore Wind Research and Development Consortium
NPA	National Ports Act (2005)
NRCan	Natural Resources Canada
NREL	National Renewable Energy Laboratory
NSW	New South Wales

Defined Term	Definition
NVE	Norwegian Water Resources and Energy Directorate
NYSERDA	New York State Energy Research and Development Authority
NZGIF	New Zealand Green Investment Finance
OAC	Open access consumer
OCS	Outer Continental Shelf
OEI Act	Offshore Electricity Infrastructure Act 2021
Offshore Wind Policy	"National Offshore Wind Energy Policy" as per the gazette notification dated 6 October 2015
OIA	Overseas Investment Act 2005
ONEE	The National Office of Electricity and Water
ORE	Offshore renewable energy
OREC	Offshore Wind Renewable Energy Certificates
OREI	Offshore RE infrastructure and offshore transmission infrastructure
ORESS	Offshore renewable energy support schemes
ORESS 1	Renewable Electricity Support Scheme
OSW	Offshore Wind
OWPDs	Offshore wind power developers
PGSM	Maritime Space Management Plan
PMG	Pequeños Medios de Generación
PMGD	Pequeños Medios de Generación Distribuida
PNIEC	National Integrated Energy and Climate Plan
PNRR	Italian National Recovery and Resilience Plan
POT	Temporary Occupancy Permit
PPA	Power Purchase Agreement
PPP	Public-Private Partnership

Defined Term	Definition
PSA	Power sale agreement
PSO	Public services obligations
PTC	Production tax credit
R&D	Research and demonstration
RD 1028/2007	Administrative Procedure for the Processing of Applications for Authorisation of Electricity Generation Facilities in the Territorial Sea
RE	Renewable energy
REC	Renewable energy credits
Registrar	Offshore Infrastructure Registrar
Regulations	Offshore Electricity Infrastructure (Regulatory Levies) Regulations 2022 (Cth)
Regulator	Offshore Infrastructure Regulator
REIDI	Incentive Regime for Infrastructure Development
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
RESS	Renewable Energy Support Scheme
REZ	Renewable Energy Zone
RLDC	Regional Load Dispatch Centre
RME	Norwegian Energy Regulatory Authority
Roadmap	Roadmap for development of offshore wind and marine energy in Spain
RTO	Regional transmission organisation
SAP	Site Assessment Plan
SE	Ministry of Economy
SEMAR	Secretariat of the Navy
SEMARNAT	Ministry of Environment and Natural Resources

Defined Term	Definition
SENER	Ministry of Energy (Mexico)
SERC	State Electricity Regulatory Commission
SETENA	National Environmental Technical Secretariat
SICT	Ministry of Infrastructure, Communications and Transport
SIN	Interconnected national electricity system network
SLDC	State Load Dispatch Centre
SPV	Special purpose vehicle
STEG	Tunisian Electricity and Gas Company
STU	State Transmission Utility
TdR	Terms of Reference
TSO	Transmission System Operator
TSP	Tunisian Solar Plan
TWA	Transpower Works Agreement
UPME	Mining and Energy Planning Unit
VGF	Viability Gap Funding
WEAs	Wind Energy Areas
WETO	Wind Energy Technologies Office
WHT	Withholding Tax
Wind Shot	Floating Offshore Wind Shot

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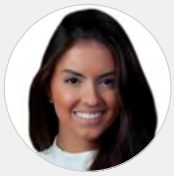

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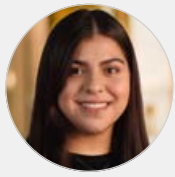

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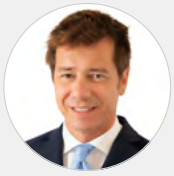

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