Briefing Note # 1

Ocean20: Energy Security and the Ocean

Key Recommendations:

1. Recognise what offshore wind has to offer.
2. Create stable and consistent regulatory regimes.
3. Establish clear legislative frameworks for ocean-based renewable energies.
4. Integrate offshore wind into Nationally Determined Contributions (NDCs).
5. Support trade frameworks for greater affordability and supply chain resilience.
6. Promote continued research of sustainable Ocean energy technologies.
7. Facilitate access to climate finance for Ocean-based solutions.

This briefing note was developed under the auspices of Ocean20 South Africa 2025 through a stakeholder consultative process.

Ocean20: Energy Security and the Ocean

Technological advances and the energy transition provide an opportunity to define how markets and economic growth are built and balanced. The G20, under South Africa's leadership, is a timely platform for delivering policies that support resilient growth. The shift towards a low-carbon energy future must be ambitious, equitable, and inclusive, leveraging the ocean's potential for sustainable energy generation. The rapidly growing offshore wind market has already reached maturity in a number of regions around the world. Offshore wind presents an opportunity for countries to improve their energy security and energy diversification, to spur job creation and local economic development, and to enhance grid reliability.

Offshore wind enables domestic energy security by providing homegrown, high-capacity energy assets. It can reduce the need for foreign energy imports, and is resilient to negotiated prices and regulated supply – and thus more resilient to geopolitical disputes. This stabilises energy costs in the long term, protecting consumers and businesses from unexpected price increases through fixed, negotiated contracts. It's also decentralized, providing ample opportunities for redundancy, but static, ensuring predictable security procedures. By diversifying our energy system, we can reduce reliance on fossil fuel imports, mitigate the risk of supply chain disruption, and ensure long-term access to secure and affordable energy across continents.

This paper outlines key recommendations of how governments can work alongside the private sector and non-governmental organisations to support the continued growth of the offshore wind market in an effective and sustainable manner. These recommendations collectively reduce cost and risk, accelerate deployment at sea, and enhance energy security through diversified, interoperable, and sustainable ocean-enabled clean energy systems.

In short, the Ocean20 calls for enabling domestic energy security for G20 nations by:

- Committing to a G20 clean energy trade agenda that eliminates barriers on critical clean energy goods and services, modernizes non-tariff rules, coordinates carbon-related measures, and safeguards ocean ecosystems.
- Prioritising ocean-enabled energy security by accelerating offshore wind, subsea interconnectors, green maritime fuels, port logistics, and zero-emission shipping corridors.
- Building diversified, transparent, and sustainable supply chains while maintaining high environmental and labor standards and ensuring fair competition.

1. Recognise what offshore wind has to offer

The Organisation for Economic Co-operation and Development (OECD) finds that by 2030, offshore wind power could make up 8% of the ocean economy, creating jobs for about 435,000 people and adding $230 billion to the economy[1]. Installed capacity has expanded nearly thirty-fold since 2010, while costs have fallen by more than 60% over the past decade, making offshore wind increasingly competitive with conventional fossil fuel generation, especially in countries with strong wind resources, supportive policy frameworks, and mature supply chains[2]. Advances in turbine design now enable individual projects to power millions of homes, demonstrating the sector's ability to deliver large-scale emissions reductions when developed responsibly[3]. For example, one rotation of the Haliade-X turbine used at the Dogger Bank Wind Farm in England is capable of powering a UK home for two days while the project itself is estimated to power up to 6 million homes annually[4].

In addition to the decarbonization benefits, a strong and productive offshore wind market wind can significantly contribute to a country's energy security. By reducing reliance on imported fuels, and buffering countries against volatile global fuel markets, it provides a domestic large scale reliable source of clean electricity. With capacity factors often exceeding 40–50%, offshore wind supports system diversification, helps balance regional grids, and improves resilience against geopolitical and supply chain disruptions[5].

The offshore wind market is poised for long-term growth underpinned by advances in technology, economies of scale, and growing investor confidence. With appropriate policy frameworks and financing instruments, it can accelerate sustainable development while delivering broad co-benefits for economies, communities, and ecosystems.

2. Create stable and consistent regulatory regimes

Investment in renewable energy sources is facilitated by swift permitting processes and regulatory stability. Clear sightlines on future projects reduce uncertainty and facilitate more attractive financing terms, bolster investor confidence, attract lower-cost capital, and avoid disruptive peaks in demand that

[1] Available from OCED's report "The Ocean Economy in 2030." See at (https://www.oecd.org/en/publications/2016/04/the-ocean-economy-in-2030_g1g6439e.html).
[2] Available from Mckinsey's article "Offshore wind: Strategies for uncertain times." See at (https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/offshore-wind-strategies-for-uncertain-times).
[3] Available from NREL's report "Offshore Wind Market Report 2024 Edition." See at (https://docs.nrel.gov/docs/fy24osti/90525.pdf).
[4] Available at the Society of Operations Engineers article "Everything you need to know about the Dogger Bank offshore wind farm." See at (https://www.soe.org.uk/resources/everything-you-need-to-about-the-dogger-bank-offshore-wind-farm.html)
[5] Available from the IEA's report "Offshore Wind Outlook 2019." See at (https://www.iea.org/reports/offshore-wind-outlook-2019).

pressure the supply chain. The resulting continuity enables strategic investments that strengthen production stability, sustain the workforce, and build overall resilience in the industry and local economies – while reducing consumer costs. Governments should create stable and consistent regulatory regimes for offshore wind across the entire project lifecycle—from site leasing and permitting to construction, operation, and decommissioning.

Governments can achieve this by:

- Legislating long-term offshore wind targets.
- Establishing a clear and centralized permitting framework (including a "one-stop shop" permitting authority or coordination body that can streamline the siting, environmental authorisation and permitting process).
    - Increase and improve the capacity of the personnel responsible for the permitting process (investing in more staff and digital resources for various decision-making authorities)[6].
- Implementing a clearing house mechanism for legal disputes to prevent extended delays to critical infrastructure projects. This would include a structured and time-limited process for developers to provide evidence, if so required[7].
- Mandating maximum lead times in the offshore wind energy plant permitting process. Following the award/concession of an area for offshore wind development, a maximum of three years from the application for administrative authorisation is suggested[8].
    - Enabling transparent and predictable leasing and auction processes (i.e. multi-year leasing rounds with clear criteria and timelines).
- Conducting government-led spatial planning and site characterization.
- Standardising and publishing regulatory guidelines.
- Aligning offshore wind regulations with grid and energy market policies, including annually allocated contracts for difference schemes.
- Ensuring regulatory stability through legal and institutional frameworks.
- Accelerating the permitting and deployment of critical energy infrastructure, such as grids. This includes reinforcing the infrastructure required to transport offshore power, where needed[9].
- Promoting active dialogue between local authorities, communities, and industry to ensure shared understanding of priorities and solutions during the consenting and construction stages of wind projects[10].

[6] Available from GWEC and IRENA'S report "Enabling Frameworks for Offshore Wind Scale Up - Innovations in Permitting." See at (https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2023/Sep/IRENA_GWEC_Enabling_frameworks_offshore_wind_2023.pdf)
[7] ibid
[8] ibid
[9] ibid
[10] ibid

Stable, consistent, regulatory regimes, including at least 10 GW of contract-for-difference-backed capacity each year for 10 years, can provide the short-term predictability to mobilize private capital and reduce the levelized cost of energy by 30% by 2040.

3. Establish clear legislative frameworks

Governments can update legislative frameworks around consenting regimes for offshore wind by making the process faster, clearer, and more coordinated, while still protecting the environment and engaging stakeholders. A reformed framework reduces delays, lowers project risk, and boosts investor confidence. Establishing clear legislative frameworks for offshore renewable energy projects ensures that coastal communities are protected through comprehensive socio-environmental impact assessments, net-positive biodiversity standards, and long-term ecological monitoring commitments.

Governments can achieve this by:

- Conducting Strategic Environmental Assessments (SEAs) across large offshore zones.
- Identifying pre-cleared "low-conflict" areas for leasing and fast-track permitting while acknowledging that ecological risks can still emerge in these zones, requiring adaptive monitoring and safeguards for migratory species and sensitive habitats.
- Requiring agencies to share environmental, technical, and social impact data in open platforms.
- Mandating the use of standardised digital formats for permit applications and review.
- Updating environmental laws to allow for cumulative impact assessments (CIAs) across regions. Governments leading these assessments would avoid developer-by-developer repetition.
- Allowing flexible and phased consents that adapt based on monitoring.
- Including “monitor-and-manage” clauses that balance environmental protection with project progress.
- Legislating coordination between offshore energy suppliers, grid operators, and port authorities
- Creating a framework that ensures grid availability and logistics are planned alongside site consents.
- Standardising regulations across borders that help streamline permitting processes and foster cross-border collaboration.
- Adapting national policies and international frameworks to achieve a global target of 380 GW offshore wind capacity by 2030 and 2,000 GW by 2050, contributing to the global energy transition.

4. Integrate Offshore Wind into Nationally Determined Contributions (NDCs)

Elevate the role of the ocean within climate and biodiversity strategies by incorporating offshore wind and other ocean-based solutions into Nationally Determined Contributions (NDCs) with clear, measurable targets. Align these efforts with global frameworks, such as the United Nations Framework Convention for Climate Change (UNFCCC), so as to drive progress in climate mitigation, adaptation, and

biodiversity restoration, ensuring the ocean's ecological and economic value is Recognised in global climate action leading up to COP30. This could be accomplished by joining the Blue NDC Challenge—launched by France and Brazil at the UN Ocean Conference—which calls on Parties to integrate ocean-based climate solutions into their NDCs. Doing so links offshore wind deployment with broader goals for biodiversity protection, coastal community resilience, and a just transition.

Ensure that the development of offshore renewable energy is accompanied by safeguards to protect marine biodiversity and the livelihoods of coastal communities, including commitments to cumulative impact assessments, adaptive management, and integration with marine spatial planning. Set clear, sustainable targets for renewable energy capacity within national energy strategies and NDCs, emphasizing a just transition that is aligned with the 2030 Agenda for Sustainable Development and the Global Biodiversity Framework. Prioritize offshore renewable energy solutions while embedding protection for coastal communities and marine ecosystems.

Develop and implement targeted social protection programs within the framework of NDCs, including health insurance, unemployment benefits, disaster relief, and support for alternative livelihoods. These initiatives will ensure that coastal communities remain resilient and adaptable to the changes brought about by conservation and energy transition efforts.

5. **Support Trade Frameworks for Greater Affordability and Supply Chain Resilience**

A trade regime that reduces tariff and non-tariff barriers to unleash the full energy potential of G20 nations is critical to ensuring secure energy. Enabling efficient trade between these nations with strong standards for human rights, healthy people and environments, and security can ensure reciprocal, fair, and balanced trade, sustainable supply chain investment and avoid unnecessarily inflated energy costs. Tariff regimes that are consistent and predictable further enable investment and affordable energy development. Offshore wind and other marine renewables rely on robust supply chains, including vessel availability, to deliver high-capacity generation facilities at competitive rates.

Governments can achieve this by:

- Endorsing "rules-based trade and resilience" through rebuilding institutional legitimacy and dispute resolution mechanisms at the World Trade Organisation (WTO).
- Gradually strengthening security and sustainability standards that recognise different levels of implementation capacity.
- Promoting international cooperation on strategies to improve supply chain diversification and transparency.
- Establishing a G20 Energy Supply Security Forum to improve transparency on demand/supply for key inputs (cable-grade metals, rare earths for generators, semiconductors, large bearings), and coordinate strategic stockpiles for rare, long-lead-time components critical to subsea cables and offshore wind.

6. Promote Continued Research of Sustainable Ocean Energy Technologies

Investing in research to advance the development of offshore wind and other marine renewable energy systems—such as tidal, wave, and current energy—can deliver clean, affordable, and equitable energy access. While this policy paper focuses on offshore wind, as it is the most mature technology, the ocean offers a number of renewable energy sources that can support and enable a just energy transition. Expanding research will reduce costs, improve grid integration, and accelerate the commercialization of emerging ocean technologies.

Governments can achieve this by:

- Scaling up international R&D for offshore wind and marine renewables, including tidal, wave, and current energy.
- Establishing joint test facilities, open data platforms, and North–South research partnerships to share expertise and best practices.
- Strengthening technology transfer to bridge infrastructure and capacity gaps in developing economies, enabling them to deploy offshore wind and marine renewables faster and more sustainably.
- Mobilizing finance for early deployment through targeted public support to advance pilot and demonstration projects.

7. Facilitate Access to Climate Finance for Ocean-Based Solutions

Governments can achieve this by:

- Developing financial instruments and guidelines to attract investments in ocean-based solutions, prioritising equity and a just transition.
- Enhancing the accessibility of climate finance for viable, nature-positive ocean projects and providing concessional finance to support the green transition in emerging and developing economies.
    - Aligning these efforts by championing the creation of a dedicated Blue Finance Window within the UNFCCC climate finance architecture to unlock concessional flows at scale. Concessional capital mobilized through this mechanism could reduce risks, enhance project bankability, and crowd in private finance—enabling the scaling of offshore wind and other marine renewables.

Across all activities, G20 members can implement shared risk management and safeguards to:

- Mitigate supply concentration by encouraging multi-region manufacturing and open market access.
- Avoid trade fragmentation from uncoordinated Carbon Border Adjustment Mechanisms (CBAMs) via mutual recognition and common MRV (monitoring, reporting, verification).

- Maintain high Environmental, Social and Governance (ESG) standards to prevent environmental or social harm, particularly in marine environments.
- Strengthen cybersecurity and resilience for subsea cables and offshore grids, including joint exercises and contingency planning.