

OFFSHORE RENEWABLES FOR A GLOBAL BLUE ECONOMY

SUMMARY OF KEY INSIGHTS FROM THE SIDE EVENT

EVENT OVERVIEW

Oceans are facing unprecedented threats as a result of human activities. Its health and ability to sustain life will only get worse as the world population grows and human activities increase. If we want to address some of the most defining issues of our time such as climate change, food insecurity, diseases and pandemics, diminishing biodiversity, economic inequality and even conflicts and strife, we must act now to protect the state of our ocean.

In this context, the UN Ocean Conference (27 June – 01 July 2022), co-hosted by the Governments of Kenya and Portugal, was organized to propel the much needed science-based innovative solutions aimed at starting a new chapter of global ocean action – in an effort to mobilize major structural transformations and common shared solutions to realize SDGs – especially Sustainable Development Goal 14: Life Below Water.

Oceans are a source of abundant renewable energy potential, capable of driving a blue economy. Energy harnessed from oceans, through offshore renewables, can contribute to the decarbonisation of the power sector and other end user applications relevant for a blue economy (e.g., shipping, cooling, water desalination). Offshore renewables can also provide significant socio-economic opportunities to countries with coastal areas and island territories, such as jobs creation, improved livelihoods, local value chains and enhanced synergies between blue economy actors.

On 28 June, IRENA together with the Governments’ of Colombia, Costa Rica and Denmark organized a virtual side event to bring together experts to discuss following:

- The synergies between offshore renewables and an ocean-based Global Blue Economy
- The status and outlook of Offshore Renewable Energy technologies and markets
- Good practices on policy instruments to support the scale up of offshore renewables at country level
- Latest initiatives from the incumbent industry and private sector for an accelerated market growth for offshore renewables globally
- Priority areas for international collaboration

The key statistics from the event were as follows:

2 segments	4 senior officials 5 expert speakers	Over 150 attendees	Representation from over 50 countries
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OPENING REMARKS

The event was opened by **Roland Roesch**, Deputy Director of IRENA’s Innovation and Technology Center. In his remarks he highlighted the fact that from a climate context Oceans constitute the largest biosphere of our planet and is an essential buffer against the impacts of climate change. He emphasized that to

protect our ocean from degradation, the international community must come together to identify viable solutions. From an energy security and independence facet, he highlighted that a tangible avenue to be explored is the harnessing energy from the oceans due to their abundant renewable energy potential, capable of driving a blue economy. He concluded his remarks by providing an overview of the event structure.

SEGMENT 1: GOOD PRACTICES IN DEVELOPING OFFSHORE RENEWABLES

The first segment of this event was dedicated to representatives from Denmark, Costa Rica, Colombia and IRENA providing their insights on the best practices that could drive development of offshore renewables globally.

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H.E. Tomas Anker Christensen, Climate Ambassador of Denmark, participating directly from the UN Conference in Lisbon highlighted that the most recent study from the International Panel on Climate Change (IPCC) has sounded the alarms to the international community on the urgency of reducing emissions. He noted that the current geopolitical situation has catalysed the calls to accelerate the need for urgent action in the climate emergency. In the context of offshore wind, he noted that over 30 years ago, Denmark set up the world's first offshore wind park. Despite its limited size, this concept proved the ability of offshore wind. He recalled that in 2004 Denmark issued its first offshore wind tender, and due to economies of scale, offshore wind has become cost competitive. Looking to the future, Denmark expects to add 4GW of offshore wind by 2030. The country is also pushing the boundaries by exploring the creation of energy islands to collect and export energy from offshore wind. He concluded by highlighting some of the important best practices over the past 30 years:

- ***Important to promote stable long-term policies that catalyse energy independence, energy security, local jobs***
- Noted that Denmark has de-risked offshore wind projects by having a strong policies and regulatory frameworks.
- The country has undertaken long term stable and transparent energy planning in dialogue with industry and public
- The first offshore wind farms in a country or region will come at a higher price, pipeline creation and scale will drive down cost. Reiterated that Smaller demonstration projects can prove ability and provide useful regulatory and technical learnings, proving the scalability of the technology
- Globally 2000GW of offshore wind will be needed to achieve net zero by 2050 according to forecasts by IRENA and the IEA. He brought attention to the Global Offshore Wind Alliance that will aim to drive offshore wind to reach this goal.

H.E. Ronny Rodríguez Chaves, Vice Minister of Costa Rica's Ministry of Mines and Energy noted that in the past that his country had been pioneering in clean energy for more than 70 years. There has always been a focus of leveraging the natural resources available within their territory. With regards to renewable energy development, especially offshore, ***Costa Rica has been expanding its partnership opportunities with neighbouring countries to develop commercial projects.*** He noted that their country's technical potential for offshore renewables is more than 14GW and this is a higher capacity when compared to other country's

in the region. Currently, the government is investing heavily to undertake studies on the future of wind farms in partnership with international partners. He concluded by noting that it is important for Costa Rica to contribute to the energy transition because our people and planet need it.

Mr. Julian Antonio Rojas, Head of The Office of Regulatory and Business Affairs from Colombia's Ministry of Mines and Energy highlighted that Offshore wind is a new energy avenue for their country, but it is a priority for the Ministry to develop in the short and medium term given the ***country's priority to have an energy ecosystem that is competitive, sustainable, efficient, reliable, and accessible***. He noted that thermal and hydro energy are the major renewable energy contributors to the country's energy demand, with wind & solar only having a 1% share of the market. The goal by 2030 is to increase the share of this component to 17% in the future. On offshore wind, he noted that Colombia has access over 6800km² and 5400km² for fixed and floating technologies respectively. They have also identified 13 islands in the Caribbean area suitable for project development. He emphasized that by 2050, Colombia could reach 9GW of offshore wind capacity and there could be a creation of ~50,000 full-time jobs. Some of the key challenges that the country is trying to address in fulfil this ambition include: Regulatory Frameworks (Seabed leasing, attractive entry conditions and Terms of Reference); Attracting Finance; Transmission (development of new infrastructure); and Adapting Supply Chains (promoting industrial cluster development). He concluded his remarks by announcing that Colombia will be launching its first seabed auction very soon.

Mr. Francisco Boshell an Analyst – Renewable Energy Markets and Standards at IRENA provided a comprehensive overview on the Status and Outlook in Offshore Renewables Innovations and Markets. He noted that for offshore wind the current global capacity is 56GW and is mostly dominated mostly by Europe. Apart from Europe, he noted that in 1 year, China has added 17GW in Capacity. He stressed that to achieve 1.5 scenario it will be necessary to achieve 380 GW by 2030 and 2000 GW by 2050. This will entail that 70 GW would need to be installed every year, equivalent to an investment of USD 150-200 billion annually. In the area of ocean energy, he noted that 535MW has been installed with tidal energy being the dominant energy source. To comply with the 1.5 scenario, 12 GW will be needed per year to reach 350 GW by 2050, amounting to 35-45 billion USD per year. Finally, he noted that an upcoming technology is Floating PV with a global capacity of 2.6GW in 2020, mostly in freshwater – importantly he stressed that 1.5 GW was installed in the last 3 years. He stressed that Floating PV is largely demand driven by Asian countries, with India having a 1GW plan and the Republic of Korea with 2.7GW plan in the yellow sea. To promote offshore renewables generally he concluded by ***reiterating the emphasis of establishing frameworks that streamline permitting processes; foster international/regional collaboration; and contribute to the mitigation of risks to procure critical materials***. He noted that IRENA has a collaborative framework for ocean energy and offshore renewables that aims to proactively function as a global network hub in the facilitation of peer to peer knowledge exchange.

SEGMENT 2: PANEL DISCUSSION

The second segment of this event was a panel discussion, moderated by Roland Roesch with representatives from the private sector. The panellists for the discussion were:

- Ms. Rebecca Williams, Global Head of Offshore Wind at Global Wind Energy Council (GWEC)
- Ms. Lotta Pirttimaa, Senior Policy Officer at Ocean Energy Europe (OEE)
- Ms. Nadia Febina, Founder of Lumare Energi

- Ms. Elisa Obermann, Executive Director at Marine Renewables Canada
- Mr. Edoardo Dellarole, Head of Electrification Cluster in the Research and Technological Innovation Department at Eni

To get the panel discussion started the moderator asked all panellists to provide their thoughts on the following question “What are good practices to harness synergies in offshore RE and global blue economy?”

Rebecca Williams noted that are five key pillars that need to be addressed if Offshore renewables are going to contribute to the blue economy namely *development of stable policies; promotion of pipeline projects; efficient resource planning; effective marine spatial analysis; and acceleration of permitting processes*. She also highlighted the importance of GOWA to harness the opportunities offered by offshore wind.

Lotta Pirttimaa noted there are strong synergies between offshore renewable with sectors such as aquaculture and desalination. She emphasized that ocean energy is a vital contributor to supply chain activity in different sectors. An example she illustrated was the how the installation of offshore RE could revitalize other sectors like ports and shipbuilding. To scale up ocean energy initiatives *she noted the importance of undertaking activities at the national level – especially deployment targets and financial support*.

Nadia Febina, noted that Ocean Thermal Energy Conversion (OTEC) can have a strong USP (Unique Selling Point) with the blue economy by responsibly harnessing the resources already present in this ecosystem. She noted that all offshore RE can help the global blue economy by providing power/ electricity and job creation , but *OTEC is special because it uses cold, clean and mineral-rich deep-sea water* (DSW). DSW with its properties can be used for aquaculture, seaweed cultivation, freshwater production and SWAC (seawater air cooling). She also noted that OTEC can be built to create energy carriers even when far from consumers- like green ammonia for shipping.

Elisa Obermann, reiterated that RE potential to meet decarbonization goals exists but there is a need to scale up activities. She noted that, while the potential of offshore solutions are recognized, there is not much movement on the inclusion of this energy source being a part of net-zero strategies overall. She echoed previous statements that *targeted funding can really help to ensure that scalable projects are realized. She encouraged Governments to facilitate partnerships and collaborations*. A key challenge to be addressed is the concern about where the technology is and therefore governments should try to help de-risk to help offshore RE to reach decarbonization objectives.

Edoardo Dellarole noted that Eni has a very wide portfolio of technologies- wave energy, wind energy, offshore floating PV. *He noted that Eni is championing the approach to find other possible synergies*. In this regard the company is focusing avenues such as wave energies and aquaculture, and integrating this into their business portfolio. He stressed that Eni can bring this big knowledge and infrastructure to help accelerate this development and potential synergies for renewables expansion.

The remainder of the panel session focused on addressing the many questions asked by attendees to panellists on the basis of their statements. A selection of question and responses are presented below:

- Do you think funding has helped projects in Canada?

- Feed in tariff system has really helped, and attracted private investment to realize those projects.
- Best ways for helping ocean energy technologies to commercialize?
 - We need to think about the different stages of development. For example- R&D where projects don't yet generate revenue. Public funding will really be essential to create learnings and improve the technology further. For demonstration projects, a mix of financial mechanisms and grants will be needed to cover cost- coupled with revenue support in order to attract private investors.
- The EU offshore RE strategy led to EU target of 100MW by 2025 for ocean energy. Only 2% have been met. What is the most important step to accelerate progress?
 - Offshore strategy targets are really great, but the action to get there has not been swift. The actions needed would be to improve the access to the financing mechanisms -e.g. Horizon Europe, Innovation Fund and InvestEU. There are tweaks to make those accessible. Second action would be to coordinate across member states. There's a lot of interest, but there needs to be coordination from the European level.
- What is an element that is often overlooked when designing and implementing ocean energy projects?
 - Very important to undertake stakeholder engagement. Without that social piece, it would be really challenging. Understand also the regulatory issues and taking a proactive approach in all the regulatory challenges.
- What are some of the key private sector perspectives in promoting ocean RE but also protect the oceans. IRENA is an IGO, and to support activities in private sector- what should we tell governments to promote offshore RE.
 - Key thing is certainty and predictability for regulation. Looking at things through a climate change lens, especially in regulation
 - What will help is clarity from government- like the realistic deployment. In which area do you want to deploy- allocating blocks and concessions. What incentives can governments give to private sector - it comes down to the clarity and incentives.
 - Stable policy frameworks, national deployment targets, funding mechanisms, and revenue support. These can help pave the way for offshore RE.
 - Industry can provide the investment, but we need governments to get marine spatial planning right.
 - Reduce uncertainties- regulation, permitting, assembly. If not clear, private sector will not come.

CLOSING REMARKS

Roland Roesch, Deputy Director of IRENA's Innovation and Technology Center thanked all speakers and panellist for their very forward looking interventions. He also expressed gratitude to the attendees for their active participation and engagement with the panel. He thanked Denmark, Colombia and Costa Rica for co-organizing this event. Moving forward he noted that IRENA would organize more niche events in the future.