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Eco Wave Power's comments on the 2024 IEPR Update â€“ Wave and Tidal Energy

Additional submitted attachment is included below.

August 7, 2024

Chair David Hochschild

Vice Chair Siva Gunda

California Energy Commission

Docket Unit, MS-4

Docket No. 24-IEPR-04

715 P Street Sacramento, CA 95814-5512

Subject: Comments on the 2024 IEPR Update – Wave and Tidal Energy

Eco Wave Power would like to thank the California Energy Commission and its consultants for their exceptional efforts in implementing SB 605 thus far. The recently released Draft Consultant Report, "Wave and Tidal Energy: Evaluation of Feasibility, Costs, and Benefits," stands as a valuable milestone toward the completion of the full SB 605 report, scheduled for release next year.

As the CEC finalizes the Draft Consultant Report and prepares the full SB 605 report, we hope the following items will be considered for evaluation and potential inclusion as recommendations or consideration.

1. We would like to reiterate the recommendation provided by CalWave company, to implement statewide marine energy deployment targets of 100 MW by 2030, 500 MW by 2035, and 2,500 MW by 2040. **However, we strongly believe that there should be differentiation in the targets between targets set for offshore wave energy and onshore/nearshore wave energy, with at least 40% of the quota to be dedicated to onshore and nearshore wave energy technologies.**

In that regard, it is important to note that while offshore wave energy holds significant potential, it also requires longer timeframes for implementation, due to the complexity of construction, operation, maintenance, and grid connection in the offshore zone.

Please note that Eco Wave Power has already constructed two grid-connected onshore wave energy arrays; one in Gibraltar, which was grid-connected for 6 years, and one in Israel that has been successfully grid-connected for one year (in collaboration with EDF, the French National Electrical Company and The Israeli Energy Ministry).

Due to the onshore nature of the applications (onshore means that the wave energy converters are attached to existent structures such as breakwaters, jetties, and piers), both deployments were efficient in terms of timeline and budget, and Eco Wave Power is already in the process of achieving its third and fourth deployments.

Eco Wave Power's third deployment will be in the Port of Los Angeles, with co-investment from Shell MRE, And the fourth one is currently being implemented in the city of Porto, in Portugal (a 1MW installed capacity project, as part of a 20MW Concession Agreement).

Figure 1- Eco Wave Power's Operational Project in Israel.

While utility-scale wave energy converters (WECs) are scheduled to be connected to the U.S. mainland grid over the next couple of years, California should pursue integrating full-scale onshore, nearshore, and offshore marine energy projects into its electricity mix starting in the late 2020s to avoid overbuilding energy storage and transmission infrastructure at an unnecessarily high cost. With 100 MW of marine energy capacity by 2030 and a growth rate thereafter similar to that of California solar in the 2010s, the state should have multiple GW of marine energy capacity by 2040.

2. Work with the California Public Utilities Commission (CPUC) to determine the steps required for marine energy to receive an explicit price per MWh as part of the Renewable Market Adjusting Tariff (ReMAT).

Marine energy currently qualifies for the ReMAT in California, but only wind, solar, hydro, geothermal, and bioenergy receive an explicit price per MWh (recalculated annually). To facilitate market pull for marine energy technologies, we recommend that the CEC work with CPUC to determine the steps required for marine energy to receive an explicit **and preferably initially subsidized price per MWh** (as was done in the past for wind and solar). We also suggest encouraging further legislation to create the same pathway for marine energy as onshore wind and solar.

3. Provide matching funds for the U.S. Department of Energy (DOE) and other federal awards and investments in technology Research, Development, Demonstration, and Deployment (RDD&D) relevant to marine energy, **with parts of the funds dedicated specifically to onshore and nearshore wave energy.**

4. Clarify state regulatory processes for deployment of **onshore and nearshore marine energy projects vs offshore marine energy projects and** encourage the appropriate federal agencies to clarify federal regulatory processes for deployment of marine energy projects.

Please note that from Eco Wave Power's experience, the regulation for onshore and nearshore wave energy projects is usually much simpler and more straightforward than the regulation

required for offshore installation. When we refer to the onshore and nearshore zone we refer to the installation of wave energy devices on existent manmade structures, such as piers, breakwaters, jetties, and other types of structures. These kinds of structures are mostly controlled by ports, municipalities, and the Army Corps of Engineers, which can make the regulatory process for such installations quite simple.

5. Encourage the Humboldt Bay Harbor, Recreation, and Conservation District to ensure that their $426.7 million investment from the U.S. Department of Transportation (DOT) can also support the marine energy sector, **especially given the fact that the Harbor has two compatible jetties in the entrance to the Harbor (the north and the south jetties), where nearshore and onshore technologies can very cost-effectively, and within a relatively short time frame, install several MWs of wave energy on the jetties**. In addition, we suggest that a good path for commercialization of the onshore wave energy sector can be derived from the encouragement of port authorities to utilize their marine structures such as piers, breakwaters, and jetties for wave energy technology implementation.

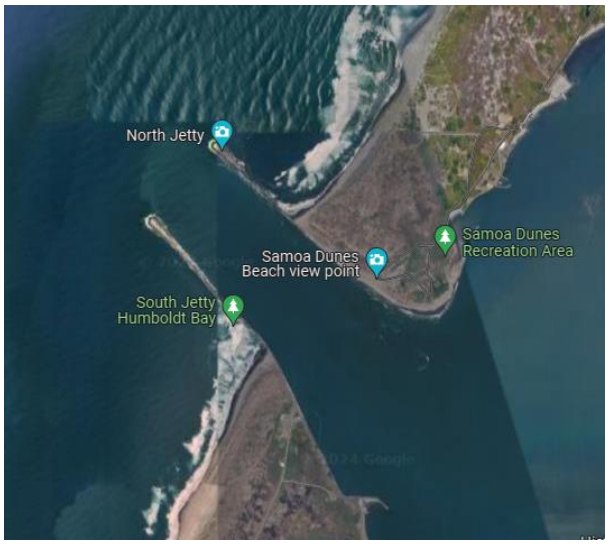

Figure 2- North and South Jetties of Humboldt Bay Harbor.

Please note that breakwaters, piers, and jetties remain unused marine structures, with a negative impact on the environment, it can be used for the implementation of wave energy technologies to convert such structures into good use. Moreover, wave energy devices can protect breakwaters and decrease erosion.

Ports (including harbors and marinas) are traditionally large consumers of energy and contribute heavily to global emissions. As a result, ports are increasingly playing a larger role in the generation of renewable energy and reducing their carbon footprint through clean energy generation. They have a strategic role to play in combatting climate change. They can do so by reducing their emissions and decreasing their dependency on energy from polluting sources.

Recent years have shown ports all over the world making significant strides towards making their operations more sustainable and reducing their emissions. Due to their vast and widespread infrastructures, ports can become renewable energy hubs by implementing

renewable energy technologies in their facilities. As a result, the installation of new, clean wave energy technology can serve to: lower the pollution in the region, show goodwill from the port in implementing climate-conscious energy solutions, and diversify the business of the port.

Most ports contain existing marine structures such as breakwaters and jetties, on which the onshore wave energy technologies can be installed, which makes ports extremely suitable locations for the implementation of onshore wave energy technologies. By implementing onshore wave energy technologies in their facilities, ports can benefit directly from a renewable source in the vicinity of their operations, which does not require any input material such as coal or oil and which can provide them with steady access to clean electricity, thereby potentially allowing them to drastically reduce their GHG emissions and electricity costs. An example of such a project is Eco Wave Power's 20MW Concession agreement, entered with the Port of APDL, in the city of Porto, in Portugal.

Figure 3- Eco Wave Power 1MW Project Illustration in Portugal.

6. In addition, we believe that large-scale energy companies, that own and operate offshore oil and gas drilling platforms, can serve as extremely compatible partners for the implementation of wave energy as a clean energy source for their operational and decommissioned platforms.

The floaters can be mounted onto the platform's jacket/legs and the energy conversion units can be housed inside a shipping container on the deck of the platform. The integration of wave energy technology with oil and gas drilling platforms presents an array of noteworthy advantages, such as the transition to renewable energy, reducing reliance on diesel generators, efficient integration with existing infrastructure, and installation flexibility.

Recently, Eco Wave Power conducted feasibility studies for offshore platforms of Shell and Chevron, with positive results, and was contacted by BP, TOTAL, and other large-scale energy companies with similar interests, showing that this can become a significant market for wave energy commercialization.

Wave energy technologies can be installed on active oil and gas platforms and can provide electricity to the platform's operations. Once the platform is decommissioned, the wave energy converter can still provide electricity to the platform for its post-operational phase.

This adaptability offers a sustainable solution that extends beyond the active lifespan of traditional platforms. By harnessing the power of ocean waves, we can contribute to the

ongoing evolution of energy infrastructure, ensuring a prolonged and eco-friendly legacy for offshore platforms. This innovative approach to energy generation presents a valuable opportunity for the industry to integrate sustainable practices seamlessly into existing and decommissioned facilities, fostering a more resilient and environmentally conscious energy landscape.

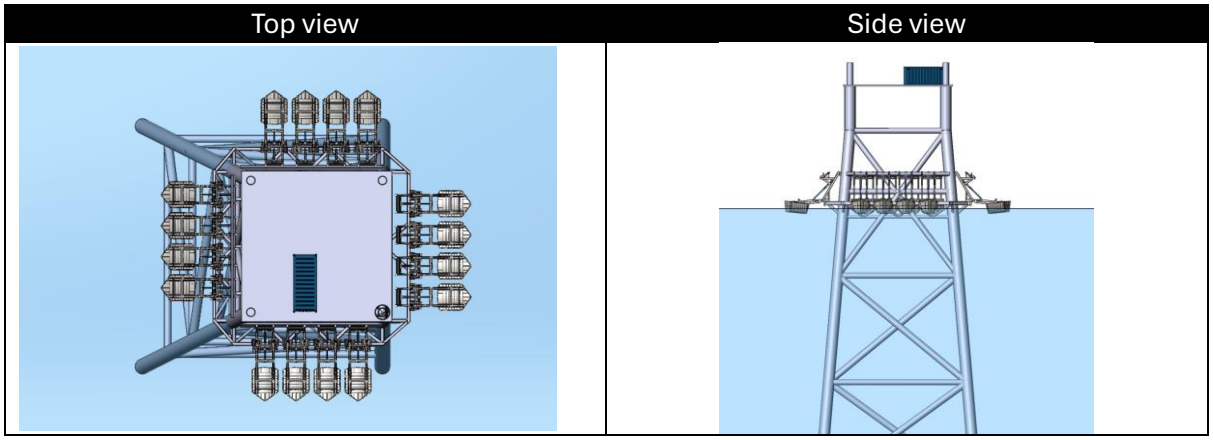

Figure 4 - Illustration of Wave Energy Installation method on Offshore Platforms.

7. Encourage Islands and Micro-Grid Coastal Communities to implement wave energy technologies as a clean electricity source. Island and coastal communities are amongst the most vulnerable to climate change, which is predicted to increasingly impact these communities through rising sea levels, increased rainfall, and desertification. Island and micro-grid coastal communities often suffer from a lack of electricity supply and high electricity costs. Many depend on costly and polluting diesel to meet their electricity needs. On top of this, island and coastal communities usually have limited land space, thus, making it difficult to convert prime real estate which could be used for agricultural or industrial purposes for renewable energy production, meaning that such islands and communities struggle to allocate precious land for solar or wind projects. The above issues and the fact that these locations are fully surrounded by the ocean make these communities highly compatible locations for the potential implementation of onshore wave energy technologies. Wave energy is a huge renewable resource that can substantially benefit the island and coastal communities and help them achieve energy independence while reducing pollution and mitigating climate change. As islands and coastal communities increasingly need renewable energy technologies, Eco Wave Power believes that it will become one of Wave Energy's largest customer segments.

Sincerely,

Inna Braverman

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