



## 25 August 2023

The Portal and Repository for Information on Marine Renewable Energy ([PRIMRE](#)) provides access to marine energy data, information, and resources in the U.S. and internationally. The bi-weekly [PRIMRE Blast](#) highlights relevant announcements and upcoming events; new content in the [Knowledge Hubs](#); and international marine energy news. [Email us](#) to contribute!

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### Announcements

#### Photo and Video Contest

The U.S. Department of Energy's (DOE) Water Power Technologies Office (WPTO) [recently launched](#) the [Make A Splash Photo and Video Contest](#) to capture photos and videos of water power that transport viewers and showcase the scope and potential of water power as a renewable energy. Cash prizes are available. Submissions due 17 November 2023.

#### WEC Seals Survey

Pacific Northwest National Laboratory (PNNL) is conducting a project to understand lifetime prediction of sealing materials in Wave Energy Converter (WEC) Hydraulic Power Take-Off Systems and requests your participation in this [brief survey](#) that will help gather information about different WECs, types of polymer sealing materials, and their applications, as well as exposures of these materials. Responses are due 31 August 2023.

#### Request for Information

PNNL is also requesting information from developers, owners, and/or manufacturers of WECs capable of deployment and operation of their WEC to power offshore aquaculture operations. The information gained from will inform the feasibility assessment and planning for co-location of wave energy and offshore aquaculture. The [Request for Information](#) is now open through 31 August 2023.

## Calls for Abstracts

The Marine Alliance for Science and Technology for Scotland (MASTS) recently opened the [Call for Abstracts](#) for the [MASTS Annual Science Meeting](#) through 8 September 2023. The meeting will take place 5-7 December 2023 in Glasgow, Scotland.

The [Call for Abstracts](#) for the [Offshore Technology Conference \(OTC 2024\)](#) is open through 12 September 2023. OTC will take place 6-9 May 2024 in Houston, Texas, U.S.

The [Call for Abstracts](#) for the [Ocean Sciences Meeting \(OSM 2024\)](#) is open until 13 September 2023. OSM will take place 18-23 February 2024 in New Orleans, Louisiana, U.S. Abstracts are being considered for sessions on [Offshore Renewable Energy: Resource Characterization & Environmental Impacts](#) and [Making Waves with Communication: Approaches to Communication, Outreach, & Engagement for Ocean Sciences](#).

The [Call for Abstracts](#) for [OCEANS 2024 Singapore](#) is now open through 15 October 2023. OCEANS will take place in 14-18 April 2024 in Singapore.

The [Call for Abstracts](#) for the [43rd International Conference on Ocean, Offshore & Arctic Engineering \(OMAE 2024\)](#) is now open through 26 October 2023. OMAE 2024 will take place 9-14 June 2024 in Singapore.

## Funding & Testing Opportunities

The Horizon Europe Framework Programme has launched a [Call for Proposals](#) focused on the development of innovative power take-off and control systems for wave energy devices. Submissions are due 5 September 2023.

The Supergen Offshore Renewable Energy (ORE) Hub has launched its [4<sup>th</sup> Flexible Funding Call for Proposals](#) and is seeking proposals from eligible UK universities or other institutions to facilitate a program of coordinated UK-led ORE research projects. Expressions of interest are due 11 September 2023.

The National Oceanic and Atmospheric Administration [recently announced](#) the [Ocean-Based Climate Resilience Accelerators](#) program, which will foster public-private partnerships to help support small businesses that are developing sustainable technologies, including renewables. Applications are due 11 September 2023.

The U.S. DOE WPTO and the Minority-Serving Institutions STEM Research and Development Consortium have opened a [\\$1.2 million funding opportunity](#) to support promising, potentially high-impact water power research ideas from minority-serving colleges and universities. Concept papers are due 12 September 2023.

The National Science Foundation and U.S. DOE WPTO [recently announced](#) a special funding focus on new science and engineering proposals submitted to the [Engineering Research Initiation](#)

[\(ERI\) solicitation](#) focused on marine energy and powering the blue economy. ERI supports eligible new researchers, educators, and innovators. Proposals are due 15 September 2023.

The European Commission is accepting proposals for the [Innovation Fund's Third Small-scale Call for Projects](#) through 19 September 2023. The call will provide grants to small-scale projects with a capital expenditure between €2.5 and €7.5 million in the areas of renewable energy, decarbonisation, energy storage, and carbon capture, use, and storage.

### Career Opportunities

Pacific Northwest National Laboratory (PNNL) is seeking a [Coastal Science Division Group Leader](#) to lead its Ocean Dynamics & Renewable Energy Group, which focuses on offshore renewable energy, climate modeling and resiliency, and social science research for resilient communities. Applications are due 31 August 2023.

PNNL is seeking a [Post Masters Research Associate - Marine Energy](#) to support a large data management system known as [PRIMRE](#). Responsibilities will include adding and curating content, assisting in system architecture and UX/UI development, analyzing and visualizing data, and supporting public outreach. Applications are due 7 September 2023.

The University of Edinburgh is seeking a [Research Associate in Hydro-environmental Modelling for Tidal Stream Energy](#) to study the interactions of tidal stream turbine devices with the environment and inform co-design. Applications are due 11 September 2023.

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## Upcoming Events

### Upcoming Webinar

The International Energy Agency's Ocean Energy Systems (IEA-OES) is hosting a webinar, "[Ocean Energy Outlook in the USA & Canada](#)", on 12 September 2023 at 7:00-8:00am PDT (2:00-3:00pm UTC). The webinar will explore the latest advancements, projects, and key policies in these countries' ocean energy sectors and introduce to a new tool supported by IEA-OES, showcasing global ocean energy projects. Register [here](#).

### Upcoming Conferences

The University Marine Energy Research Community (UMERC) is hosting the [2<sup>nd</sup> Annual UMERC Conference](#) on 4-6 October 2023 in Durham, New Hampshire, U.S. Register [here](#).

The [Ocean Energy Europe Conference & Exhibition \(OEE 2023\)](#) will take place on 25-26 October 2023 in the Hauge, Netherlands. Register [here](#).

Marine Renewables Canada is hosting the [Marine Renewables Canada 2023 Conference](#) on 4-6 December 2023 in Ottawa, Canada. Register [here](#).

## Upcoming Workshops

OES-Environmental and PNNL are hosting a workshop, “[Environmental monitoring for marine energy: instrumentation for devices and arrays](#)”, on 6 September 2023 from 14:00-15:30 UTC as part of [15th European Wave and Tidal Energy Conference](#) in Bilbao, Spain. This workshop will explore monitoring technologies and work towards recommendations for preferred sets of instruments and data systems that will support consenting decisions and post-installation monitoring programs, as well as guidance on the proper use of monitoring systems for tidal and wave installations when considering key environmental interactions. Registration not required.

PNNL and the Atlantic Marine Energy Center (AMEC) are hosting two Stakeholder Workshops on Environmental Effects of Marine Energy on [3 October 2023 from 8:30-12:30 EDT](#) and on [7 October 2023 from 12-4 EDT](#), before and after [UMERC](#). The workshops will discuss the effects of tidal energy on the marine environment. Anyone is welcome to attend the workshops, but online registration is encouraged. Additional information on the workshops will be available on the event pages soon, and shared via emails with those who register.

The Argentine Network of Marine Energies, in collaboration with the Center for Ocean Energy Research (COER), Maynooth University, Ireland, and the Marine Offshore Renewable Energy Lab are hosting the [8th Wave Energy Workshop](#) in conjunction with the 2023 Argentine Meeting on Marine Energies (ENAEM 2023) on 6-8 November 2023 in Buenos Aires, Argentina.

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## **New Documents on Tethys Engineering**

*[Tethys Engineering](#) hosts thousands of documents on the technical aspects of marine energy research and development, including journal articles, conference papers, and reports.*

### **[Misaligned sheared flow effects on a ducted twin vertical axis tidal turbine](#) – Moreau et al. 2023**

Most tidal turbines experimental tests are carried out in idealised conditions with uniform velocity profiles and without flow misalignment. However, at sea, the velocity profiles are mostly sheared and the flow direction spreads out around the main direction. In this study, we address experimentally the effect of those realistic conditions on the response of a twin counter-rotating vertical axis tidal turbine in Ifremer’s wave and current flume tank. At the whole turbine scale, the current shear hardly affects the drag and the average power coefficient but it leads to a 35 % increase of the power standard deviation. The flow misalignment does not affect the power production but it raises the average drag coefficient by 15 % for a  $\pm 15^\circ$  angle of incidence.

### **[Numerical study of the effect of central platform motion on the wave energy converter array](#) – He et al. 2023**

Placing multiple wave energy converters (WECs) on a central floating platform has become a popular approach of ocean energy conversion in recent years. The strong

interaction between the WECs and the platform brings a number of technical challenges for the design of such devices. The present study investigates the effect of the platform motion on the WEC array of a typical ocean energy harvesting device, consisting of a central support platform and eight point-absorber WECs arranged in a circular array. The numerical studies are performed in four stages based on the potential flow solver ANSYS-AQWA. The power absorption of each WEC in isolation and of eight WECs operating simultaneously is evaluated and compared in the first and second stages respectively, revealing the interaction among the WECs.

### **[Study on the dynamics and wake characteristics of a floating tidal stream turbine with pitch motion under free surface](#) – Xu et al. 2023**

To improve knowledge of the unsteady hydrodynamic characteristics of a floating horizontal-axis tidal turbine (HATT) in complex marine environments, a computational fluid dynamics (CFD) numerical method is established to analyze the functioning of a HATT under free surface and pitch conditions: an amplitude of  $2.5^{\circ}$ – $12.5^{\circ}$  and a period of 3–15 s. The appropriateness of the CFD method is validated against piled turbine tests in a circulating flume, which turned out to be only 1.43% off at the rated tip speed ratio. The power and thrust coefficients exhibit periodic variation with a frequency twice the pitch's motion. From the ecological perspective, the wake velocity field presents radial warps accompanied by several ellipsoidal low-velocity core regions, which corresponds to the fused vortex rings in the vortex zone.

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## **Telesto Highlight**

*The [Telesto](#) provides information and guidance for testing, measurement, and data analysis for marine energy research, development, and demonstration, as well as additional resources.*

### **[Biological Assessment Repository](#)**

The Biological Assessment (BA) Repository is the latest addition to the Marine Energy Environmental Toolkit for Permitting and Licensing. A BA is required for all proposed projects from the U.S. DOE that are likely to affect species listed as endangered or threatened under the Endangered Species Act or their designated critical habitat. A project's BA must be evaluated by the National Marine Fisheries Service and/or the U. S. Fish and Wildlife Service in order to seek concurrence that the project is unlikely to adversely affect the species or habitat. The BA Repository provides some examples of BAs from several projects funded by the Marine Energy Program of the DOE WPTO. A map with project locations is also provided along with excerpts from the BAs that include tags that allow BAs to be related and compared because they identify project attributes that include technology type, stressor, receptor, and project phase. The BA repository is intended to serve as a resource for all current and future marine energy projects that might need to develop a BA.

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## Marine Energy Atlas Highlight

The [Marine Energy Atlas](#) is an interactive mapping tool that maps high-resolution, spatially comprehensive data on global wave, tidal, riverine, ocean current, and ocean thermal resources.

### [Dive Into the Marine Energy Atlas](#)

The Marine Energy Atlas is a free interactive mapping tool that allows anyone to access the data they need to harness the power of oceans and rivers. The Atlas supports everything from project siting to device design by providing access to high resolution comprehensive data sets. This tool was created in collaboration with the U.S. DOE's WPTO, National Renewable Energy Laboratory, Pacific Northwest National Laboratory, and Sandia National Laboratories. Check out the [Dive Into the Marine Energy Atlas video](#) on YouTube now!

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## News & Press Releases

### [Global OTEC and Enogia Partner to Develop OTEC Plants](#) – Global OTEC

Global OTEC Resources and ENOGIA have signed a memorandum of understanding (MOU) to develop key subsystems of the first commercial-scale Ocean Thermal Energy Conversion (OTEC) floating platforms. Based in London, UK, and Marseille, France, respectively, the companies will be working together for the development of Dominique, the 1.5MW floating OTEC platform that will be installed in São Tomé and Príncipe, in the Gulf of Guinea, Africa, in 2025. This collaboration is a significant step towards bringing energy security to tropical islands and liberating them from costly diesel fuel imports and providing baseload power from the ocean with zero CO2 emissions.

### [Minesto completes build and functional testing of sea-bed connection system for the 1.2-Megawatt powerplant Dragon 12](#) – Minesto

Minesto has completed build and functional testing of sea-bed connection system for the 1.2-Megawatt power plant *Dragon 12*. The unique connection system, enabling one of the fastest launch and recovery operation in marine energy by “one-stab” operation, is now ready for installation. The *Dragon 12* connection system is a scale-up and further enhancement of Minesto's unique and verified LARS (Launch & Recovery System) technology, a principle applied and proven by Minesto since 2020. The system is remotely operated and controlled from the surface vessel by lowering the LARS frame attached to the male connector into the female connector in the foundation. In the bottom joint, the power, data and strength connections are all combined.

### [Ocean Power Technologies Unveils Breakthrough: WAM-V Demonstrates Remote Connection to PowerBuoy® for On-Water Charging](#) – Ocean Power Technologies

Ocean Power Technologies, Inc. (OPT) recently announced a pivotal achievement in the field of autonomous maritime technology. During a presentation by OPT's VP of Global Sales and Marketing, Matt Burdyny, at the 10th Annual Maritime Security West (MARSEC West) event, OPT revealed a groundbreaking milestone: the successful demonstration of the Wave Adaptive Modular Vessel (WAM-V) attaching itself remotely to a buoy and establishing a connection that will enable charging. This significant achievement was unveiled through a compelling video, captured during on-water trials conducted earlier this month. The [video](#) showcases the docking of the WAM-V to a buoy, exemplifying OPT's advanced autonomous capabilities.

### **[Orbital Marine Power gets fully recyclable workboat for offshore operations](#) – Offshore Energy**

ExoTechnologies, the maritime green technologies start-up, has delivered a fully recyclable, high-performance workboat to tidal energy company Orbital Marine Power to support its offshore operations. The vessel, built from ExoTechnologies' DANUTM composite material technology, will be used to transport engineers to Orbital Marine Power's O2, the world's most powerful tidal turbine off Orkney and the company's first commercial demonstrator. The workboat has been built at Ultimate Boats, the Glasgow boatyard owned by ExoTechnologies and is part of the full high-performance workboat range that it launched earlier this year.

### **[Eco Wave Power is Officially Connected to Israeli Electrical Grid: The EWP-EDF One Station Supplies First Wave Energy to Country's Power Supply](#) – Eco Wave Power**

Eco Wave Power recently announced that its station at the Port of Jaffa in Tel Aviv, EWP-EDF One, has officially connected to Israel's national electrical grid – making it the first wave energy project to deliver electricity to the country's power supply. Now, the EWP-EDF One project will proceed to full system calibration that is to be followed by a ceremonial “plugging in” event and demonstration in the coming months to commemorate this historic achievement. The EWP-EDF One power station we built in collaboration with and co-funding from EDF Renewables IL and the Israeli Energy Ministry. The Israeli Energy Ministry has recognized the Eco Wave Power technology as a “pioneering technology”. The EWP-EDF One power station has an installed capacity of 100 KW, enough energy to power approximately 100 homes at peak efficiency.