



## 6 September 2024

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

### [Contributing to PRIMRE](#)

Did you know that submissions to PRIMRE and its knowledge hubs (e.g., Tethys Engineering, MHK Data Repository, Marine Energy Projects Database) are highly encouraged? To learn more, visit the [Contributing to PRIMRE page](#), [watch our short video](#), or [email us](#) with questions!

### [Blue Energy Collaborative Scholarships](#)

The International Network on Offshore Renewable Energy (INORE) has opened the Call for Applications for the [2024 Blue Energy Collaborative Scholarships \(BECS\)](#), sponsored by Ocean Energy Systems, until 14 September 2024. The grant aims to support formative research in the field of offshore renewable energy and promote collaboration and communication amongst early-career professionals from diverse disciplines, institutions, and nations.

### [Calls for Abstracts](#)

The [Call for Abstracts](#) for the [Offshore Technology Conference \(OTC 2025\)](#) is open through 10 September 2024. OTC will take place 5-8 May 2025 in Houston, Texas, U.S.

The Oceanic Network has opened the [Call for Workshops](#) for the [2025 International Partnering Forum \(IPF\)](#) through 1 November 2024. IPF 2025 will take place from 28 April to 1 May 2024 in Virginia Beach, Virginia, U.S.

## Funding & Testing Opportunities

The Supergen Offshore Renewable Energy (ORE) Hub launched its [Early Career Researchers \(ECR\) Research Fund](#), which is designed to be a research fund for ECRs to support activities that either develop existing research activities or develop your skills further. Applications should be directed at offshore wind, wave, or tidal energy research and are due 16 September 2024.

UK Research and Innovation has opened a follow-on [funding opportunity](#) to build on existing engineering and physical sciences research outputs to accelerate economic, societal, policy and environmental benefits. Applications must build on prior Engineering and Physical Sciences Research Council funding. Applications are due 24 September 2024.

The Testing Expertise and Access for Marine Energy Research (TEAMER) program, sponsored by the U.S. DOE and directed by the Pacific Ocean Energy Trust (POET), is accepting [Request for Technical Support \(RFTS\) 14](#) applications through 4 October 2024 to support marine energy testing and development projects. Open Water Support applications can be submitted any time.

The U.S. National Science Foundation (NSF) opened applications for its [Engineering Research Initiation program](#), which aims to enhance engineering research capacity by supporting new academic investigators who have not received significant federal funding, and includes a special topic focused on Marine Energy and the Blue Economy. Applications are due 9 October 2024.

The Ocean Energy Safety Institute (OESI) has published a [Request for Proposals](#) to support research pathways across oil and gas, wind energy, and marine energy. OESI anticipates awarding up to \$16 million to foster enhanced safety protocols, improved technologies, and new insights into risk management. Proposals are due 18 October 2024.

## Career Opportunities

Pacific Northwest National Laboratory (PNNL) is hiring an [Undergraduate Intern](#) and a [Masters Intern](#) to support the curation of content on knowledge hubs within the Portal and Repository for Information on Marine Renewable Energy ([PRIMRE](#)), including [Tethys](#), [Tethys Engineering](#), and the [Marine Energy Projects Database](#). Applications are due 10 September 2024.

PNNL is also hiring a [Post Masters Research Associate – Marine Energy and Environment](#) to assist with synthesizing and interpreting scientific information on interdisciplinary projects focused on environmental effects of marine energy and other areas like social and economic effects, community engagement, and aquaculture. Applications are due 17 September 2024.

The Pacific Marine Energy Center (PMEC) at Oregon State University is recruiting two [Post-Doctoral Scholars](#) to develop numerical and scaled physical models of sub-surface wave energy converters, autonomous underwater vehicle recharging, and real-time hybrid simulation of offshore wind turbines. The tentative closing date is 20 September 2024.

The University of Minnesota Duluth is inviting applications for two tenure-track Assistant Professor positions in [Mechanical & Industrial Engineering](#) and in [Electrical Engineering](#) to focus on marine energy and engineering. Applications are due 1 October 2024.

Offshore Renewable Energy Catapult is recruiting a [Senior Marine Autonomy Specialist](#) to provide expertise in marine autonomous systems, a [People Business Partner](#) to support the delivery of the People strategy, and a [High Voltage Test Laboratory Manager](#) to lead a team of engineers and technicians to deliver high voltage testing.

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## Upcoming Events

### Upcoming Webinar

Ocean Energy Systems (OES)-Environmental is hosting a public webinar, "[The State of the Science on Environmental Effects of Marine Renewable Energy](#)", on 2 October 2024 from 8:00-9:30am PDT (3:00-4:30pm UTC). During this webinar, OES-Environmental will present on findings from the *2024 State of the Science Report: Environmental Effects of Marine Renewable Energy*, which will be published in September 2024. [Register here.](#)

### Upcoming Conferences

The [International Conference on Ocean Energy \(ICOE 2024\)](#) will take place on 17-19 September 2024 in Melbourne, Australia.

The [7<sup>th</sup> Asian Offshore Wind, Wave, and Tidal Energy Conference \(AWTEC 2024\)](#) will take place on 20-24 October 2024 in Busan, Korea.

Marine Renewables Canada is hosting the [Marine Renewables Canada 2024 Conference](#) on 19-21 November 2024 in Halifax, Nova Scotia, Canada.

### Upcoming Workshops

As part of ICOE 2024, the U.S. DOE WPTO and partners are hosting a workshop focused on [Knowledge Gaps: Off-Grid and Micro-Grid Uses of Marine Energy](#) on 18 September 2024. The workshop will share progress on research that supports off-grid and micro-grid uses of marine energy for remote communities and power at sea, and seek to understand international industry's current projects and interests and how off-grid applications are being developed internationally. Interested ICOE attendees can [RSVP here.](#)

As part of ICOE 2024, OES-Environmental and Offshore Renewables Joint Industry Programme (ORJIP) are hosting a workshop focused on [Environmental Effects for Permitting Off-Grid Marine Energy Applications](#) on 19 September 2024. The workshop will explore what level of environmental effects might be expected from smaller scale (off-grid) wave and tidal energy devices, and to determine what information is needed to streamline permitting for these devices. Interested ICOE attendees can [RSVP here.](#)

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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.

### [An experimental evaluation of the interplay between geometry and scale on cross-flow turbine performance](#) – Hunt et al. 2024

Cross-flow turbines harness kinetic energy in wind or moving water. Due to their unsteady fluid dynamics, it can be difficult to predict the interplay between aspects of rotor geometry and turbine performance. This study considers the effects of three geometric parameters: the number of blades, the preset pitch angle, and the chord-to-radius ratio. The relevant fluid dynamics of cross-flow turbines are reviewed, as are prior experimental studies that have investigated these parameters in a more limited manner. Here, 223 unique experiments are conducted across an order of magnitude of diameter-based Reynolds numbers in which the performance implications of these three geometric parameters are evaluated. In agreement with prior work, maximum performance is generally observed to increase with Reynolds number and decrease with blade count.

### [Non-linear turbine selection for an OWC wave energy converter](#) – López et al. 2024

Turbine-induced damping is a critical parameter affecting the performance of oscillating water column (OWC) wave energy converters. Therefore, selecting the appropriate turbine-chamber combination is an essential step in their design. In this work, a methodology is developed to determine the optimum turbine diameter for a given chamber, i.e., the diameter which maximizes the pneumatic energy capture of the chamber under an extensive set of wave conditions—covering virtually the entire range of wave conditions relevant for wave energy exploitation. This novel approach combines physical and numerical modelling with dimensional analysis. Importantly, it results in a turbine diameter that enables the turbine to operate at maximum efficiency.

### [On the utility of partially corrupted flow measurement data arising from adjacent acoustic Doppler current profilers for energy yield assessment](#) – Evans et al. 2024

Recommended practice for quantifying the energy resource at a tidal energy site requires the use of multiple instruments deployed across the site. However, the instruments used work by emitting an acoustic pulse and instruments working at the same time have the potential to interfere with each other through a process known as 'cross-talk'. It is important to understand the impact of cross-talk on measurements and how this can be managed and through data processing or suitable positioning of devices. The ReDAPT project conducted a measurement campaign using two Acoustic Doppler Current Profilers (ADCPs) placed upstream of an operational tidal turbine. This aimed to assess the 'in-line' instrument placement guidelines from IEC 62600-200 for Power Performance Assessment (PPA) in real-world conditions.

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## Marine Energy Software Update

*[Marine Energy Software](#) is a collection of commercial and open-source software relevant to marine energy development, including simulating devices, and processing and analyzing data.*

### [MHKiT-Python v0.8.2 Release](#)

The Marine and Hydrokinetic Toolkit ([MHKiT](#)) is an open-source software, developed in Python and MATLAB, for rapid data processing, visualization, quality control, resource characterization, and performance assessment. [MHKiT-Python](#) and [MHKiT-MATLAB](#) provide robust and verified functionality in both Python and MATLAB to meet data processing needs of the marine energy community. MHKiT-Python v0.8.2 features bugfixes, updated dependencies, improved examples, and more!

### [WecOptTool v3.0.0 Release](#)

The Wave Energy Converter Design Optimization Toolbox ([WecOptTool](#)) is an open-source software for conducting optimization studies of wave energy converters (WECs). The software supports a co-design approach where the system and control design are considered synchronously. WecOptTool v3.0.0 features improved documentation, additional examples, and power transmission diagrams. WecOptTool is written as a Python package and is developed by Sandia National Laboratories.

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## Telesto Highlight

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

### [Lessons Learned](#)

The PRIMRE team conducted 15 semi-structured interviews with marine energy subject matter experts in the United States. The content of these interviews was broken down into 17 categories, or themes, which span the entire marine energy development lifecycle, ranging from business management to environmental monitoring, and intellectual property to supply chain. Overall, these lessons learned by marine energy experts can provide critical insights for device and project developers in the years ahead. Visit the [Lessons Learned](#) page on Telesto to learn more about the methods for data collection and analysis, review the main lessons learned, and explore links to relevant resources.

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## News & Press Releases

## **6 tidal stream projects successful in the UK's latest renewable auction – UK Marine Energy Council**

The results of Allocation Round 6 (AR6) of the UK's Contracts for Difference renewable auction were today announced, with 6 projects across 5 sites, successfully securing contracts to deliver 28MW of tidal stream capacity at £172/MWh. AR6 is the third consecutive renewable auction with a ringfence for tidal stream energy. This has given the UK an unrivalled deployment pipeline. With the results of this year's auction the UK is on track to have over 130MW of tidal stream capacity deployed in its waters by 2029. The strike price represents a 34% saving against the Administrative Strike Price and is the lowest cost that tidal stream projects have been contracted at since the introduction of the ringfence. The projects that secured contracts in AR6 are HydroWing (10MW in Wales), MeyGen (9MW in Scotland), Seastar (4MW in Scotland), Magallanes (3MW in Scotland), and Ocean Star Tidal (2MW in Scotland).

## **ONDEP project secures €19M EU funding to deploy WaveRoller Array in Portugal – AW-Energy**

The Ondas de Peniche (ONDEP) project has been awarded €19 million from the EU's Horizon Europe funding program to deploy a 2 MW wave energy array featuring four WaveRoller wave energy converters. The ONDEP project will commence in October 2024 and last for five and a half years, encompassing the full spectrum of project activities — from design and manufacturing to testing, deployment, and operation. Set in the surfing hub of Peniche, Portugal, the pilot wave farm will be installed and connected to the grid and will continue generating electricity for an additional eight years after the project's official end. ONDEP's mission over the next five and a half years is to address the technical challenges of future large-scale wave farms, ensuring the technology's reliability and scalability.

## **LR commences IECRE certification of Carnegie Energy's CETO Wave Energy Converter – Lloyd's Register**

Lloyd's Register, an IECRE accepted renewable energy certification body (RECB) with a scope in marine energy, has been contracted by Carnegie Clean Energy to commence the certification process for CETO, a fully submerged point absorber wave energy converter (WEC). The assessment will be undertaken in accordance with IEC TS 62600-4 and the applicable IECRE operational document (OD 310-4). Lloyd's Register has assigned six discipline specialists to cover various aspects of the assessment in accordance with applicable IEC and ISO standards. Initially, the assessment will focus on the novel aspects of the WEC through the IECRE technology qualification process. The outcome from the primary assessment will result in an IECRE Feasibility Statement for the WEC.

## **Ocean energy agreement targets zero carbon power for subsea applications – Mocean Energy**

Scottish ocean energy pioneers Mocean Energy are to work closely with German subsea and marine technology leaders SubCtech, with the goal of developing customisable ocean power and monitoring solutions, powered solely by wave, sun and battery technologies at the point of use, solving complex and challenging projects. Mocean Energy has already demonstrated how their wave and solar powered Blue X wave energy converter prototype can be coupled with battery storage to deliver reliable green power, via the successful pan-industry Renewables for Subsea Power programme, whilst SubCtech has a long track record in manufacturing a range of subsea equipment, including batteries and monitoring equipment, with uses as diverse as greenhouse gas monitoring and micro-plastic sampling.

### **Eco Wave Power and Shell advance wave energy project at Port of Los Angeles – Offshore Energy**

Eco Wave Power has received a green light from the Port of Los Angeles for the engineering plans of the wave energy project the company is developing in partnership with Shell International Exploration and Production, as well as for other documents submitted. The Port of Los Angeles and AltaSea at the Port of LA plan to submit the final licensing documents to the Army Corps of Engineers shortly, said Eco Wave Power. Upon approval, the U.S. project is expected to be implemented within approximately six months. In April 2024, the Swedish-Israeli wave developer unveiled the signing of a strategic co-investment agreement with Shell, for what was described as the first wave energy project in the U.S. for both companies.

### **OPT Concludes Next-Gen PowerBuoy Ocean Trials – Marine Technology News**

Ocean Power Technologies (OPT) has completed more than four months of offshore testing of its next generation PowerBuoy in the Atlantic Ocean off New Jersey. The solar and wind power equipped PowerBuoy also featured OPT's proprietary artificial intelligence capable Merrows suite of solutions. The system maintained 100% data uptime and the state of charge of the batteries remained over 90% throughout the deployment, according to the U.S.-based company. During the deployment, several intelligence, surveillance, and reconnaissance demonstrations for potential customers were completed. Having operated offshore during hurricane Ernesto and tropical storm Debby, the system is now back at the OPT facility for integration of the subsea connectors and AT&T's 5G system that are part of the previously announced deployment for the Naval Postgraduate School in Monterey, California.