



## 19 April 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

#### SCGSR Applications Open

The U.S. Department of Energy's (DOE) [Office of Science Graduate Student Research \(SCGSR\) program](#) is accepting applications for its 2024 solicitation cycle, which provides awards to U.S. graduate students to conduct part of their graduate research at a DOE national laboratory or facility in collaboration with a DOE laboratory scientist. Applications are due on 1 May 2024.

#### MECC Applications Open

The U.S. DOE's Water Power Technologies Office (WPTO) recently opened applications for the sixth annual [Marine Energy Collegiate Competition \(MECC\)](#), which asks student teams to integrate marine energy with blue economy applications such as ocean-powered autonomous vehicles, aquaculture, and desalination. Applications are due 6 May 2024.

#### InDEEP Phase II

The U.S. DOE's WPTO has launched Phase II of the [Innovating Distributed Embedded Energy Prize \(InDEEP\)](#) to encourage innovation in distributed embedded energy converter technology to generate new, precommercial materials for wave energy. Phase II provides a pathway for competitors to build and test their concepts. This is the final opportunity for new teams to enter the prize. The deadline to submit concepts is 7 May 2024.

### SULI & CCI Applications Open

The U.S. DOE Office of Science is now accepting applications for the [Science Undergraduate Laboratory Internships \(SULI\)](#) program and the [Community College Internships \(CCI\)](#) program for the Fall 2024 term. Through SULI and CCI, undergraduates and recent graduates can gain hands on experience at the DOE national laboratories. Applications are due 22 May 2024.

### ETIPP Applications Open

The U.S. DOE recently announced that applications are open for the [Energy Transitions Initiative Partnership Project \(ETIPP\)](#), which provides technical assistance for remote and island communities to bolster their energy resilience through tailored solutions, through 10 July 2024.

### Marine Energy Career Map

The U.S. DOE's WPTO recently launched a [Marine Energy Career Map](#) to highlight different careers in clean energy. This new map will help anyone interested in a marine energy career to find pathways to a wide variety of jobs in the sector, including engineers, scientists, and more!

### Calls for Abstracts & Papers

The [Call for Abstracts](#) for the [International Conference on Ocean Energy \(ICOE 2024\)](#) is still open! ICOE 2024 will take place on 17-19 September 2024 in Melbourne, Australia.

The University of Southampton has extended the Call for Abstracts for the [11<sup>th</sup> Partnership for Research in Marine Renewable Energy \(PRIMaRE\) Conference](#) until 22 April 2024. The PRIMaRE Conference will take place 27-28 June 2024 in Southampton, England.

The [Call for Abstracts](#) for [OCEANS 2024 Halifax](#) is now open through 26 April 2024. OCEANS Halifax will take place 23-26 September 2024 in Halifax, Nova Scotia, Canada.

The [Call for Posters](#) for [Structures in the Marine Environment \(SIME 2024\)](#) is now open through 3 May 2024. SIME 2024 will take place on 22-23 May 2024 in Edinburgh, Scotland.

### Funding & Testing Opportunities

The [Marine Fund Scotland](#) is now open to support eligible individuals, businesses, organizations, and communities in delivering projects which contribute to an innovative and sustainable marine economy, reducing carbon emissions, and supporting coastal communities. Applications for the first round are due 9 May 2024.

The U.S. DOE recently announced \$25 million in funding to [support clean energy technology deployment on Tribal lands](#). DOE is soliciting applications from Indian Tribes, which include Alaska Native Regional Corporations and Village Corporations, Intertribal Organizations, and Tribal Energy Development Organizations. Applications are due 30 May 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 \(RFTS\) 13](#) applications through 28 June 2024 to support marine energy testing and development projects. Open Water Support applications can be submitted any time.

### Career Opportunities

The European Marine Energy Centre (EMEC) is looking for a [Senior Electrical Engineer](#) to manage operations of EMEC's electrical systems, ensuring they meet client requirements, and that they are operated to relevant standards. Applications are due 22 April 2024.

The Institute of Social Anthropology at the University of Bern seeks to appoint a full-time [PhD Researcher](#) to study environmental justice issues around wave and tidal power in East Asia, Southeast Asia, and Canada. Applications are due 28 April 2024.

The University of Southampton is also offering a [PhD Studentship](#) focused on developing robotic ground investigation tools for offshore renewable energy and infrastructure in support of the ROBOCONE project. Applications are due 30 April 2024.

The U.S. DOE is looking for a new [Director of WPTO](#) to lead the planning, research, development, demonstration, and deployment strategies for its national water power technologies program, which focuses on hydropower and marine energy. Applications are due 1 May 2024.

The University of Oxford is offering three Postdoctoral Research Assistant positions focused on [Integrated Engineering Models for Tidal Energy Systems](#), [Naval Architecture for Tidal Energy Systems](#), and [Tidal Stream Resource Assessment](#). Applications are due 6 May 2024.

The Engineering and Physical Sciences Research Council's Centre for Doctoral Training in Net Zero Maritime Energy Solutions, with support from the University of Liverpool and others, is offering a [funded PhD position](#) focused on process-based model tools for prediction of scour around offshore structural foundations. Applications are due 20 May 2024.

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## Upcoming Events

### Upcoming Webinars

The Supergen Offshore Renewable Energy (ORE) Hub is hosting a webinar, "[Testing the Critical Link - Physical Testing of Dynamic Power Cables](#)", on 8 May 2024 from 11:00am-12:00pm UTC. This webinar will provide a brief review of typical test setups and recommended test practices and present a case study and characteristic results of a mechanical cable test campaign, quantifying cable stiffness and fatigue. [Register here.](#)

The U.S. DOE's WPTO is hosting its next [WPTO Semiannual Stakeholder Webinar](#) on 9 May 2024 from 12:30-2:00pm ET (4:30-6:00pm UTC). Staff will dive into funding opportunities, how the office is working with partners globally, and other accomplishments, news, and updates.

## Upcoming Workshops

The Marine Technology Society and Pacific Northwest National Laboratory are hosting the [15<sup>th</sup> Buoy Workshop](#) on 20-23 May 2024 in Sequim, Washington, U.S. The workshop will focus on research and advancements in oceanographic, weather, and other buoy systems. [Register here.](#)

The Oceanic Platform of the Canary Islands (PLOCAN) is hosting its [2024 Glider School](#), which is a leading hands-on ocean-glider technology training forum, from 21-25 October 2024 in Telde, Gran Canaria, Canary Islands, Spain. Applications to attend are due 30 June 2024.

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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.*

### **[Improving the Amount of Captured Energy of a Point-Absorber WEC on the Mexican Coast](#) – Flores et al. 2024**

Although there are constant improvements in wave energy converter (WEC) technology, it is crucial to investigate site-specific sea conditions for optimal power absorption and efficiency. This study compares the efficiency of a floating buoy-type WEC device, with three differently shaped floats: a semi-sphere, a cylinder considered suitable for a location near Ensenada, on the Baja California peninsula, and a novel, rounded, semi-rectangular float. A statistical analysis of the wave climate of the last 42 years was performed to define the conditions to which the device is subjected. The WEC location was chosen for shallow waters, using a computational model that solves the modified mild slope equation.

### **[An experimental study of the thrust and power produced by a 1/20th scale tidal turbine utilising blade winglets](#) – Olvera-Trejo et al. 2024**

Winglets have been employed in the aviation industry to reduce vortices generated at aircraft wings, decreasing drag, and hence increasing fuel economy. For rotating applications previous experimental and numerical studies addressed the application for wind turbines and suggested winglets facing backwards on the suction side of a blade could increase the power capture. This paper presents experimental work using a scale 3-bladed horizontal axis tidal turbine. An oil-based paint flow visualisation coupled to blade thrust and torque measurements helped to identify the mechanism behind the phenomenon affecting performance of winglets facing the suction side of a turbine blade.

### **[A review of hybrid wave-tidal energy conversion technology](#) – Chen & Wu 2024**

Ocean renewable energy, such as wave and tidal energies, is important for energy supply and decarbonization of offshore platforms and ships. However, the intermittent and non-dispatchable nature of wave and tidal energy remains a significant challenge. The hybrid

wave-tidal energy conversion presents a potential solution to enhance output power and stability by leveraging their complementary characteristics. This paper reviews the current state of hybrid wave-tidal energy conversion technology, focusing on device design, modeling methods and testing methods. Many current hybrid wave-tidal energy converters (HWTEC) have not considered effective coupling among the modules of sub-systems to maximize efficiency.

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## Marine Energy Software Update

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

### [Marine Energy Software Relaunch](#)

Have you checked out Marine Energy Software's new look yet? The new site has a more unified and streamlined access to marine energy relevant software for users. Rather than visiting the old Code Hub and Cod Catalog pages to search through open-source and commercial software separately, users can now find all software in one place. Check out the new facets, sort by features, view recent activity on your favorite repositories, and discover new ones! Do you have a software in mind that isn't included on Marine Energy Software yet? Please go to the updated [Register Software](#) page to contribute!

### [WecOptTool v2.7.0 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 uses a co-design approach where the system and control design for the WEC are considered synchronously. WecOptTool v2.7.0 features useability and documentation improvements. 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.*

### [Marine Energy Design & Build Resources on Telesto](#)

Bringing a new idea for a marine energy converter from an initial concept to a full-scale, commercial device is often an iterative process of designing, building, testing, improving, and re-building. Telesto's [Design & Build section](#) highlights information and resources that can support developers and other stakeholders through the design and build process for marine energy devices. For example, the section includes information on Technology Performance Level (TPL) assessments and a link to an online TPL assessment tool that

can evaluate the techno-economic performance potential of early-stage wave energy converter concepts. Additionally, the section features information and webinar recordings from the Marine Energy Advanced Materials and Manufacturing project, links to relevant International Electrotechnical Commission (IEC) technical standards, and a compilation of lessons learned from previous marine energy projects. [Visit Telesto to learn more!](#)

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## News & Press Releases

### [Oscilla Power Successfully Launches Demonstration Scale Triton™ Wave Energy Converter \(WEC\) on Maine Coast - Oscilla Power](#)

Wave energy technology developer Oscilla Power, the University of Maine's Advanced Structures & Composites Center (ASCC) and the Maine Maritime Academy successfully deployed a 1/6 scale prototype of Oscilla's 1 MW Triton™ wave energy converter (WEC) in Castine Harbor. The goal of this project is to confirm the design and performance of Triton in a real-world operating environment, helping to inform the ongoing engineering design of Oscilla's full-scale, 1 MW Triton WEC in 2024. Due to the unique wave conditions in Castine the 1/6 scaled unit will operate in the same manner as a full-scale unit during this 12-week test.

### [Eco Wave Power Signed a Contract with a Major Energy Company for a Demonstration to Harness Energy from the Waves at the Port of Los Angeles – Eco Wave Power](#)

Eco Wave Power recently announced that it has entered an agreement with a major energy company to participate in the development of Eco Wave Power's first project in the United States. Recently, Eco Wave Power also announced that it has conducted a comprehensive feasibility study, with the same major energy company, aimed at identifying the top locations for commercial onshore wave energy stations along the U.S. coastline and worldwide. The three-month, in-depth feasibility study which now has been completed, has shown favorable conditions for clean energy production in multiple locations in the U.S. and globally. In the study, Eco Wave Power has pointed out to at least 77 sites in the U.S. which may be compatible for its technology.

### [ACHIEVE passes EuropeWaveAuthorisation to Proceed Milestone – Carnegie Clean Energy](#)

Carnegie's ACHIEVE project has successfully passed the Authorisation to Proceed (ATP) milestone in its EuropeWave contract. The ATP represents a significant stage gate, with the EuropeWave Buyers Group reviewing technical and commercial deliverables. Successful milestone completion now unlocks significant procurement activities. The €3.75m EuropeWave ACHIEVE contract supports the deployment of a CETO wave energy converter in waters of the Basque Country in Spain as part of the ACHIEVE Programme. CETO will be deployed and deliver power to the grid at the Biscay Marine Energy Platform.

## **Direct generation competition round one results – Wave Energy Scotland (WES)**

Direct Generation (DG) is the application of novel electrostatic generation technologies. In the application of wave energy, Dielectric Elastomer Generators and Dielectric Fluid Generators can directly transform movement (stretching, twisting, bending) of a material, into electrical energy. This offers opportunities for significant cost reduction of WEC technologies. WES sought to investigate the potential benefits and opportunities of these technologies through a DG Concept Creation Competition. Round 1 of this competition has now drawn to a close where the lead project partners involved in the competition were: 4c Engineering, AWS Ocean Energy, University of Southampton, WaveX, and TTI Marine Renewables.

## **Introducing DeepCData: Detailed Material Performance Characterisation and Data Generation for Tidal Energy – Composites Testing Laboratory (CTL)**

CTL is excited to announce it has won funding under the Sustainable Energy Authority of Ireland's Research, Development and Demonstration programme for the project DeepCData. The project consortium consists of CTL, University of Galway and ORPC, and has received just under €500k under the programme. The project aims to generate comprehensive test data on novel composite materials for use in tidal turbine blades. The information compiled throughout the work will lead to a number of developments in tidal energy. A test campaign is planned to evaluate the use of more sustainable composite options in tidal technology. The kick-off meeting was held in March, and the project expects to run for 24 months, until 2026.

## **The Final Frontier for Renewable Energy: Marine Power – CNET (republished from 2023)**

If you've ever been knocked off your feet by a big wave, you've felt a smidgeon of the ocean's power. Now imagine how wave power could be one of our largest energy resources -- an abundant resource with 70% of the Earth's surface covered by oceans. For decades, scientists and engineers have looked to our vast oceans and dreamed of ways to extract a tiny fraction of that energy. In an era of climate awareness and anxiety, finding ways to do that is finally getting more attention. The Biden administration's Ocean Climate Action Plan reveals how the ocean holds important potential for renewable energy, both from offshore wind power and less-explored sources such as waves, tides and currents. Even the chillier waters that lie deep below tropical seas could provide clean marine energy.