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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

Power at Sea Prize Submissions Open

The U.S. Department of Energy's (DOE) Water Power Technologies Office (WPTO) is accepting submissions for the [Powering the Blue Economy: Power at Sea Prize](#), which awards competitors to advance technologies that use marine energy to power ocean-based activities, through 26 July 2024.

Calls for Abstracts

The American Geophysical Union (AGU) has opened the [Call for Abstracts](#) for the [AGU 2024 Annual Meeting](#) through 31 July 2024. AGU 2024 will take place 9-13 December 2024 in Washington, D.C. and will feature a session on [Marine Energy to Power the Blue Economy](#).

The Ocean Thermal Energy Association has opened the Call for Speakers for the [10th International Ocean Thermal Energy Conversion \(OTEC\) Symposium](#) through 31 July 2024. The symposium will take place 4-5 December 2024 in Rio de Janeiro, Brazil.

The Call for Abstracts for [7th Asian Offshore Wind, Wave and Tidal Energy Conference \(AWTEC 2024\)](#) has been extended through 31 July 2024. AWTEC will take place 20-24 October 2024 in Busan, South Korea.

The Marine Alliance for Science and Technology for Scotland (MASTS) has opened the [Call for Abstracts](#) for the [MASTS 2024 Annual Science Meeting](#) through 22 August 2024. The meeting will take place 5-7 November 2024 in Glasgow, Scotland.

Funding & Testing Opportunities

The U.S. DOE's WPTO recently opened a nearly [\\$5 million funding opportunity](#) to support programming and services for entrepreneurs and small businesses in marine energy. Concept papers are due 7 August 2024.

The Supergen Offshore Renewable Energy (ORE) Hub has launched its fifth [Flexible Fund Call for Proposals](#) and are seeking research proposals from universities or other institutions eligible to hold UK Research and Innovation awards to facilitate a UK-led ORE research projects aligned with, and in partnership with the Hub. Expressions of interest are due 2 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.

Career Opportunities

The U.S. DOE WPTO is seeking a [Fellow](#) to engage with the its Arctic Energy Office in Alaska and carry out work on water-power related topics within the state of Alaska. This will include engaging in both marine (tidal and riverine) technologies, as well as conventional hydropower.

The U.S. Bureau of Ocean Energy Management is hiring a [Renewable Energy Tribal Liaison Coordinator](#) to serve as subject matter expert for Tribal consultation related to offshore renewable energy planning, exploration, and development. Applications are due 8 August 2024.

European Marine Energy Centre (EMEC) is looking for a [Project Manager](#) to manage the delivery of a variety of innovative renewable projects, with the focus on EMEC's infrastructure development for both site and developer based activities. Applications are due 12 August 2024.

Upcoming Events

Upcoming Webinar

The U.S. DOE's WPTO is hosting its [WPTO Semiannual Stakeholder Webinar: AI, Machine Learning, and Water Power](#) on 22 August 2024 from 12:30-2:00pm EDT (4:30-6:00pm UTC).

The webinar will feature experts from WPTO for a discussion on artificial intelligence and machine learning, including where they see potential benefits and uses of these tools in the hydropower and marine energy sectors and where they may already be in use.

Upcoming Masterclasses

The Supergen ORE Hub is hosting a [Masterclass on Real-Time Hardware-in-the-Loop Experiments for Grid Integration of Offshore Renewable Energy Systems](#) on 4 September 2024 at the University of Warwick in Coventry, England. [Register here.](#)

The Supergen ORE Hub is also hosting a Masterclass on Virtual Prototyping of Offshore Renewable Energy Technologies on 27 & 28 November 2024 at National Decommissioning Centre in Scotland. [Register here.](#)

Upcoming Conferences

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

The [15th ISOPE Pacific Asia Offshore Mechanics Symposium \(ISOPE PACOMS-2024\)](#) will take place on 13-16 October 2024 in Chennai, India.

Ocean Energy Europe is hosting the [Ocean Energy Europe 2024 Conference & Exhibition](#) on 5-6 November 2024 in Aviemore, Scotland.

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.

[On the Performance of a Horizontally Mounted ADCP in an Energetic Tidal Environment for Floating Tidal Turbine Applications](#) – Dillenburger-Keenan et al. 2024

Incident flow measurement is key in the tidal industry for conducting power performance assessments. This paper explores the use of a horizontally mounted Nortek Signature 500 Acoustic Doppler Current Profiler (ADCP) as a means for incident flow measurement onboard a utility-scale tidal turbine. This study shows that the measurement range of an ADCP mounted horizontally in highly dynamic tidal flow (up to 4 m/s) is less than the maximum range stated by the manufacturer. The ability for the horizontal ADCP to accurately resolve velocities in a multi-beam configuration is also analysed. Effects from both vertical shear and beam selection result in incident flow velocities that differ from a single horizontal beam recording. The maximum measurement range of the instrument is found to depend on current speed and on the proportion of data loss that is acceptable to the user.

Oscillating surge wave energy converter using a novel above-water power takeoff with belt-arc speed amplification – Mi et al. 2024

We investigate the performance of a novel power takeoff (PTO) featuring belt-arc speed amplification for oscillating surge wave energy converters (OSWECs), aiming to address the PTO design challenges of extremely low rotary speed and large torque under the low-frequency and large energy density ocean wave excitations. The belt-arc design significantly increases the rotary speed of the generator, enabling generator downsizing and decreasing the powertrain friction losses. The design also allows for placing the generator above water, eliminating the need for high Ingress Protection ratings for the generator and powertrain, and potentially leading to substantial reductions in capital and maintenance costs. Using the potential flow theory, the dynamics of the integrated system are analyzed, and key parameters are identified.

Annual and Seasonal Variation of the Ocean Thermal Resources off the Mexican Coast – Carmona-Cedilla et al. 2024

A large amount of thermal energy is stored in the oceans between the tropics, available for conversion into electrical energy using OTEC technology. The aim of this study was to determine the annual and seasonal variability of the oceanic thermal resource in Mexico. Using the WOA18 database, we mapped surface temperature at a 10 m depth, deep cold water (<5 °C), vertical temperature difference (18 and 20 °C), and temperature anomalies. From the results, four areas were analyzed as being suitable for the installation of OTEC technology: Pacific (A), Los Cabos (B), Caribbean (C), and Gulf of Mexico (G). The optimal thermal resource (≥ 20 °C) was found between a 400 and 1000 m depth in all seasons in A and C, in spring, summer, and autumn in G, and only in summer and autumn in B.

MHKDR Highlight

The Marine Hydrokinetic Data Repository ([MHKDR](#)) is the repository for all data collected using funds from the U.S. DOE's WPTO, including results from tank tests and open sea trials.

HERO WEC - Bills of Materials: WEC, RO System, and Submersible Pump – National Renewable Energy Laboratory 2024

This submission includes detailed Bills of Materials for the NREL-designed and -built Hydraulic and Electric Reverse Osmosis Wave Energy Converter (HERO WEC), as well as the reverse osmosis assembly and submersible pump that are used in the HERO WEC. The WEC file is specific to the components and sub-components that are included on the in-water buoy portion of the WEC. The RO file is specific to the components and sub-components that are included on the reverse osmosis module that is used for both the hydraulic and electric configuration. The submersible pumps file is specific to the components and sub-components that are included on the submersible pump module that

is used feed the reverse osmosis module when the HERO WEC is in the electric configuration.

[TidGen: Permits for Installation of Single Turbine Test System, Cobscook Bay, Maine – Ocean Renewable Power Company 2024](#)

This is a summary of permits required and obtained for installation, operation, removal of the TidGen Single Turbine Test system in Cobscook Bay, May in 2023. The Ocean Renewable Power Company (ORPC) worked with federal and state entities to gain required permits and approvals that allowed for short term, non-grid connected testing of the TidGen Single Turbine System (STS) at ORPC's established test site in Cobscook Bay, Maine. A list of the required permits and approvals garnered for project testing as well as notifications relayed to local area stakeholders prior to the start of testing are summarized here.

[Performance of Elevated Hinge Flap Wavemaker – Pacific Marine Energy Center 2023](#)

This data includes a sweep of regular wave runs characterizing the performance of an elevated hinge flap wavemaker. Maximum wave heights were run for 13 periods in a range from 0.5 s to 6 s. Data is saved in several formats including 'raw' analog voltages, 'mat' matlab files, 'txt' csv, and 'dat' ASCII.

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.

[Call for Software Contributions](#)

Like most open-source resources, the more information users contribute, the better the resource becomes! Marine Energy Software is no different. With each software addition to the knowledge hub, the better the resource becomes for users in the international marine energy industry. Do you have a software you would like to contribute to Marine Energy Software? Visit the [Register Software page](#) to add your software today!

[Capytaine v2.2 Release](#)

[Capytaine](#) is a Python package for the simulation of the interaction between water waves and floating bodies in frequency domain. It is built around a full rewrite of the version 2 of the open-source Boundary Element Method (BEM) solver Nemoh for the linear potential flow wave theory. Capytaine v2.2 has a new and exciting feature called `lid_mesh` that can applied to the floating body to remove lid-based irregular frequencies. The lid can be placed on the free surface or below it.

News & Press Releases

[DOE's First Hybrid Research Vessel, Resilience, Arrives in Sequim](#) – Pacific Northwest National Laboratory

The U.S. DOE's first hybrid electric-diesel research vessel arrived Friday, July 19 from Seattle, docking at the John Wayne Marina. The vessel, named *RV Resilience*, will be managed and operated by researchers at the Sequim campus of DOE's Pacific Northwest National Laboratory, the only marine research laboratory in DOE's complex. At 50 feet long, *Resilience* is the first of its size class to be partially electrified. It's big enough to fit a 113-kilowatt battery, but small enough to be nimble for research in Sequim Bay and beyond. *RV Resilience* will help usher in a new era of research at PNNL-Sequim, where scientists study environmental impacts of marine energy, ocean-based carbon dioxide removal, coastal ecosystem sciences and more.

[Cable installation set to begin for OSU-led wave energy testing facility off Oregon coast](#) – Oregon State University (OSU)

Crews later this month will begin installing the power and data cables that are essential to completing construction of a new wave energy testing facility off the Oregon Coast. The cables will support Oregon State University's PacWave South, the first pre-permitted, utility-scale, grid-connected wave energy test site in the United States. When the facility is completed, wave energy developers will be able to test different technologies for harnessing the power of ocean waves and transmitting that energy to the local electrical grid. The work includes installing four power and data cables ranging in length from about 10 to 13 continuous miles from a vault under the parking lot of Driftwood Beach State Park south of Newport out to the test site offshore.

[EU project focused on environmental monitoring of ocean energy devices gets another extension](#) – Offshore Energy

The EU-backed SafeWAVE project, which has the aim of overcoming some of the non-technological barriers that could hinder the future development of ocean energy, has been extended until December 2024. The extension of the Streamlining the Assessment of Environmental Effects of Wave Energy (SafeWAVE) project is said to allow the project partners to continue addressing the non-technological barriers that could hinder the future development of ocean energy, a key pillar of the EU Blue Growth strategy. The project works to improve knowledge of the environmental effects and risks of wave energy through the collection, processing, analysis, and sharing of environmental data around devices operating at sea and modeling of cumulative impacts of future larger-scale deployments.

OPALCO applies for FERC preliminary permit for Rosario Strait Tidal Energy Project – Hydro Review

Orcas Power & Light Cooperative (OPALCO) has submitted a preliminary permit application to the Federal Energy Regulatory Commission for the Rosario Strait Tidal Energy Project. The site for the project is just east of Blakely Island in San Juan County, Washington. OPALCO is a member-owned, non-profit cooperative utility. OPALCO said an Orbital O2 device deployed at the Rosario Strait location could generate enough energy for about 5% of OPALCO's annual needs. OPALCO requested a 36-month preliminary permit. The proposed project would serve as a pilot project to test the capacity of Rosario Strait for tidal turbine technology that supports OPALCO's microgrid. The Orbital O2 device proposed for use in this location is a floating tidal turbine with a 245-ft-long hull and twin rotors suspended underneath.

UK company unveils quick connection system for floating structures – Offshore Energy

UK-based Blackfish Engineering has unveiled a mooring system, called C-Dart, which eliminates the direct handling of heavy mooring lines by operational personnel. The system is designed to rapidly connect various floating structures and assets, including wave and tidal energy converters, offshore wind, floating solar platforms, aquaculture, and more, according to the company. By utilizing the principles of gravity, buoyancy, and rope tension, the C-Dart system facilitates a contact-free, automated connection process that secures equipment securely and swiftly, Blackfish said. The system's rapid connect and disconnect capability is said to cut down the time typically required for offshore operations which is vital in reducing the overall operational costs and downtime, particularly in the high-stakes environment of renewable energy projects.

Equinox Ocean Turbines successfully closes seed funding round – Equinox Ocean Turbines

Equinox Ocean Turbines BV has successfully closed its seed funding round, raising €2.4 million. This round was led by EIT InnoEnergy, with significant support from Damen Maritime Ventures, NOM, FOM, Init Power and two private investors. This infusion of capital will accelerate the development and deployment of Equinox's cutting-edge turbine technology, which harnesses the immense 700 GW potential of Ocean Currents to generate clean, reliable energy. The funds will be used to develop a pre-commercial turbine by 2025 and expand Equinox's global footprint to meet the growing demand for clean energy solutions.