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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

New Marine Energy Software Overview Video

The PRIMRE team has released a new 2-min [Marine Energy Software Overview Video](#) highlighting the Knowledge Hub's key features and uses. Dive in to learn more!

2025 Marine Energy Fellowship

The U.S. Department of Energy (DOE) Water Power Technologies Office (WPTO) and the Oak Ridge Institute for Science and Education (ORISE) are accepting applications for the [2025 Marine Energy Fellowship](#), which features one track for graduate students working on marine energy-focused research and a new post-graduate track for recent graduates advancing their careers in marine energy. Applications are due 6 December 2024 and 7 March 2025.

EnergyTech UP

The U.S. DOE Office of Technology Transitions has opened registration for the [EnergyTech University Prize \(EnergyTech UP\)](#), where student teams will compete for cash prizes for successfully identifying a promising energy technology, assessing its market potential, and creating a business plan for commercialization. Informational webinars will take place on 10 December 2024 and 23 January 2025. Faculty submissions are due 13 January 2025 and student registration for the Explore Phase is due 3 February 2025.

Marine Energy Collision Risk Video Game

Pacific Northwest National Laboratory recently launched a new version of its [Marine Energy Adventure: Collision Risk Video Game](#) on Tethys. This interactive tool illustrates the different factors influencing collision risk and the spatial scales at which they operate underwater. Please take a moment to share your feedback through [this online survey](#).

Calls for Abstracts

The [Call for Abstracts](#) for [OCEANS 2025 Brest](#) is now open through 20 December 2024. OCEANS 2025 Brest will take place from 16-19 June 2025 in Brest, France. The organizers are seeking cutting-edge technical presentations with an emphasis on marine energy, environmental marine engineering, and a digital ocean.

The [Call for Abstracts & Paper Submissions](#) for the [16th European Wave and Tidal Energy Conference \(EWTEC 2025\)](#) has now opened until 13 January 2024. EWTEC will take place on 7-11 September 2025 in Madeira, Portugal.

The [Call for Abstracts](#) for the [European Geoscience Union \(EGU\) General Assembly 2025](#) is now open through 15 January 2025. The EGU General Assembly 2025 will take place on 27 April–2 May 2025 in Vienna, Austria and online.

Funding & Testing Opportunities

The U.S. DOE has announced a new program, [Clean Energy Careers for All \(CEC4A\)](#), that will award nearly \$3 million to non-profit educational organizations—including engineering, scientific, and technical societies—to support programs that promote awareness and interest in clean energy careers among K-12 and university students, alumni and academic professionals, veterans, and formerly incarcerated individuals. Phase 1 submissions are due 13 December 2024.

The U.S. DOE has released the [Phase I Release 2 topics](#) for the [Small Business Innovation Research \(SBIR\) and Small Business Technology Transfer \(STTR\) Program](#). The Funding Opportunity Announcement will be released on 16 December 2024 and letters of intent will be due 7 January 2025. WPTO will host a [webinar](#) on 4 December to explore the topic areas.

Washington Maritime Blue, a leading maritime innovation cluster in the Pacific Northwest, has opened applications for its [2025 Blue Ventures Programs](#), which will support early-stage founders validating their technology and preparing for market entry, including for renewable ocean energy. Applications are due 6 January 2025.

Horizon Europe has opened a Call for Proposal, [Critical technologies for the future ocean energy farms](#). Projects are expected to increase performance of ocean energy technologies with the focus on sustainability, operation, and maintenance; improve knowledge on how to operate ocean energy devices and their sustainability; and reduce levelized cost of interest. Proposals are due 4 February 2025.

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 \(RFTS\) 15](#) applications through 7 February 2025 to support marine energy testing and development projects. Open Water Support applications can be submitted any time. TEAMER is now offering [Results Dissemination Support](#) (i.e., travel and publication support).

The U.S. DOE Office of Clean Energy Demonstrations (OCED) has opened applications for up to \$400 million, through [the Energy Improvements in Rural or Remote Areas \(ERA\) Program](#), to spur innovative, community-focused, clean energy solutions for rural and remote communities across the United States. Concept papers are due by 27 February 2025.

Career Opportunities

The "[International Research Experiences for Students \(IRES\): Fostering Ocean Renewable Energy Expertise through Collaboration with European Countries](#)" project is accepting applications from undergraduate and graduate students who are currently enrolled in a U.S. academic institution to get experience in Europe. Applications are due 30 November 2024.

The University of Washington School of Marine and Environmental Affairs invites applications for a tenure-track [Assistant Professor in Coastal and Environmental Affairs](#). Applications received by 2 December will be given priority.

The University of Oxford is offering [Research Studentship in Tidal Stream Energy](#) and seeking doctoral students to work on the CoTide program with interests in one or more areas of: turbine hydrodynamics and design, resource modelling, naval architecture and ocean engineering, system optimization and control co-design. Applications are due 3 December 2024.

East Carolina University (ECU) is recruiting a [PhD in Integrated Coastal Sciences](#) to study the social acceptance and engagement around introducing marine energy technology and participate in Atlantic Marine Energy Center (AMEC) activities. Priority applications to the ECU program are due by 15 February 2025.

CorPower Ocean is offering several job opportunities, including [Lead Marine Operations Engineer - Wave Energy](#), [Subsea Design Engineer - Wave Energy](#), [Mechanical Design Engineer \(Collection Hub\)](#), and [Mechanical Design Engineer \(Power Take Off\)](#).

Upcoming Events

Upcoming Webinars

The Blue Economy Cooperative Research Centre is hosting a webinar, "[Ocean Wave Energy in Australia](#)", on 3 December 2024 from 3:30-5:00pm AEDT (4:30-6:00am UTC). The webinar will present the status, opportunities, and challenges of wave energy in Australia.

The Supergen Offshore Renewable Energy Hub is hosting a webinar, “[The use of Dynamic Bayesian Network Modelling for the Spatial and Temporal Understanding of Marine Ecosystem Dynamics](#)”, on 27 January 2025 from 1:00-2:00pm UTC.

Upcoming WPTO Peer Review

The U.S. DOE’s WPTO will be holding its public facing [Marine Energy Peer Review](#) from 10-13 February 2025 online. The purpose of the Peer Review is to evaluate WPTO programs based on their contributions to the office’s mission and goals, provide feedback on future direction, and assess the office’s overall management and performance. [Register here.](#)

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.

[Objective representative flow field selection for tidal array layout design](#) – Jordan et al. 2024

The representation of flow across influential spatiotemporal scales introduces a challenge when micro-siting tidal stream turbine arrays. Robust representative approximations could accelerate design optimisation, yet there is no consensus on what defines the most appropriate flow conditions. We summarise existing approaches to representative flow field selection for array optimisation and propose an objective-driven process. The method curates a subset of flow fields that best captures relevant dynamics, enabling the streamlined representation of tidal cycles. To demonstrate the method, we consider flow modelling data in the Inner Sound of the Pentland Firth, Scotland, UK. We examine the impact of flow field inputs to array design through comparative analyses using a heuristic array optimisation process.

[Floating wave energy farms: How energy calculations shape economic feasibility?](#) – Castro-Santos et al. 2024

The aim of this study is to use two different methodologies for calculating the energy produced by a total wave energy farm in the Cantabrian Sea (North of Spain). First method studies the energy produced by the farm taking into account the wave energy converter power matrix and the probability matrix of sea conditions for a particular location. On the other hand, second method is a more simplified methodology in which the wave energy converter power matrix is not taken into account, but it considers the density of the water, gravity, period and height of the wave, as well as the percentage of efficiency, among others. Finally, the energy generated by the farm and the economic parameters that allow calculating its economic feasibility are studied, such as Levelized Cost of Energy, Net Present Value and Internal Rate of Return.

[Exploiting the Ocean Thermal Energy Conversion \(OTEC\) technology for green hydrogen production and storage: Exergo-economic analysis](#) – Ciappi et al. 2024

This study presents and analyses three plant configurations of the Ocean Thermal Energy Conversion (OTEC) technology. All the solutions are based on using the OTEC system to obtain hydrogen through an electrolyzer. The hydrogen is then compressed and stored. In the first and second layouts, a Rankine cycle with ammonia and a mixture of water and ethanol is utilised respectively; in the third layout, a Kalina cycle is considered. In each configuration, the OTEC cycle is coupled with a polymer electrolyte membrane (PEM) electrolyzer and the compression and storage system. The water entering the electrolyzer is pre-heated to 80 °C by a solar collector. Energy, exergy, and exergo-economic studies were conducted to evaluate the cost of producing, compressing, and storing hydrogen.

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.

[Take a Tour of the Marine Energy Atlas](#)

The Marine Energy Atlas features three brief tours for users to learn how to (1) create an account; (2) use the Data Library, which provides access to hundreds of existing map layers; and (3) use the Capacity Factor Tool, which offers the ability to create Capacity Factor maps of specific wave energy converters based on their power matrices.

Marine Energy Projects Database Update

The [Marine Energy Projects Database](#) provides up-to-date information on marine energy projects, test sites, devices, organizations, and technologies around the world.

[CorPower Ocean C4 Wave Energy Converter \(WEC\)](#) – CorPower Ocean

The C4 is CorPower Ocean's first full-scale prototype device, and corresponds to stage 4 in the IEA-OES structured development process for ocean energy systems. Like previous CorPower WECs it is a Point Absorber with unique phase control technology that allows for maximising energy capture with a small, lightweight and low-cost device, overcoming the trade-offs between increased WEC size, mass, and cost. The C4 was first deployed at the Aguçadoura test site in Portugal in August 2023. The C4 is connected to the seabed using a patented and proprietary universal mooring, anchor & connectivity kit (UMACK), which is a geotechnical innovation that outperforms by >50% widely used gravity anchors and monopiles in terms of holding capacity, CAPEX, installation, and O&M costs.

Queenscliff Harbour Tidal Project – Altum Green Energy

This project is a tidal turbine demonstration at Queenscliff Harbour, in North Western Australia, with the potential to subsequently supply power to six large mining export ports in the region. Queenscliff Harbour management partnered with non-profit organization Southern Ocean Environmental Link (SOEL) and underwater turbine manufacturer Altum Green Energy (AGE) to investigate the potential of installing a tidal turbine, which would generate electricity using the natural ebb and flow of the tide.

InSPIRE - Integrated mWave and Wind Floating Platform – Bombora Wave Power

The InSPIRE project, led by TechnipFMC and Bombora, marries a wealth of experience in marine offshore engineering with the worlds largest capacity wave energy technology to deliver a dual-power ‘wind +wave’ market disruptive platform solution to fast-track Floating Offshore Wind deployment. The InSPIRE demonstration project paves the way for a full commercial roll-out of a Series 1 platform with a 12 MW rated capacity, followed by a Series 2 with a 18 MW rated capacity. Working with policy makers, energy companies, academia and the supply chain a highly competitive Levelized Cost of Energy (LCOE) of €50 per MWhr is predicted by 2030. The InSPIRE project represents a significant advancement for the industry and a major step forward for a low carbon future.

News & Press Releases

Power at Sea Prize Winners Awarded Combined \$200,000 in First Round – U.S. DOE

The U.S. DOE's WPTO recently announced the winners of the first phase of the Powering the Blue Economy™: Power at Sea Prize, one of the office's most competitive prizes to date. Twenty teams won \$10,000 each for their innovative concepts that use marine energy to power ocean-based activities. The Power at Sea Prize aims to attract new, creative minds to the field of marine energy to maximize its potential for powering the blue economy. Through two prize phases—CONCEPT and DEVELOP—WPTO seeks to identify innovative marine energy concepts that could feasibly provide power for blue economy applications such as ocean-observing devices, aquaculture installations, and storm tracking. The 20 winning teams proposed a diverse set of ideas, including marine-powered aquaculture, recharging stations for autonomous underwater vehicles, and artificial reefs with embedded wave energy converters.

Albany wave energy project to help Australia become world leader in renewables – University of Western Australia

Girt by sea, Australia is uniquely well-placed to decarbonise the economy by leading offshore renewable energy generation, including wave energy. In November 2024, the ‘Moored MultiMode Multibody’ device or M4 was deployed about 1.5km offshore in King George Sound, the outer harbour of Albany in Western Australia. The deployment

was part of the M4 Wave Energy Demonstration Project led by The University of Western Australia's Marine Energy Research Australia (MERA) and is a world-first initiative to showcase Albany's wave energy resources and research expertise. First funded in August 2021 by the Blue Economy Cooperative Research Centre, the WA Government and UWA, it is a fully open-source project that shares with scientists, developers and the community the performance data measured, and the experience gained during designing, manufacturing, deployment and decommissioning.

Wave of Innovation: Eco Wave Power Debuts Israel's First Wave Energy Project at Jaffa Port – Eco Wave Power

Eco Wave Power, a leading provider of onshore wave energy technology, is pleased to announce that Eco Wave Power and EDF Renewables IL, in collaboration with the Tel Aviv-Yafo Municipality and the municipal company Atarim, will inaugurate Israel's first pilot station for generating electricity from sea waves on Thursday, December 5, 2024, at Warehouse 2 in Jaffa Port. This groundbreaking global project combines innovation, sustainability, and the fight against climate change. The Eco Wave Power project was built in collaboration with EDF Renewables Israel, supported by the Chief Scientist of the Ministry of Energy (which recognized the Company's technology as "Pioneering Technology") and Tel Aviv-Yafo Municipality. In this unique project, for the very first time, electricity generated from sea waves is supplied to the national grid—a historic milestone in Israel's renewable energy journey.

Spiralis Energy unveils Alderney tidal system – Renewables

Spiralis Energy has unveiled its scalable "shell-like" tidal energy system, the Axial Skelter, on the island of Alderney. Each Spiralis Energy Axial Skelter will produce enough energy in one day to brew over 250,000 cups of tea. By harnessing the UK's tidal potential, Spiralis Energy aims to capture power from tidal currents and river flows to generate clean, reliable, and cost-effective electricity. Unlike other offshore technologies, the Axial Skelter has no sharp edges, no fast-moving parts, and it does not disturb the seabed, Spiralis said. Through its trials, the company will prove it has no negative impact on the marine environment. The event marks the official launch of the developer's Tides2Tea campaign, an initiative highlighting how sustainable tidal systems can transform communities and contribute to a more affordable, sustainable and predictable energy future.

Symphony Wave Power installs key component for its dry-test system – Offshore Energy

Netherlands-based Symphony Wave Power has completed the installation of a turbine in its dry-test system, marking a step towards the development of its wave energy technology. The dry-test system installation represents an important phase in Symphony's validation program, enabling the company to perform functionality and efficiency tests before progressing to sea trials. In June, Symphony Wave Power unveiled that it is approaching dry testing, the next stage of its wave power technology validation program. This step is said to allow the company to test the functionality and efficiencies

before heading to sea trials. In October 2023, as a part of the ENCORE project, the company conducted lab testing in Sines in Portugal of its submerged wave energy converter solution, and further completed the power take-off assembly and testing in the Netherlands at the facilities of partner and investor Multimetaal in Den Helder.

Aquatic Acrobatics: University Collaboration Visualizes the Future of Flexible Wave Energy – National Renewable Energy Laboratory

Recently, inside the Sea Wave Environmental Lab at the National Renewable Energy Laboratory's (NREL's) Flatirons Campus, Isabel Hess prepared to perturb a flexible wave energy converter (flexWEC) prototype from its equilibrium position. A crane hoisted the flexWEC over the waters of a 13,000-gallon testing tank, centering it above the tank before lowering the device into its depths. Magnets snapped and secured the device to the tank's floor. Above the water's surface, operators unhooked the flexWEC from the crane. Hess is a Ph.D. student in mechanical engineering at the University of Florida who primarily studies underwater soft robotics through the university's Fluids & Adaptive Structures Lab. She is also a fellow of the U.S. DOE's Marine Energy Graduate Student Research Program, which provides access to experts, resources, facilities, and funding support, including a monthly stipend and tuition reimbursement.