



1 November 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

[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.

[UMERC Call for Nominations](#)

The University Marine Energy Research Community (UMERC) is now accepting nominations to fill vacant seats on their Board of Directors, including 2 university seats, 1 National Laboratory seat, and 1 blue energy cluster seat. UMERC is a DOE WPTO initiative to increase collaboration among U.S. marine energy researchers. The [Call for Nominations](#) will close 8 November 2024.

[NSF IRES Applications Open](#)

The U.S. National Science Foundation (NSF) is accepting applications for an International Research Experience for Students (IRES) project, [Fostering Offshore Renewable Energy Expertise through International Collaboration with European Countries](#), which offers undergrad and graduate students studying in the U.S. an opportunity to conduct research on offshore energy for three months at collaborating institutions in Europe. Applications are due 15 November 2024.

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 the [44th International Conference on Ocean, Offshore & Arctic Engineering \(OMAE 2025\)](#) is open until 18 November 2024. OMAE 2025 will take place on 22-27 June 2025 in Vancouver, British Columbia, Canada.

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.

Funding & Testing Opportunities

The Clean Energy Transition Partnership (CETPartnership) has opened its [Joint Call 2024](#) to support technology providers, research institutions, infrastructure providers, and industrial or energy companies (experienced or new) interested in receiving funding for ideas or in need of innovative clean energy solutions. Pre-proposals are due 21 November 2024 and full proposals are due 2 April 2025.

The Research Infrastructure Services for Renewable Energy (RISEnergy) project has opened applications for its first [Transnational Access \(TA\) Call](#), which offers industrial and academic researchers free-of-charge access to a selection of the best scientific infrastructures and services related to renewable energy technologies in Europe. Applications are due 30 November 2024.

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 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 European Marine Energy Centre (EMEC) is also looking for an [Operations and Maintenance Manager](#) to lead a dedicated team to ensure smooth operation and maintenance of EMEC's sites and assets, and oversee day-to-day operations site. Applications are due 6 November 2024.

The University of Washington (UW) School of Marine and Environmental Affairs (SMEA) invites applications for a tenure-track [Assistant Professor in Coastal and Environmental Affairs](#). Applications will be reviewed beginning on 15 November 2024 and those received by 2 December 2024 will be given priority.

Ocean Energy Europe is seeking a [Policy & Research Officer](#) to lead the gathering and publication of key information and analysis on and for the ocean energy sector, including deployment statistics, financing needs and priorities, environmental impacts, and manufacturing capacity. Applications are due 18 November 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. Materials are due by 15 November 2024 for full consideration; applications to ECU are due by 15 January 2025.

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.

MarineSitu, a spin-off from the University of Washington's Pacific Marine Energy Center and Applied Physics Lab, is seeking a [Full Stack Software Engineer](#) and a [Machine Learning Engineer](#) to join its dynamic team in creating underwater monitoring technology.

Upcoming Events

Upcoming Workshop

ETIP Ocean, the European Technology & Innovation Platform for Ocean Energy, and OES-Environmental are hosting a side event, "Latest results & key priorities in environmental monitoring", on 5 November 2024 as part of the [Ocean Energy Europe Conference & Exhibition \(OEE 2024\)](#) in Aviemore, Scotland. This joint workshop will present the latest results of environmental research on ocean energy and discuss the next research priorities as the sector moves towards larger farms.

Upcoming Conferences

The Dutch Marine Energy Centre is hosting a [Deep Dive: Offshore Testing](#) on 3 December 2024 from 5:00-7:00pm CEST (3:00-5:00pm UTC) in The Hague, the Netherlands. [Register here](#).

The Ocean Thermal Energy Association is hosting the [10th International Ocean Thermal Energy Conversion \(OTEC\) Symposium](#) on 4-5 December 2024 in Rio de Janeiro, Brazil.

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.

[Strategic Research and Innovation Agenda for Ocean Energy 2024](#) – ETIP Ocean 2024

Ocean energy farms are instrumental to technological and industrial progress and must be a central focus of innovation efforts until 2030. The Strategic Research & Innovation Agenda (SRIA) for ocean energy, developed by the sectoral advisory body ETIP Ocean, identifies the research and innovation priorities with the greatest impact on the sector's progress. The report considers the demonstration of pilot farms as the most crucial area, which reflects the sector's progress since the previous edition of the SRIA. Research into supporting actions must still continue, as they are necessary building blocks enabling farms. Examples are next generation technologies, analysis and modelling tools, enabling technologies from other sectors and market development. [View the SRIA launch webinar recording and presentation slides here.](#)

[HAMS-MREL, a new open source multiple body solver for marine renewable energies: Model description, application and validation](#) – Raghavan et al. 2024

With the rapid development of offshore renewable energy technologies, open source solvers for hydrodynamic analysis can become beneficial to meet the numerical challenges within the field, particularly when they are both accurate and computationally efficient. Hydrodynamic Analysis of Marine Structures (HAMS), a recently developed open source Boundary Integral Equation Method (BIEM) frequency domain solver has been shown to be a reliable, robust and computationally efficient for analysing single floating structures. This research enhances the capabilities of HAMS further by developing and incorporating a multiple body interaction formulation (henceforth referred as HAMS-MREL), which allows the solution of the diffraction and the radiation problem for multiple floating structures, taking into account their interaction.

[Future role of ocean thermal energy converters in a 100% renewable energy system on the case of the Maldives](#) – Keiner et al. 2024

Energy transition on small islands is limited by the scarce availability of land, restricting large-scale implementation of onshore renewable energy technologies such as solar photovoltaics and wind power. Ocean energy technologies provide novel opportunities for land-constrained islands to achieve 100% renewable energy systems. While wave power is increasingly implemented in energy system modelling research, ocean thermal energy converters are not yet a standard technology in renewable energy technology portfolios. This research aims to study the impacts of ocean thermal energy converters on

the energy system of the Maldives through a structured sensitivity analysis for the two scenario clusters covering e-fuel import and domestic production.

Marine Energy Projects Database Highlight

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

Archimedes Waveswing – AWS Ocean Energy

The AWS Archimedes Waveswing consists of two overlapping cylinders submerged about 25 m or more. The lower cylinder is fixed to the seabed and the upper/outer one is allowed to move with ocean swell. An air pocket is trapped inside the upper cylinder, so when a wave passes over the trapped air pocket is compressed. This forces the float and outer cylinder down. When the trough passes overhead, the air pocket forces the float back up because of reduced water pressure. This motion causes the float to oscillate. Electricity is generated through a linear generator. Magnets are attached to the inside of the float (upper cylinder) and they generate electricity when they move relative to the inside coil.

Bluemull Sound Shetland Tidal Array – Nova Innovation

Starting in 2016, Nova Innovation deployed the world's first offshore tidal turbine array in the Bluemull Sound, Shetland, Scotland. The first three Nova M100 devices (installed total capacity 300 kW) were deployed in 2016 and 2017. In 2018, Nova Innovation was granted licenses to extend the array to six turbines (increase capacity to 600 kW) and reconfigure the turbines within the array. In 2018, Nova Innovation worked with Tesla to add energy storage to their tidal technology. This created the world's first grid connected tidal power station with the ability to deliver baseload (constant, steady-state) power and deliver energy on demand to meet consumer needs. In 2019, the array supplied electricity to the grid for more than 17,000 generating hours.

Wavepiston – Wavepiston

The Wavepiston consists of a chain of energy collectors stretched between two anchored buoys. When waves roll along the energy collectors, plates are moved back and forth. The moving plates pump seawater into a pipe. The pipe leads the pressurized water to a turbine and/or a reverse osmosis system in a dry and easily accessible location for energy conversion and/or desalination. Testing of the Wavepiston has been conducted at various scales (1:9, 1:2, and ongoing full-scale testing) and at various locations including open-water testing at Denmark and Spain's Canary Islands.

MHKDR Update

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.

Evaluation of a Wave Powered Water Pump Performance by Ocean Field Testing and WEC-Sim Modeling – University of New Hampshire, AMEC 2023

This submission from AMEC includes data from an ocean field deployment of a wave powered water pump in March 2023. The wave pump is an upweller device, designed to enhance macroalgal aquaculture. The wave pump device was deployed off the coast of Isles of Shoals Appledore Island in Maine, USA. The data were collected using a custom-built DAQ module comprised of Arduino Unos. GPS time stamp accompanies the data. The data are volumetric flow rate from the wave pump, and relative motion of the device between float and spar buoys. Flow rate is measured by flow meter, and relative motion is measured by lidar. Calibration data for the lidar and flow meter sensors are included.

TEAMER: Water Tunnel Data from Testing the Pterofin Skimmer Concept – Pennsylvania State University, Applied Research Laboratory 2023

Pterofin's Skimmer concept relies on a flapping and pitching hydrofoil to extract hydrokinetic energy from water flows. The concept aims to utilize unsteady fluid dynamics phenomena (added mass, shed vorticity, and unsteady boundary layer development) to achieve higher lift coefficients, enabling increased power density of the hydrokinetic device and a fundamental shift in the rpm/torque scaling of the power take off compared with turbines. The Applied Research Laboratory at Penn State, in collaboration with Pterofin, designed and built a proof-of-concept flapping/pitching mechanism which was subsequently tested in ARL's 12-inch water tunnel facility.

H3 StingRAY Final Design and Technical Report – Columbia Power Technologies 2023

The goal of this Project was to develop a standards-compliant, fabrication-ready design of Columbia Power Technologies' (C-Power) next-generation wave energy converter (WEC), the StingRAY H3. The H3 is a design iteration of C-Power's StingRAY WEC and is intended for electrical power generation suitable for utility grid or remote loads. The H3 was designed for grid-connection and at least two years of continuous testing and operation at the proposed PacWave-South (PWS) test site. The H3 design is intended to deliver an innovative, high-performance, survivable, and reliable device that is acceptable to potential customers, regulators, and other stakeholders, while also demonstrating the StingRAY's path towards cost-competitive electricity generation.

News & Press Releases

ORPC Ireland and Queen's University Belfast complete successful deployment of renewable energy technology for rivers and tides in Strangford Lough, Northern Ireland – Ocean Renewable Power Company (ORPC)

ORPC Ireland and Queen's University Belfast have announced the successful deployment and commencement of testing of a next generation marine hydrokinetic turbine at the Strangford Lough Tidal Test Site. The project marks a significant milestone for ORPC as the first time the company has generated electricity from one of its turbines outside of North America, after seventeen previous deployments in the United States and Canada. The deployment is part of the X-Flow project, led by Queen's, which also includes Applied Renewables Research and Shell Technology – Marine Renewable Program as industry partners, and is supported by the Green Innovation Challenge Fund. This Fund is led by the Centre for Advanced Sustainable Energy (CASE) as delivery partner for the Department for the Economy Northern Ireland.

HydroWing set to develop the first tidal energy plant in Indonesia – HydroWing

HydroWing has signed a binding agreement with one of PLN's Subholdings to develop plans for the first tidal current power plant in Indonesia. The 10MW tidal energy project is planned to be located in East Nusa Tenggara in the Indonesian archipelago. HydroWing is the tidal energy division of Inyanga Marine Energy Group, based in the UK. PLN (Perusahaan Listrik Negara) is the state-owned national power company in Indonesia and owns the national grid. This follows on from a Memorandum of Understanding signed in 2022 whereby the two parties agreed to accelerate tidal energy in Indonesia through site identification, resource assessment and front-end engineering. The site at East Nusa Tenggara has now been selected following a thorough assessment of different tidal energy locations all over the country.

Innovation Fund awards €51m to two tidal farms in France's Raz Blanchard – Ocean Energy Europe

French developers HydroQuest and Normandie Hydroliennes have been announced as the winners in the latest Innovation Fund call. HydroQuest has been awarded for their 17.5 MW FloWatt tidal farm project, where in partnership with Qair they will install seven 2.5 MW tidal turbines in Raz-Blanchard in Normandie, France. The FloWatt project – which also received unprecedented financial support from the French Government – should come online in 2026 and will generate enough energy to power 20,000 local homes. Normandie Hydroliennes has been awarded to install their 12 MW NH1 tidal farm project, also in Normandie's Raz Blanchard. Composed of four 3 MW turbines – the most powerful tidal turbines to date – it is scheduled for 2028 and will produce 33.9 GWh yearly.

FAU Awarded DOE Grant to Test Offshore Ocean Current Energy – FAU

Imagine harnessing the power of ocean currents to generate clean, renewable energy right off the coast of Southeast Florida. Florida Atlantic University's (FAU) Southeast National Marine Renewable Energy Center (SNMREC) has been awarded an \$800,000 grant from the U.S. DOE's WPTO to enable the commercial readiness of ocean energy technologies. SNMREC, in collaboration with a team of experts including The City of Lake Worth Beach Electric Utility, 3U Technologies, 48 North Solutions, IDOM

Incorporated, Braid Theory, and EMEC, is embarking on a groundbreaking feasibility study to set up an ocean current test facility offshore Palm Beach County. The study will be the first of its kind, leveraging world-class marine energy expertise.

Successful Trials of Apollo's PALM Charger at EMEC's Scapa Flow Test Site – EMEC

Apollo, a leading engineering and energy advisory consultancy, is proud to announce the successful completion of trials for its innovative PALM Charger system. Supported by nearly £800,000 in funding from the UK Department for Transport (DfT) through Innovate UK, these trials mark a significant step forward in developing offshore charging solutions for marine electric vessels. The trials, conducted in collaboration with Orkney-based partners Leask Marine and EMEC, were carried out in Orkney waters in October 2024 at EMEC's Scapa Flow test site. The PALM Charger, a pioneering 'plug and play' charging point, is designed to enable electric service vessels (SOVs) and other marine EVs to recharge while operating offshore for extended periods.

Google Street View Opens Doors to Scottish Renewable Energy Projects – Scottish Renewables

A unique project which puts Google Street View users at the heart of renewable energy projects launched on October 30. From a hydropower plant deep beneath a mountain to the top of a wind turbine, Scottish Renewables' Renewables360 is a global first-of-its-kind. It takes the public behind the scenes of the country's 42,000-strong, £10 billion a year renewable energy industry. Green electricity and heat projects appear as blue dots on Google Maps, so are visible to anyone browsing Google Street View, and are brought together in a hub on the Renewables360 home page. Sites which are covered by the Renewables360 project include the world's largest floating offshore wind farm near Aberdeen, the UK's first large-scale, high-temperature water source heat pump and the top of one of the UK's tallest onshore wind turbines.