



8 March 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 Program Applications Open

The U.S. Department of Energy's (DOE) [Office of Science Graduate Student Research \(SCGSR\) program](#) is now 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.

Calls for Abstracts & Papers

The University Marine Energy Research Community (UMERC) and Marine Energy Technology Symposium (METS) have extended the [Call for Papers](#) deadline for the [2024 UMERC+METS Marine Energy Research Conference](#) until 8 March 2024. The conference will take place 7-9 August 2024 in Duluth, Minnesota, U.S.

The [Call for Abstracts](#) for the [Asian Offshore Wind, Wave and Tidal Energy Conference \(AWTEC 2024\)](#) is now open through 20 March 2024. AWTEC will take place on 20-24 October 2024 in Busan, Korea.

The International Council for the Exploration of the Sea (ICES) is [accepting abstracts](#) for the [ICES Annual Science Conference \(ASC 2024\)](#) through 22 March 2024. ICES ASC will take place 9-12 September 2024 in Gateshead, England.

The [Call for Abstracts](#) for the [International Conference on Ocean Energy \(ICOE 2024\)](#) has been extended through 28 March 2024. ICOE 2024 will take place 17-19 September 2024 in Melbourne, Australia.

The University of Southampton is now accepting abstracts for the [11th Partnership for Research in Marine Renewable Energy \(PRIMaRE\) Conference](#) until 29 March 2024. The PRIMaRE Conference will take place 27-28 June 2024 in Southampton, England.

The Energy Modelling Hub and Net Zero Atlantic have opened the [Call for Abstracts](#) for the [Atlantic Canadian Conference on Energy System Modelling](#) through 29 March 2024. The conference will take place on 19-20 June 2024 in Moncton, New Brunswick, Canada.

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.

Funding & Testing Opportunities

The Sustainable Energy Authority of Ireland has opened a competition for the [Provision of Data as a Service using a Floating Lidar System at the Atlantic Marine Energy Test Site \(AMETS\) in Ireland](#). Tenders are due 11 March 2024.

The UK Research and Innovation (UKRI) recently announced the [Ayrton Fund](#), which is a UK government commitment of up to £1 billion that aims to accelerate the clean energy transition in developing countries, by creating and demonstrating innovative clean energy technologies and business models. Applications close on 9 April 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. An [informational webinar](#) will take place on 14 March 2024. 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 University of Hull is looking for a [Postdoctoral Researcher in Fibre Optic Sensors for Offshore Renewable Energy Structures](#), including wind and tidal turbine blades, dynamic power cables, and flexible/membrane-based wave energy devices. Applications are due 12 March 2024.

The University of Strathclyde Glasgow is seeking a [Research Associate in Offshore Renewable Energy Structures](#) to join the Co-design to deliver Scalable Tidal Stream Energy (CoTide) research team. Applications are due 15 March 2024.

The University of Strathclyde Glasgow is also offering a postgraduate research opportunity in [Hybrid Ocean Renewables in a Changing Climate](#). The project includes research activities such as feasibility analysis and stakeholder engagement. Applications are due 15 March 2024.

The University of Manchester is seeking a [Research Associate](#) to apply computational fluid dynamics (CFD) models to the analysis of offshore wind and tidal turbine farms and farm-scale wakes, subject to turbulent atmospheric and marine flows. Applications are due 27 March 2024.

The European Marine Energy Centre (EMEC) is looking for a [Project Engineer](#) and an [Assistant Project Manager](#) to contribute to projects across EMEC's portfolio, including marine energy, green hydrogen, offshore wind, and other associated services. Applications are due 1 April 2024.

The University of Southampton is offering a fully funded [PhD research project](#) (UK only) focused on developing new concepts for the anchoring design of floating renewable facilities and harnessing beneficial 'whole-life' responses of the seabed. Applications are due 1 April 2024.

Upcoming Events

Upcoming Webinars

Sandia National Laboratories is hosting a webinar, "[MASK4 Test Report and Data Webinar](#)", on 26 March 2024 from 8:00-9:30am PDT (3:00-4:30pm UTC), to provide information on its recently completed testing of the WaveBot device at the U.S. Navy's Maneuvering and Sea Keeping (MASK) basin to further explore wave energy converter co-design principles.

Sandia National Laboratories is also hosting a webinar, "[Pioneer WEC Concept Design Report Webinar](#)", on 2 April 2024 from 8:00-9:30am PDT (3:00-4:30pm UTC), which will focus on a novel "pitch resonator" wave energy converter (WEC) concept to support the power needs of the Coastal Surface Mooring system within the Ocean Observatories Initiative Pioneer Array.

Upcoming Workshops

Pacific Northwest National Laboratory and the North Carolina Coastal Studies Institute are hosting two identical workshops on environmental effects of marine energy on [25 March 2024 from 1:00-5:00 pm EDT](#) at the Coastal Studies Institute in Wanchese, North Carolina, U.S., and on [27 March 2024 from 1:00-5:00 pm EDT](#) at Duke University Marine Laboratory in Beaufort, North Carolina. Please register for the workshop most suitable to your location and schedule.

The IMPACT project recently announced that its [Wave Energy Rig Testing Workshop: Bridging the Gap between Research and Deployment](#) will take place on 12 April 2024 Perugia, Italy. The event will showcase how rig testing can contribute to accelerating the development of the European wave energy sector, and feature presentations from international and Italian experts from both academia and industry.

The Supergen Offshore Renewable Energy Hub is also hosting a [Masterclass on Advanced Experimental Fluid Mechanics for Offshore Renewable Energy](#) on 22 April 2024 at the University of Plymouth in England. Participants will be introduced to the world-leading facilities at the Coast Laboratory and the new UK Floating Offshore Wind Turbine Test Facility, Babbage wind tunnel, and Hexapod. Register [here](#).

The Marine Environmental Data and Information Network (MEDIN) is hosting an [Open Meeting](#) on 24 April 2024 in London, England and online to introduce the new MEDIN Business Plan 2024-2029 and to discuss how the wider community can contribute to the future developments of UK marine data management. Registration closes on 31 March 2024.

Upcoming Conferences

The National Hydropower Association is hosting [Waterpower Week 2024](#) on 13-15 March 2024 in Washington, D.C., U.S. View the full program schedule for marine energy sessions [here](#).

The Supergen Offshore Renewable Energy Hub is hosting its [7th Early Career Researchers Forum](#) on 23 April 2024 and [7th Seventh Annual Assembly](#) on 24 April 2024 at the University of Plymouth in Plymouth, England.

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.

[A unified simulation framework for wave energy powered underwater vehicle docking and charging](#) – Chen et al. 2024

As wave energy conversion technology advances, recharge of autonomous underwater vehicles has emerged as a promising application for this at-sea power. We bring together an interdisciplinary team to create a simulation framework linking hydrodynamic modeling, autonomous docking and navigation algorithms, and a power tracking model to better understand how a full wave energy converter–autonomous underwater vehicle system could be modeled. A floating point absorber wave energy converter is modeled and analyzed under various wave conditions. We incorporate three different dock designs, using the modeled dock motion and simulated wave-induced currents to test our autonomous docking algorithm. We couple the output of this algorithm to the hydrodynamic model to simulate autonomous docking.

[Scour processes around a horizontal axial tidal stream turbine supported by the tripod foundation](#) – Lin et al. 2024

Tidal stream turbines may suffer severe scour in the marine environment, which poses a threat to their structural stability. However, there has been limited research conducted on the scour processes around tidal stream turbines. In order to address this gap, experiments

are conducted to investigate scour development around a tripod-supported tidal stream turbine. The experimental results reveal that the scour pattern around the turbine model is greatly influenced by the alignment angle, as it affects the interaction between the incoming flow and the tripod foundation. Substantial scour holes are formed on the lateral sides downstream of the turbine model, indicating highly turbulent flow in this region. Furthermore, under simulated tidal current conditions, fluctuations in the temporal scour depth are observed due to the reversing flow direction and the migration of ripples.

[An Ocean Thermal Energy Conversion power plant: Advanced exergy analysis and experimental validation](#) – Colorado-Garrido et al. 2024

An ocean thermal energy conversion power plant was simulated from the point of view of the first, the second law of thermodynamics, and advanced exergy analysis with the aim of increasing the efficiency of the cycle, quantifying and knowing the nature of the exergy destruction. First, the net power output and efficiency of the cycle were successfully calculated as a function of the surface temperature and a certain depth of the ocean, given a pinch temperature differential and the mass flow of seawater in the evaporator and condenser. The numerical simulation are compared with experimental evidence, obtaining better results than thermodynamic models previously reported.

MHK Data Repository 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.

[MASK4 Test Campaign for Sandia WaveBot Device](#) – Sandia National Laboratories (data from 2023, last updated 2024)

This data and report details the findings from a wave tank test focused on production of useful work of a wave energy converter (WEC) device. The experimental system and test were specifically designed to validate models for power transmission throughout the WEC system. Additionally, the validity of co-design informed changes to the power take-off (PTO) were assessed and shown to provide the expected improvements in system performance. These data describe the "MASK4" wave tank test of the Sandia WaveBot device. The WaveBot device has been tested a number of times in different permutations at the US Navy's Maneuvering and Sea Keeping (MASK) basin. Each test in this series is referred to as MASK1, MASK2, etc.

[TEAMER: Tidal Currents in San Juan Archipelago, Washington](#) – University of Washington (data from 2022, last updated 2024)

Re-analyzed acoustic Doppler current profiler (ADCP) data originally collected by NOAA CO-OPS (Center for Operational Oceanographic Products and Services) and equivalent point data from Pacific Northwest National Laboratory's FVCOM (Finite Volume Community Ocean Model) model of the region. Data are processed to products

describing characteristics of tidal currents relevant to tidal turbines, as well as power output estimates for a notional turbine deployed from a surface platform or from the seabed at each location.

[Performance Data from a 1-Meter Cross-flow Turbine with High Deflection Hydrofoils](#) – University of New Hampshire, Atlantic Marine Energy Center (AMEC) (data from 2021, last updated 2023)

Performance data of a 1-meter diameter cross-flow tidal turbine consisting of three NACA 0018 blades with two support struts with high deflection hydrofoils. Data was collected at the University of New Hampshire Jere A. Chase Ocean Engineering Lab within the tow tank. Three turbine parameters were varied: the blade materials, blade shape, and support strut position. A detailed description of the testing set-up and data files contained within the compressed HDF.zip file is in the 'ReadMe.txt' file.

Marine Energy Software Highlight

[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.

[Marine Energy Software has a New Look!](#)

The Marine Energy Software knowledge hub within PRIMRE now 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 that information 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 on Marine Energy Software yet? Please go to the [Register Software](#) page to contribute!

News & Press Releases

[The Marine Energy Council welcomes the continuation of the tidal stream ringfence](#) – UK Marine Energy Council

The Department for Energy Security and Net Zero (DESNZ) has today announced that tidal stream will be set a £10m ringfence in this year's renewable auctions. This will see the UK continue to build on the unprecedented 90MW+ tidal stream deployment pipeline that the two previous ringfences have secured. Tidal stream and wave energy will compete in 'Pot 2' of the Contracts for Difference (CfD) mechanism. In recognition of supply chain cost pressures the Administrative Strike Price has increased for tidal stream by 29% to £261/MWh and 5% for wave energy to £257/MWh. Last year 11 tidal stream projects were awarded contracts at £198/MWh, securing over 50MW of capacity. The

budget for Pot 2 has been significantly increased from £35m in 2023, to £105m in 2024. This means that tidal stream could have access to more than the £10m ringfence.

Construction of OTEC storm-resistant structure begins – PLOTEC

The innovative structure that will advance floating Ocean Thermal Energy Conversion (OTEC) technology in severe weather-prone regions begins fabrication this March. Developed under the EU-funded project PLOTEC, the scaled platform is expected to be installed in the upcoming months in a testing site in the Canary Islands, Spain. The structure consists of three main parts: a cylindrical hull, a cold-water riser pipe and a gimballed connection point. The cold-water riser pipe is being fabricated in Austria by AGRU and the cylindrical hull, the largest element of the installation, is under construction at Hidramar Shipyard, in Gran Canaria, with delivery scheduled for June. Once the fabrication phase is concluded, the 1:5 prototype will be assembled and installed in the Oceanic Platform of the Canary Islands, at around three kilometres from the coast.

Renewables for Subsea Power (RSP) project completes 12-month milestone – Verlume

A groundbreaking ocean energy project which has combined wave power with subsea energy storage to power subsea equipment has now completed a 12-month test programme at sea and will end this Spring. The final phase will commence shortly and will include removing all equipment from the site, ahead of inspection and clean down onshore in Orkney and at Verlume's operations facility in Dyce, Aberdeen. The £2million Renewables for Subsea Power (RSP) project connected the Blue X wave energy converter – built by Edinburgh company Mocean Energy – with a Halo underwater battery storage system developed by Aberdeen intelligent energy management specialists, Verlume.

Wave of Excitement as Innovation Project Takes Shape in Regional Western Australia – Blue Economy Cooperative Research Centre

Harnessing renewable energy from ocean waves is one of Australia's greatest opportunities in the transition to resilient electricity grids. Led by Marine Energy Research Australia (MERA) at The University of Western Australia, the Albany wave energy project has reached a major milestone. The M4 Wave Energy Demonstration Project will design, construct, deploy, operate, and decommission a surface riding wave energy converter in King George Sound, the outer harbour in Albany on WA's south coast. The \$4 million project supports local MERA staff and has engaged head contractor SMC Marine in Albany to coordinate six local businesses as the pioneering supply chain in a new regional 'Blue Economy'.

WPTO Announces Nearly \$1.2 Million to Support Water Power Research at Minority-Serving Institutions – WPTO

The U.S. DOE's Water Power Technologies Office (WPTO) and Minority-Serving Institutions STEM Research and Development Consortium recently announced nearly \$1.2 million for high-impact water power research projects at minority-serving colleges

and universities. This funding is part of WPTO's Seedlings for Universities initiative, which aims to seed research and development activities in academic institutions that do not have significant existing water power research portfolios. Water power technologies, including marine energy and hydropower, are key to achieving a clean electricity sector by 2035 and a net-zero-emissions economy by 2050.

Announcing the death of Professor Stephen Salter – The University of Edinburgh

It is with great sadness that The University of Edinburgh announced the recent passing of Professor Stephen Salter MBE FRSE, Emeritus Professor of Engineering Design. Stephen died on Friday 23 February 2024, at the age of 85. Best known as the 'Father of Wave Energy' and specifically as the inventor of the Edinburgh Duck, a device to generate megawatt-scale electricity from ocean waves, Stephen had a fertile mind for solutions to technically challenging problems. His inventions included the Dervish, a low-cost device for clearing land mines; and a roll-on-roll-off movable deck intended to extend the life of the Forth Road Bridge. Since the turn of the century, Stephen had been advocating marine cloud brightening – a proposed solar radiation management technique that would make clouds brighter – as a solution to global climate change, and was actively working on this until very recently.