PRIMRE BLAST

3 November 2023

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!

Announcements

Tethys Engineering Photo Library

The Tethys Engineering Photo Library now contains over 700 photos and illustrations of marine energy devices, arrays, and facilities that are available for free, third-party use with developer attribution. If you have any high-resolution photos to contribute, please contact us.

Make A Splash Photo Contest

The U.S. Department of Energy (DOE) Water Power Technologies Office (WPTO) recently launched the Make A Splash Photo and Video Contest to capture photos and videos of water power that transport viewers and showcase the scope and potential of water power as a renewable energy. Cash prizes are available. Submissions due 17 November 2023.

Marine Energy Graduate Student Research Program

The U.S. DOE's WPTO and the Oak Ridge Institute for Science and Education (ORISE) recently opened applications for the 2024 Marine Energy Graduate Student Research Program, which supports graduate students working on marine energy by providing access to expertise, resources, and capabilities available at DOE offices, national laboratories, government and industry partners, and other approved facilities. Applications are due 1 December 2023.

Calls for Abstracts

The Call for Abstracts for the Environmental Interactions of Marine Renewables Congress 2024 (EIMR 2024) is now open through 17 November 2023. EIMR 2024 will take place on 15-19 April 2024 in Orkney, Scotland.

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.

Funding & Testing Opportunities

The U.S. Testing Expertise and Access for Marine Energy Research (TEAMER) program is now accepting Request for Technical Support 11 applications until 3 November 2023. Applicants can apply to work with approved facilities on tank and flume testing, lab/bench testing, numerical modeling and analysis, and open water support.

The U.S. DOE is now accepting applications for the Renewable Energy Siting through Technical Engagement and Planning (R-STEP) program, which seeks to expand the decision-making capacity and expertise of state and local governments around large-scale renewable energy planning, siting, and permitting. Applications are due 3 November 2023.

The U.S. DOE and Department of the Interior recently released the Installation Noise Reduction and Reliable Moorings for Offshore Wind and Marine Energy Funding Opportunity Announcement, which includes $6.4 million for projects to improve the reliability of moorings for floating offshore wind energy and marine energy systems and $10 million for projects to reduce the noise associated with the installation of fixed-bottom offshore wind energy projects. Concept papers are due 9 November 2023 and full applications are due 29 February 2024.

The European Commission's Horizon Europe Framework Programme has opened a Call for Additional Activities for the European Partnership for a Climate Neutral, Sustainable and Productive Blue Economy. This call is open to companies from European Union countries and a selected number of non-EU/non-Associated Countries. Applications are due 28 February 2024.

Career Opportunities

The Marine Energy Test Area (META) in Wales is hiring a Commercial Manager who will be responsible for developing META by engaging with the market, enhancing its product offerings, and identifying commercial opportunities. Applications are due 17 November 2023.

The Coastal Studies Institute (East Carolina University Outer Banks campus) is seeking a Program Manager for a portfolio of projects related to marine energy device and component testing at the Jennette's Pier Wave Energy Test Center. Applications are due 18 November 2023.

The University of Oxford is seeking doctoral students with interests in turbine hydrodynamics and design, resource modelling, naval architecture and ocean engineering, system optimization, and/or control co-design to work on the new CoTide (Co-design to deliver Scalable Tidal Stream Energy) programme. Applications are due 1 December 2023.

The Marine Offshore Renewable Energy Lab (MOREnergy Lab) of Politecnico di Torino, Italy, is looking for a Postdoctoral Research Fellow to carry out activities related to the techno-economic modelling and optimization of offshore renewable energy systems. Applications are due 15 December 2023.

Upcoming Events

Upcoming Webinars

The U.S. DOE WPTO is hosting an "R&D Deep Dive Webinar: Spatial Environmental Assessment Tool - Connecting Marine Energy and the Environment", on 9 November 2023 from 1:00-2:00pm EST (6:00-7:00pm UTC).

The U.S. DOE WPTO is also hosting its next Semiannual Stakeholder Webinar on 13 November 2023 from 10:30am-12:00pm PST (3:30-5:00pm UTC). The webinar will dive into current and future funding opportunities and other accomplishments, news, and updates. Register here.

The Portal and Repository for Information on Marine Renewable Energy (PRIMRE) team is hosting a webinar, "Introducing Telesto: PRIMRE's Knowledge Hub for Marine Energy Development Resources and Guidance", on 28 November 2023 from 10:00-11:00am MST (5:00-6:00pm UTC). The new and improved version of Telesto is home to open-source wiki pages, structured databases, and tools that provide information about the development life cycle of marine energy. Register here.

Upcoming Conferences

The Pan American Marine Energy Conference (PAMEC 2024) will take place on 22-24 January 2024 in Barranquilla, Colombia. Pre-conference workshops will take place 19-20 January 2024. Registration is now available here.

The Ocean Sciences Meeting 2024 will take place 18-23 February 2024 in New Orleans, Louisiana, U.S. Register here.

The Pacific Ocean Energy Trust (POET) is hosting the Ocean Renewable Energy Conference 2024 on 20-23 May 2024 in Portland, Oregon, U.S. Save the date!

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.

An International Evaluation and Guidance Framework for Ocean Energy Technology – Hodges et al. 2023

This is the second edition of the International Evaluation and Guidance Framework for Ocean Energy Technology. It represents a significant evolution of the framework, now including Environmental Acceptability, a key consideration in technology development. This addition is an example of the document's responsiveness to user feedback and emerging industry needs. International acceptance of a common approach to technology development and evaluation, as advocated by this updated report, provides clarity in the expectations from different stakeholders during each stage of development, fostering clearer communication among industry players, governments, and investors.

Towards data-driven and data-based control of wave energy systems: Classification, overview, and critical assessment – Pasta et al. 2023

This study provides a detailed analysis of different approaches to the exploitation of data in the design of control philosophies for wave energy systems, establishing clear definitions of data-driven and data-based control in this field, together with a classification highlighting the various roles of data in the control synthesis process. In particular, we investigate intrinsic opportunities and limitations behind the use of data in the process of control synthesis, providing a comprehensive review together with critical considerations aimed at directly contributing towards the development of efficient data-driven and data-based control systems for wave energy devices.

Model and method to predict the turbulent kinetic energy induced by tidal currents, application to the wave-induced turbulence – Calvino et al. 2023

A prediction model for the turbulent kinetic energy (TKE) induced by tidal-currents is proposed as a function of the barotropic velocity only, along with a robust method evaluating the different parameters involved using Acoustic Doppler Current Profiler (ADCP) measurements from Alderney Race. We find that the model is able to reproduce correctly the TKE profiles with coefficients of correlation on average higher than 0.90 and normalised root-mean-square errors (NRMSE) less than 14%. Different profiles are also tested for the mean velocity, no satisfactory prediction model is found but we are able to have decent estimates of the velocity shear and friction velocity. Two applications are then carried out.

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.

Economics Resources on Telesto

Telesto's Economics page is home to several useful tools for studying the economic impact of a marine energy project. The page contains guidance on calculating the levelized cost of energy (LCOE) for marine energy projects, which can be useful when

talking with potential funers. A cost breakdown structure calls out all the different aspects, or items, of capital and operating expenses, which need to be estimated for the final calculation. Also included are reference resources (wave period by wave height) which can be used to calculate Annual Energy Production (AEP) for a device of interest. Example calculations are included, as well as a link to the National Renewable Energy Laboratory's (NREL) System Advisor Model (SAM) which can be used to estimate a value for AEP if the specific device design is not entirely complete. Further economic impact data can be obtained using NREL's Jobs and Economic Development Impacts (JEDI) model. Using the marine energy module of JEDI, users can estimate jobs created by a project during construction and operations and maintenance. The economic impact on a community that hosts a marine energy project is estimated as earnings from the new jobs as well as spending by those employees within the community.

Marine Energy Atlas Update

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.

Capacity Factor Tool

The capacity factor represents the ratio of the actual time-averaged power generation to the maximum possible power generation of a particular power plant. The Marine Energy Atlas' Capacity Factor Tool offers the ability to create Capacity Factor maps of specific wave energy converters (WEC)s based on their power matrices. By uploading a power matrix that is representative of a particular WEC, the Capacity Factor will be calculated, displayed and the result made available for download. Learn more here.

News & Press Releases

New Scottish blade a 'step change' for tidal energy industry – University of Edinburgh

A state-of-the-art tidal turbine blade has been manufactured in Scotland for the first time and more cheaply than before, which, engineers say, could reduce the levelised cost of tidal energy. The design engineers, from the University of Edinburgh, say the new structure reduces the amount of materials necessary – bringing down the weight, volume and, crucially, the cost of manufacturing the blade. The team is based at FastBlade – the world's first rapid testing facility for tidal turbine blades – at Rosyth in Fife, Scotland. The blade was manufactured with Tocardo Turbines for tidal energy technology company QED Naval as part of the European Tidal Stream Industry Energiser Project known as TIGER, in a service agreement brokered by Edinburgh Innovations, the University of Edinburgh's commercialisation service.

ORPC Signs Contract with Shell Technology – Marine Renewable Program to Provide Modular RivGen Devices for Use at Shell Facility on Lower Mississippi River – Ocean Renewable Power Company (ORPC)

> ORPC has signed a contract with Shell Technology – Marine Renewable Program for the purchase of two next-generation Modular RivGen devices. The devices will be deployed as a technology demonstration at a Shell facility on the Lower Mississippi River in 2024 following detailed site characterization work this fall. This next step in the collaboration between ORPC and Shell Technology – Marine Renewable Program advances the resource characterization work undertaken in May 2023, where, in partnership with Louisiana State University, ORPC assessed three potential sites in the Lower Mississippi River, to showcase the capacity of ORPC's Modular RivGen Power System to provide renewable, predictable electricity on a kilowatt scale.

Global OTEC Meets Fiji's Blue Economy Stakeholders to Discuss Potential for an OTEC Pilot Project – Global OTEC

> As part of a commitment to a cleaner and more sustainable future, the Global Ocean Energy Alliance (GLOEA) supported a mission in Fiji for an Ocean Thermal Energy Conversion (OTEC) Pilot Project. The initiative, backed by the United Nations Industrial Development Organisation (UNIDO), was conducted by Global OTEC's technical experts. Recognised as one of the leaders in the commercial development of OTEC, the company was requested to meet with national and regional stakeholders in Suva, Fiji. Global OTEC's Founder and CEO Dan Grech and Commercial Director Andreas Koall had meetings with national authorities to present OTEC technology, discuss the country's potential and gather information to inform the site selection for a possible pilot project.

EURO-TIDES: Tidal stream energy pioneer Orbital Marine Power to lead the delivery of flagship EU clean energy project. – Orbital Marine Power

> Orbital, along with sector leading project partners, recently announced their selection by the European Commission's Horizon Europe Programme to deliver a multi-turbine 9.6 MW tidal energy project, EURO-TIDES (EUROpean Tidal energy pilot farm focused on Industrial Design, Environmental mitigation and Sustainability). Key workstreams will focus on accelerating the commercial deployment of Orbital's pioneering floating tidal stream technology. The project will also bring together expertise from Ocean Energy Europe, Laborelec, Marasoft, European Marine Energy Centre (EMEC), Center for Wind Power Drives (CWD) of RWTH Aachen University, Énergie De La Lune and the University of Edinburgh.

Offshore Wind Supply Chain Organization Rebrands As "Oceantic Network"—Reinforcing Members' Leadership In Offshore Wind Power, Positioning Itself For New Opportunities In Ocean-Based Renewable Energy – Oceantic Network

> The Business Network for Offshore Wind, the leading national organization working to accelerate offshore wind energy development and build a dedicated domestic supply

chain, recently announced that is has adopted a new name: Oceantic Network. This rebranding reinforces the organization's strategic commitment to convene stakeholders in all ocean-based sources of renewable power, leveraging members' expertise and investments in developing offshore wind capabilities. As Oceantic Network, the nonprofit organization will continue to host the industry-leading International Partnering Forum (IPF) — the premier annual conference of offshore wind stakeholders and the largest in the Americas.