



31 March 2023

[Tethys](#) is a knowledge hub with information and resources on the environmental effects of wind and marine energy. The bi-weekly Tethys Blast highlights announcements and upcoming events; new documents in the [Knowledge Base](#); and international energy news. [ORJIP Ocean Energy](#) has partnered with [OES-Environmental](#) to provide additional content. [Email us](#) to contribute!

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Announcements

New PRIMRE Blast

The Portal and Repository for Information on Marine Renewable Energy ([PRIMRE](#)) provides access to marine energy data, information, and resources in the United States and internationally. We recently expanded the Tethys Engineering Blast to feature additional resources from the other PRIMRE [Knowledge Hubs](#) as well. Subscribe to the new bi-weekly PRIMRE Blast [here!](#)

MECC Applications Open

The U.S. Department of Energy's (DOE) Water Power Technologies Office (WPTO) has opened applications for the 5th annual [Marine Energy Collegiate Competition \(MECC\)](#), which challenges multidisciplinary teams to develop solutions for ways marine energy can help power the blue economy. Both U.S. and non-U.S. institutions can apply, but only U.S. institutions are eligible for WPTO funding. Applications are due 24 April 2023. Applications for the 2nd [Hydropower Collegiate Competition \(HCC\)](#) are also open through 24 April 2023.

Internship Applications Open

The U.S. DOE's Office of Science has opened applications for the [Science Undergraduate Laboratory Internships \(SULI\)](#) program, [Community College Internships \(CCI\)](#) program, and [Visiting Faculty Program \(VFP\)](#). Informational webinars will take place in March and April. Applications are due by 5:00pm EDT (9:00pm UTC) on 25 May 2023.

Request for Information

On behalf of the Mowachaht/Muchalaht First Nation, Barkley Project Group is releasing a [Request for Information](#) to determine wave energy converter technologies that are capable of integrating with a microgrid system at Yuquot (Nootka Island, British Columbia). Interested respondents should provide detailed information on how they propose to engage with the Yuquot Microgrid Project within the [summary document](#) by 5:00 pm PDT on 14 April 2023.

Request for Stakeholder Input

The Minister of Fisheries, Oceans and the Canadian Coast Guard and the Treasury Board of Canada Secretariat are inviting input from ocean industry stakeholders on the [Blue Economy Regulatory Review](#). Interested respondents can provide their input on five blue economy themes, including marine renewable energy and environmental protection, through 31 March 2023.

BOEM Seeking Comments

The U.S. Bureau of Ocean Energy Management (BOEM) is seeking comments on a [proposed rule](#) to better protect shipwrecks and other cultural resources on the seabed from harm due to offshore energy activities (due 17 April 2023) and a [proposed sale notice](#) in the Gulf of Mexico (due 23 April 2023).

Calls for Abstracts

The Pan American Marine Energy Conference (PAMEC) Association is now accepting [Expressions of Interest](#) to submit an extended abstract for presentation at [PAMEC 2024](#) through 15 April 2023. Extended abstracts will be due 26 June 2023. PAMEC will take place on 22-24 January 2024 in Barranquilla, Colombia, with pre-conference workshops on 19-20 January 2024.

The [Call for Abstracts](#) for [Clean Currents 2023](#) is now open through 15 April 2023. Clean Currents will take place 10-13 October 2023 in Cincinnati, Ohio, U.S. Opportunities include classroom presentations, technology/innovation sessions, poster presentations, and workshops.

The [Call for Abstracts](#) for [OCEANS 2023 Gulf Coast](#) is now open through 17 April 2023. OCEANS 2023 Gulf Coast will take place 25-28 September 2023 in Biloxi, Mississippi, U.S.

The [Call for Abstracts](#) for the [Conference on Wind Energy and Wildlife \(CWW 2023\)](#) is open through 19 April 2023. CWW 2023 will take place 18-22 September 2023 in Šibenik, Croatia.

The [Call for Abstracts](#) for the [University Marine Energy Research Community \(UMERC\) 2023 Conference](#) is now open through 23 April 2023. UMERC 2023 will take place on 4-6 October 2023 in Durham, New Hampshire, U.S. Apply for travel/registration support by 15 June 2023.

The [Call for Abstracts](#) for the [North American Wind Energy Academy \(NAWEA\)/WindTech 2023 Conference](#) is now open through 5 May 2023. NAWEA/WindTech will take place from 30 October to 1 November 2023 in Broomfield, Colorado, U.S.

The [Call for Sessions and Town Hall Proposals](#) for [Ocean Sciences Meeting 2024](#) is now open through 24 May 2023. Ocean Sciences Meeting 2024 will take place from 18-23 February 2024 in New Orleans, Louisiana, U.S. and online.

Funding & Testing Opportunities

The Sustainable Blue Economy Partnership, a Horizon Europe co-funded partnership, recently announced its first [Joint Transnational Call](#) to support transnational research and innovation projects related to the blue economy. Pre-proposals are due 14 April 2023.

The U.S. DOE has opened applications for the [Energy Transitions Initiative Partnership Project \(ETIPP\)](#) for remote and island communities seeking technical assistance to transform their energy systems and increase energy resilience. An [informational webinar](#) will take place at 1:00pm MDT (7:00pm UTC) on 11 April 2023. Applications are due 19 May 2023.

The U.S. DOE's Office of Clean Energy Demonstrations [recently announced](#) \$300 million for projects that increase energy affordability and promote climate resilience and \$15 million for the [Energizing Rural Communities Prize](#) to help rural communities build capacity needed for clean energy development and deployment. Concept papers for the [funding opportunity](#) are due 14 April 2023, and submissions for the first round of the prize are due 24 May 2023.

Student & Employment Opportunities

Pacific Northwest National Laboratory is seeking a [Post Doc Research Associate](#) to conduct research on the effects of global change on coupled human-natural systems, and to develop innovative solutions to support climate and energy resilience for coastal communities across the United States. Applications are due by 1 April 2023.

Pacific Northwest National Laboratory is seeking a [Blue Economy Specialist](#) with a strong background in the blue economy to support regional and national maritime sectors accelerate maritime innovation and sustainability. Applications are due by 29 April 2023.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is looking for a [Chief of Section](#) to lead, coordinate, and organize the activities of the Intergovernmental Oceanographic Commission Ocean Science Section. Applications are due 10 May 2023.

Upcoming Events

Upcoming Webinars

The European Marine Board is organizing a webinar to launch its Future Science Brief n°9, "[European offshore renewable energy: Towards a sustainable future](#)", on 4 April 2023 from 2:00-3:30pm CET (12-1:30pm UTC). The webinar will discuss the state-of-the-art of the offshore renewable energy sector globally and in Europe, gaps, and impacts. Register [here](#).

The U.S. DOE WPTO is hosting its next Semiannual Stakeholder Webinar on 4 April 2023 from 2:30-4pm EDT (6:30-8pm UTC). Staff and leadership will dive into current and future funding opportunities; other accomplishments, news, and updates; and the office's newly released [2021-2022 Accomplishments Report](#). Register [here](#).

The New York State Energy Research and Development Authority's (NYSERDA) Offshore Wind team is hosting a Learning from the Experts webinar on [Bird Monitoring Methodology for Offshore Wind](#) on 5 April 2023 from 1:00-2:00pm EDT (8:00-9:00pm UTC).

The U.S. DOE WPTO is also hosting a WPTO R&D Deep Dive, "Shaping the Future of the Marine Energy Atlas", on 6 April 2023 from 11:00am-12:00pm MST (5:00-6:00pm UTC). The interactive webinar will include a demonstration of the [Marine Energy Atlas](#) and a discussion on what data and features should be added or changed to this open-access tool. Register [here](#).

Pacific Northwest National Laboratory and National Renewable Energy Laboratory are hosting a Marine Energy Career Panel to highlight staff across various disciplines (engineering, biology, science communications, etc.) to discuss their marine energy careers including their background, education, career path, and current projects. The webinar will be held on 10 April 2023 at 3:00pm PDT (10:00pm UTC). Register [here](#).

Lawrence Berkeley National Laboratory is hosting a webinar, "Effects of land-based wind turbine upsizing on community sound levels and power and energy density", on 13 April 2023 from 10:00-11:00am PST (5:00-6:00pm UTC). Register [here](#).

Upcoming Workshop

PRIMRE is hosting a workshop focused on geospatial and permitting and licensing tools for U.S. marine energy projects on 18 April 2023 from 9:00-11:00am PDT (4:00-6:00pm UTC). The workshop will feature presentations on the [Marine Energy Environmental Toolkit for Permitting and Licensing](#), the [Marine Energy Atlas](#) and other geospatial data within PRIMRE, and PRIMRE capabilities to support marine energy projects. Register [here](#).

Upcoming Conferences

[OCEANS 2023 Limerick](#) will take place on 5-8 June 2023 in Limerick, Ireland. Early bird registration [here](#) is available before 25 April 2023.

The [42nd International Conference on Ocean, Offshore & Arctic Engineering \(OMAE 2023\)](#) will take place on 11-16 June 2023 in Melbourne, Australia. Early bird registration is available [here](#) before 4 April 2023.

The Pacific Ocean Energy Trust is hosting the [Ocean Renewable Energy Conference \(OREC 2023\)](#) on 21-22 June 2023 in Portland, Oregon, U.S. Early bird registration is available [here](#) before 12 May 2023.

New Documents on Tethys

Tethys hosts thousands of documents on the environmental effects of marine and wind (land-based and offshore) energy, including journal articles, conference papers, and reports.

Marine Energy

[Marine invertebrates and noise](#) – Solé et al. 2023

Many aspects of how noise and other forms of energy may impact the natural balance of the oceans are still unstudied. Recent studies have revealed that a wide diversity of invertebrates are sensitive to sounds, especially via sensory organs whose original function is to allow maintaining equilibrium in the water column and to sense gravity. Marine invertebrates not only represent the largest proportion of marine biomass and are indicators of ocean health but many species also have important socio-economic values. This review presents the current scientific knowledge on invertebrate bioacoustics (sound production, reception, sensitivity), as well as on how marine invertebrates are affected by anthropogenic noises. It also critically revisits the literature to identify gaps that will frame future research investigating the tolerance to noise of marine ecosystems.

[A review of geographic information system \(GIS\) and techno economic \(TE\) software tools for renewable energy and methodology to develop a coupled GIS-TE software tool for marine renewable energy \(MRE\)](#) – O’Connell et al. 2023

Accurate and up-to-date Geographic Information System (GIS) and Techno Economic (TE) tools are pertinent to helping to develop the renewable energy sector. This paper reviews the state of the art in existing GIS and TE tools for renewable energy and proposes a methodology to develop a coupled GIS-TE software tool that is geared specifically to Marine Renewable Energy (MRE) applications and bespoke to Irish and Western UK waters. Methods for approaching GIS and TE analysis within existing tools for renewable energy are presented and compared. Many existing tools of this nature have some interesting functionalities, but most are unsuitable for MRE; are limited by a lack of information on both the technology and the site; and focus solely either on GIS or TE aspects of analysis.

[A biologist's guide to the galaxy: Leveraging artificial intelligence and very high-resolution satellite imagery to monitor marine mammals from space](#) – Khan et al. 2023

Monitoring marine mammals is of broad interest to governments and individuals around the globe. Very high-resolution (VHR) satellites hold the promise of reaching remote and challenging locations to fill gaps in our knowledge of marine mammal distribution. The time has come to create an operational platform that leverages the increased resolution of satellite imagery, proof-of-concept research, advances in cloud computing, and machine learning to monitor the world’s oceans. In this paper, we share lessons learned, challenges faced, and our vision for how VHR satellite imagery can enhance our understanding of cetacean distribution in the future.

Wind Energy

[Technology Acceptance Workshop: Meeting Proceedings](#) – **Gottlieb et al. 2023**

The Renewable Energy Wildlife Institute and the National Renewable Energy Laboratory convened a virtual workshop facilitated by the Consensus Building Institute in April 2022 to identify recommendations on how to accelerate the rate of research and development, evaluation, and adoption of technologies for monitoring or minimizing wildlife impacts from wind energy. The workshop drew on expertise from stakeholder groups including technology developers, federal agencies, conservation nonprofits, and the wind industry. Over the course of four sessions, participants discussed incentives and barriers to technology development beginning with early field testing and validation, through full-scale experimental deployment, and finally broad-scale acceptance and commercial deployment.

[Socio-political acceptability of floating offshore wind farms in France: challenges and perspectives for marine governance towards sustainability](#) – **Fofack-Garcia et al. 2023**

To better understand the socio-political impediments to the implementation of floating wind farms (OWF), we conducted a study of the local governance process around the implementation of one of the first floating offshore wind farms in France, in the Bay of Biscay. This study focuses on the analysis of perceptions of floating OWF impacts by decision-makers involved in the validation process of the Environmental Impact Assessment: how do these decision-makers perceive, value and relate to the marine ecosystem in the presence of a floating OWF? How do ecological factors shape decision-making, and what ecological factors are involved? The paper applies a network perspective in the analysis of the local marine social-ecological system (SES) to identify nested social-ecological variables and key social-ecological networks influencing the licensing process in the floating OWF sector in France.

[Effects of land-based wind turbine upsizing on community sound levels and power and energy density](#) – **Hoen et al. 2023**

Multiple technological, social, and market factors of wind power are evolving rapidly. Most notably, significant wind turbine scaling is occurring and is forecasted to continue. While the larger turbines expected to be deployed in the future are more powerful and efficient, they are also expected to operate at higher sound levels and require larger setbacks than those installed in the last decade. These sometimes-competing deployment trends and impacts cannot be understood via simple extrapolations of past trends. This study analyzes the effect of these future larger turbines on wind turbine micro-siting, project-level power and energy density, and community noise impacts. Due to their taller heights, larger rotors, and higher sound power levels, future wind turbines will require larger setbacks from homes and greater inter-turbine spacing, resulting in fewer turbines deployed for a given land area.

News & Press Releases

Marine Energy

[Nova Deploys in France](#) – Nova Innovation

Nova Innovation (Nova) has successfully installed its world-leading tidal energy technology at the Étrel Estuary, bringing its turbines to France for the first time. This tidal energy trial proves that Nova's world-leading tidal technology can be deployed in rivers and estuaries as well as seas and ocean, opening up a whole new global market to supply towns and cities near rivers with clean, green electricity. The Étrel Estuary deployment is Nova's first outside of Scotland, ahead of further international deployment in Canada this summer. Nova's seabed-mounted turbines create no visual impact or navigational hazard, so the community using the Étrel, ranging from oyster fishermen to kayakers, are unaffected by the turbines.

[French launch €1.5M project to decarbonize island power grids](#) – Offshore Energy

A collaborative project dubbed OPTILE has been launched in France with the aim of decarbonizing the supply of electricity to island grids using offshore renewable energy. The 3-year OPTILE project, led by France Energies Marines, brings together a consortium of 10 partners including multi-energy company TotalEnergies, two developers of ocean energy technologies CorPower Ocean and Sabella, an aquaculture farm Saumon de France, and a specialist in energy storage and conversion solutions Entech Smart Energies. The OPTILE collaborative research project will provide tools to decarbonize the supply of isolated grids (island, offshore platform, aquaculture farm), by increasing the share of renewable energy in the energy mix. It will also make it possible to validate the electrical stability and protection against cyber risk of such a grid, according to project partners.

[Orbital Marine Power unveils new 30MW tidal energy project in Orkney waters](#) – Orbital Marine Power

Orbital Marine Power (Orbital), the renewable energy company focused on the commercial deployment of its innovative floating tidal turbine technology, announced it has been awarded an Option Agreement from Crown Estate Scotland for a new tidal energy project in the Westray Firth. Orkney-headquartered Orbital also confirmed it has a grid connection in place to service the pioneering project, which is located adjacent to the European Marine Energy Centre (EMEC) facility, where Orbital has already deployed the 2MW O2, the world's most powerful tidal turbine, under commercial operation. The Option Agreement is for 30MW, which would equate to approximately 12 Orbital devices installed across the site.

[HAWSEC wave energy device undergoes sea trials in Hawaii](#) – Offshore Energy

Researchers at the University of Hawaii, with the help from experts at Gerard Nihous Consulting, have tested a small-scale version of Hawaii Wave Surge Energy Converter (HAWSEC) in real sea conditions. The HAWSEC uses off-the-shelf or readily fabricated turbine components, which could make the design more cost-effective than other types of wave energy converters, according to developers. The data collected on the device's performance – which will be freely available to the public – could help guide the marine energy industry to create more cost-effective devices, a critical step to achieving commercial success, the US Department of Energy said. A form of oscillating wave surge energy converter, the HAWSEC project contributes valuable data on how these devices perform, so other technology developers can learn from its efforts.

The Kingdom of Tonga Chooses Seabased Wave Power for Renewable Transition – Seabased

The Kingdom of Tonga and SIDS DOCK Executive Council met Tuesday in New York with Small Island Developing States (SIDS) Ambassadors and Permanent Representatives to the United Nations and representatives from Bermuda. These leaders convened to discuss the promise of Seabased wave energy technology as a solution for small island states' energy insecurity, debilitating fuel costs, and renewable transition challenges. His Excellency Va'inga Tōnē added his signature to a Memorandum of Understanding (MoU) that was signed in February between His Majesty's Government of the Kingdom of Tonga, SIDS DOCK and Seabased, to develop a 10 MW Wave Power Park in Tongatapu, Tonga.

Wind Energy

INTOG: 13 projects selected to support green innovation and help decarbonise North Sea – Crown Estate Scotland

Crown Estate Scotland has announced the results of the world's first leasing round designed to enable offshore wind energy to directly supply offshore oil and gas platforms. INTOG (Innovation and Targeted Oil & Gas) leasing aims to attract investment in innovative offshore wind projects in Scottish waters, as well as help decarbonise North Sea operations. The INTOG process allowed developers to apply for seabed rights to develop offshore wind projects that either reduce emissions from the North Sea oil and gas sector - by supplying renewable electricity directly to oil and gas infrastructure (TOG) - or consist of small-scale (IN) innovative projects of 100MW or less. This distinctive offshore wind leasing is different to any other previously carried out in the UK or in the world.

OX2 to develop an offshore energy hub outside the coast of southern Sweden – OX2

OX2 has initiated the development of the offshore energy hub Neptunus in southern Baltic Sea. The energy hub is estimated to have a total installed capacity of 1.9 GW and will produce both electricity and hydrogen. The project will be included in OX2's project development portfolio for the first quarter, 2023. The energy hub will be located in the

Swedish economic zone, about 50 kilometers of the coast of Blekinge. It will comprise of offshore wind turbines as well as installations to convert electricity to hydrogen. The annual production is estimated to 8 TWh electricity, corresponding to about 5 % of Sweden's current annual electricity consumption. The next step is to compile an Environmental Impact Assessment (EIA) which will be submitted during 2023-2024. The energy hub can be in operation in the early 2030s.

[China's first deep-sea floating wind turbine platform departs for installation in waters near Hainan](#) – Global Times

China's first deep-sea floating wind power turbine platform recently departed from Zhuhai, South China's Guangdong Province to an area of sea near Wenchang, South China's Hainan Province, marking a progress in China's offshore wind power technology development. The platform's wind turbine has a capacity of 7.25 megawatts and can generate 22 million kilowatt-hours of electricity each year, equivalent to the annual power consumption of 30,000 people in China, according to a statement sent from China National Offshore Oil Corporation (CNOOC), the builder of the platform. The platform will be installed in the offshore gas & oil field area 136 kilometers away from Wenchang. Generated power will be transmitted to surrounding gas & oil extraction facilities via cables and will be used for energy production, saving nearly 10 million cubic meters of natural gas consumption and reducing 22,000 tons of CO₂ emission per year.

[U.S. Department of Energy's Strategy to Advance Offshore Wind Energy In The United States](#) – Energy.gov

On March 29, 2023, the U.S. Department of Energy (DOE) released Advancing Offshore Wind Energy in the United States, U.S. Department of Energy Strategic Contributions Toward 30 Gigawatts and Beyond, a comprehensive summary of DOE's role in the nationwide effort to deploy 30 gigawatts (GW) of offshore wind energy by 2030 and setting the nation on a pathway to 110 GW or more by 2050. This Strategy also supports the Biden-Harris Administration's goals to deploy 15 GW of floating offshore wind and achieve a carbon-free electricity sector by 2035.

[Mercedes just made a huge offshore wind power purchase deal – here's why](#) – Electrek

Mercedes-Benz just signed a deal for offshore wind power – and it's one of the auto industry's largest power purchase agreements for clean energy in Europe. The German automaker said today that it signed a power purchase agreement (PPA) with Spain's Iberdrola for 140 megawatts (MW) of energy from an offshore wind farm in the Baltic Sea. The wind farm that will supply Mercedes with power is called Windanker, and the 300 MW Baltic sea project is expected to come online in 2026. It will consist of 20 15 MW wind turbines.