



**5 July 2024**

[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**

### Wind Technologies Tool

Working Together to Resolve Environmental Effects of Wind Energy ([WREN](#)) is requesting information on new technologies to include in the [Wind Energy Monitoring and Mitigation Technologies Tool](#) on Tethys. The free, online tool serves as a catalog of available technologies used to assess and reduce potential wind-wildlife effects, including related research on their use and effectiveness. Please complete this [short survey](#) to contribute technologies for consideration.

### ETIPP Applications Open

The U.S. Department of Energy (DOE) is accepting applications for the [Energy Transitions Initiative Partnership Project \(ETIPP\)](#), which provides technical assistance for remote and island communities to bolster their energy resilience through tailored solutions, through 10 July 2024.

### BOEM Seeking Public Input

The U.S. Bureau of Ocean Energy Management (BOEM) is seeking public input on its Draft Environmental Analysis for its [Gulf of Maine](#) Offshore Wind Area through 22 July 2024. BOEM is also [seeking ideas](#) for baseline environmental and socioeconomic studies to inform decisions on potential offshore wind energy activities in the U.S. territories, as well as information on entities in the U.S. territories that have the capabilities, expertise, and interest in carrying out environmental monitoring and conducting studies. The deadline to respond is 23 August 2024.

## NOAA NCCOS Seeking Volunteers

The National Oceanic and Atmospheric Administration's (NOAA) National Centers for Coastal Ocean Science (NCCOS) is [seeking volunteers to participate in a focus group](#) to share their thoughts about offshore wind energy on the Gulf of Mexico coast. The deadline is 26 July 2024.

## Calls for Abstracts

The American Geophysical Union (AGU) has opened the [Call for Abstracts](#) for the [AGU 2024 Annual Meeting](#) through 31 July 2024. AGU 2024 will take place 9-13 December 2024 in Washington, D.C. and will feature a session on [Marine Energy to Power the Blue Economy](#).

The Ocean Thermal Energy Association has opened the Call for Speakers for the [10<sup>th</sup> International Ocean Thermal Energy \(OTEC\) Symposium](#) through 31 July 2024. The symposium will take place 4-5 December 2024 in Rio de Janeiro, Brazil.

The Call for Abstracts for [7<sup>th</sup> Asian Offshore Wind, Wave and Tidal Energy Conference \(AWTEC 2024\)](#) has been extended through 31 July 2024. AWTEC will take place 20-24 October 2024 in Busan, South Korea.

The [Call for Abstracts](#) for [Floating Wind Solutions 2025](#) is now open through 1 August 2024. Floating Wind Solutions will take place 15-17 January 2025 in Houston, Texas, U.S.

The Marine Alliance for Science and Technology for Scotland (MASTS) has opened the [Call for Abstracts](#) for the [MASTS 2024 Annual Science Meeting](#) through 22 August 2024. The meeting will take place 5-7 November 2024 in Glasgow, Scotland.

The [Call for Abstracts](#) for [WindEurope's Annual Event 2025](#) is now open through 6 September 2024. The annual event will take place 8-10 April 2025 in Copenhagen, Denmark.

The [Call for Abstracts](#) for the [Offshore Technology Conference \(OTC 2025\)](#) is open through 10 September 2024. OTC will take place 5-8 May 2025 in Houston, Texas, U.S.

## Funding & Testing Opportunities

The U.S. Advanced Research Projects Agency-Energy (ARPA-E) recently announced up to \$150 million in funding through its [Vision OPEN Call](#) to develop ground-breaking systems that provide abundant primary energy, enable intermodal energy transport, and sustainably meet demand for polymer and other materials. Concept papers are due 16 July 2024.

The U.S. DOE's Water Power Technologies Office (WPTO) recently opened a [\\$5 million funding opportunity](#) to support programs that will support programming and services for entrepreneurs and small businesses in marine energy. WPTO will host an [informational webinar](#) at 1:30pm EDT (5:30pm UTC) on 11 July 2024. Concept papers are due 7 August 2024.

The National Offshore Wind Research and Development Consortium (NOWRDC) intends to run a competitive solicitation, “[Solicitation 4.0 - Innovations in Floating Offshore Wind](#)”, that will fund \$10.6 million of projects that address several major areas of need for floating offshore wind, including uncrewed underwater vehicles for environmental monitoring. The full solicitation is expected to be published in August 2024.

### Career Opportunities

Biodiversity Research Institute (BRI) is seeking a conscientious and detail-oriented [Marine Staff Scientist](#) to work on offshore wind and wildlife issues for its non-profit organization located in Portland, Maine, U.S.

The Sea Mammal Research Unit (SMRU) is looking for an [Instrumentation Group Lead](#) and a [Telemetry Research Support Lead](#) to join its group of engineers and scientists developing innovative solutions for the study of animals in the marine environment. Applications for both positions are due 12 July 2024.

NatureScot is seeking a [Marine Adviser - Underwater Noise](#) to lead on delivering advice to its marine energy team and other NatureScot staff on the coordination of underwater noise impacts across marine industries. Applications are due 19 July 2024.

The European Marine Energy Centre (EMEC) is looking for a [Senior Process Engineer](#) to support the design, development, operation, safety, and continual improvement of hydrogen production at both client and EMEC owned sites. Applications are due 19 July 2024.

Renewable Energy Wildlife Institute (REWI) is launching a search for a new [Executive Director](#) to lead REWI to its next level of financial, programmatic, and organizational success. Applications are due 31 July 2024.

The University of Edinburgh is seeking a [Research Assistant in Experimental Testing of Tidal Energy Converter Systems](#) to contribute to the recently launched Co-design to deliver Scalable Tidal Stream Energy (CoTide) project. Applications are due 7 August 2024.

Avangrid is looking for a [Senior Offshore Wind Permitting Manager](#) to manage and coordinate permitting and compliance efforts for the New England Wind 1 Offshore Wind Project. The job posting closes on 20 September 2024.

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## Upcoming Events

### Upcoming Webinars

Lawrence Berkeley National Laboratory is hosting a webinar, “[Distributional Equity in the Employment and Wage Impacts of Energy Transitions](#)”, at 10:00am PDT (5:00pm UTC) on 11 July 2024. The webinar will share information from a new report that provides an examination of impacts on local employment and income through the full wind project development cycle.

The Supergen Offshore Renewable Energy (ORE) Hub is hosting a webinar, “[Advantages of Numerical Simulations of Floating Structures in Offshore Environments and Pullout Capacity of Offshore Anchors in Spatially Variable Soil](#)”, from 12:00-1:00pm UTC on 12 July 2024.

Oceantic Network is hosting a new monthly [Research + Innovation Webinar Series](#) that features the latest research in offshore wind and ocean renewables. The first webinar, “[Whale Mortalities & Offshore Wind in the News: Analyzing Community Perceptions in New England](#)”, will take place on 18 July 2024 from 11:00am-12:00pm EDT (6:00-7:00pm UTC) and review the results of 35 community interviews carried out in 2022. [Register here.](#)

The [SEER](#) team is continuing its free, public webinar series to share the latest research on the potential environmental effects of offshore wind energy development. The next webinar, [Oceanographic Responses to Offshore Wind: From First Principles to Potential Effects](#), will take place on Tuesday, July 23, 2024 from 9:00-10:00am PDT (4:00-5:00pm UTC). The speakers will describe the models and methods used to study interactions between oceanographic processes and offshore wind, highlighting studies from Europe and the United States. [Register here.](#)

### Upcoming Conferences

The Association of Fish & Wildlife Agencies (AFWA) is hosting the [114th AFWA Annual Meeting](#) on 22-25 September 2024 in Madison, Wisconsin, U.S.

RenewableUK and Scottish Renewables are hosting [Floating Offshore Wind 2024](#) on 9-10 October 2024 in Aberdeen, Scotland.

The [Marine Renewables Canada 2024 Conference](#) will take place on 19-21 November 2024 in Halifax, Nova Scotia, Canada. Early bird registration is available until 4 September 2024.

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## **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**

#### **[Life cycle and economic assessment of tidal energy farms in early design phases: Application to a second-generation tidal device](#) – Bianchi et al. 2024**

Ocean currents are emerging as key contributors to renewable energy generation. However, technologies for harvesting tidal current energy are still in the early stages of development. In this context, environmental and economic studies on tidal energy converters (TECs) are crucial to further advance tidal technology and facilitate its entry into the market. This article presents a life cycle and economic assessment of a 34.5 MW tidal farm project comprising 23 second-generation tidal devices, each with a rated power of 1.5 MW. The tidal system was simulated using primary data from the full-scale

floating platform Atir. The Atir is a pre-commercial tidal device designed with a steel trimaran and a submerged section for TEC installation. An assessment of 18 environmental impact categories was conducted using the ReCiPe 2016 MidPoint method, with process flow systems modelled using SimaPro v9.2.0.1 software.

### **Country-Specific Guidance Document: Australia – OES-Environmental 2024**

The [guidance documents](#) are intended to be available for regulators and advisors as they carry out their decision-making and for developers and consultants as they prepare consenting and licensing applications. This country-specific document presents an overview of regulations relevant for marine renewable energy development in Australia from pre-application, through to application and post-consent and is intended mainly for developers and consultants. It is not intended to replace any formal guidance or prescribe action, but rather provide a starting point for understanding the key requirements of the regulatory framework. This document is intended to be read in conjunction with the [background document](#).

### **Environmental impact assessment of ocean energy converters using quantum machine learning – Rezaei & Javadi 2024**

The depletion of fossil energy reserves and the environmental pollution caused by these sources highlight the need to harness renewable energy sources from the oceans, such as waves and tides, due to their high potential. On the other hand, the large-scale deployment of ocean energy converters to meet future energy needs requires the use of large farms of these converters, which may have negative environmental impacts on the ocean ecosystem. In the meantime, a very important point is the volume of data produced by different methods of collecting data from the ocean for their analysis, which makes the use of advanced tools such as different machine learning algorithms even more colorful. In this article, some environmental impacts of ocean energy devices have been analyzed using machine learning and quantum machine learning.

## **Wind Energy**

### **Climate and air quality benefits of wind and solar generation in the United States from 2019 to 2022 – Millstein et al. 2024**

Wind and solar generation reduce electric sector pollutant emissions and associated climate-related damages and air quality-related health damages. Here, we assess these emission reductions, focusing on carbon dioxide (CO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and nitrogen oxides (NO<sub>x</sub>), and incorporate recent estimates of global warming costs and pollution health costs to estimate the dollar value of the associated climate and air quality benefits. From 2019 through 2022, wind and solar generation in the United States provided \$249 billion of climate and air quality benefits based on central estimates. In 2022, the normalized benefits were \$143/MWh and \$100/MWh for wind and solar, respectively, or \$36/MWh and \$17/MWh when only including air quality benefits.

## [Wind power infrastructure and perceived value of tourism experience in nature areas](#) – Prince et al. 2024

This project focuses on developing a measurement instrument to assess the perceived value of the tourism experience at destinations where there is wind power infrastructure visible in nature. The research involved developing a survey based on literature review, a qualitative study, and insights from sustainable consumer behaviour research. Notably, earlier research established that wind power infrastructure does not deter tourists to visit a destination. In the literature, four factors that influence tourist reactions to wind turbines are identified: visual impact, destination characteristics, tourist's origin and familiarity, and value judgments. The findings of this project reveal that tourists value judgments on sustainability transitions and sustainable consumption influence their perceptions of wind power infrastructure in nature areas. This is shown in both qualitative and quantitative data.

## [Regulations for Bat Protection in Mexico's Wind Farms](#) – Uribe et al. 2024

Wind energy development has expanded the fastest globally among all renewable sources during the last 20 years. However, wind farms have documented adverse impacts on bats, including mortality from collisions with turbine blades and disruptions to habitat and behavior. As the world's sixth most attractive economy for renewables, with 70 operating wind farms, Mexico and its bats now face escalating threats from the country's burgeoning wind industry. Despite this rapid growth, few studies have analyzed Mexico's regulatory framework to prevent, evaluate, and mitigate wind farm effects on bats. In this study, we reviewed Mexican laws and treaties that facilitate wind farm permitting, construction, operation, and decommissioning, and searched for guidelines that specifically address bat conservation.

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## News & Press Releases

### Marine Energy

#### [CorPower Ocean completing C4 inspection and upgrades](#) – CorPower Ocean

CorPower Ocean is completing post-deployment inspections and a series of planned on-land upgrades, addressing key findings from operational data collected during the successful ocean deployment phase of its commercial scale C4 wave energy converter. It follows the disconnection and retrieval of the C4 device after completing its first cycle of ocean commissioning in Aguçadoura, northern Portugal. In recent months engineers have performed careful inspections, adjustments and upgrades to finetune the system based on the data. Upgrades have been designed to address lessons learned, and systematically improve subsystems to increase operational range, power capacity and reliability. It comes after post-deployment inspections provided numerous insights in areas including biofouling, corrosion, robustness and station keeping in storm conditions.

## **ZOEX Power completes installation of wave energy device at Port of Aberdeen – Offshore Energy**

Aberdeen-based ZOEX Power has finished the installation of its 100 kW wave energy device at the Port of Aberdeen, South Harbour, Scotland. The first ZOEX device was commissioned at the Port of Aberdeen on June 24, 2024, which was celebrated at a launch gathering on June 27, 2024. ZOEX Power has also completed tank testing of their wave energy device at Kelvin Hydrodynamics Lab of Strathclyde University, Scotland. Sealand Projects and ZOEX Power secured funding from the Seafood Innovation Fund, managed by Cefas for Defra, to develop and build the ZOEX wave energy converter (WEC). The ZOEX Power WEC can be mounted on feed barges to replace CO2-emitting diesel generators, providing a clean energy source. It can also be installed in breakwaters, harbors, and offshore wind turbines, said ZOEX Power.

## **Novel “Dual Hardware-In-The-Loop” Testing Platform Can Accelerate Wave Energy Converter Development – IMPACT Project**

The European project IMPACT has developed an innovative approach for testing WEC reliability, performance and destructivity. The dual hardware-in-the-loop (Dual HIL) platform tests different parts of the WEC simultaneously, providing a holistic picture of how the various components behave and impact each other. As such, this approach increases confidence for WEC deployment, while reducing both the time and expenses connected with testing. “The IMPACT project resulted in a new testing infrastructure and applicable methodologies that can be used by WEC developers to accelerate their technology development pathways, and find out eventual criticalities associated with a subsystem or even at WEC level,” said Giacomo Alessandri from VGA, the project’s coordinating partner.

## **Alaskan project to use idle fishing vessels for tidal energy capture – Offshore Energy**

Alaskan hydroelectric technologies startup Sitkana has partnered with Sandia National Laboratories on a project that aims to use idle fishing vessels during Alaskan winters for tidal energy capture. The project has been selected to receive a grant from the U.S. Department of Energy’s Office of Technology Transitions. This project aims to use idle fishing vessels in Alaska during winter to generate electricity using hydroelectric devices from Sitkana, as well as to meet the region’s increasing energy needs and provide extra income for vessel owners. Aside from using fishing vessels in Alaska during winter to meet peak energy demands, this project focuses on developing an open-source software tool to help communities assess their marine energy potential using Sitkana’s technology.

## **Launch of SEASTAR Project Website: A New Sustainable European Tidal Energy Farm – Ocean Energy Europe**

The official project website for the Sustainable European Advanced Subsea Tidal Array (SEASTAR) project was recently launched. The project will deliver a 4 MW tidal farm

comprising 16 tidal stream turbines – the largest number of turbines deployed in a single location globally. The new website serves as a comprehensive resource for stakeholders and the public to keep updated on the status of the SEASTAR project. The SEASTAR project builds on the success of Nova's previous 6-turbine array in Shetland. Leveraging Nova's proven turbine technology, SEASTAR will deploy a large-scale tidal array at the EMEC Fall of Warness tidal site in Orkney, home to the second strongest tidal currents across the globe. Jointly funded by the EU Horizon Europe programme and the UK Research and Innovation, the project will run from December 2023 to February 2029.

## **Wind Energy**

### **[Biden-Harris Administration Approves Ninth Offshore Wind Project](#) – U.S. Department of the Interior**

The U.S. Department of the Interior recently announced its approval of the Atlantic Shores South offshore wind energy project – the nation's ninth commercial-scale, offshore wind energy project approved under President Biden's leadership. With today's approval, the Department has approved more than 13 gigawatts of clean energy from offshore wind energy projects – enough to power nearly five million homes. The Atlantic Shores South wind project consists of two wind energy facilities — Atlantic Shores Offshore Wind Project 1 and 2 — and associated export cables, which are expected to generate up to 2,800 megawatts of electricity, enough to power close to one million homes with clean renewable energy. The project is approximately 8.7 miles offshore New Jersey at its closest point.

### **[Avangrid Receives Full Federal Approval for Construction of New England Wind Offshore Projects](#) – Avangrid**

Avangrid, Inc. recently announced that it has received full federal approval of the Construction and Operations Plan (COP) for the New England Wind 1 and 2 offshore projects. The approval of the COP follows the favorable Record of Decision (ROD) issued by the Biden Administration in April 2024. The approval represents a critical milestone, and largely completes the federal, state, and local permitting process for Avangrid's 791 Megawatt New England Wind 1 project. The approval of the COP by the Bureau of Ocean Energy Management comes after years of robust stakeholder engagement with Tribal Nations, members of local residential and fishing communities, and other ocean users.

### **[The Science Is Clear: Offshore Wind Isn't What's Killing Whales](#) – Scientific American**

Politicians and nonprofit groups have blamed offshore wind turbines for whale deaths, but the science doesn't support those claims—at all. The protests and spurious criticisms come at a crucial—and financially precarious—time for the nascent offshore wind industry. Some 30 gigawatts of offshore wind energy (enough to power 10 million homes and offset the annual emissions of around 18.5 million passenger vehicles) need to be deployed by 2030 to meet the Biden administration's pledge to make the power sector

carbon-pollution-free by 2035. And the warming caused by those emissions *does* have a demonstrable impact on whales. That isn't to say that building huge wind turbines in the ocean doesn't come without any environmental ramifications.

### **RWE receives approvals for wind farm off the German North Sea coast – RWE**

RWE has been given the green light for an offshore wind farm in the German North Sea: in mid-June, the German Federal Maritime and Hydrographic Agency (BSH) issued the planning approvals for Nordseecluster A, consisting of NC 1 and NC 2. This allows RWE to implement the first phase of its 1.6-gigawatt Nordseecluster. RWE recently made the investment decision for the entire cluster. The Nordseecluster is being built around 46 kilometres north of the German island of Borkum and approximately 50 kilometres north of the German island of Juist. The first phase, which has now been approved, has a total capacity of 660 megawatts (MW). Production of some components has already started and offshore construction is scheduled to start next year.

### **ERWC European Renewable Energy and Wildlife Consortium – Waardenburg**

A new European consortium has been formed to provide premier ecological research and consultancy services for renewable energy projects across the continent. The European Renewable Energy & Wildlife Consortium (ERWC) proudly brings together several of Europe's leading ecological consultancies with extensive expertise in wind and solar energy development and its impacts on wildlife. The main goal is to enable responsible renewable energy development while protecting nature. The ERWC founding members include Waardenburg Ecology and its subsidiary BESE (the Netherlands), Écosphère and its subsidiaries TBM Environment and Somme (France), Oikon and its co-partner Supernatural (Croatia), and Nature Conservation Consultants (NCC) and its subsidiary Marine Biodiversity Surveys - MBS (Greece).