



April 29, 2016

Welcome to the latest bi-weekly Tethys Blast, which will update you with new information available on Tethys, new features of Tethys, and current news articles of international interest on wind and marine renewable energy. We hope that this becomes a valuable tool to help you stay connected to your colleagues and to introduce you to new research, new contacts, and ongoing milestones in wind and marine renewable energy development.

Annex IV 2016 State of the Science Report

Annex IV is pleased to announce the 2016 State of the Science Report! The report was developed under the auspices of Annex IV, an initiative under the Ocean Energy Systems. Led by the US, Annex IV is comprised of 13 nations focused on collecting and disseminating information on the potential environmental effects of MRE development, collaboratively identifying ways to address potential effects that hamper siting and consenting/permitting of devices, and facilitating the establishment of the MRE industry.

The report can be downloaded from Tethys, and the executive summary is available in English, Chinese, Japanese, Norwegian, and Swedish.

<http://tethys.pnnl.gov/publications/state-of-the-science-2016>

To learn more about the report, you may read the latest [Tethys Blast](#). Annex IV will also host a [webinar](#) on 10 May 2016 to present an overview of the report and some key findings.

New Documents on Tethys

A total of 42 new documents have been added to Tethys in the last two weeks! These documents have been hand-selected for their relevance to the environmental effects of wind and marine renewable energy. The listings below are short introductions to several new or popular documents that can be accessed through the accompanying Tethys links:

[Annex IV 2016 State of the Science Report: Environmental Effects of Marine Renewable Energy Development Around the World](#) - Copping et al. 2016

This report summarizes the state of the science of interactions and effects of marine renewable energy (MRE) devices on the marine environment, the animals that live there, and the habitats that support them. Thirteen OES countries have joined together to assess the potential environmental effects of MRE development, and to learn collectively how to address potential effects that hamper siting and consenting/permitting of devices, to facilitate the establishment of the MRE industry.

[Reducing the Collision Risk for Bats at Onshore Wind Turbines \(RENEBAT II\)](#) - Behr et al. 2016

Bat fatalities at wind turbines have been reported at many sites and sometimes in alarming numbers. Reducing bat fatalities is important both for species protection and for positive public perception of wind turbines. Currently the only way to substantially and reliably reduce fatality numbers is to run turbines with curtailment algorithms that stop the rotor during times of high collision risk (operational mitigation).

[MaRVEN - Environmental Impacts of Noise, Vibrations and Electromagnetic Emissions from Marine Renewable Energy](#) - Thomsen et al. 2015

The construction and operation of marine renewable energy developments (MREDs) will lead to, among other things, the emission of electromagnetic fields (EMF), underwater sound, and vibrations into the marine environment. Knowledge on these pressures and associated effects has been increasing over the past decade. Yet, many open questions with regard to the potential for MRED to impact on marine life remain.

[Negative Impact of Wind Energy Development on a Breeding Shorebird Assessed with a BACI Study Design](#) - Sansom et al. 2016

Previous studies have shown negative associations between wind energy development and breeding birds, including species of conservation concern. However, the magnitude and causes of such associations remain uncertain, pending detailed ‘before-after-control-intervention’ (BACI) studies. We conducted one of the most detailed such studies to date, assessing the impacts of terrestrial wind energy development on the European Golden Plover *Pluvialis apricaria*, a species with enhanced protection...

[Using the FLOWBEC Seabed Frame to Understand Underwater Interactions between Diving Seabirds, Prey, Hydrodynamics and Tidal and Wave Energy Structures](#) - Williamson et al. 2014

The NERC/Defra collaboration FLOWBEC-4D is investigating the environmental and ecological effects of installing and operating arrays of wave and tidal energy devices. The FLOWBEC seabed platform combines a number of instruments to record information at a range of physical and multi-trophic levels at a resolution of several measurements per second, for a duration of 2 weeks to capture an entire spring-neap tidal cycle.

Current News

Current news articles of international interest on wind and marine renewable energy include:

[MMO approves application for grid-connected tidal energy development off the Isle of Wight](#)

A state-of-the-art tidal energy generation project to be constructed off the Isle of Wight coast has been given approval. The Marine Management Organisation (MMO) has given the go-ahead to the offshore elements of the Perpetuus Tidal Energy Centre (PTEC). With the onshore part given local planning consent in September 2015, the project at 30MW is now the largest consented tidal stream energy project in England and Wales.

[Arkona Offshore Wind Farm, Baltic Sea, Germany](#)

Arkona offshore wind farm, also known as Arkona Becken Südost, is a 385MW offshore wind farm being developed by E.ON in partnership with Statoil. It will be located 35km northeast of Rügen Island, in the Baltic Sea, Germany. Upon planned completion in 2019, the project will supply renewable power for approximately 400,000 homes and offset 1.2 million tonne (Mt) of carbon dioxide emissions a year.

[Gamesa Awarded 136.5 MW Wind Turbine Contract In Brazil](#)

Spanish wind energy giant Gamesa has been awarded a new wind turbine contract to supply 136.5 MW of turbines to a wind farm in Bahia, Brazil. Gamesa announced on its website Thursday that it had received a new order for the supply of 65 of its G114-2.1 MW turbines to the Babilonia wind complex being developed in the Brazilian town of Morro do Chapéu, in Bahia state.

[How Wave Energy Could Power Homes, Thanks to This Wavestar Sustainable Energy Machine](#)

Harnessing the ocean to produce usable power is the mission of alternative energy company Wavestar. The Denmark company has been working on its "big ocean" commercial 1 megawatt machine for a 2017 release, according to its website. The machine seeks to tap into the frontier of the renewable and limitless energy of wave power.

[All Aboard! Block Island Offshore Wind Farm Vessel Gets To Work](#)

Atlantic Wind Transfers, the commercial wind support services arm of Rhode Island Fast Ferry, has embarked on the first phase of a 20-year charter to support the construction and operations of the Block Island wind project, set to be the first offshore wind farm in U.S. waters. The 30 MW Block Island site is currently under construction by developer Deepwater Wind off the coast of Rhode Island.

3,460MW wind energy capacity addition in FY16 exceeds target

India added a record 3,460 MW of wind energy capacity in 2015-16, way ahead of its target of 2,400 MW. The previous highest was 3,197 MW added in 2011-12. More than a third of the capacity added in 2015-16 was by Madhya Pradesh, which commissioned 1,291.90 MW, according to figures released by the Indian Wind Turbine Manufacturers Association (IWTMA).