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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.

## US DOE Funding Opportunity Announcement

The Water Power Technologies Office announced up to 12 million USD in available funding to support innovation in marine and hydrokinetic technologies that harness power from waves and currents (ocean, river, and tidal). The funding will specifically support (1) wave energy converters systems advancement and (2) open topic for MHK technology development. More details available here: <https://energy.gov/eere/water/articles/office-announces-foa-projects-supporting-marine-and-hydrokinetic-research-and>

## PhD Opportunity at University of Aberdeen

A PhD opportunity is available from the Natural Environment Research Council (NERC) with the University of Aberdeen to work closely with the Meygen tidal array. The studentship will look at individuals to populations: the potential effects of large tidal arrays on mobile marine populations. More information is available here: <https://www.findaphd.com/search/ProjectDetails.aspx?PJID=80821>

## New Documents on Tethys

New documents regularly added to Tethys, hand-selected for their relevance to the environmental effects of wind and marine renewable energy. Short introductions to new or popular documents are listed below, accessible by the accompanying Tethys links:

## **Effects of EMF Emissions from Undersea Electric Cables on Coral Reef Fishes - Jermain 2016**

The objective of this project was to determine if the electromagnetic field (EMF) emissions from undersea power cables impacted the local and transient marine life, with an emphasis on reef fishes. The work was done at South Florida Ocean Measurement Facility of Naval Surface Warfare Center, Carderock Division, Broward County, Florida. This facility functions as the hub for a range of active undersea detection and data transmission cables.

## **Environmental Effects Monitoring Programs: Fundy Ocean Research Center for Energy (FORCE) - FORCE 2016**

The Fundy Ocean Research Center for Energy (FORCE) is Canada's leading research centre for the demonstration and evaluation of tidal in-stream energy conversion (TISEC) technology. TISEC technology (commonly referred to as "tidal energy turbines"), is designed to generate renewable energy from tidal resource sites across Canada and the globe. Fundamental to FORCE's mandate is the monitoring and reporting of any environmental effects from tidal turbines at the FORCE site.

## **Brims Tidal Array Collision Risk Modelling - Atlantic Salmon - Xodus Group 2016**

There is a concern that submerged tidal energy devices placed within a tidal current will present an obstacle to wildlife within the tidal channel and there is a risk of collision as a result. Although concerns are primarily for cetaceans and pinnipeds there is also some concern of the risk to fish, particularly Atlantic salmon (*Salmo salar*). Due to the risks posed, Marine Scotland has recommended that an assessment of collision risk to fish is informed by project specific collision risk modelling (CRM).

## **Summary of Wind Turbine Impacts on Bats - Assessment of a Conflict - Bach & Rahmel 2004**

The different effects of wind turbines on bat behaviour are discussed here and collisions during bat migrations play an important part. Very little is known about the impacts of turbine ultrasounds. A change in space use due to shifting and loss of summer foraging habitats has been proved for the Serotine bat (*Eptesicus serotinus*), but in the same time the Common Pipistrelle (*Pipistrellus pipistrellus*) was apparently not affected.

## **Environmental Impacts of Balancing Offshore Wind Power with Compressed Air Energy Storage (CAES) - Bouman et al. 2016**

Using Life Cycle Assessment, we discuss the environmental impacts associated with a Compressed Air Energy Storage (CAES) system as a means of balancing the electricity output of an offshore wind farm with a capacity of 400 MW. We model both conventional CAES and adiabatic CAES (ACAES), with target for baseload production of respectively 200 MW and 150 MW. For the CAES system, wind power production and natural gas combustion are main contributors to the assessed life cycle environmental impacts.

# Industry News

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

## **Marine Renewable Energy**

### **[US Energy Department Announces Investment in Wave Energy Test Facility](#)**

The US Energy Department today announced the award of up to \$40 million, subject to appropriations, to design, permit, and construct an open-water, grid-connected national wave energy testing facility. The facility will be constructed in Newport, Oregon, by the Northwest National Marine Renewable Energy Center at Oregon State University and will support innovations in wave energy technologies capable of harnessing the significant wave energy resources along United States coastlines.

### **[Funding for Eel-Based Tidal Energy System](#)**

Eel Energy has received 3.7 million euros from the French Programme d'Investissement d'Avenir (PIA - Future Investment Program) for the development of a new generation of tidal power machine that takes inspiration from fishes' movement. The funding will enable the development of a 1MW prototype, and it comes after a capital increase of nearly three million euros secured by the company last June.

### **[Climate policy chaos sends wave energy pioneer Carnegie Wave to Cornwall](#)**

A pioneering wave power company says it is building its first commercial wave plant in Cornwall, England because the policy support for renewable energy there is more enticing than the climate policy chaos in Australia. Mike Ottaviano, chief executive of ASX-listed Carnegie Wave Energy, said the company was divorcing itself from political uncertainty over renewable energy in Australia by diversifying geographically and technologically.

### **[MeyGen phase 1b gets green light](#)**

Tidal energy developer Atlantis Resources is to go ahead with the second phase of its MeyGen tidal energy project in the Pentland Firth off Scotland, the firm announced this morning. The project, called Project Stroma, or MeyGen Phase 1B, will be run by Atlantis subsidiary Stroma Tidal Power (STPL). STPL carried out a competitive tender process for the project construction contracts, which has led to the investment decision and enables the project to proceed to construction in 2017, says Atlantis.

### **[Failed Ramsey Sound tidal energy scheme 'faulty for months'](#)**

A failed £18m tidal energy project in Pembrokeshire stopped generating electricity after just three months because of a fault, its operators have admitted. Tidal Energy Ltd went into administration in October, but the 400KW, 39ft high turbine in Ramsey Sound, had not worked since March.

## **Wind Energy**

### **[Norway's Biggest Oil Company to Build Huge Offshore Wind Farm Off Coast of New York](#)**

Norway's biggest oil company will be developing an offshore wind farm outside of New York. Statoil submitted the winning bid of \$42.5 million to the U.S. Department of the Interior's Bureau of Ocean Energy Management last Friday to lease nearly 80,000 acres of federal waters roughly 14 miles off the coast of Long Island, the Huffington Post reported.

### **[Macquarie takes a \\$1.6bn stake in Race Bank offshore wind farm](#)**

Macquarie has snapped up a 50% stake in Dong Energy's giant Race Bank offshore wind farm in a \$1.6bn deal which will also see the Australian investor take on part of the wind farm's construction risk. The 573MW offshore wind project is being built almost 17 miles off the Norfolk coast and is due to begin powering the UK grid at the end of 2018.

### **[Turbine transformation: Ethiopia turns on to wind energy](#)**

The turbine of Ashegoda wind farm in Northern Ethiopia, which was the largest wind farm in sub-Saharan Africa when it was inaugurated in 2013. The \$300 million facility represents a major step forward in Ethiopia's plans to become a renewable energy powerhouse.

### **[Mitsubishi, Eneco to jointly invest in 370MW Belgian offshore wind farm](#)**

Mitsubishi's wholly owned subsidiary Diamond Generation Europe and Netherlands-based integrated energy firm Eneco have agreed to jointly invest in the 370MW Northern offshore wind project in Belgium. Both the firms will together hold a 50% share in the JPY150bn (\$1.3bn) project while the remaining 50% stake will be held by Belgian telecommunications services provider Nethys.

### **[Offshore Wind Blade Testing Video](#)**

The biggest blades in the world for offshore wind energy are being exposed in a tough simulation at Siemens building facility in Denmark. They are testing them for 100 years life.