TETHYS BLAST

September 1, 2017

The bi-weekly Tethys Blast will update you with new information on Tethys, news article of international interest, and opportunities in wind and marine renewable energy. We hope you find this a valuable tool to keep you connected to colleagues, new research, opportunities, and industry milestones.

Conferences and Workshops

Conference on Wind and Wildlife: September 5-8 2017, Estoril Portugal

The 11 WREN nations (Working Together to Resolve Environmental Effects of Wind Energy) are hosting a workshop on Strategies and Concepts for Managing Wind and Wildlife Challenges: Risk- Based Management, Cumulative Effects Analysis, and Green versus Green on September September 5th, 2017, 1:30-6:30pm. This workshop will engage participants in a discussion and information exchange about three white papers currently in development. Please register here.

Ocean Renewable Energy Conference XII: September 12-14 2017, Portland Oregon USA

OREC XII is the premier West Coast conference covering all things MHK related. Additionally, the Pacific Ocean Energy Trust (POET) is hosting the 2nd Annual Pacific Region Marine Renewables Environmental Regulatory Workshop on September 12th in conjunction with OREC. The workshop will revisit the status of individual interactions of stressors from marine renewable energy devices with marine animals, habitats, and ecosystem processes. They will examine two specific interactions, delving into the potential of applying data from other locations or from other industries to new developments, and also explore the opportunity to narrow down the issues and standardize environmental monitoring programs for marine renewable energy devices. Register to attend the conference and workshop here.

Also, the US Department of Energy will host a panel on early adopter markets for MHK (wave and tidal) devices on Thursday September 14th. This panel will explore some of these potential markets with direct examples and applicability to the Pacific Region. MHK devices have the potential to provide power to a number of end markets that are characterized by high cost, high value energy needs. These early adopter markets can help to further prove the technologies, lower LCOE, and act as a stepping stone to developing MHK power for the grid-scale market. Please register here.

Upcoming Webinars

WREN is hosting a public webinar on September 20 about *Upscaling Wind and Wildlife Individual Interactions to Population-Level Impacts*. The webinar will discuss how populations are defined, impacts measured, predicted and verified, and how impact thresholds can be applied for decision making in the context of wind energy development. Login instructions are available on Tethys.

Annex IV is hosting a public webinar on September 21 about *Information Collection and Consenting Processes for Wave and Tidal Deployments - Lessons from the Field*. One presenter will focus on consenting wave projects in Sweden and the other on consenting tidal projects in Canada. Login instruction are available on Tethys.

Request for Proposals

The National Renewable Energy Laboratory's (NREL's) Technology Development and Innovation for Addressing Wind Wildlife Operational Challenges has released a request for proposals calling for low- to mid-technology readiness level wildlife detection and/or deterrent mitigation solutions, with a focus on levels 3 through 5. National Wind Technology Center's facilities and expertise will support the research and development of these technologies, which may include stand-alone systems, integrated, multicomponent systems, or integrated solutions into standard turbine controls.

Learn more about the request for proposals at FedBizOpps.gov:
https://www.fbo.gov/spg/DOE/NREL/NR/RAT-7-70326/listing.html

New Documents on Tethys

New documents are 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:

Confronting the Financing Impasse: Risk Management through Internationally Staged Investments in Tidal Energy Development - MacDougall 2017

> Progress toward commercial deployment of in-stream tidal energy devices and commercial arrays has frequently met with delays, particularly in the UK and Canada. While some delays are due to the manifestation of the uncertainties inherent in new technology development, this study seeks to better understand the strategic timing decisions of tidal energy conversion companies in developing a globally-distributed renewable resource. The study consists of semi-structured interviews with executives and senior managers of organizations in the international tidal energy industry.

Effect of an Offshore Wind Farm on the Viviparous Eelpout: Biometrics, Brood Development and Population Studies in Lillgrund, Sweden - Langhamer et al. 2018

> Sufficient, clean and secure energy is the main driver for a worldwide growing welfare and economic development of a society. Environmental concerns on the expansion of offshore renewable energy and its impact on marine organisms need to be scientifically assessed for risks and consequences. In order to observe the effects of an operating wind farm on fish, we studied the rather stationary and benthic-living fish species viviparous eelpout (*Zoarces viviparous*) as model indicator organisms.

Modeling Baseline Conditions of Ecological Indicators: Marine Renewable Energy Environmental Monitoring - Linder et al. 2017

> Ecological indicators are often collected to detect and monitor environmental change. Statistical models are used to estimate natural variability, pre-existing trends, and environmental predictors of baseline indicator conditions. Establishing standard models for baseline characterization is critical to the effective design and implementation of environmental monitoring programs. An anthropogenic activity that requires monitoring is the development of Marine Renewable Energy sites.

Bird Killer, Industrial Intruder or Clean Energy? Perceiving Risks to Ecosystem Services Due to an Offshore Wind Farm - Klain et al. 2018

> Proposals to develop renewable energy technologies may threaten local values, which can generate opposition. Efforts to explain this opposition have focused on perceived negative aesthetic and environmental impact. Less attention has been paid to a fuller suite of the perceived risks and benefits associated with new energy technologies. This paper thus investigates impacts of an offshore wind farm pertaining to individual perceptions and judgments, and why risks to some ecosystem services might be cause for greater public concern than others.

Mooring System Considerations for Renewable Energy Standards - Cribbs et al. 2017

> Marine renewables have made great strides in recent years. The IEC, ABS, and DNV GL continue to generate standards and recommended practices in an effort to formulate approved processes as the renewable products make their way offshore and into the market. There are many similarities in some of the processes and designs when compared to oil and gas structures, especially when it comes to moorings. However, many design areas are uniquely related to renewables, even within the same field of energy conversion (e.g. multiple types of wave energy converters). As more renewable systems are installed, the standards will continue to transition from philosophical to more prescriptive recommendations.

ORJIP Ocean Energy is a UK-wide collaborative programme of environmental research with the aim of reducing consenting risks for wave, tidal stream and tidal range projects. Partnering with Annex IV, ORJIP provides content input to Tethys Blasts. ORJIP wishes to make you aware of the following opportunities:

- The European Commission has launched the Participant Portal for finding collaboration partners for funding proposals.
- FORESEA (Funding Ocean Renewable Energy through Strategic European Action) programme has opened its third call for support package applications, giving free access to a network of test sites. The call runs until 29 September 2017.

News and Current Events

Marine Renewable Energy

MeyGen Phase 1A project sets new world record as tidal energy research continues worldwide - Hydro World

In August, the 6-MW MeyGen Phase 1A project had a total production approaching 2 GWh, according to Atlantis Resources Ltd. (Atlantis). For monthly production from a tidal stream power station of over 700 MWh, Atlantis said this set a new world record. Located on the Inner Sound of Pentland Firth, Scotland, MeyGen Phase 1A is the first build-out phase of the MeyGen Tidal Energy Project.

Finnish wave deemed shipshape - ReNews

Lloyd's Register has approved a detailed design review of Finnish developer AW Energy's WaveRoller device – the first such technology to receive this level of certification. AW Energy said the design appraisal certificate guarantees the WaveRoller design adheres to predetermined codes and standards regarding safety, functionality and reliability. To receive the certificate, AW Energy submitted its design documents to Lloyd's Register engineers for scrutiny.

Distinguished delivery to Holyhead - Miesto

Minesto has taken delivery of the most distinguished part of the Deep Green ocean energy concept; the wing. It is the first one built for a Deep Green system in commercial scale. The wing was delivered to Minesto's team in Holyhead, Wales, by truck from Southampton, where it has been manufactured by Green Marine.

Anaconda wave energy technology developer Checkmate Seaenergy in Sheerness awarded cash from Scottish government scheme - Kent Online

> A company researching the potential of wave energy has been awarded £727,000 to continue its development. Checkmate Seaenergy, based in Sheerness, was given the cash by Wave Energy Scotland, an initiative backed by the Holyrood government. The business has spent six years developing a patented device called the Anaconda, which converts wave energy into electricity. It gained the funding after successful testing in wave tanks in Haslar near Portsmouth and Strathclyde near Glasgow.

Wind Energy

Hurricane Harvey Pushed This Texas Wind Farm All the Way to the Max - Bloomberg

> For a wind farm in the path of a hurricane, location matters. Pattern Energy Group Inc.'s Gulf Wind farm in Texas remained in operation even as Hurricane Harvey devastated the state with a deluge of rain and winds that reached 130 miles an hour. The 283-megawatt power plant is in Armstrong, about 85 miles (137 kilometers) from Corpus Christi, where the storm crashed into the coast. Fortunately, it's to the south. Harvey made landfall northeast of Corpus Christi and then continued toward Houston.

ABB to supply battery energy storage for Dong's 90MW UK wind farm - Energy Storage News

> Swiss engineering and automation company ABB will be supplying Dong Energy's 90MW Burbo Bank wind farm in the UK with battery energy storage. ABB announced that it was awarded by the Danish power generator with the contract to supply a 2MW battery energy storage system to the wind farm, which has been in operation since 2007. The battery system is intended to support the integration of power from the offshore wind power plant as well as transmission of electricity away from it to the grid.

E.ON starts construction on 385MW Arkona offshore wind farm - CTBR

> E.ON has announced the start of construction work at the 385MW Arkona offshore wind farm off the coast of German Baltic Sea. The Arkona offshore wind farm is a joint venture between E.ON and the Norwegian energy company Statoil. The wind farm is estimated to be built with a cost of €1.2bn. It will be located about 35km from the coast near the island of Rügen. It will include 60 of Siemens' SWT6.0-154 turbines.

Saudis seek 400MW wind bids - Renews

> Saudi Arabia has issued a request for proposals (RFPs) to build a 400MW wind farm at Dumat Al Jandal in the Al Jouf region of the country. The request was issued by the renewable energy project development office (REPDO) of Saudi Arabia's Ministry of Energy, Industry and Mineral Resources. Some 25 companies have qualified for the RFP stage as either managing members, technical members or both, REPDO said.

America's first U.S.-built offshore wind installation vessel - South Coast Today

A Texas company is building the nation's first offshore wind-turbine installation vessel and designing it to fit through the New Bedford hurricane barrier. Today, we break down what it means to the industry. Houston-based engineering company Zentech is converting an existing jack-up vessel to install offshore wind turbines. Jack-up barges have three or four legs that raise the vessel out of the ocean and create a stable platform for working. The oil and gas industry uses them routinely, but this will be the first U.S.-flagged ship capable of installing wind turbines. The company expects it to be ready by the end of 2018.