PRESSING

News release from Ocean Energy Systems, an inter-governmental organisation advancing development and deployment of ocean energies (waves, tidal, current, thermal and salinity gradient).

www.ocean-energy-systems.org

Release date: March 13, 2020

Global wave and tidal stream energy production surges tenfold over last decade, according to Ocean Energy Systems report

Global wave and tidal stream energy production has risen tenfold over the last decade, according to a report issued today by a leading ocean energy organisation.

Ocean Energy Systems (OES) annual report shows cumulative energy produced from wave and tidal stream sources surged from less than 5GWh in 2009 to almost 50 GWh in 2019.

Numerous other wave and tidal stream devices have been deployed in open-sea waters for testing, while further 'push and pull' mechanisms are stimulating the ocean energy sector in various regions of the world.

OES chairman Henry Jeffrey from the University of Edinburgh said the new report communicates the sizable global effort to identify commercialisation pathways for ocean energy technologies.

"Our latest report underlines the considerable international support for the marine renewable sector as leading global powers attempt to rebalance energy usage and limit global warming. Decarbonisation has been appointed as the main strategy to tackle this challenge and many countries around the world have revised or set ambitious targets for emission reductions while ramping up the electricity production from renewable resources. The start of this new decade carries considerable promise for ocean energy. Important projects and deployments are being planned for the coming years as the mission to decarbonise intensifies and governments across the globe show increased interest in ocean energy technologies.

"In the last 12 months we have seen considerable progress in the marine renewables sphere. In North America, Canada amended its Marine Renewable Energy Act to extend feed-in-tariffs and Purchasing Power Agreements for tidal energy developers working in FORCE. Meanwhile, the US officially launched a new R&D initiative "Powering the Blue Economy" seeking to relieve power constraints in emerging coastal and off-grid markets through marine renewable energy.

"Similarly, leaders across Europe have identified ocean energy as an essential component in meeting decarbonisation targets, fostering economic growth and creating future employment opportunities. Key developments include the Strategic Energy Technology (SET) Plan and the Blue Growth Strategy. In addition, Spain has drafted ocean energy targets for 2025 (25 MW) and 2030 (50 MW) while Scotland is actively supporting the development of ocean energy technologies through the £10m Saltire Tidal Energy Challenge Fund. Moreover, the UK enabled the development and testing of several prototype devices including Orbital O2, Minesto's Deep Green, Magallanes Renovables' ATIR, and Marine Power Systems' WaveSub. Thanks to an ongoing effort in co-founding prototypes with a cumulative public budget of more than €70million in 10 years, French developers are also now testing tidal stream (Sabella, Hydroquest) and wave (GepsTecno) devices at scale and at sea.

"Further afield, Australia announced funding for a 10-year $330m Blue Economy Cooperative Research Centre and the preparation of a new marine and coastal policy in Victoria. In Asia, India has made tidal, wave and OTEC (Ocean Thermal Energy Conservation) technologies eligible for 'Renewable Purchase Obligations' while Korea completed a short-term OTEC demonstration in the East Sea. In addition, China sought to foster the tidal current energy sector through a temporary feed-in tariff of €0.33/kWh. The LHD tidal current energy project will be the first beneficiary of this incentive."

OES was launched in 2001 as a 'Technology Collaboration Programme of the International Energy Agency (IEA). It was created in response to increased ocean wave and tidal current energy activity primarily in Denmark, Portugal and the UK. The organisation now consists of 25 members including specialists from government departments, national energy agencies, as well as research and scientific bodies. Its focus covers all forms of energy generation in which sea water forms the motive power through its physical and chemical properties, including wave, tidal range, tidal and ocean currents, ocean thermal energy conversion and salinity gradients. Each year OES presents an annual report including summaries of new, ongoing and recent projects, as well as updated member country reviews.

In 2019 the organisation staged and supported a series of international events, including two Executive Committee gatherings in Riviera Maya, Mexico, hosted by Cémie-Oceano, and Dun Laoghaire, Dublin, Ireland, hosted by the Sustainable Energy Authority of Ireland. It further contributed to an 'Ocean Energy in Insular Conditions' workshop held at the East-West Center in Honolulu, Hawaii, and an 'Open-sea Testing' workshop organized by the International WaTERS network at EMEC in the Orkney Islands, Scotland.

Mr Jeffrey said the organisation performs another vital role directing 'collaborative projects' involving member organisations.

"Throughout 2019 our members have joined forces, combining world-leading knowledge and expertise to tackle key challenges affecting the marine renewable industry," he said. "Projects include the 'OES-Environmental (OES-E) Task' involving fifteen nations led by the US Department of Energy (DOE) and implemented by the Pacific Northwest National Laboratory. This saw the collection of baseline data and monitoring of deployed marine energy devices. Papers, reports, and other media detailing environmental effects of marine energy devices were continuously updated to Tethys, the publicly accessible knowledge management system. Several other outreach actions were implemented to engage the ocean energy community, with particular emphasis on researchers, regulators, and developers.

"A new study led by Tecnalia from Spain was also concluded in 2019 assessing 'The Cost of Energy for Ocean Energy Technology'. This work monitored the evolution of ocean energy costs and the impact of different drivers on the LCOE

(Levelized Cost of Energy), taking into account historical trends, future developments and differences among technologies and countries. The findings of this study have been shared with the IEA for their modelling work in renewable energies.

“OES engaged in two further initiatives dedicated to the modelling verification and validation of ocean energy technologies – the first led by Ramboll in Denmark, for wave energy, and a second for tidal energy, led by the Energy Research Institute at Nanyang Technological University, Singapore. These groups engaged with a number of experts from universities, research institutions and companies and comparing results among different numerical codes. Additional work in 2019 focused on OTEC involving OES members from Japan, India, China, Korea, France and the Netherlands. The work assessed world status, plans and potential for OTEC projects.

“Further attention has been dedicated to ‘international performance evaluation’ of ocean energy technologies with strong support from the European Commission, the US Department of Energy and from Wave Energy Scotland. This work is focused on the definition of a fully defined set of metrics and success thresholds for wave energy technologies in efforts to develop an internationally accepted approach. A draft report discussing the benefits of common evaluation approaches in the ocean energy sector and the use of common language has been prepared to help build consensus. It details the evaluation process and how it changes throughout the technology development process.

“In the last 12 months the OES Executive Committee also commissioned a new study to assess the number of jobs related to the development of the ocean energy sector, coordinated by France Energies Marines. It follows industry demand for an accurate assessment of existing jobs directly related to sector needs.”

While the sector continues taking huge strides forward Mr Jeffrey cautioned that several challenges lie ahead for the ocean energy industry centred around affordability, reliability, installability, operability, funding availability, capacity building, and standardization.

“In particular, significant cost-reductions are required for ocean energy technologies to compete with other low-carbon technologies,” he said. “This highlights the importance of the programmes such as the European SET-Plan which aims to demonstrate deployment of ocean energy at commercial scale and drive down costs, aiming for LCOE targets of 10 ct€/kWh and 15 ct€/kWh in 2030 for tidal stream and wave energy respectively.”

OES is closely linked with the International Conference on Ocean Energy (ICOE), leading a competitive process to select the host team for each biennial event. The 8th edition of ICOE will run between May 19 and 21, 2020, at the Marriott Marquis Washington DC, USA, hosted by the American National Hydropower Association (NHA). For more information on the International Conference on Ocean Energy (ICOE) visit the website https://www.icoe-conference.com/

For more information on Ocean Energy Systems visit www.ocean-energy-systems.org email info@ocean-energy-systems.org or call +351 21 848 2655.

Notes to editors

Ocean Energy Systems (OES)
Ocean Energy Systems (OES) is also known as the ‘***Technology Collaboration Programme on Ocean Energy Systems’*** under the International Energy Agency (IEA). It is an intergovernmental collaboration between countries, which operates under a framework established by the International Energy Agency in Paris. Presently, the OES has 25 member countries with a number of other observer countries in the process of joining. The OES connects organisations and individuals working in the ocean energy sector to accelerate the viability, uptake and acceptance of ocean energy systems in an environmentally acceptable manner. The work of the OES covers all forms of energy generation in which sea water forms the motive power through its physical and chemical properties, i.e. wave, tidal range, tidal and ocean currents, ocean thermal energy conversion and salinity gradients.

The OES international co-operation facilitates:

- Securing access to advanced R&D teams in the participating countries;
- Developing a harmonized set of measures and testing protocols for the testing of prototypes;
- Reducing national costs by collaborating internationally;
- Creating valuable international contacts between government, industry and science;
- Sharing information and networking.

International Energy Agency (IEA)
Established in 1974, the International Energy Agency (IEA) carries out a comprehensive programme of energy co-operation for its 29 member countries and beyond by examining the full spectrum of energy issues and advocating policies that will enhance energy security, economic development, environmental awareness and engagement worldwide.

The Technology Collaboration Programme (TCP)
The TCP supports the work of independent, international groups of experts that enable governments and industries from around the world to lead programmes and projects on a wide range of energy technologies and related issues. The experts in these collaborations work to advance the research, development and commercialisation of energy technologies. The scope and strategy of each collaboration is in keeping with the IEA Shared Goals of energy security, environmental protection and economic growth, as well as engagement worldwide. The Technology Collaboration Programme was created with a belief that the future of energy security and sustainability starts with global collaboration. The programme is made up of 6,000 experts across government, academia, and industry dedicated to advancing common research and the application of specific energy technologies.