The Energy that comes from the Sea

Politecnico di Torino and Eni launch the joint research laboratory for the innovation of the renewable marine energy sector

Turin, 28 September 2020 – Sea energy is the greatest renewable energy source in the world: the estimated global wave power generation along terrestrial coastlines is 2 TeraWatt, around 18 thousand billion kilowatt hours per year - that is almost the annual power requirement of the planet. Furthermore, wave energy is predictable, constant and more flexible than other renewable sources.

Enhancing sea energy to its full potential is the goal of **MORE – *Marine Offshore Renewable Energy Lab***, a joint research laboratory developed by **Politecnico di Torino** and **Eni,** opened today in the presence of the Minister of Universities and Scientific Research, **Gaetano Manfredi**, Eni's President **Lucia Calvosa,** Eni's CEO, **Claudio Descalzi**, and the Rector of the Politecnico, **Guido Saracco**.

The MORE laboratory further reinforces the ongoing collaboration between Politecnico di Torino and Eni, that was outlined last January with the renewal of a **partnership agreement** to bring together Eni and Politecnico's researchers in a shared effort aimed at maximising expertise on marine energy towards a fast industrial deployment of sea power technologies. The work conducted in the lab will enable a **widening of the field of operation in the study of all sea energy sources**, from wave power to offshore wind and solar power, ocean and tidal currents, and salinity gradient.

MORE Lab is located in the Politecnico, where it benefits from the Department of Mechanical and Aerospace Engineering research infrastructures, and is complemented by two **Eni's facilities: Eni Marine Virtual Lab, located in the supercomputing HPC5 headquarters of Ferrera Erbognone, and Eni open sea test area in Ravenna**. Here, the

pre-prototype phase of ISWEC (Inertial Sea Wave Energy Converter), the first system in the world for the generation of hybrid energy from wave and photovoltaic power, is under way. This technology started in the Politecnico's labs and it was first developed by the Athenaeum spin off Wave for Energy. Then, Eni selected, optimised and industrialised it, and it is now operational in Ravenna's offshore since March 2019. ISWEC has proved high reliability and adaptability in a variety of sea conditions, thanks to its active control and adjustment system. While operational, it exceeded 50 kW maximum face value of installed power.

Moreover, the Laboratory collaborates with the Politecnico testing site in **Pantelleria,** where sea technologies are tested within an island ecosystem, with an aim of testing the potential self-sufficiency of energy, with no impact on the landscape.

There are around 50 **researchers involved** with MORE Lab activities, including permanent staff, doctoral students and undergraduates of Politecnico. The team will work with Eni's people to develop sector-specific expertise and to finalise the industrial deployment of the technologies. The Centre will benefit from a tank for naval tests, state-of-the-art labs to develop and dry test prototypes, and a high performing data centre.

Additionally, the Laboratory will make use of a **sector-specific chair in "Energy from the Sea",** in order to train engineers specialised in planning, producing and using the new technologies developed on site.

Eni's CEO, **Claudio Descalzi**, stated: "Eni's commitment in the development of key technologies for decarbonisation is further strengthened by the research led with Politecnico di Torino in the Marine Offshore Renewable Energy Lab. Our goal is to optimise existing technologies to make them even more efficient, competitive and therefore accelerate the industrialisation process of marine energies".

"For our Athenaeum, developing innovative solutions in the renewable energy and sustainability sector in close collaboration with the industry – and therefore readily available for the market – is especially crucial" commented the Rector of the Politecnico, **Guido Saracco**. "The laboratories and research projects developed with Eni in the MORE Lab will be pivotal in the next years for their significant contribution in finding solutions for the decarbonisation and emission reduction targets set by the EU".

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