PRESS RELEASE

TERNA LOOKS TO THE FUTURE AND TESTS THE INTERNET OF UNDERWATER THINGS TECHNOLOGY

In collaboration with Wsense, Terna has tested a network of marine sensors for the continuous, real-time monitoring of environmental conditions during the construction of submarine infrastructures

The adoption of Internet of Underwater Things (IoUT) technology could represent a strategic opportunity for monitoring the marine ecosystem during the construction process for large submarine electrical connections

Rome, 27 May 2024 – Terna has re-affirmed its commitment to adopting the most innovative technologies in order to ensure even more efficient and sustainable management of electrical infrastructures, particularly in submarine environments.

The company led by Giuseppina Di Foggia is taking a new step along its journey of innovation, by running a test of the Internet of Underwater Things (IoUT) technology in collaboration with Wsense, a leading deep-tech company specialized in underwater monitoring and communication systems.

In fact, the energy scenario of the future will involve increasing reliance on strategic backbones consisting of submarine electricity cables. Constructing these will require the adoption of innovative solutions to guarantee the security of the assets and monitoring of environmental conditions around the infrastructures. The Internet of Underwater Things (IoUT) represents a new frontier in technology, capable of ensuring a smarter and more sustainable management of submarine connections through advanced monitoring and the real-time communication of indicative submarine parameters, in order to analyse the human impact on the sea.

The trial of the IoUT technology was conducted in the waters of the Tyrrhenian Sea, in the Piombino Channel. Specifically, Wsense set up a system of submarine probes, all connected together in an underwater Wi-Fi network for the transmission of data. This submarine network was used to acquire data in real time, over a prolonged and continuous period, for monitoring various different parameters of the marine ecosystem: underwater noise, current measurements, chlorophyll, temperature and water turbidity.

"The Internet of Underwater Things technology offers great promise for the monitoring of underwater environmental conditions, representing an example of the energy and digital Twin Transition being pursued by Terna for the goal of building an increasingly sustainable electricity system. We are constantly engaged in the search for integrated solutions, aimed at developing submarine networks and managing them with greater efficiency. In this context, the technology we are testing with Wsense could pave the way for innovative approaches to mitigating environmental impacts and protecting the marine ecosystem", said Giacomo Donnini, Terna's Major Projects and International Development Director.

Massimiliano Garri, Innovation & Market Solutions Director at Terna, commented: "*We've been using IoT sensors for many years to monitor the status of the power grid, in order to improve its reliability and resilience. Together with Wsense, we're taking this technology beneath the sea for the first time, to investigate the potential of a submarine data transmission network that could measure certain aspects of the marine ecosystem. We can then use these to construct large submarine connections and manage them more efficiently. For Terna, the Internet of Underwater Things represents a world of fresh possibilities for optimising the transmission of electricity under the sea*".

The experimentation with Wsense also involved Terna's Innovation and Major Projects and International Development teams in an effective collaboration which reflects Terna's growing interest in adopting advanced solutions to improve the reliability of its network. It aimed to evaluate the adaptability of IoUT technology to the Group's specific needs, as well as its performance, and the results obtained show that this technological solution has highly promising potential.

Innovation will be crucial in achieving the energy transition targets that Terna has set itself: in fact, there can be no energy transition without a simultaneous digital transition to accompany and support it. The concept of the energy and digital Twin Transition is one of the pillars of Terna's 2024-2028 Industrial Plan, which has allocated approximately €2 billion for digitalisation and innovation. The Group is involved in around 70 innovation projects in five tech areas: Digital (smart energy and power management solutions), Energy Tech (innovative solutions that use more efficient, greener technologies), Grid Tech (technology for effective management of grid infrastructure), Advanced Materials (research and development for use of eco-friendly materials with reduced environmental impacts), and Robotics (for process automation).