Energy transition jerusalem

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Tel Aviv-Yafo is set to make waves--literally--in the renewable energy landscape. On Thursday, December 5, the municipality will inaugurate Israel"s first pilot station harnessing electricity from sea waves. The unveiling will take place at Warehouse 2 in the historic Jaffa Port.

Wave power, despite its immense potential, remains largely in the experimental phase. While commercial adoption has yet to gain traction, efforts to harness this energy date back to at least 1890. The allure of wave power lies in its remarkable energy density. Beneath the ocean’s surface, the time-averaged energy flow of waves is typically five times greater than that of wind energy measured 20 meters above the sea and 10 to 30 times more concentrated than solar energy.

This high energy density has made wavepower an attractive area for innovation, but a series of technical, economic, and environmental challenges have limited its widespread application. Despite these hurdles, the pursuit of wave power continues, driven by its promise as a renewable energy source with the potential to contribute significantly to the global energy mix.

Wave power has seen sporadic milestones in its development, beginning with the installation of the world"s first commercial wave energy device, the Islay LIMPET, on the coast of Islay, Scotland, in 2000. Connected to the UK national grid, the LIMPET marked a significant step toward integrating wave power into energy systems. In 2008, the Agu?adoura wave park in Portugal became the site of the first experimental multi-generator wave farm.

Oscillating water columns: These use an air turbine driven by the oscillation of water inside a partially submerged chamber.Oscillating bodies: Devices in this category generate energy through the motion of floating or submerged structures, employing mechanisms like hydroelectric motors, hydraulic turbines, or linear electrical generators.

In addition to the Jaffa pilot station, the company behind this wave energy initiative has ambitious plans for global expansion. Upcoming projects include a collaboration with Shell at the Port of Los Angeles and the construction of its first commercial wave power station in Porto, Portugal.

The company"s innovative technology leverages existing marine infrastructure, such as breakwaters and piers, to anchor its systems. At the heart of this setup are floaters, which rise and fall with the motion of the waves. This movement drives a hydraulic motor and generator, located onshore, to produce electricity. To enhance resilience, the system incorporates smart controls that lift the floaters out of the water during severe storms, mitigating the risk of damage.

By integrating cutting-edge engineering with practical adaptability, the company aims to advance wave energy

as a reliable and sustainable contributor to the global renewable energy portfolio.

The project is spearheaded by Inna Braverman, founder and CEO of Eco Wave Power. A graduate of the Women for Climate program, Braverman participated through Tel Aviv-Yafo"s Environmental and Sustainability Authority. Her innovative wave energy solution won a prestigious technology challenge, earning her recognition as a leading representative of Tel Aviv-Yafo in sustainable innovation.