

What is CalWave?

Calwave Power Technologies Inc. (CalWave) is a California-based developer of clean energy technology. CalWave's mission is to unlock the vast and steady carbon-free power from ocean waves. Our proprietary and patented wave energy converter technology, called xWave™, operates fully submerged while achieving high performance and surviving storms and extreme conditions.

CalWave spun out of UC Berkeley and the prestigious Cyclotron Road program in 2016, and was awarded by the U.S. Department of Energy's Wave Energy Prize.

What products and services does CalWave offer?

CalWave's proprietary solutions are based on the development and at-sea testing of the xWave™ architecture. For uncabled applications, CalWave offers the xNode and HydroNode. For larger applications cabled to shore, CalWave offers the x100 and x800 rated at 100 and 800 kW respectively.

The xNode is a versatile platform for converting and storing the power of ocean waves, serving as a facilitator in the Ocean Internet of Things. The device utilizes CalWave's scalable, multi-kW PTO platform and is customized toward the needs of end-users in maritime markets and Blue Economy applications.

CalWave's HydroNode is a wave-powered energy node enabling the delivery of fresh water to remote coastal communities. It provides a rapidly deployable, easily operated and maintained system for locally generated desalinated water to support coastal communities and disaster relief efforts.

All solutions utilize a digital twin application, which creates a virtual model of the physical devices to allow for data analysis enabling predictive maintenance and systems monitoring. Comprehensive services also include:

- predictive maintenance solution to ensure lowest inspection and maintenance costs,
- improvement evaluations to ensure optimal efficiency and performance,
- site assessments to conduct region-specific investigations and provide decision-making materials that identify potential risks and uncover needs.

Who can CalWave's products serve?

Our commercial turnkey solutions are capable of powering a range of offshore applications, communities, and different industries around the globe. Not only can CalWave's products provide clean electricity for up to 30% of U.S. homes and small island development states, which represent 11% of the global population, but we also offer our products to blue economy sectors like aquaculture, security and defense, inspection, navigation, disaster relief, and ocean science.

How does CalWave differ from peers in the ocean energy industry?

Unlike conventional technologies that extract wave energy at the ocean surface, CalWave's devices operate fully submerged and out of sight. This unique approach enables several improved operating abilities: it can survive stormy seas and extreme conditions, causes no visual pollution, and allows for precise control of structural loads by eliminating the need to manage the broad spectrum of wave loads typically found on the ocean's choppy surface. CalWave's devices are also designed for simple transportation and deployment.

When will CalWave's technology become commercially available?

We are currently piloting our demonstration device, which represents a scaled version of our utility-scale architecture. The scaled system has been operating in the open ocean since September 2021, connected via umbilical cable from Scripps Institution of Oceanography research pier in San Diego, California. This test will run for six months and we anticipate the potential to go-to-market thereafter in 2022.

Why is now the right time for CalWave to bring its technology to market?

Global energy consumption is projected to grow by nearly 50% between 2018 and 2050. Unfortunately almost 80% of energy demand currently falls on fossil fuels in the form of coal, natural gas, and oil - unsustainable sources which we won't be able to rely on for much longer. While governments begin to transition to renewable energy to tackle anticipations of shortage and the looming threat of climate change primarily driven by fossil fuel dependence, ocean-based solutions have enormous potential to address these challenges - yet they are completely underutilized at the moment.

CalWave's wave energy converter technology has been tested as a feasible solution for unlocking the vast and steady carbon-free power from ocean waves worldwide. We now have the opportunity to complement existing energy solutions to equip communities with clean, reliable, and local energy while keeping our planet and the health of future generations in mind.

What is the potential impact of CalWave's solutions?

Wave energy is the third-largest renewable resource after wind and solar in the US, and studies have shown that it has the potential to satisfy 20-30% of the global energy demand. Additionally, it has one of the lowest lifecycle emissions at 17 gCO₂e/kWh, and forecasts project that ocean energy has the ability to displace up to 1.38 - 1.9 GtCO₂ emissions equivalent annually.

Further, we primarily anticipate our short-term impact being in small island development states. They still heavily rely on diesel imports, yet diesel has emissions as high as coal in terms of CO₂/kWh. They have limited space - and even with wind and solar as alternative resources, hurricanes are a constraint. Tourism is one of their biggest industries, so having a renewable resource that works completely underwater and doesn't take up space while providing power close to baseload is a great opportunity for these communities.

What additional projects are in CalWave's pipeline?

CalWave plans to test the x100 rated at 100 kW at PacWave, the first commercial-scale, grid-connected wave energy test site in the US, expected to start operating in 2023. This project is supported by a 2019 US DOE award,

How can I connect with CalWave for additional information?

Please contact marcus@calwave.energy for business inquiries and press@calwave.energy for press/media inquiries.