



**HAWAI'I
STATE
ENERGY
OFFICE**

What is Ocean Energy?

Ocean energy comes from the ocean's tides, waves, and temperature differences. Several types of ocean energy technology can be used to make electricity, but they are all still in the early stages of research and development and are not commercially available in Hawai'i.



Wave Energy

Wave energy comes from the movement of ocean waves. Buoys in the ocean capture this movement and turn it into electricity. The amount of electricity generated depends on the strength, size, direction, and frequency of the waves.

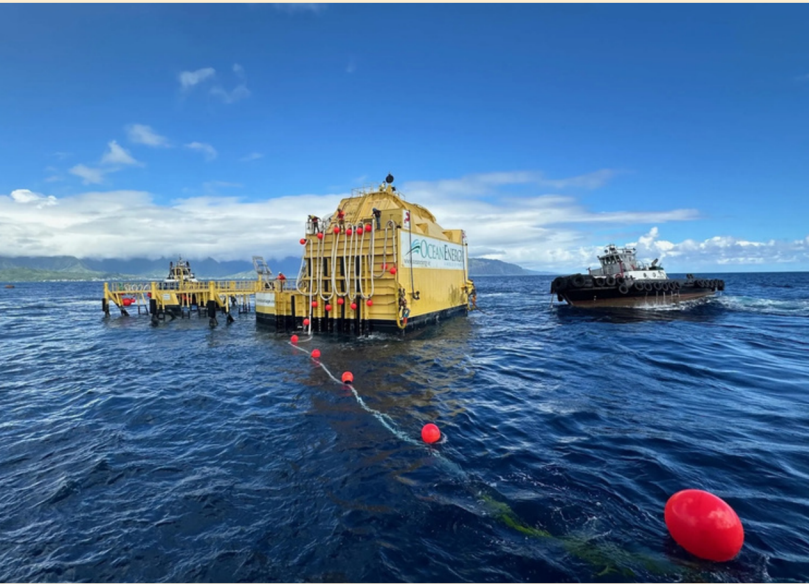


Photo courtesy of Ocean Energy

Hawai'i is home to the Wave Energy Test Site (WETS) off the Kāne'ohe Marine Corps Base on O'ahu. At WETS, wave buoy manufacturers can test the performance of their wave buoy designs.

Ocean Thermal Energy Conversion (OTEC)

OTEC makes electricity using the temperature difference between deep, cold ocean water and warmer surface waters. The temperature difference is used to make steam, which spins a turbine and generates electricity. Thanks to Hawai'i's volcanoes, deep, cold water is usually close to shore.



Photo courtesy of HOST Park

The state's only active OTEC pilot project is at the Makai Ocean Energy Research Center located at the Hawai'i Ocean Science and Technology (HOST) Park on Hawai'i Island.



Hawai'i's small tidal changes mean low potential for tidal energy.

The Hawai'i Ocean Science and Technology (HOST) Park is a renewable energy research and development test bed and outdoor demonstration site for new ocean-based technologies. HOST Park is state-funded and managed by the Natural Energy Laboratory of Hawai'i Authority (NELHA).



Photo courtesy of HOST Park

Ocean Energy: Key Takeaways



Intermittent: Certain ocean energy technologies' ability to make electricity depends on the ocean's unpredictable tides and waves.



Renewable: The tides, waves, and temperature differences that ocean energy relies on are natural forces that don't run out.



Better for the Environment: Unlike fossil fuels, ocean energy does not pollute the air or water. However, there are other environmental and ecological considerations still being studied, like impacts on marine life.



Expensive: Ocean energy technology is still in its early stages and is expensive to study and develop.



Learn more about ocean energy at
www.energy.hawaii.gov

