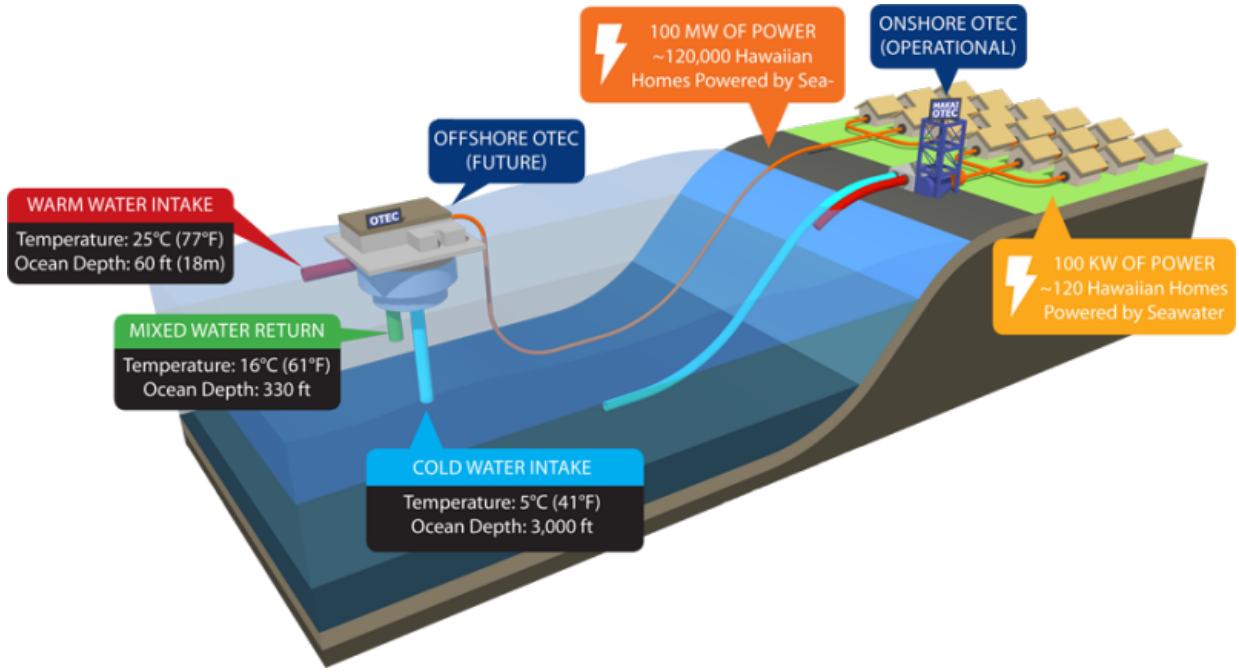
Celebrating Hawaii ocean thermal energy conversion power plant

August 25 2015, by Nancy Owano



An ocean thermal energy conversion power plant has gone operational; it was celebrated at the Natural Energy Laboratory of Hawaii Authority earlier this month. The governor of Hawaii, David Ige, "flipped the switch" to activate the plant.

This is the first true closed-cycle ocean Thermal Energy Conversion

(OTEC) plant to be connected to a U.S. electrical grid, said *Big Island Video News.com.*

A number of reporters for sites such as *Renewable Energy Magazine* and *Popular Science* were regarding the new plant as a significant marker in ocean energy efforts. This is a "demo" plant connected to the grid, capable of generating enough electricity to power 120 homes a year. (It's 105 kilowatts, enough to power about 120 homes.)

Big Island Now said kilowatts of sustainable, continuous electricity will be generated by the-site plant. While 120 homes is not a large number, the plant is considered significant as a test bed to commercialize ocean thermal energy conversion technology and to bolster innovation.

The process involves power derived from ocean temperature differences, as Mary Beth Griggs in *Popular Science* said, "between the warm, shallow seawater lapping up against a beach and the icy depths of the ocean." Griggs said the plant, built by Makai Ocean Engineering and situated at the Natural Energy Laboratory of Hawaii Authority (NELHA), expects to generate enough energy to power 120 homes per year and is the largest plant of its kind in the world.

The company described OTEC as a process that can produce electricity by using the temperature difference between deep cold ocean water and warm tropical surface waters. "OTEC plants pump large quantities of deep cold seawater and surface seawater to run a power cycle and produce electricity."

Anna Hirtenstein in *Bloomberg* reported that the project cost about $5 million to build and said that this is the world's largest plant to date utilizing the evolving renewable source.

The state of Hawaii hopes to be wholly powered by renewables by 2045, said Bloomberg.

Hawaii's governor, David Ige, said Dan McCue in *Renewable Energy Magazine*, predicted that this will pave the way for larger plants serving a wider geographical area.

"Today marks the launch of the world's largest operational ocean thermal

power plant," said Governor Ige. "This plant provides a much-needed test bed to commercialize ocean thermal energy conversion technology and bolster innovation, and it serves as a stepping stone to larger plants that will provide meaningful amounts of stable, clean power to Hawai'i and other locations in Asia Pacific, such as Okinawa, in the near future."

Makai Ocean Engineering began in 1973 as an ocean engineering company and has been pioneering OTEC research, with various contracts. Duke Hartman, vice president of business development at Makai, said in a phone interview with *Bloomberg* that the plant is "dispatchable." That means power quickly can be ramped up or down to accommodate fluctuating demand and intermittent power surges from solar and wind farms.

More information: www.makai.com/ocean-thermal-energy-conversion/

Citation: Celebrating Hawaii ocean thermal energy conversion power plant (2015, August 25) retrieved 23 April 2024 from https://techxplore.com/news/2015-08-celebrating-hawaii-ocean-thermal-energy.html