

WHAT IS OTEC?

The world's oceans are the largest solar collectors on earth. Each day, the sun heats the ocean's surface waters, while the deep ocean remains near freezing. Ocean Thermal Energy Conversion (OTEC) uses the temperature difference between the deep cold ocean water and warm tropical surface waters to run a power cycle and generate electricity. This power cycle is similar to those used in traditional thermal power plants, but at lower overall temperatures. However, the only fuel for an OTEC plant is the heat energy contained in seawater. This is a natural solar resource that is freely available 24/7, sustainable, and virtually inexhaustible.



OTEC provides constant, steady power, 24/7 and year-round, without any energy storage



Large-scale OTEC will be offshore, and will not compete for land, food, or freshwater.



All of Hawaii's electricity needs could be satisfied by about 12 commercial-scale OTEC plants



Global OTEC investment has surpassed \$100 million USD spent or committed to OTEC R&D since 2009



The global resource is large enough to produce 4X humanity's electrical needs.

1

OFFSHORE COMMERCIAL-SCALE OTEC PLANT COULD...



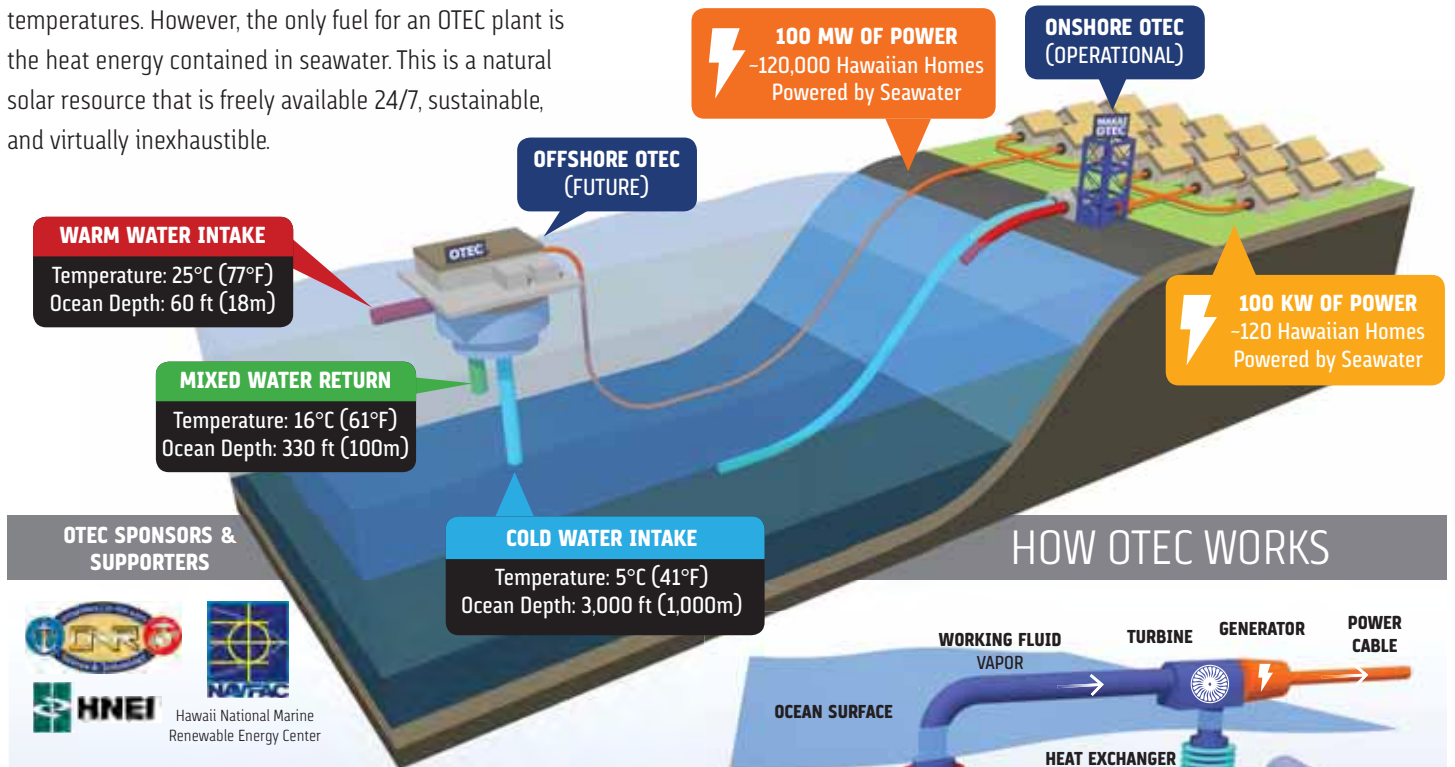
...prevent burning roughly 1.3 million barrels of oil each year



...produce electricity at roughly \$0.20/kW-hr levelized cost of energy



...prevent CO2 emissions of over half a million tons per year (over 100k cars)

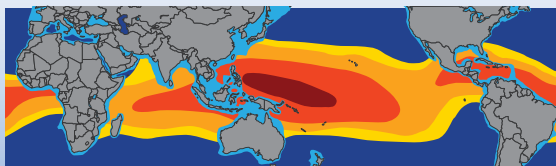


OTEC SPONSORS & SUPPORTERS



Hawaii National Marine Renewable Energy Center

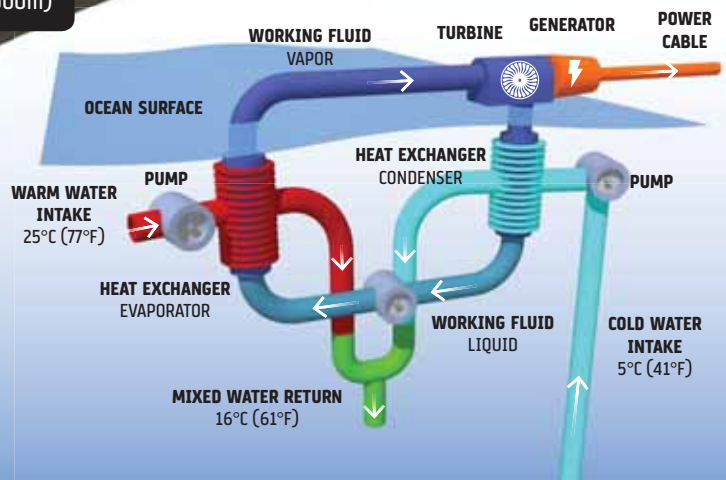
OCEAN THERMAL RESOURCES



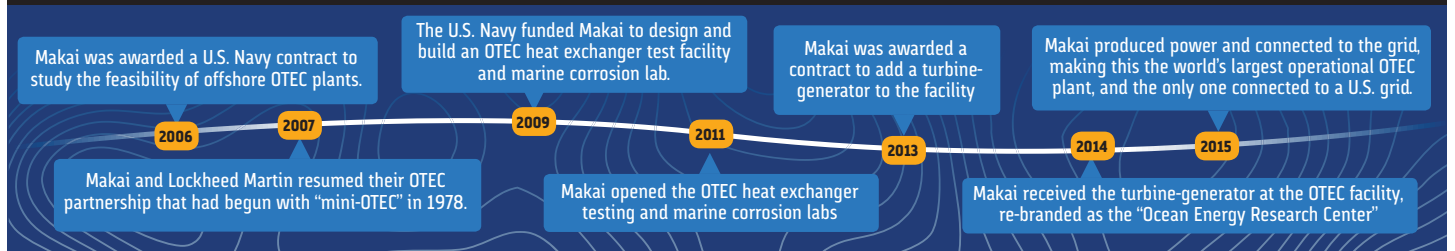
Temperature Differences Between Surface and 1000m Depth

■ + 24°C ■ 20°C - 22°C ■ - 18°C
■ 22°C - 24°C ■ 18°C - 20°C ■ Less than 1000m deep

HOW OTEC WORKS



KEY MILESTONES FOR THE MAKAI OCEAN ENERGY RESEARCH CENTER



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