

Ocean Thermal Energy Conversion Systems

A great amount of thermal energy (heat) is stored in the world's oceans. Each day, the oceans absorb enough heat from the sun to equal the thermal energy contained in 250 billion barrels of oil. OTEC systems convert this thermal energy into electricity — often while producing [desalinated water](#).

Three types of [OTEC systems](#) can be used to generate electricity:

[Closed-cycle](#) plants circulate a working fluid in a closed system, heating it with warm seawater, flashing it to vapor, routing the vapor through a turbine, and then condensing it with cold seawater.

[Open-cycle](#) plants flash the warm seawater to steam and route the steam through a turbine.

[Hybrid plants](#) flash the warm seawater to steam and use that steam to vaporize a working fluid in a closed system.

OTEC systems are also envisioned as being either [land-based](#) (or "inshore"), [near-shore](#) (mounted on the ocean shelf), or [offshore](#) (floating).