

# Innovative business models and sector coupling

## Description of technology/business model:

Coastal renewable energy development can provide co-benefit in promoting aquaculture, fishery, cosmetics production and thalassotherapy spa. Ocean Thermal Energy Conversion (OTEC) in Kimejima, Okinawa, Japan proves to provide such co-benefits. Offshore fixed bottom or floating wind turbines can also provide co-benefit in promoting fishery as the underwater structure can function as fish aggregating devices and, spawning ground if the artificial reef components using natural materials (e.g., used oyster shells) can be attached to the underwater structure. Challenges however lie thereon.



Company/ Institution	OTEC: Okinawa Prefectural Government and a consortium (HI Plant, Genesis, Yokokawa Electric and Nagasaki University),; Offshore floating wind turbine: Ministry of the Environment, Japan (Toda Construction, Hitachi, Kyushu University and Marine Engineering)
Revenue streams	OTEC: 100kW with US\$23million/y economic impacts using deep sea water Offshore floating wind turbine: 2MW
Projects	Project name, technology type
Capacity (MW)	OTEC: 100kW; Offshore floating wind turbine: 2MW
Additional benefits	OTEC: Deep sea water for multiple use, Wind turbine: potential of fishery promotion
CAPEX (range)	OTEC: Estimate US\$78.6 million (OTEC construction cost), Wind turbine: US\$28.8 million
LCOE (range)	OTEC: Target US\$0.185/kWh, Wind turbine: Wind turbine: Target US\$0.32/kWh
Lessons Learned	OTEC: Limited applicability as it requires temperature gaps and steep underwater cliffs, Wind turbines: social acceptability, compatibility with fishery/tourism, need for marine spatial planning