

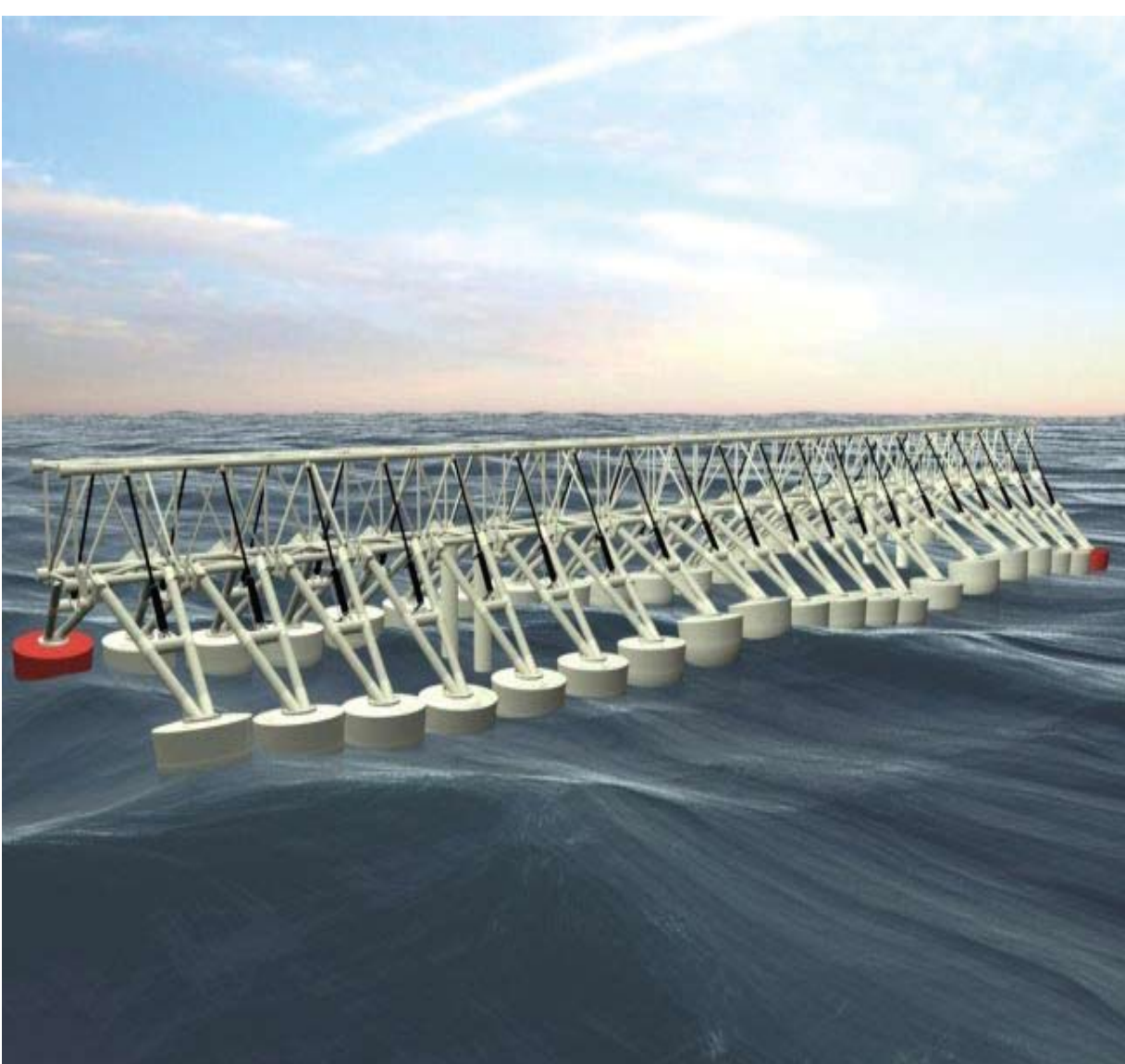
Wave Energy Conversion (WEC) Devices

Pelamis Wave Power – Pelamis



The Pelamis wave energy converter is a free floating, hinged attenuator device. This device consists of four tubular sections connected by three hinged modules, which move relative to each other. This motion is converted to power by means of a hydraulic power conversion system in each of three power conversion modules. The Pelamis is slack-moored with a compliant mooring configuration that both points the device into the waves and enhances survivability.

Wave Star Energy – Wave Star[®]



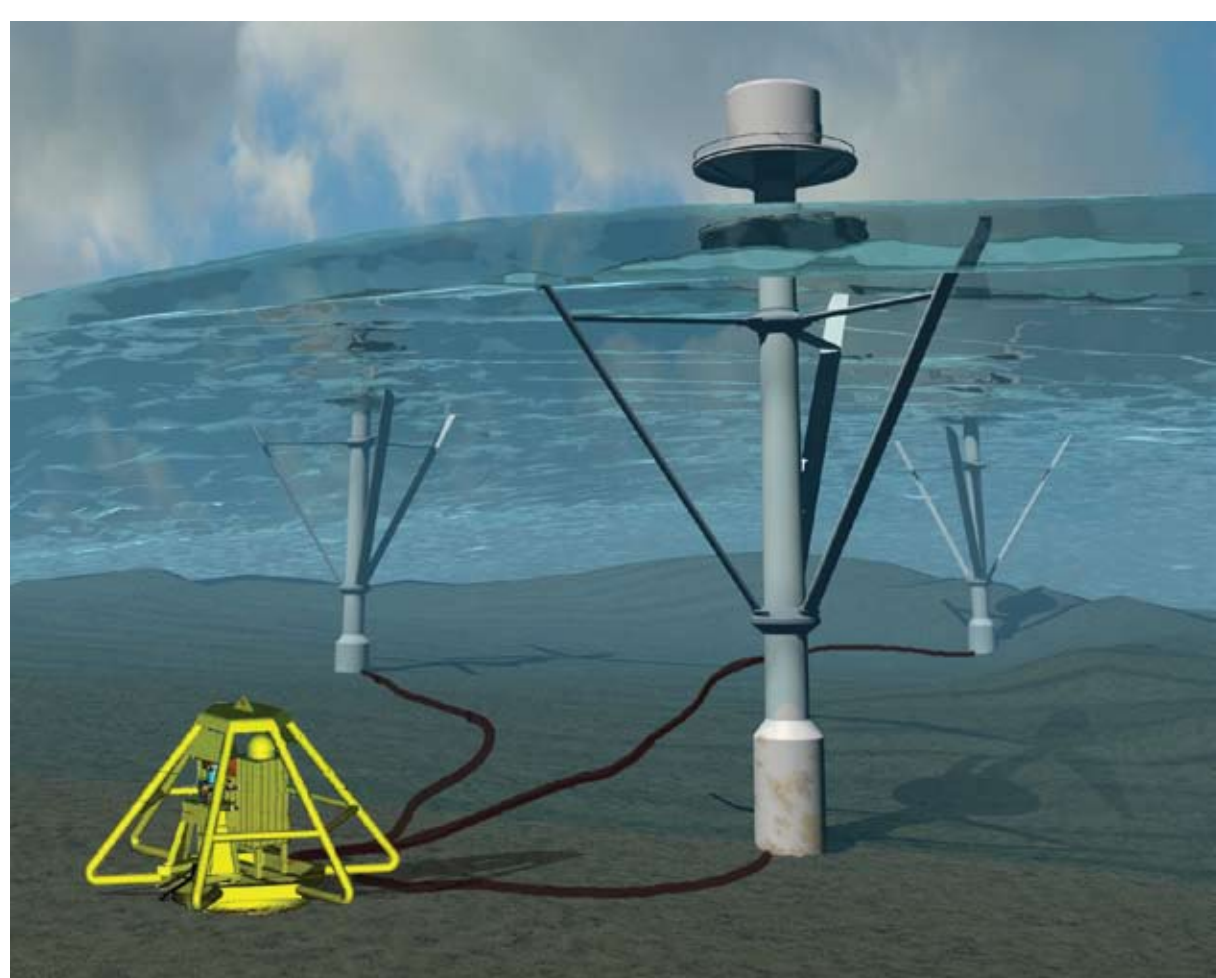
The Wave Star machine is an attenuator device that cuts in at right angles to the direction of the wave and the waves run through the length of the machine. On either side of the oblong machine there are 20 hemisphere-shaped floats which are partially submerged in the water. When a wave rolls in, the first float is lifted upwards, and then the second and so on, until the wave subsides. The floats are each positioned at the base of their own hydraulic cylinder. When a float is raised, a piston in the cylinder presses oil into the machine's common transmission system. The pressure drives a hydraulic motor, which is connected to the generator, which produces the electricity. The device sits on piles like an offshore structure and the floats are raised above the waves for survivability.

Wave Dragon Ltd. – Wave Dragon



The Wave Dragon is an overtopping device, that combines a double-curved overtopping ramp and two reflector wings, which focus energy towards the ramp. The waves surge up the ramp, as if it was a beach, and behind the ramp a reservoir collects the overtopping water. Multiple variable-speed propeller turbines are used to convert this low-pressure head into electricity using standard type AC generators. The device is slack-moored and is able to swivel in order to always face the wave direction.

Ecofys – Wave Rotor



The Wave Rotor operates on principles of hydrodynamic lift and can tap both the kinetic energy in waves and tidal currents. Circulating currents in waves exert forces on a set of blades that turn the rotor in one direction regardless of wave or current direction. This device consists of a vertical axis with both slanted blades and horizontal blades fixed to the same axis. The waves turn the rotor, which turns the shaft, which is coupled to a generator through a gear box. The Wave Rotor is monopile mounted.

PG&E has not selected any of these Devices for the proposed pilot project.

