Oneka

Wave Powered Sustainable Desalination

Conventional desalination has a significant carbon footprint, producing around 0.5% of the world's total emissions in 2020, which ironically contributes to the decline of natural freshwater resources.

In this context, Oneka has developed wave-powered desalination systems, which provides freshwater taking into account the three facets of sustainable development: social, environmental & economical.

Demo Site, Fort Pierce, FL (U.S.)

ONEKA'S SOLUTION

The mission of Oneka Technologies is to provide water that is sustainable, accessible and affordable. By leveraging the ocean's wave energy, Oneka provides its clients potable water with no compromises to the environment while helping them become more resilient and reducing their costs of water. The benefits of adopting Oneka's technology include:

- Zero CO_2 emissions;
- Zero electricity;
- Zero land space required;
- Zero chemicals;
- Zero capital cost for desalination;
- Modular & scalable system;
- Eco-friendly brine;
- Artificial reefs.

SOLUTION APPLICABLE FOR:

1. Island states, private islands, coastal communities and industries, resorts, etc.
2. Freshwater needs of at least 200 m^3/day
3. Coastal area with an average offshore wave height > 1 m

CONTACT US!

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ONEKA'S BUSINESS MODEL:

Oneka Technologies provides a solution for clients who are looking to obtain a water supply solution with minimal financial risks. Unlike a traditional Equipment Purchase where the client has to take on all the risks of finance, procurement, construction, operation and maintenance, Oneka Technologies finances, designs, installs and operates their systems at its own cost. Under this business model known as "**Build-Own-Operate**" (BOO), the client simply pays for the water on a volumetric (per cubic meters, gallons) basis.

This model transforms the typical vendor-customer relationship into a partnering relationship where the interests of both the client and Oneka are aligned. As opposed to equipment manufacturers who must make their money upfront, Oneka must design solutions that perform over the life of the contract. Since Oneka's capital is at risk and is paid only when we deliver water, our plants are designed with durability, reliability and energy efficiency in mind. That means our client can focus on their core business while having the peace-of-mind of Oneka's professional services & devoted team.

ONEKA WATER SERVICE INCLUDES:

- Water needs & site analysis
- Project financing
- Custom project design
- Offshore buoy installation
- Management of local contractors
- Training program for local technicians (maintenance and repair)
- Monitoring of water quality according to local standards and system performance

SUSTAINABLE DEVELOPMENT GOALS

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SPEC SHEET

ONEKA ICEBERG UNIT

Technology: Wave-powered desalination buoy, producing potable water through the reverse osmosis process.

Average production/unit:
30-50 m^3/day (8k-13k US gal/day)
(Production is wave height dependent. The optimal quantity of buoys is calculated in order to meet water needs.)

Typical brine salinity: 45 000 ppm
(approx. 30% higher salinity than seawater)

Energy recovery: >20-30 %

Energy consumption: 0 kW & 0 kWh/m3

Salt removal rate: >99 %

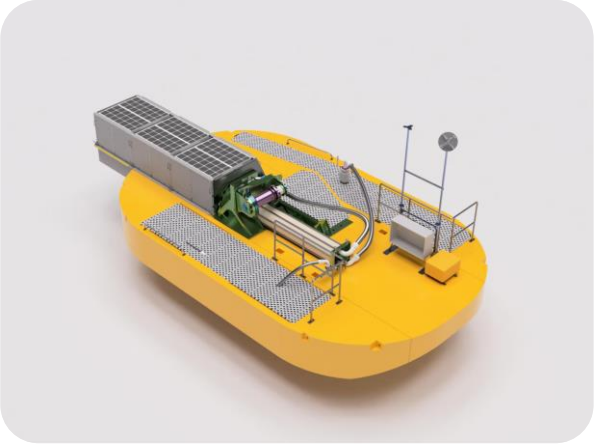
Operating temperature: 10-45 °C (50-113 °F)

Operating pressure: 30-60 bar (435-870 psi)

Designed to withstand: 4 m (13 ft) waves without intervention (2021 model), storm survival features for harsher conditions.

PROJECT REQUIREMENT:

- **Typical project:**
  200-2000 m^3/day (53k-528k US gal/day)
- **Distance from shore:** 0.2-5 km (0.1-3 mi)
- **Required water depth:** 13-30 m (43-98 ft)
- **Minimum operating wave height:** 0.7 m (2 ft)
- **Minimum average wave height:** 1 m (3 ft)
- **Ideal wave height:** 1.5 m (5 ft) or more



Weight: 11,000 kg (23,000 lbs)

Dimensions: ≈ 5m x 8m (16 ft x 26 ft)

Material: Around 80% recycled PET (as plastic bottles), steel, FRP, specialized stainless steels

Lifespan: 20 years

WATER STANDARDS*:

TDS drinking water: <1000 ppm (WHO)

TDS irrigation: generally between 500-1000 ppm (EPA)

*Water can be adjusted according to local standards and/or client needs.

CUSTOMIZABLE ELEMENTS:

- Anchor design
- Water reservoir
- Post-treatment (chlorination, corrosion inhibitor, de-gasifier, etc)

For any additional information, please contact us at Info@OnekaWater.com

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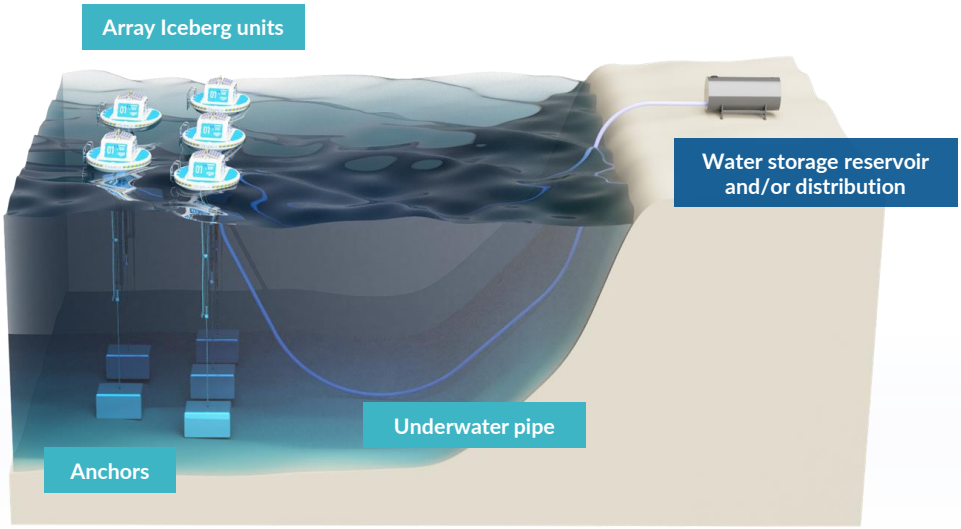
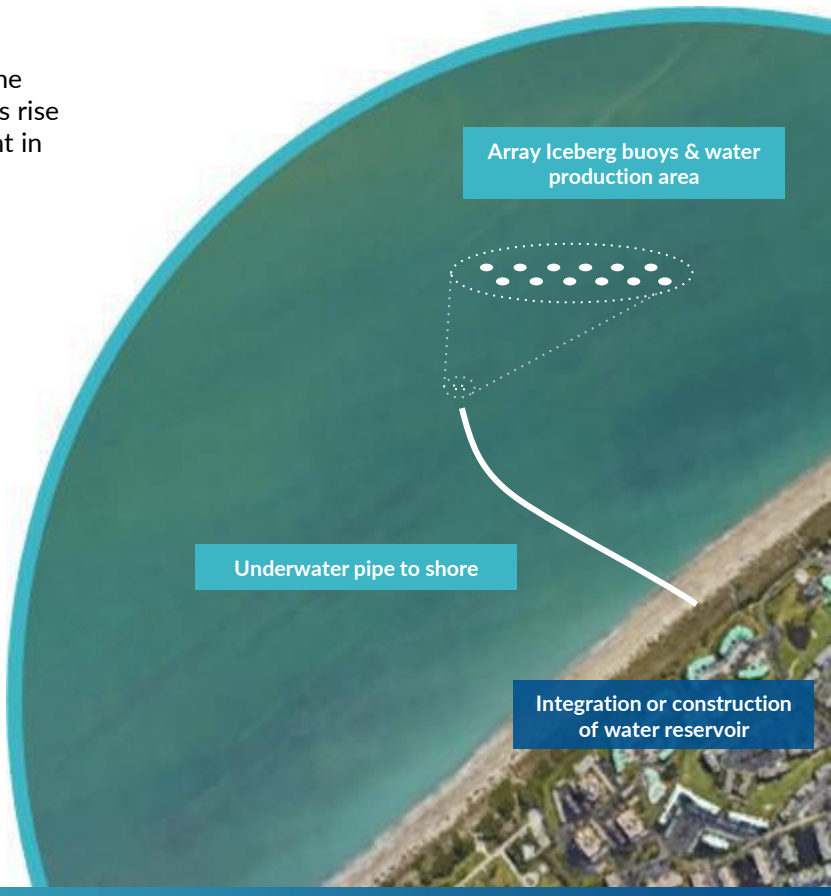


HOW THE TECHNOLOGY WORKS:

- Oneka's surface buoys are tethered to anchors on the ocean floor.
- The oscillating motion of the waves is harnessed to actuate a water pump. The seawater is pressurized when the buoys rise and is propelled towards a process plant in which water is filtered and desalinated through an energy optimized reverse osmosis process before being benignly discharged back to the sea.
- Buoys can be configured with a desalination plant on each buoy, a larger desalination plant on one of the buoys or with a desalination plant onshore with an electric backup pump depending on the client's needs.
- Water is transmitted to the shore using the residual wave energy in a submerged pipeline, which can then be stored or directly distributed.
- Instrumentation and telemetry are powered from a solar/battery pack.



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