An Ocean-Based and Nature-Powered Desalination System

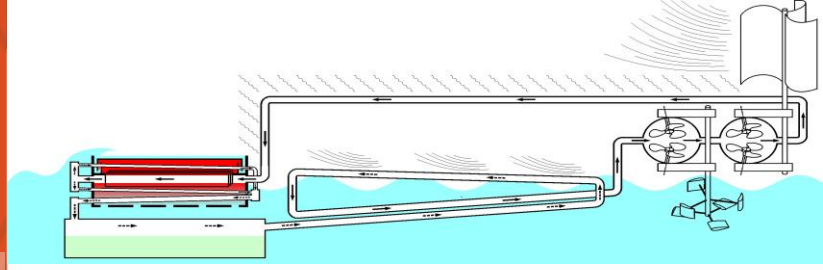
This invention is a desalination system which is well-engineered and environmentally friendly , situated in open ocean and powered by nature with zero consumption of electricity.

Problem

The major nitpicks in existing industrial desalination technologies are brine production, high operational and the adverse environmental impact. As a matter of fact, about half of the cost attributed to electricity charges, and the adverse environmental impact they pose.

Solution

This technology is a new humidification-dehumidification (HDH) desalination system. It uses multiple renewable energy sources to directly power the process, eliminating brine production and electricity use. The direct application of multiple renewable energy sources in a combined fashion offers an effective means to lower the cost, minimize the negative environmental impact, and increase the freshwater production rate.



A closed-air open-water HDH system that is fully and directly powered by multiple renewable energy sources.

Value Proposition

- The process promises high throughput of freshwater as well as low capital and O&M costs.
- For very 1000 liters of freshwater produced, 3-10 kWh of electrical energy can be saved.

Competitive Advantages

- Self-energy sufficient (zero-electricity usage).
- Suited for harsh ocean environments.
- Easy re-deployment with minimal decommission-recommission effort.
- Relatively low system building cost and fit for disaster recovery missions.

Status of Development

- Technology Readiness Level (TRL): 4
- Seeking implementation and research advancement partners

IP Status

- Patent Issued: 11148958, D821316, D821317, D821318, D821319.

For further information regarding this Technology please contact:
Office of Technology Commercialization
1201 W. University Drive Edinburg, TX 78539
Email: otc@utrgv.edu Phone: 956-665-3032

The University of Texas Rio Grande Valley
Office of Research Translation