



**DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM**

**NATURAL ENERGY LABORATORY OF HAWAII AUTHORITY**

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**STATE OF HAWAII SECURES \$2 MILLION IN FEDERAL FUNDING FOR SOLAR  
DESALINATION DEVELOPMENT**

**Harnessing and integrating solar power with novel desalination technologies at  
low cost and bringing the system to market faster is key.**

KAILUA-KONA, HAWAII – The Natural Energy Laboratory of Hawaii Authority (NELHA) is set to receive a \$2 million award from the U.S. Department of Energy Solar Energy Technologies Office (SETO) to advance solar-thermal desalination technologies, which can reduce cost and expand the market for creating freshwater from otherwise unusable waters.

The project at NELHA will demonstrate improvements to thermal desalination technologies and low-cost integrated designs for solar-thermal collection and storage to reduce the cost of desalination at its Hawaii Ocean Science and Technology Park (HOST Park) on the Island of Hawaii.

“This is another example of the exceptional value that our support and investment into the critical infrastructure of this technology park in West Hawaii has generated,” said Gov. David Y. Ige. “We will continue to pursue federal funding to allow NELHA to maintain its competitive advantage and give the community an asset found in very few places in the world.”

“This project will be the world’s largest forward osmosis (FO) solar thermal desalination plant for a high visibility ‘on sun’ demonstration of seawater desalination for agricultural applications,” said Gregory P. Barbour, executive director for NELHA. “The project will include commissioning an existing 2MW solar thermal array, coupling it to next-generation 130,000 gallons per day FO system and delivering water to a commercial customer, Cyanotech, at the HOST Park who will use it for commercial aquaculture production of microalgae for nutraceuticals” he added.

This project will advance the techno-economic viability of solar-powered FO by reducing the levelized cost of water 40 percent less than that of current state-of-the-art technology.

The NELHA team will demonstrate a system that incorporates a concentrating solar thermal collector array delivering heat to a FO system. This system will utilize a new generation of membranes whose energy efficiency and durability will be demonstrated in this project.

“This project is very important to NELHA for a number of reasons,” explained Barbour. “First, these funds will help get new technology for desalination to market at a much lower cost. Second, we have been looking for a suitable use for the old Keahole Solar Power (Sopogy) site for some time, and this project will use all of the existing infrastructure on the site. Finally, NELHA will be producing a significant amount of water for agricultural use and free up existing potable water for expansion of new projects at HOST Park.”

SETO has selected 14 projects in its Solar Desalination program to reduce the cost of solar-thermal desalination by performing integrated tests on best-in-class, near-commercial desalination systems that produce repeatable results with clear and quantifiable objectives. Electricity costs account for up to half of the operating expenses for today’s desalination operations and require plants to be grid-connected. Using solar-thermal power and low-cost components for integrated designs can enable smaller, more portable systems and expand access to desalination technologies.

Dr. Alexander Leonard of NELHA was instrumental in developing the proposal and leads the NELHA team, which also includes Trevi Systems Inc., Cyanotech and Hawaii First Water LLC.

Mr. John Webley, President of Trevi Systems Inc. said “We are excited to receive this funding and work with NELHA and other team members to validate the commercial viability of our technology.” We have been involved in the greener side of desalination for over 10 years and the next wave of water treatment using our technology will disrupt the water and energy nexus, helping farmers deliver more affordable food to your table as well as lower cost drinking water.” he added.

**About NELHA (Natural Energy Laboratory of Hawaii Authority):**

NELHA is a state agency, attached to the state Department of Business, Economic

Development and Tourism (DBEDT). NELHA administers the world's premier energy and ocean technology park (HOST Park). This unique master-permitted park is on 870 acres of prime coastal property in Kailua-Kona, Hawaii and offers research support facilities for the development of renewable energy and other demonstration projects that use the unique resources found at the park. It is the world's only facility that continually brings ashore high quality, pristine supplies of both warm surface and cold deep seawater 24 hours a day, which helps to reap economic potentials from the dual temperature seawater delivery system and high solar insolation. Tenants located in HOST Park work at the pre-commercial, commercial, research and educational levels. It is the largest diversified economic development project in the state and is focused on sustainable economic development projects and blue technology.

#### **About the Department of Business, Economic Development & Tourism (DBEDT)**

DBEDT is Hawaii's resource center for economic and statistical data, business development opportunities, energy and conservation information, and foreign trade advantages. DBEDT's mission is to achieve a Hawaii economy that embraces innovation and is globally competitive, dynamic and productive, providing opportunities for all Hawaii's citizens. Through its attached agencies, the department fosters planned community development, creates affordable workforce housing units in high-quality living environments, and promotes innovation sector job growth.

#### **About the Solar Energy Technologies Office**

The U.S. Department of Energy Solar Energy Technologies Office supports early-stage research and development to improve the affordability, reliability, and performance of solar technologies on the grid. Learn more at [energy.gov/solar-office](https://energy.gov/solar-office).

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