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Preparing for the Next Big Drought: Sunvapor Receives \$1.5M Award from U. S. Department of Energy

Steam will be generated during day and night hours from concentrated sunlight, targeting 1.5¢/kWh for desalination and other industrial processes

June 25, 2018, Livermore, CA – Sunvapor, Inc., a company that develops technology solutions to sustainability challenges, announced that it was selected to receive a \$1.5 million award from the U.S. Department of Energy Solar Energy Technologies Office (SETO) to advance solar-thermal desalination technologies, which can reduce costs and expand the market for producing freshwater from otherwise unusable water.

This project, “Solar Steam on Demand” will enable for the first time a continuous operation of distillation equipment at a leveled cost of heat of 1.5¢/kWh, even when the sun is not shining. Sunvapor will develop a prototype solar steam plant that combines novel energy storage technology with its low-cost, high-efficiency solar collectors.

Desalination of inland brackish water demands an alternative to reverse osmosis. Evaporative processes are able to achieve zero liquid discharge to manage the brine waste, but a cost-effective renewable process has been elusive due to high heat input costs. Sunvapor’s solution will use a solar steam architecture that delivers 11 bara saturated steam pressure—a necessary ingredient for efficient desalination—and thermal energy storage, allowing the distillation equipment to run on solar at night. These steam conditions precisely match those needed for most industrial applications such as food processing and refineries.

“Second only to the transportation sector, industrial processing is the largest source of greenhouse gas emissions in California. Our aim is to offer a renewable alternative by driving down the cost of dispatchable solar steam while also opening up the market for inland desalination,” said Dr. Philip Gleckman, Sunvapor’s CEO.

This project builds on the earlier success of Sunvapor’s low-cost, high-performance Green Parabolic Trough Collector™ project funded by a [U. S. Department of Energy COLLECTS award](#). The collector technology will be scaled up and paired with a steam energy storage technology that Sunvapor is co-developing with researchers at the National Renewable Energy Laboratory. The storage technology is based on a previously unexplored class of low-cost materials that melt when the steam is stored and freeze when the steam is regenerated at night. The prototype solar steam plant will first be deployed for a food processing application where there is an urgent need for greenhouse gas reductions.

“The production of tomato paste at our scale requires a very significant amount of natural gas to generate hundreds of thousands of pounds of steam per hour in evaporators,” said Brandon Clement, General Manager of Los Gatos Tomato Products, LLC. He continued, “We believe that Sunvapor’s Solar Steam on Demand has the potential to provide an economically viable reduction to our greenhouse gas

emissions. By generating steam at night from thermal energy storage we can see a path to exiting Cap and Trade altogether!” John Larrea, the Director of the Governmental Affairs at the California League of Food Producers, added “Sustainability remains a concern for CLFP members. With their Solar Steam on Demand project, Sunvapor is taking an urgently needed step towards offering a sustainable source of both clean water and energy to our members.”

Project engineering will start in the fourth quarter of 2018, and the completed prototype plant with integrated storage will be tested for performance through the first quarter of 2021. The project will serve as a reference for the development of replica solar steam plants with storage throughout California and other states with adequate solar resource.

About Sunvapor

Sunvapor, Inc. is a California-based company pioneering the deployment of solar steam, with its first project built at Horizon Nut Company in Firebaugh, CA. In addition to the SETO Award for Solar Steam on Demand, Sunvapor has received a SETO Award for its Green Parabolic Trough Collector™, a Small Business Innovation Research Award for robotic automation, and a CalSEED Award from the California Clean Energy Fund for industrial solar steam.

Learn more at <http://www.sunvapor.net>.

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.

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