American Solar Energy Society's

# Solar@Work

## A New Kind of Solar Panel That's Smart, Stores Energy, and Even Talks

A fog machine goes off, and an astronaut emerges from behind the assembled crowd, carrying the device that the room has been waiting to see up onto the stage. The atmosphere could be mistaken for the unveiling of the latest virtual reality headset or a new Silicon Valley-backed fitness tracker. But the four-year-old startup called SunCulture Solar, led by entrepreneur and inventor Christopher Estes, has developed something much more unusual and the company unveiled it for the first time on Wednesday night in the penthouse at The Battery club in downtown San Francisco. Estes has redesigned the solar panel, integrating batteries into the panel itself, overlaying it with smart sensors and software and wirelessly linking it to a computing hub and cell phone app. The company's panels, called SolPads, are supposed to be sold late next year in a system for a rooftop, or as a stand alone panel that can be propped up on a back deck or balcony. More

## Drones and Robots Make Solar Panels More Efficient

Robots are infiltrating warehouses, classrooms, farms, and city streets. Now, they are making themselves useful in the renewable energy industry. SunPower Corporation, a solar cell manufacturer headquartered in Silicon Valley, will use robots and drones to make solar power plants more efficient.
The company is starting construction on its new "Oasis" power plants in North America and China during the next several weeks. In this new generation of power plants, project design is automated using drones and software. The drones fly over a site to gather data, and then the software creates and evaluates thousands of designs and recommends the best options. This way, developers can easily compare potential sites, and customized configurations can make the most out of the available space. More

## Meet SolPad, an Integrated Solar-Plus-Storage Solution Fresh Out of Stealth Mode

Sometimes solving a problem requires coming at it with an entirely different perspective. That's how Christopher Estes came to create SolPad -- a potentially disruptive home solar solution that launched yesterday after several years of quiet development. Estes is the inventor of a professional audio device called CLASP (Closed Loop Analog Signal Processor) that allows audio recording experts to seamlessly bridge analog and digital recording techniques. The technology was launched in 2010 and is still used widely in recording studios. Today, however, Estes is squarely focused on the clean-energy sector. Estes is currently the CEO and chief product architect of SunCulture Solar, and the inventor ofSolPad -- a first-of-its kind integrated solar-plus-storage solution designed for the masses. Each unit features a high-efficiency solar panel, a built-in solid-state battery, an inverter system, and software that uses gamification to promote sustainable energy use, all contained in a single device. Traditionally, solar and home energy management devices are bought and installed separately. More

***"Doing all we can to combat climate change comes with numerous benefits, from reducing pollution and associated health care costs to strengthening and diversifying the economy by shifting to renewable energy, among other measures." David Suzuki***



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## Cuba Turns to Foreign Investors to Boost Renewable Energy

Nearly two years after presidents Barack Obama and Raul Castro announced a thaw in relations, Cuba's communist government is turning to foreign investors to boost renewable energy as it faces cutbacks in cheap oil imports from Venezuela. The government formed by Fidel Castro in 1959 and led by his brother, Raul, is pitching large wind and solar projects and biomass plants that run on sugar cane to foreign companies at conferences like one opening Thursday in Havana. The goal: Bring billions of dollars into sectors that until recently were controlled by state-run entities, and lift the amount of electricity produced by renewables to 24 percent by 2030 from 4 percent today. The shift is less about ideology than supply and demand. The island nation relies heavily on oil-burning power plants that run on subsidized imports from Venezuela. With an economic crisis in that country threatening those supplies, Cuban officials fear a return to the turbulence of the early 1990s when funding from the former Soviet Union began drying up. "It's unprecedented for the government to be making an open presentation of this scale to international companies like this," said Andrew MacDonald, director and vice president of Havana Energy, which is building biomass plants at sugar refineries. "This is a top priority for the Cuban government." More

## Solar Roadways Project Unveiling Set

On Sept. 30, the first-ever public demonstration of Solar Roadways will be revealed at Jeff Jones Town Square. The joint project between the city of Sandpoint and Solar Roadways, Inc. encompasses 150 square feet of the town square. The project is the first test site of the Solar Roadways SR3 panel. Heating elements built into the panels will ensure a snow-and ice-free walking path and the embedded LED lights will be featured in interactive displays to engage children and families. The solar panels will also feed back into the grid and offset energy usage by the city of Sandpoint, which draws from metered power in the area, and will power the pump for the fountain in the square. City workers began preparing the area at the square near the end of August, tearing up concrete for installation of the solar infrastructure. In an interview with the Daily Bee in August, City Administrator Jennifer Stapleton said they hoped to have the project ready to unveil to the public by early September, but she also said there was a "fair amount" of logistics to work through, such as appropriate drainage for the snow melt. More

## Solar-Powered Liquid Battery Hybrid Prototype Could Be Major Breakthrough

Everyone loves the idea of solar energy, but the reality is that it's not always efficient enough for our needs. At present, solar cells have not been developed at a scale relative to our total energy requirements. Although engineers are building ever cheaper and more efficient solar panels for lapping up the sun's rays, one major bottleneck is the inability to store this energy for times when the sun's not shining down on us. A new proof-of-concept device created by researchers at the University of Wisconsin-Madison in Wisconsin, and King Abdullah University of Science and Technology in Saudi Arabia may help change that, however. They've combined a solar cell with a large capacity liquid battery that skips the electricity-making process in favor of transferring the harvested solar energy directly to the battery's electrolyte. More

## Elon Musk Aims to Unveil Tesla Solar Power Roof Next Month

Elon Musk tweeted on Thursday that he hopes to unveil a Tesla/SolarCity solar roof with a new integrated battery pack and Tesla car charger on Oct. 28.Musk first began teasing the next generation Powerwall at an event for Tesla owners in Paris earlier this year, according to Electrek. At the time, he had said the company would roll out the new battery in "July or August." SolarCity's merger with Tesla has aroused skepticism and even ire from some investors and analysts, even after Musk outlined his reasons for combining the two companies in his second installment of his "Master Plan" in late July. Musk wrote then that he wanted to create "a smoothly integrated and beautiful solar-roof-with-battery product that just works, empowering the individual as their own utility, and then scale that throughout the world. One ordering experience, one installation, one service contact, one phone app." More

**EVENTS**

International Solar Energy Society Webinar: 175 GW of Renewable Power in India by 2022
September 30, 2016 10:30am GMT Worldwide

National Solar Tour
October, 2016 Local tours across the U.S.

RenewableUK 2016
October 12-13, 2016 Liverpool, UK

World Energy Forum 2016
October 19-22, 2016 New York City, NY

Exhibitor: The Green Expo 2016
October 28, 2016 Mexico City, Mexico

Solar Power PV Conference & Expo
November 9, 2016 Chicago, IL

AWEA Wind Energy Fall Symposium 2016
November 15-17, 2016 San Antonio, TX

2016 National Summit on RPS
November 30- December 1, 2016 Washington D.C.

SOLARTR 2016
December 6-8, 2016 Istanbul, Turkey

Power-Gen International
December 13-15, 2016 Orlando, FL

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October 29 - November 2, 2017 Abu Dhabi, UAE

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