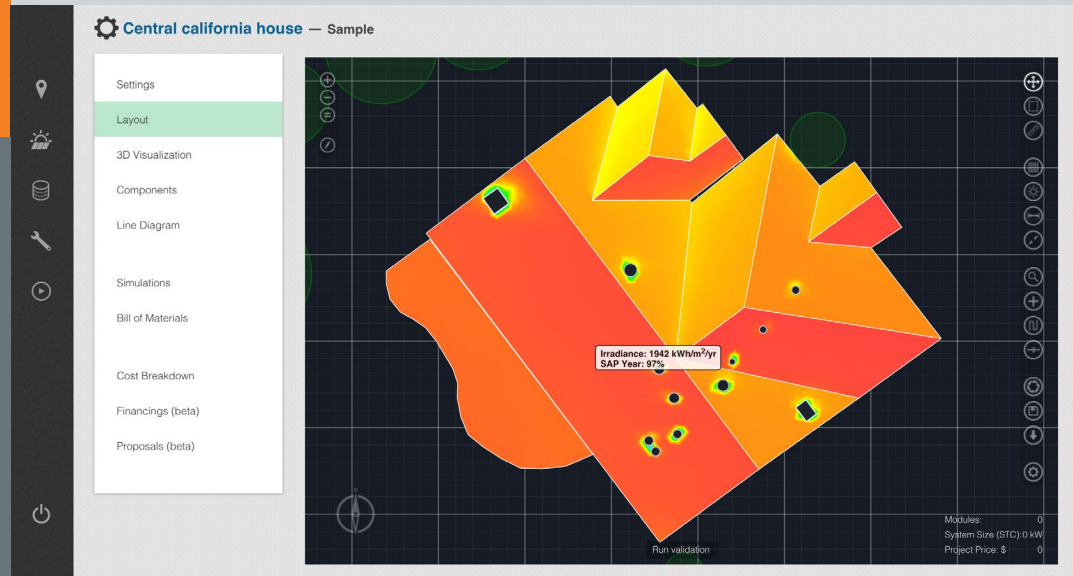


The U.S. Department of Energy SunShot Initiative is a collaborative national effort to make solar energy technologies cost-competitive with traditional forms of energy by the end of the decade. Reducing the total installed cost for utility-scale solar electricity to roughly 6 cents per kilowatt hour without subsidies will result in rapid, large-scale adoption of solar electricity across the United States. Reaching this goal will re-establish American technological leadership, improve the nation's energy security, and strengthen U.S. economic competitiveness in the global clean energy race.



Becky Allen, a technician with 1366 Technologies, works in the lab at the company's Bedford, MA demonstration facility. 1366 received multiple awards through SunShot's Incubator program to improve supply chain efficiency and support the advancement of an innovative silicon wafer manufacturing technology. Photo courtesy: 1366 Technologies



Aurora Solar, an Incubator program awardee, is developing a web-based application that quickly and precisely calculates the solar potential of a building's roof.

Technology to Market

The SunShot Initiative's Technology to Market subprogram builds on SunShot's record of moving groundbreaking and early-stage technologies and business models through developmental phases to commercialization. Technology to Market targets two known funding gaps: those that occur at the prototype commercialization stage and those at the commercial scale-up stage.

There are four main funding programs under Technology to Market, each of which addresses innovations in technology development, supply chain, and/or manufacturing. These programs also support innovative business platform development. The projects funded by the Technology to Market subprogram aim to catalyze the continued development of the U.S. solar market and the continued expansion of U.S. manufacturing of solar products in order to achieve the 2020 SunShot goals. All Technology to Market funding programs are tightly structured to ensure that recipients focus on outcomes necessary to ensure the funded innovations to the competitive marketplace. The Technology to Market team also creates avenues to help project partners find the necessary follow-on funding and form strategic partnerships that allow them to continue on the product commercialization path.

Incubator

SunShot's Incubator program provides early-stage assistance to help companies cross technological barriers to commercialization and/or innovate on business models that allow solar to address new or larger segments of the energy sector while requiring continued private sector investment to ensure early-stage market interest in the innovations being funded. Businesses funded under the Incubator program receive support to commercialize innovations across the entire solar space. That includes novel photovoltaic (PV) and concentrating solar power (CSP) hardware concepts, manufacturing pilot lines, innovations in hardware installation, grid conversion technologies, and novel business models and software platforms for reducing soft costs. These projects accelerate technological and business innovation and provide support to all SunShot Initiative subprograms – PV, CSP, Soft Costs, and Systems Integration. Most projects funded under Incubator are set up as cooperative agreements that last from 12 to 18 months with payment made upon completion and verification of aggressive project deliverables and technical milestones.

Since Incubator's inception, \$138 million in awarded government funding has leveraged the investment of more than \$3 billion in follow-on private funding in Incubator companies, demonstrating a ratio of nearly \$22 in subsequent private sector support for every \$1 of federal support.

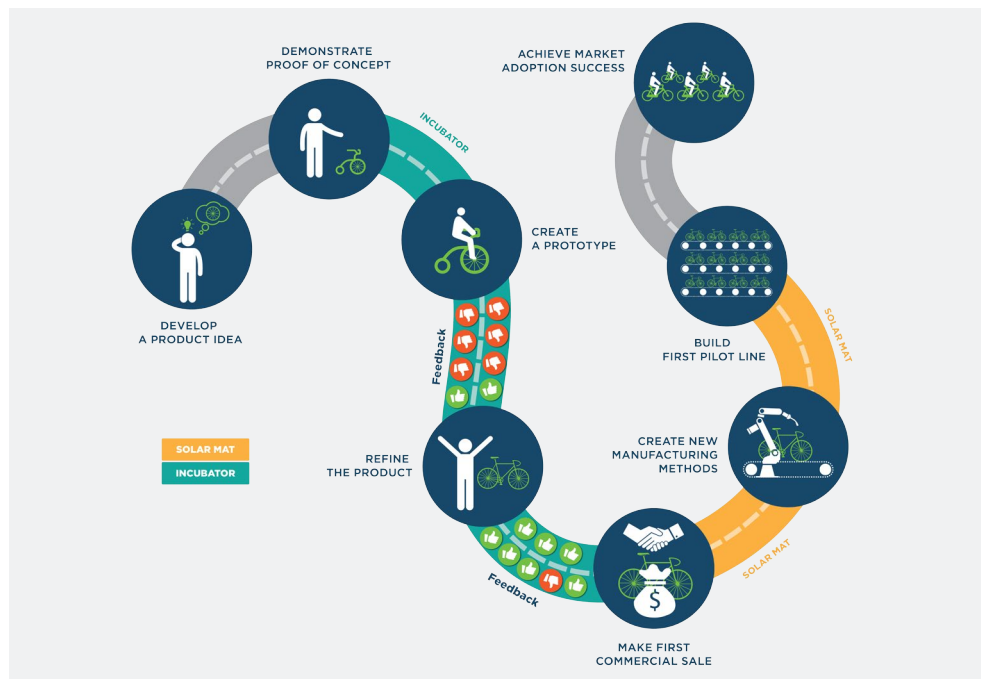
Small Business Support

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are highly competitive opportunities that encourage U.S.-based small businesses to engage in research, technology, and business model development with the potential for future commercialization. These programs aim to stimulate technological innovation, provide small businesses with opportunities to meet federal R&D goals, foster and encourage participation by socially and economically disadvantaged entrepreneurs, and increase private sector commercialization of innovations derived from federal R&D.

SBIR and STTR take a phased approach with three funding levels: feasibility demonstration (phase I), prototype development (phase II), and commercialization (phase III). SBIR awardees are required to perform the majority of the research and development on their own, though the opportunity to collaborate with others does exist. STTR awardees must collaborate with a nonprofit research institution. Active projects span a wide range of topics, including: PV device fabrication and optimization; manufacturing metrology, diagnostics, and process control; corrosion-resistant sensors for high-temperature applications; and automation systems for large-scale PV installations.

Solar Manufacturing Technology

The Solar Manufacturing Technology (SolarMaT) program funds the development of innovative manufacturing technologies that have the potential to achieve a



significant market impact in one to four years. These technologies span both the PV and CSP industries, and aim to increase the U.S. share of the global solar market through the creation of competitive advantages for domestic manufacturers. This is accomplished through the creation of the next generation of solar industry-standard manufacturing technology.

The first round of the SolarMaT program launched in September 2013, with subsequent rounds occurring in 2014 and 2015. SolarMaT projects are focused on manufacturing cost reductions and manufacturing efficiency improvements. Previous awards for PV technology span the supply chain, from novel methods to make silicon wafers to advanced cell and metallization processes and finally to innovative module packaging and processing. Previous awards for CSP technology include the demonstration of automated manufacturability of CSP troughs and the continued development of innovated trough receivers.

Photovoltaic Manufacturing Initiative

The SunShot Photovoltaic Manufacturing Initiative (PVMI) focuses on manufacturing

R&D projects that strengthen the competitiveness of the U.S. PV industry and supply chain. These projects involve engaging companies across the PV module supply chain to enable substantial cost reductions in PV module production through the demonstration of new technologies for manufacturing scale-up and assisting with the transition of these technologies to commercial production. Additionally, PVMI establishes manufacturing development facilities that provide infrastructure for demonstrating, testing, optimizing, and manufacturing new PV technologies.

PVMI helps the solar industry overcome technical barriers while reducing costs for PV hardware. It also helps the U. S. regain the lead in the global market for solar technologies and provides support for clean energy jobs for years to come.

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