# Vermont's Solar Deal: One Small State Makes a Big Solar Impact

So, you want to put solar on your roof. You're part of the 94 percent of Americans who think it's important for the nation to develop solar energy, as evidenced by the SCHOTT Solar Barometer, a nationally representative survey conducted by independent polling firm Kelton Research. You call several companies for quotes, and come to find out – a residential solar system is a bit more than you can afford, and your excitement to join the solar cause is diminished.
This may be an all-to-common situation for many in the U.S., which is why the U.S. Department of Energy (DOE) established the SunShot Initiative. The program hopes to reduce the cost of solar installations 75 percent by 2020. Its ultimate goal is to make solar a more attractive and cost-competitive form of energy for those looking to go solar. According to Ramamoorthy Ramesh, the manager of the SunShot program, solar should be as easy to install on your house as buying a set of tires for your car – who wouldn't agree with that?
With this initiative in mind, Vermont legislators enacted a groundbreaking bill that streamlines the installation process for small-scale solar – including the elimination of time-consuming and expensive permitting. So, how much does the bill actually reduce the cost of solar?

**It Costs How Much?**

Estimating the true cost of a residential system can be difficult to pin down. According to John Farrell of Energy Self-Reliant States, the installed cost for residential solar was $6.40 in 2011, which means that the installation costs of a typical 3-kW system would be about $19,000.

"Even if we pick one of these, it's difficult to compare apples to apples, because grid electricity is priced in dollars per kilowatt-hour of electricity, not dollars per Watt. Enter 'levelized cost,' or the cost of a solar PV array averaged over a number of years of production," explains Farrell. "For example, a 1-kW solar array installed in Minneapolis for $6.40 per Watt costs $6,400.  Over 25 years, we can expect that system to produce about 30,000 kilowatt-hours (kWh), so the 'simple levelized cost' is $6,400 divided by 30,000, or about $0.21 per kWh."

So what does permitting contribute to these costs? Aside from time, a recent report produced by SunRun estimated that permitting adds roughly $2,500 to the cost of an average residential installation. The report went on to speculate that streamlined permitting could make solar affordable for 50 percent of American homes. Experts at the SunShot initiative agree – they estimate that 40 to 50 percent of costs come down to "soft" costs like permitting, zoning, metering, financing and arranging a grid connection. According to a SunShot release, "That means consumers are now paying more to generate electricity from rooftop systems — an average of 18 cents

a kilowatt-hour, according to the Department of Energy's calculations — than they would for conventional energy purchased from a local utility."

**Addressing the Issue**

Legislators set out to establish a streamlined registration process and trash the headache-inducing permitting procedures. "There is a fiscal and environmental urgency for Vermont to move off fossil fuels and toward sustainable sources of power," said Vermont Governor Peter Shumlin in a statement.

The new law states that utilities must approve systems 5-kW and smaller within 10 days of receiving a registration form and certificate of compliance with grid connection requirements. Before the law was enacted, solar applicants would need to receive a certificate of public good (CPG) from the Vermont Public Service Board, which would then determine if the project met environmental standards, was reliable and of economic benefit. In all, it was a 30-day process. If the project raised concern, it was to be resolved through a public hearing.

"It should be a national priority to cut unnecessary red tape and costly permitting for small renewables.  Cutting out unnecessary costs will help us both meet our urgent energy needs and make domestic solar more competitive," said David Blittersdorf, president and CEO of Vermont-based AllEarth Renewables in a statement.  "We've had the Department of Energy, U.S. Senate offices, state governments, and local installers all calling to ask about how we took this simple, common sense step."

The bill also included other beneficial measures to move renewable energy adoption along. For example, it requires Efficiency Vermont and the Department of Public Service to create incentives for biomass heating systems, enhance the PACE (Property Assessed Clean Energy) Program that allows homeowners to lease clean energy over time while reducing upfront costs, and expands utility energy efficiency measures.

**Small Steps Toward Grid Parity**

Many hope that this innovative legislation will spread throughout the country to stabilize and reduce the cost of solar. The SunShot Initiative hopes that laws like Vermont's, and its own solar initiatives, will bring the cost of solar-generated electricity down to 6 cents per kWh by 2020. According to the Initiative, this price point will hopefully create solar adoption that will add up to 18 percent of the country's electricity generation by 2030.

According to Dr. Ramesh, it's all about reducing soft costs, "And as you have more deployment, you have more innovation, and this will invariably bring down hardware costs."

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