



Solar Myths and Misconceptions: The "Costs" of Going Solar

What are the Costs of Going Solar?

As more individuals, corporations, and local governments consider photovoltaic (PV) solar energy as a means of controlling their energy costs, it is important to understand current costs and financing options. Despite the record growth of the solar industry in recent years,¹ many people interested in PV often encounter various myths or misconceptions about the costs of going solar. This fact sheet is intended to dispel some of those myths. Several resources are provided at the end of this fact sheet for readers to learn more. The Resources Database – <u>http://solaroutreach.org/resources/</u> – on the website of the *SunShot Solar Outreach Partnership* provides more content on solar topics, including podcasts, webinars, and blog posts.

MYTH: The upfront cost of solar is too high to adopt solar energy.

REALITY: Rapid cost declines² and new financing models have allowed record amounts of new solar installations. Despite price declines of 44% in the last two years³ and the availability of local incentives, covering the upfront cost of solar energy installations can be financially challenging. Fortunately, there are low cost financing options for all funding levels. Although not available in many states, a popular way to go solar, is through a third-party ownership (TPO) arrangement. Under a *power purchase agreement* (PPA) a local government or private customer hosts, but does not own, the solar energy system installed on its property. The solar energy vendor owns the system and sells the power, usually at a lower rate than the local utility, to



Advances in financing options and solar cost reductions have dramatically increased installations in recent years. (SEIA/GTM, 2013)

the host to recover its investment. Alternatively, under a *solar lease* the system host agrees to make regular lease payments for a pre-determined number of years.⁴ TPO options like these are not only beneficial for local governments, which seldom have the capital budgets for solar, but also for homeowners who previously could not afford the up-front capital necessary to own and install solar. The growth of TPO has been a huge market driver in states that allow for such arrangements. In 2007, 93 percent of homeowner investments in solar were through direct purchases. Just four years later, in 2011, two-thirds of new residential installations were through TPO.⁵

MYTH: The payback period of solar is too long to justify switching to solar. *REALITY*: Solar can provide a return on investment in less than ten years.

Since PV panels produce power whenever the sun shines over their 30-year life, any PV system will eventually pay for itself. Whether it can do so in a period of time that is attractive to all potential adopters is a separate issue. Fortunately, studies show that PV systems can pay for themselves, on average, within 7 to 15 years.⁶ Solar adopters in states with robust solar policies can see a payback in as little as five years. PV systems installed for individuals using TPO models mentioned above can even be cash flow positive on day one. Payback periods are also affected by the cost of local electricity, the solar resource, and the local installation cost. The states with the shortest payback periods for residential solar installations, according to research by One Block Off the Grid and Clean Power Research, are Massachusetts (4.0 years) and Hawaii (5.4 years).⁷ These states are vastly different in geography and solar policy, but their policies lead to similar payback periods.

MYTH: Solar will increase local property taxes. *REALITY*: Property owners may benefit from property tax exemptions in most states.

Typically, property taxes are calculated based on a set percentage of a property's assessed value. Solar energy systems are beneficial improvements that can enhance a home's value (see below), possibly increasing an owner's property tax liability. To avoid discouraging investments in solar based on increasing a property owners' property tax liability, over thirty states and Puerto Rico provide some form of a property tax exemption for commercial, industrial, and residential PV systems.⁸



In many states, the value of some solar energy systems is exempt from property tax assessments. (DSIRE, 2013)

MYTH: Installing solar will reduce property values.

REALITY: Solar increases resale values and helps homes sell faster.

According to a study prepared by the Lawrence Berkeley National Laboratory (LBNL), solar energy systems significantly increase home resale value.⁹ By comparing market data on California homes with solar PV against figures for comparable non-solar homes, LBNL showed that the presence of a solar energy system increased the average resale value of a home by about \$17,000, or \$5.50 per watt of installed solar capacity. Furthermore, the U.S. Department of Energy has found that a solar home will sell twice as fast as a home without solar, regardless of housing market conditions.¹⁰

MYTH: Residential solar energy systems have high maintenance costs.

REALITY: Solar energy systems require little maintenance to run effectively.

Solar PV panels are solid state devices, meaning they have no moving parts. Lengthy warranty contracts, many lasting up to 25 years, are evidence of the reliability of solar despite having to frequently endure intense weather conditions on rooftops.¹¹ Some services, such as clearing debris and removing vegetation (particularly for ground-mounted systems), are needed to ensure optimal system performance, however, these operations and maintenance costs only average \$17 per year for each kilowatt of installed capacity.¹²

Learn More

- This report from The Solar Foundation takes a detailed look at solar costs for local governments <u>http://thesolarfoundation.org/sites/thesolarfoundation.org/files/TSF_SolarAcct_Final.pdf</u>
- The National Association of Regional Council explains renewable energy credits for local governments in this podcast <u>http://icma.org/en/icma/newsroom/podcasts/Article/102985/Solar_Powering_Your_Community_Renewable_Energy_Certificates</u>
- Visit the website of the Database of State Incentives for Renewables & Efficiency to find out what property tax incentives are available in your state –

http://www.dsireusa.org/solar/incentives/index.cfm?EE=1&RE=1&SPV=1&ST=1&searchtype=Property&solarportal=1&sh=1

This fact sheet, produced by The Solar Foundation, is supported by the following team of organizations: ICLEI-USA; International City/County Management Association (ICMA); Solar Electric Power Association (SEPA); Interstate Renewable Energy Council, Inc. (IREC); North Carolina Solar Center (NCSC); Meister Consultants Group, Inc. (MCG); American Planning Association (APA); and National Association of Regional Councils (NARC). This material is based upon work supported by the U.S. Department of Energy under Award Number DE-EE0003525. This fact sheet was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, appara tus, product, or process disclosed, or represents that its use would not infringe on privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

The Solar Foundation

Washington, DC 20004

(202) 469-3750

¹ Solar Energy Industries Association/GTM Research. 2013. Solar Market Insight: 2012 Year in Review. Executive Summary available at www.seia.org/researchresources/us-solar-market-insight

² Ibid.

³ Ibid.

⁴ The Solar Foundation. 2012. Solar Accounting: Measuring the Costs and Benefits of Going Solar. Available at http://thesolarfoundation.org/sites/thesolarfoundation.org/files/TSF_SolarAcct_Final.pdf.

California Solar Initiative. 2012. Annual Program Assessment. Available at

www.cpuc.ca.gov/NR/rdonlyres/0C43123F-5924-4DBE-9AD2-8F07710E3850/0/CASolarInitiativeCSIAnnualProgAssessmtJune2012FINAL.pdf ⁶ One Block Off The Grid/Clean Power Research. (2012, March 15). *How Much Does Solar Cost*?. Available at <u>http://lbog.org/blog/infographic-how-much-does-solar-cost/</u> ⁷ Ibid.

⁸ Database of State Incentives for Renewables and Efficiency. 2013. *Property Tax Incentives*. Available at <u>http://dsireusa.org/solar/solarpolicyguide/?id=11</u>

⁹ U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy. 2011. An Analysis of the Effects of Residential Photovoltaic Energy Systems on Home Sales Prices in California. DE-AC02-05CH11231/DEK-8883050. U.S. Department of Energy: Washington, DC. Available at http://eetd.lbl.gov/ea/emp/reports/lbnl-4476e.pdf ¹⁰ U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy. 2008. A Homebuilder's Guide to Going Solar. DOE/GO-102008-2599. U.S. Department of

Energy: Washington, DC. Available at http://www1.eere.energy.gov/solar/pdfs/43076.pdf

¹¹ Flicker, Jack D. et al. (2012) PV Inverter Performance and Reliability: What is the Role of the Bus Capacitor? Available at http://energy.sandia.gov/wp/wp-

content/gallery/uploads/Flicker-PVSC-Cap-Paper-Final.pdf. ¹² Electric Power Research Institute. (2010). Addressing Solar Photovoltaic Operations and Maintenance Challenges: A Survey of Current Knowledge and Practices. Available at www.smartgridnews.com/artman/uploads/1/1021496AddressingPVOaMChallenges7-2010 1 .pdf

Washington, DC 20004