SOLAR ENERGY & MUNICIPAL BUILDINGS

A guide from

SunShot U.S. Department of Energy

SOLAR OUTREACH PARTNERSHIP

ICLEI Local Governments for Sustainability USA

MEISTER CONSULTANTS GROUP

Local governments own and operate hundreds of thousands of buildings with an abundance of space available for solar photovoltaics (PV). Switching to solar energy provides cities with an opportunity to reduce their operating costs, decrease their greenhouse gas (GHG) emissions, add green jobs to the local economy, and encourage their residents and businesses to switch to solar by acting as an example.[1]

This guide will provide tips to overcome some of the hurdles that municipalities often encounter when considering installing PV on their buildings.

1. Complexity

Many of the issues that municipalities will face when pursuing a solar project are complex and require skills and expertise that municipal staff may not possess.

Recommendation: Get help! There are many opportunities for technical assistance available to local governments interested in developing solar projects, including through the Solar Outreach Partnership. Local governments should determine whether any such resources are available at the state or federal level and may wish to obtain the services of outside experts where appropriate.

2. Convincing Decision-Makers

Convincing the appropriate decision-makers that PV installation is a worth while project can be the first hurdle. Oftentimes an educational barrier exists between the internal team initiating the project and the decision-makers giving the final authorization.

Tip: Solar PV has dramatically decreased in price (50% in the past 5 years alone!), and the public is generally unaware of new cost-effective solar options. Ensure early on that all of the appropriate stakeholders are educated about solar technology, including benefits and potential risks, and have been engaged with the project to avoid potentially costly delays later in the process. Please see The Solar Foundation's (TSF) report on Solar Accounting for more information.

3. How Large and Where to Site?

As part of the search for appropriate sites for solar development, governments should gather information on their annual energy consumption, determine how much of their electricity needs they wish to source from solar, understand how large a solar project would need to be to meet those needs, and learn about your state and utility policy landscape to better identify available options. Other factors, such as the age and strength of the roof as well as any obstruction or shading issues, must also be considered.[2]

Tip: TSF developed a helpful resource to support municipalities through this step. For preliminary PV system price and production estimates, The National Renewable Energy

[1] Ferrell, John, and Matt Grimley. *Public Rooftop Revolution*. 1st ed. Institute for Local Self-Reliance, 2015. Web. 27 July 2015. <http://www.ilsr.org/wp-content/uploads/2015/06/Public-Rooftop-Revolution-report-ILSR.pdf>

[2] Ferrell, John, and Matt Grimley. *Public Rooftop Revolution*. 1st ed. Institute for Local Self-Reliance, 2015. Web. 27 July 2015. <http://www.ilsr.org/wp-content/uploads/2015/06/Public-Rooftop-Revolution-report-ILSR.pdf>

Laboratory offers a free tool called the PVWatts Calculator. Any remote assessment must eventually be followed by an on-site assessment, which is typically performed by potential developers or solar installers as part of the competitive procurement process.

4. Cost

With a high initial cost, solar must compete against other city priorities, and municipalities may not be able to use debt to cover the project costs. Cities are also ineligible for the 30% federal solar investment tax credit (ITC) and accelerated depreciation.

Tip: Third-party ownership power purchase agreements (PPAs) are available in certain state. PPAs allow cities to bypass both upfront and borrowing costs. PPAs may also allow cities to access financial incentives for solar by having the third-party own the installation and pass on the savings from the federal ITC credit and accelerated depreciation to the municipality. Alternately, a municipality may opt to own a solar system itself, taking advantage of the low cost of capital that is available to local governments, which can sometimes yield superior project economics to third-party owned systems. With municipal-owned projects, a private contractor would still typically develop the solar project through an Engineer, Procure and Construct (EPC) contract.

5. Procurement Issues/RFP Process

The Request for Proposal (RFP) bidding process and resulting power purchase agreement contract negotiations can be tricky.

Tip: Consider hiring an energy consultant to provide support through the procurement process and consult on the development of the RFP, the management of bid applications, and PPA and site lease negotiations. View this Department of Energy webinar and refer to the Interstate Renewable Energy Council's Solar PPA Toolkit and TSF's RFP Guide for helpful information on managing the RFP process.

And a Final Tip….

The economics of municipal solar projects vary greatly from state to state depending on specific regulations and policies. Many states allow for net energy metering, which enables customers who install solar systems on their properties to receive bill credits for the surplus energy they provide to the electric grid. Some states allow for aggregate net metering, which allows municipal governments or other customers to allocate excess solar generation credits across many buildings and facilities. Many states also offer other forms of financial incentives for solar, which may benefit municipal solar projects. Visit the Database of State Incentives for Renewables and Efficiency (DSIRE) for more information.

Municipalities should also review the tariff under which their local utility charges them for electricity and understand how a decrease in energy purchasing due to the development of a solar project will impact the municipality's energy bill. In many cases, the billing rate for the energy the solar generation would displace is different than the municipality's overall average electricity cost. Many municipalities are also charged a fee based on their peak energy consumption or different rates based on the time the energy is used. Municipalities should be careful to understand how a proposed solar energy system could reduce their peak consumption and affect consumption at specific times of day.

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