Going Solar in Georgia
Opportunities for Local Governments

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Introduction

Local governments spend up to 10% of their operating budgets on energy.[1] Solar power is one way local governments in Georgia can improve energy efficiency, lower costs, and serve as an environmentally friendly leader in their communities. Over the past decade, solar power has become increasingly viable economically and technologically.

Georgia is well-positioned to take advantage of the sun's rays for its energy needs. The same sun that gives the state's capital the nickname "Hotlanta" and fuels Georgia's massive agricultural sector can provide ample energy for solar-powered photovoltaic (PV) systems. A recent study ranked Georgia third among states that could benefit from solar energy.[2] Indeed, Georgia's solar energy capacity is growing, more than quadrupling since 2010.[3]

Some researchers suggest that if current efficiency trends continue, solar power will be the world's largest source of energy by 2050.[4] While some of the advance in this viability has been due to subsidies for renewable energy, many of the recent gains have come from improvements in technology and in associated costs such as permitting, installation, and financing. State and local programs, policies, projects, and incentives have helped to reduce these associated costs.

This report begins by summarizing the ways in which local governments can deploy solar in their energy-use mix and provides examples of Georgia communities that have already begun to do so. Section Two considers some of the barriers and costs to supporting community solar. Section Three provides an overview of financing options available to local governments to fund government- and third party–owned PV systems, and to incentivize the use of solar energy among businesses and residents in their communities.

Solar-Powered Photovoltaic (PV) Systems

PV systems harness energy from the sun's rays and transform it into usable forms. Because solar energy production does not involve extracting and burning fossil fuels, it is not detrimental to air or water quality, and it is also renewable because the sun's energy cannot be depleted. Additionally, the price of solar energy production continues to decline, making it a more attractive energy source.

Local governments should consider several key points as they "go solar":

- Solar power installations can be designed to meet the unique power and financial needs of local communities. Solar PV systems come in a variety of sizes and can be used to power anything from parking meters to large office buildings. Many local governments in Georgia have already implemented successful solar PV projects.
- Energy costs constitute a large component of many local government budgets, and solar PV systems could help alleviate some of these costs.
- Low-cost financing is available for solar PV systems from the Georgia Environmental Finance Authority (GEFA) at particular types of local government facilities.
- Solar PV projects can be financed and owned by a local government either through traditional approaches to obtaining loans and bonds or more innovative approaches only available for renewable energy technologies.
- Local governments can take advantage of several types of federal government bonds tailored to renewable energy projects.
- Energy savings performance contracting (ESPC) is another way that local governments can support solar projects without direct ownership. As a part of an ESPC, local governments engage an energy services provider to conduct an audit of a facility to determine where energy savings can be made.
- Third-party financing arrangements have become an increasingly popular financial instrument because they provide local governments with solar expertise and lower, more certain, long-term electricity rates.
- Local officials interested in incentivizing the expansion of solar among homeowners should be aware that the Georgia General Assembly approved third-party financing for residential solar PV systems as a part of the Solar Power Free-Market Financing Act of 2015. Local governments and municipal utilities might consider providing additional incentives or education to promote the local growth of solar among homeowners.

Section One. Background: Local Government Solar Energy Applications

Across the United States, local governments themselves can be producers and users of solar energy. By installing their own PV systems, governments can reduce electricity costs and their environmental footprint while serving as an example to promote the use of solar by businesses and homeowners in the community. By engaging in the solar energy market, they can help sustain local suppliers, installers, and service industries associated with solar energy production. Producing electricity from a renewable resource can reduce uncertainty about

future energy costs, which have the potential to rise rapidly and burden a jurisdiction's budget. Solar energy can also improve a county or city's resilience in the face of natural disasters or heat waves. During heat waves, PV systems can ease the strain on the electrical grid. When transmission lines for traditional power distribution are damaged by storms or other events, PV systems may continue to generate electricity.

Additionally, solar energy production is highest at times when traditional power plants experience peak demand. PV systems use solar arrays to collect the sun's energy and convert it to usable power. The arrays consist of multiple photovoltaic modules, also known as solar panels. Many local and state governments across the country have installed their own solar arrays to generate power for their own use or to sell power back to their local power provider for revenue. These PV systems can be installed atop government buildings, on government property, or even alongside roads on easements or rights-of-way. Other communities have taken advantage of brownfields and other abandoned or otherwise unusable properties as locations for solar arrays. The energy generated by the projects is often used to operate municipal installations that are energy-intensive, such as public water systems.

Some governments have found it advantageous to partner with other public entities to maximize economies of scale. They share the costs, risks, and rewards of the solar projects. Cities, counties, schools, and colleges and universities can provide locations, funding, and maintenance support for collaborative solar installations. For example, panels may be installed on a school but maintained by a county public works department and co-funded by these organizations along with associated cities.

Large-scale PV systems are not the only way to take advantage of the sun for energy. If a local government wants to introduce solar power slowly to its community, smaller scale solar projects are an option. For example, many communities have installed solar-powered street lights in front of municipal buildings. Street signs and signals equipped (or retrofitted) with

PV arrays can generate their own electricity, as can parking meters and free-standing parking pay stations. Solar-powered trash receptacles use the sun's energy to run an internal compactor that reduces the frequency of needed trash pickups. In addition to using solar-powered lighting for basketball or tennis courts, local parks might feature solar cookers in picnic areas or shaded tables with solar-paneled awnings that fuel outlets for park-goers to recharge their cell phones or other electronic devices. There are also a variety of ways in which local governments can provide financial incentives to individual homeowners to invest in PV systems, such as offering interest rate buy downs on loans for residential systems or encouraging utilities to offer financing to their customers.

Section Two. Weighing the Costs and Benefits

Policy experts on solar energy have long recognized that as a rather new industry, solar energy faces a number of barriers and costs that more established industries have already overcome. Specifically, local government policies, in tandem with federal and state policies, can be significant in incentivizing or hindering the production of alternative energy such as solar.

Experts in the solar energy market argue that the US lag in solar production and capacity compared to that of other countries largely stems from the relatively "soft costs" involved—the costs beyond that of the solar panels themselves. For example, the cost of components (e.g., solar panels) is nearly identical in Germany and the United States, but Germany has a substantial advantage in terms of soft costs, such as installer overhead, customer acquisition, financing and contracting, permitting and inspections, site design, installation labor, and transaction costs.

The table below shows that these soft costs can be quite substantial, particularly for residential systems (e.g., accounting for 23% of the total cost of residential systems and 17% of small commercial systems).

Soft-Cost Category	Residential Systems		Small Commercial Systems		Large Commercial Systems	
	Cost ($/W)	Proportion of System Price	Cost ($/W)	Proportion of System Price	Cost ($/W)	Proportion of System Price
Customer acquisition	0.67	10%	0.19	3%	0.03	1%
Installation labor	0.59	9%	0.42	7%	0.18	3%
Permitting, inspection, and interconnection	0.13	2%	0.02	0.3%	0.003	0.0%
Labor for arranging third-party financing	0.02	0.3%	0.02	0.3%	0.01	0.2%
Assumed permitting fees	0.09	1%	0.35	6%	0.03	1%
All surveyed soft costs	**1.50**	**23%**	**0.99**	**17%**	**0.25**	**5%**

Source: Benchmarking Non-Hardware Balance of System (Soft) Costs for US Photovoltaic Systems Using a Data-Driven Analysis from PV Installer Survey Results, SunShot, National Renewable Energy Laboratory, 2012.

Determining whether a potential solar energy project can reduce a local government's costs in the long-run and how to implement a system to maximize the benefits can be challenging. Financing issues, obtaining available incentives, and creating additional incentives can also complicate the effort. Some governments have chosen to partner with private entities that have the expertise to install and maintain such systems. Some governments that have gone through the process have emphasized the importance of obtaining political support early on so that the public better understands the costs and benefits of solar energy. Identifying the best locations for installation, the costs involved in developing and maintaining PV arrays, and the possible environmental impacts is also important.

Section Three. Financing Solar: Options for Local Governments, Businesses, and Homeowners

A variety of financing approaches unique to solar energy have been developed over the past decade to enable greater access to investment in PV technologies. This section outlines two types of financing strategies: 1) arrangements that local governments can make to construct their own PV systems and 2) strategies that local governments can adopt to encourage residents and businesses to install PV systems.

LOCAL GOVERNMENT PV SYSTEMS

Local governments can potentially take a variety of approaches to finance and manage their own PV system. Generally, these approaches fall into two categories: 1) the local government owns the PV system, or 2) a third-party owns the PV system. Currently, the most popular third-party approach to support solar is referred to as a power purchase agreement (PPA). Local governments can also encourage the growth of solar through additional incentives for homeowners.

SOURCES OF FINANCING FOR LOCAL GOVERNMENT OWNERSHIP: LOANS, BONDS, AND LEASES

Loans: Private Sources and the Georgia Environmental Finance Authority

A variety of options are available for local governments that seek to finance and own a solar PV system. Financing for energy conservation projects, which could include installation of solar PV systems, can be acquired through a variety of sources, from local banks and credit unions to companies specifically dedicated to solar financing arrangements.[i]

The Georgia Environmental Finance Authority (GEFA) is a state governmental agency that finances a variety of renewable energy projects for cities, towns, counties, water districts, sewer districts, sanitary districts, state and local authorities, boards, and political subdivisions.[5] GEFA focuses its financing efforts on solar projects at water and sewer facilities:

- **Solar Power Production at Water or Wastewater Facilities.** For many local governments, water and wastewater systems account for 35% of the energy budget.[6] Projects that provide power to publicly owned water or wastewater facilities are eligible for funding under the Georgia Fund, Drinking Water State Revolving Fund, and Clean Water State Revolving Fund. Solar-powered reservoir circulators are also eligible.[7] Because the purpose is to fund direct energy use for water or wastewater facilities, the project must be sized to meet the peak demand of the facility. In the event that excess energy is generated from an on-site system that is sized to peak demand, renewable energy can be sold back to the grid.[ii]
- **Landfill Solar Power Production.** Projects that involve installing solar panels at a municipal landfill are eligible for financing under the Georgia Fund. Unlike water and wastewater projects, landfills do not have a sizing limit.

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[i] Georgia local governments would likely need to utilize the provisions of O.C.G.A. §36-60-13 to acquire PV systems through private sector financing.

[ii] However, the amount of excess energy generated is likely to be minimal. Therefore, this might only occur during particularly optimal solar conditions or in cases where energy demand from the facility has dropped.

Energy projects financed by GEFA may be funded either as a component of a larger infrastructure project or a stand-alone project. Thus, GEFA does not fund solar PV systems as a stand-alone entity for *any* local government purpose. Funded projects must in some way intersect with waste or wastewater facilities or landfills.

The table below shows that the financing terms and conditions of GEFA-funded energy production projects differ depending on the fund associated with the program. Local governments should contact GEFA for information about ownership, sizing, operation, maintenance, and bidding requirements.

Program	Financing Terms for Energy Production and Conservation Projects	Annual Loan Maximum	Maximum Loan Term
Georgia Fund	1% interest rate reduction with 1% closing fee	$3 million per borrower per year	20 years
Clean Water State Revolving Fund	1% interest rate reduction with 1% closing fee	$25 million per borrower per year	30 years
Drinking Water State Revolving Fund	1% interest rate reduction with 1% closing fee	$25 million per borrower per year	20 years

One example of how GEFA funds can be used to support solar is the city of Young Harris. The city installed a grid solar power system in 2011 with panels on six municipal buildings, including city hall and the wastewater treatment facility. The energy generated by the system can be sold to the local power company and returned to the power grid. Young Harris expects to decrease its energy costs by 40 to 50% at the sites of the panels. The city applied for and received a grant from GEFA to cover some of the costs of constructing the system.[8]

GEFA also recently provided more than $1.8 million to the city of Baxley to install a 650 kW solar project adjacent to the city's wastewater treatment plant to offset costs and provide a long-term source of renewable energy.[9] Low interest rate financing opportunities provided by GEFA make investment in solar technologies more affordable for local governments. GEFA financed the Baxley project as a 20-year loan with a 1.03% interest rate from the Clean Water State Revolving Fund.

GEFA also offers Residential Energy Efficiency Loans that can be used to finance residential solar PV systems.[10] Local governments can assist with education and outreach efforts to increase distributed generation capacity within their jurisdictions.

Bonds

State and local governments often sell debt instruments such as bonds to finance public projects, particularly capital improvements. While a variety of financing approaches tailored to renewable energy exist, bonds, which have historically served as the bedrock for financing local government infrastructure projects, can also be a useful tool for expanding solar PV investment. Revenue bonds, which are backed by revenues from a particular service or facility, have been used extensively to finance municipal public utility projects and could also be used to finance loans for solar installations.[11] Revenue bonds can also be used when a local government wishes to finance a solar project for a conduit borrower, which is either a for-profit or not-for-profit entity that has proposed a project that serves a "public purpose."[12] This public purpose might be defined as broadly as economic development or urban sustainability. Some states, such as Hawaii, have already been experimenting with the issuance of "green infrastructure" revenue bonds backed by a utility surcharge to promote expansion of renewable energy.[13]

However, some key hurdles still exist in the implementation of traditional bond financing for renewable energy projects: 1) conservatism on the part of bond agencies due to the perception that renewable energy technologies are still volatile and complex, 2) limited experience with issuance of innovative clean energy bonds and lack of safeguards against financial risk (i.e., credit enhancement tools), 3) lack of historical data and standardization of data on bond performance for renewable energy technologies, and 4) low-levels of demand from investors.[14]

Beyond Traditional Bonds: Tax-Exempt, Taxable, and Tax-Credit Bonds for Renewable Energy

If the type of bond financing that would traditionally fund capital infrastructure projects is not available or is unsuitable for a particular solar project, local governments can use other forms of bond financing. Namely, local governments might be able to use private activity bonds, which can be either tax-exempt or taxable depending on the nature of the project. Tax-credit bonds

have also been developed by the Internal Revenue Service (IRS) for the sole purpose of financing solar projects.

When a project primarily serves a private entity despite a "public purpose," the local government can issue **taxable** private activity bonds as it might for a private school, charitable institution, or health care facility. A bond issued by a local government is considered a "private activity bond" when at least 10% of the amount of the bond issued is used by a private business **and** 10% of the principal amount and/or interest is paid by a private business The IRS refers to these requirements as the "private use test" and "private security and payment test."

Based on the characteristics of the solar PV project, local governments might be able to use traditional types of **tax-exempt** bonds. Tax-exempt bonds are exempt from federal income tax. For example, local governments are often able to issue tax-exempt bonds to finance energy generation for a municipal utility.[15] Private activity bonds used for certain "qualified" purposes are also tax-exempt. Qualified purposes of interest to local governments can include facilities to furnish electric energy or gas locally, green building and sustainable design projects, public education facilities, or 501(c)(3) organizations. The IRS publication *Tax Exempt Private Activity Bonds* provides further details about the types of projects that might be considered qualified purposes. The IRS caps the amount of bonds a state can issue in any single year for qualified purposes.

Local governments are also able to leverage **tax-credit** bond financing options unique to renewable energy, namely **Clean Renewable Energy Bonds** and **Qualified Energy Conservation Bonds**.

Clean Renewable Energy Bonds (CREBs): CREBs, a type of tax-credit bond, offer a unique financing mechanism for municipalities to encourage renewable energy. City governments may apply to the IRS for CREBs, which were established under the Energy Policy Act of 2005 to finance small renewable energy projects owned by a public power provider, a cooperative electric company, or a governmental body.[16] As tax-credit bonds, CREBs provide local governments with a subsidy based on a "credit rate" set by the Treasury Department.[17] *CREBS differ from tax-exempt bonds because the interest is still subject to federal gross income tax.* The subsidy provided to local governments is intended to cover 70% of the interest paid on the bond, with the remaining amount typically paid by the local government.[18] The bond amount allocated to governmental entities for renewable energy projects following the establishment of "new CREBs"[19] in 2009 has ranged from slightly more than $20,000 to over $2 million.[20] All CREB financing must be used within three years of issuance. New CREBs primarily differ from old CREBs in that both the credit amount and bond allocation are typically smaller. In Georgia, Oglethorpe Power Corporation was allocated $100 million in CREBs in 2009 to finance energy

efficiency enhancements to the Rocky Mountain Pumped Storage Hydroelectric Facility in Floyd County.[21]

Qualified Energy Conservation Bonds: Similar to CREBs, Qualified Energy Conservation Bonds (QECBs) are also a type of tax-credit bond. Also similar to CREBs, the entire amount of the QECB must be used within three years of issuance, and the Treasury Department sets a credit rate. QECBs were initially authorized as a part of the Emergency Economic Stabilization Act of 2008, and the volume cap was expanded to $3.2 billion as a part of the American Recovery and Reinvestment Act.[22] QECBs differ from CREBs in that they may only be issued by government entities and each state is required to suballocate a portion of QECBs to larger[iii] local governments.[23] Seventy percent of all funds must be issued to state or local governments. However, 30% of the volume cap for each state can be reallocated for private activities. In 2014, the Development Authority of Fulton County was able to obtain over $16 million as a part of this reallocation mechanism.[24]

As of 2014, QECBs had been used to finance more than 187 projects in 36 states, with Georgia's utilization markedly increasing since 2013.[25] Within Georgia, the largest share of QECBs have been allocated to Gwinnett County, DeKalb County, and Fulton County. GEFA can assist local governments that have received QECBs in determining how to best use their allocation.[26] GEFA is also responsible for reallocating QECBs when local governments waive their reallocation, and local government entities may apply to obtain a portion of this reallocation. GEFA's website (www.gefa.georgia.gov) provides more information on this process.[27]

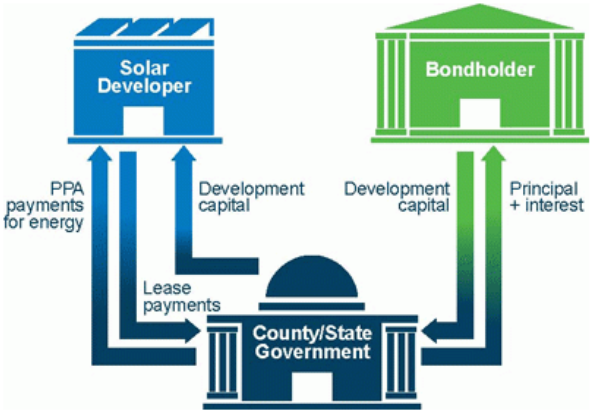

Figure 1. Municipal Bond-PPA Model
Source: National Renewable Energy Laboratory

Tax-Exempt Lease Purchases

Municipalities seeking to avoid issuing bonds can consider entering into tax-exempt lease-purchase (TELP) programs,[28] similar to those used by many cities to fund other types of construction projects. Leases are more flexible than bond financing, which can be attractive.[29] The interest rates on a tax-exempt lease-purchase agreement are typically much lower than

[iii] Large local governments are defined as municipalities and counties with a population of 100,000 or more.

those on a taxable commercial lease-purchase agreement. TELPs allow municipalities to buy a solar installation over time through lease payments, while also saving on current and future utility bills. Both the local government and the developer benefit from these arrangements. By lending to a municipality, the developer receives federal tax credits and often tax-exempt interest.

SOURCES OF FINANCING FOR THIRD-PARTY OWNERSHIP

In many states, local governments have collaborated with private entities to defray some of the upfront costs of solar installations and share the risks of the investment through third-party ownership. Put simply, the private entity owns the PV installation located on local government or private property. Public-private partnerships (P3), which are taking hold in a variety of settings, are also relevant in the use of solar power by local governments. Partnering with third-party entities to finance large-scale installations allows municipalities to hedge against risk associated with rising energy costs by agreeing to a fixed electricity price for the entire period of the agreement.

This section discusses the two primary ways public-private partnerships occur in solar financing: 1) power purchase agreements and 2) energy services performance contracting.

Power Purchase Agreements

The most common solar power P3 is a power purchase agreement (PPA). In these projects, the local government usually provides the land or structure for the PV system installation, and the private entity finances, builds, and manages the system itself. Per the agreement, the government can buy energy produced by the PV system at cheaper, predictable rates. Pricing scenarios, contract length, and ownership of renewable energy certificates[iv] or other revenues from the sale of excess renewable energy within a PPA can vary and should be adapted based on local government needs.

In addition to enabling governments to leverage the expertise of the private partner, P3s also offer financial benefits to the project developer (i.e., "system owner").[30] Private partners may be able to take advantage of tax credits or other incentives, such as the Federal Investment Tax Credit for Wind and Solar, which are not available to the government partner, thus decreasing the overall cost of the PV system. PPAs are one general approach to structuring solar financing

[iv] As Georgia does not have a state renewable portfolio standard that requires a certain amount of electricity generation from renewable resources, excess solar generation could be sold to utilities in other states that need to purchase renewable energy certificates. A full discussion of renewable energy certificate markets is not warranted within this report; however, local governments should consider how PPAs could be set up to create an extra revenue stream from excess renewable energy generation.

and can often be used in conjunction with more innovative means of financing the project, such as the Municipal Bond-PPA Model, described in more detail below.

City-owned electric companies in Georgia have started using PPAs as part of their strategy for diversifying the fuel mix for their utility service area. Some municipal owned electric companies have arranged PPAs for solar energy with the Georgia Power Company. One example is the arrangement between Georgia Power and Dalton Utilities, which has leased property for the solar installation to Georgia Power and has agreed to buy the entire output of the plant for a 25-year period.[31] The agreement between Dalton Utilities and Georgia Power served as a precursor to the Advanced Solar Initiative, which is a program specific to Georgia Power approved by the Georgia Public Service Commission in 2012 that will result in the procurement of solar energy from residential or smaller commercial customers or larger commercial customers with medium-scale solar PV facilities.[32]

Energy Services Performance Contracting: Integrating Solar with Energy Savings Audits

Local governments in Georgia may also want to consider energy savings performance contracting (ESPC). In a typical ESPC, a local government will engage an energy services provider (also known as an energy services company) to conduct an audit of a facility to determine where energy savings can be made. Usually the ESPC would involve an energy audit of a local government facility, which could be more or less detailed based on local government needs. The energy services provider then offers recommendations on effective energy conservation measures. These recommendations typically also consider cost-effectiveness and reasonable measures based on the local government's budget. One recommendation that could be produced from an energy audit might be the installation of solar PV panels.

The energy services company will then install energy conservation measures at little to no cost to the local government. In exchange for increasing efficiency in the facility and guaranteeing savings for the local government, the energy services company receives a share of the savings delivered. The primary benefit of a performance contracting arrangement is a performance guarantee that ensures that the local government obtains financial savings regardless of whether or not the energy conservation adjustments are effective.[33]

As a part of a performance contract, local governments interested in solar may work with an energy services provider to purchase the system with cash or use a variety of other more nuanced mechanisms described in greater detail later in this section.[34] Local governments in Georgia are legally able to enter into an ESPC.[35] GEFA, as the agency responsible for assisting state agencies with ESPC, provides a list of prequalified energy service providers for state agencies to use.[36] This list could also be a useful resource for local governments.

MUNICIPAL BOND–PPA MODEL

Local governments have also combined the two primary types of financing approaches discussed previously—bonds and PPAs—in what is known as the "municipal bond–PPA model." In recent years, a third hybrid model that incorporates both third-party ownership and the issuance of bonds has been proposed and successfully implemented in New Jersey.[37] This municipal bond–PPA model is commonly known as the Morris Model, referring to Morris County, New Jersey. The municipal bond–PPA model finances solar installations by issuing **taxable bonds** for private use. These bonds are given to a developer to build, install, and oversee a solar project on a public building (i.e., local government offices, schools, etc.), often at a lower borrowing rate than the developer would normally obtain. In turn, a PPA is established between the developer and the municipality; however, because taxable bonds are used, it is often possible for the municipality to arrange a lower PPA price due to lower-interest financing on the bond. The private developer is able to take advantage of federal tax credits, and the municipality is able to pay down the principal and interest associated with the bonds with the lease payments from the local government entity installing the system. At the end of the lease, the municipality has the option of purchasing the project. In New Jersey, the savings produced by this financing system have been estimated at anywhere between $3 million and $14 million.[38] The primary downside to this financing approach, particularly in Georgia where these types of innovative financing approaches have not yet been extensively explored, is the transaction costs associated with negotiating the appropriate amount of bonds to be issued and current limitations on entering into PPAs. More information on implementation of this financing approach can be found in reports from the National Renewable Energy Laboratory.[39]

STRATEGIES AVAILABLE TO LOCAL GOVERNMENTS FOR INCENTIVIZING RESIDENTIAL SOLAR

The Georgia General Assembly recently passed the Solar Power Free-Market Financing Act of 2015, often referred to as House bill (HB) 57, which allows for third-party financing of PV arrays or solar panels.[40] HB 57 specifically refers only to residential and commercial purchasers of electricity. Nevertheless, HB 57 opens the door for local governments to play a larger role in incentivizing the growth of renewable energy among their citizens.

Solarize Tybee

"Solarize" is a national planning tool developed by the US Department of Energy to reduce the cost of installing solar for businesses and homeowners by helping local governments select an installer and purchase energy in bulk.[42] The Solarize campaign in the city of Tybee Island and Chatham County was led by City Council Member Paul Wolff, and the project kicked off in early 2015 with the selection of Atlanta-based Hannah Solar as the solar installer.[43] A week into the enrollment period, more than 170 people had signed up.[44] According to Council Member Wolff, the program ultimately attracted many more homeowners, lowering the price of solar to the point of comparability with many utility company prices. Tybee and Chatham County residents have expressed interest in another Solarize campaign to enroll more homeowners.[45]

Primary Provisions of HB 57

While the residential or commercial installation of solar panels was not prohibited prior to the passage of HB 57, without third-party financing, consumers were required to pay for the equipment upfront. Consumers were allowed to manage financing of the purchase and installation through banks, but the growth of solar technology was arguably hindered due to consumers' inability to enter into PPAs or solar leases with companies specifically dedicated to the installation and management of solar panels. HB 57 is primarily geared toward easing the adoption of solar technology for individual systems for retail customers.[v, 41]

HB 57 does not alter the fundamental structure of electricity provision by utilities, which includes municipal utilities, investor-owned utilities, and electric membership corporations. More specifically, with the current state of technology, residences still need to be connected to the grid to obtain a portion of their energy when the panels are not producing. HB 57 also does not introduce competition to electricity provision. The "electric cities" in Georgia that serve as municipal electricity providers retain the right to serve as the exclusive provider. Further, capacity limits within the legislation curtail incentives to oversize solar systems beyond normal demand. As a result, this law does not change the fundamental structure of the system for power generation, distribution, and transmission within the state.

[v] HB 57's objective of spurring small-scale installations is evident in the 10-kilowatt-hour capacity limit for residential installations and the 125% of peak demand for commercial installations. A single solar panel also may not be connected to multiple premises, such as supplying multiple apartments or condominium units, limiting opportunities for investment in community solar systems.

HB 57 is also unlikely to impact municipal utility budgets. Solar panel owners are required to sell excess generation back to the grid at what is called "the avoided cost rate," also known as net metering. The avoided cost rate is a lower "wholesale rate," which would be less than the retail rate typically paid by homeowners or business owners. Thus, while owners of solar PV systems are compensated to some extent for excess generation, municipal utilities pay a lower rate for each unit of energy. In the event that a household or business utilizes more energy than can be supplied by its system, it would pay the utility the retail rate for additional electricity. Consequently, it is highly unlikely that third-party financing of residential solar will drastically alter electricity rate structures and negatively impact municipal utilities. Any changes that fundamentally alter the profitability of electricity generation, distribution, and transmission for municipal utilities as a result of increased distributed PV installations would likely take decades.

Georgia Power and University of Georgia Partnership

In December 2015, Georgia Power and the University of Georgia established a partnership to use a 1-megawatt capacity solar installation as a training tool for engineering students, while also supplying power to approximately 125 Georgia Power homes. The panels are designed to test different types of solar tracking configurations. This research is intended to provide guidance on what kind of solar panels could be installed throughout the state for the most efficient power production. Environment Georgia also intends to launch a campaign similar to Solarize Tybee to encourage enrollment of Athens' residents outside of the university.

Source: Thompson, Jim. 2015. Solar power project will benefit UGA and Georgia Power. Athens Banner Herald.

LOCAL GOVERNMENT ELIGIBILITY

Municipalities and county governments are not specifically authorized by HB 57 to engage in these purchase agreements. Therefore, the financial strategies relying on PPAs outlined above may be currently available to local governments in Georgia but should be explored in consultation with local government legal counsel to ensure compliance with municipal law. Understanding the various approaches that other local governments have taken to support solar systems can provide guidance to local government officials interested in "going solar."

Conclusion

Solar PV systems have become increasingly attractive as a source of power due to their environmental benefits and economic viability. Local governments can play a variety of roles in the expansion of solar—from generating or producing solar power to incentivizing solar panel installation on the rooftops of local homes. The examples of ongoing and completed local government solar projects demonstrate that it is possible to tailor projects to the specific needs of each local community. In particular, a variety of financing options exist for every government size and type of project. Local governments can currently finance solar projects through traditional bond approaches that result in ownership of the system. Local governments can also consider third-party financing arrangements to reduce risk and costs. As citizens become more environmentally conscious, local governments can also advance the desires of their constituents through incentives for residential solar PV systems.

NOTES

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