



Florida Solar Financing Action Plan

A Menu of Options

17 December 2014

Research for best practices regarding solar financing listing a summary of findings with links to reports, documents, and references

Acknowledgment: This material is based upon work supported by the U.S. Department of Energy under Award Number DE-EE0006309.

Disclaimer: This report 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, apparatus, product, or process disclosed, or represents that its use would not infringe 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.



Introduction

Florida—the Sunshine State—has more solar potential than all states but California and Texas, yet it ranks 12th in the nation for installed solar capacity.¹ For a state that has more to lose from sea level rise and other climate impacts than any other, expanding the use of carbon-free energy sources like solar photovoltaic (PV) power could be considered a high priority.

Individuals, businesses, and governments that can obtain electricity at competitive rates from solar PV systems not only enjoy the environmental benefits of solar power, but also financial gain.

Until recently, solar photovoltaic energy systems made little financial sense, except perhaps in very isolated locations where other sources of energy were even more expensive—the International Space Station, for example. Of course, individuals, businesses, and institutions with a strong interest in pollution-free energy could pay the premium cost for solar PV systems, and many did.

Over the last several years, however, the price of solar PV panels has dropped so much that the price of electricity generated by those panels is approaching parity with traditional generation types (coal, oil, natural gas, and nuclear). Just since the beginning of 2011, the average price of a completed PV system has dropped by 33 percent.²

In states with higher-than-average electricity costs, a particular solar PV installation may need just a small assist from one or two of the incentives described in this document in order to ensure a strong, favorable financial calculation. In states with fairly low-cost electricity, such as Florida, a combination of policy levers and financial incentives may need to be applied as a catalyst to build market momentum so that to make solar PV systems can be truly competitive with, or even cheaper than, conventional power sources.

This report seeks to explore and explain a variety of financing options for all levels of governments, as well as homeowners and businesses, but it focuses primarily on actions local governments can take under existing state and federal law. Although it is hoped that local governments, the Florida Legislature, homeowners, and businesses will choose to employ some of these strategies to expand solar PV energy in Florida, this Plan does not take a position on which options are best.

Go SOLAR Florida

In December 2011, Broward County was awarded a \$646,367 grant from the U.S. Department of Energy called the Rooftop Solar Challenge. The goal of **Go SOLAR Broward** was to reduce the cost and wait time associated with the installation of rooftop photovoltaic (PV) solar systems. Broward County partnered with fourteen municipalities (Coconut Creek, Dania Beach, Davie, Deerfield Beach, Fort Lauderdale, Hallandale Beach, Hillsboro Beach, Lauderdale-by-the-Sea, Miramar, North Lauderdale, Oakland Park, Pompano Beach, Sunrise, Tamarac), unincorporated Broward County, Broward County Public Schools, Florida Solar Energy Center, Florida Power and Light Company,

¹ Solar Energy Industries Association. <http://www.seia.org/state-solar-policy/Florida>

² Solar Energy Industries Association. <http://www.seia.org/policy/solar-technology/photovoltaic-solar-electric>

Broward County Board of Rules and Appeals, Building Officials Association of Florida, and Broward League of Cities. The grant's objectives included developing a streamlined, online permitting process; identifying and eliminating zoning barriers; exploring financing options; and educating the community about the economic and environmental benefits of solar power.

In September 2013, Broward County was awarded another Rooftop Solar Challenge grant (RSCII) of \$2,276,575 from the U.S. Department of Energy. For this grant, Broward County is partnering with nine more Broward County municipalities (Cooper City, Hollywood, Lauderdale Lakes, Lauderhill, Lighthouse Point, Margate, Pembroke Pines, Plantation, and Wilton Manors), six non-Broward jurisdictions outside of Broward County (Alachua County, Miami-Dade County, Monroe County, Orange County, St. Lucie County, and the City of Venice), the Florida Solar Energy Center (FSEC), and Florida Atlantic University (FAU) in **Go SOLAR Florida**.

Origin of This Plan

The Broward County Go SOLAR Florida RSCII Statement of Project Objectives (SOPO) includes the following objective:

The team will work to change the financing options landscape within Florida.

Subtask 5.1 of the work plan contained within the Statement of Project Objectives provides details regarding the development of this Florida Solar Financing Action Plan:

Subtask 5.1: Develop Florida Solar Financing Action Plan

Financing options used by all partnering jurisdictions will be reviewed and documented in a revision to the Go SOLAR-Broward Financial Options Best Management Practices. With input from all partners and not-for-profits dedicated to Solar (for example, the [Solar and Energy Loan Fund](#)), the [Best Management Practices document](#) will be revised in a Florida Solar Financing Action Plan. The team will seek formal support of, or agreement to, the plan by the State Energy Office.

Related subtasks commit each partner jurisdiction to implementing the Plan “to the extent possible,” the development of a model proclamation supporting solar energy and a wide range of financing options, outreach to all 67 counties in Florida requesting adoption of the proclamation, preparation of an electronic action packet to help promote financial options in counties and the state as a whole, and education of key local and state stakeholders and decision makers regarding solar financing options.

Interested readers are directed to the “[Go SOLAR-Broward Financial Options Best Management Practices](#)” report, published in November 2012 as part of Broward County’s original Rooftop Solar Challenge grant. It describes a wider array of solar financing options used throughout Florida and the United States, some of which are outside the scope of this report.

The November 2012 solar financing options report also included the results of an online survey of property owners, solar industry professionals, and financial institution representatives, and a review of an in-person workshop. As the report stated, “The fundamental solar PV financing issues related to

Property Owners included overall expense, upfront costs, a lack of understanding of the financing options, long-term return on investment, and low cost of energy per kW in our area.” Solar industry representatives reported that inconsistent demand for solar PV systems—stoked by short-term incentive programs, only to recede when the programs ended—was a serious problem for the industry.

The Case for Solar Photovoltaic Energy in Florida

Local, state, and federal governments have many reasons to support solar PV development.

- **Employment and Economic Development.** Solar installation and maintenance jobs are local by their very nature and keep money in the local economy. The Florida economy sends billions of dollars out of state every year to purchase fossil and nuclear fuels, very few of which are produced in the state.
- **Energy Equity.** Low- and moderate-income families can benefit from lower electricity bills when solar PV systems are installed on their homes. A growing number of solar programs aim to serve this population.
- **Fiscal Responsibility.** Investments by governments in solar PV on their own facilities can pay for themselves, reducing energy expenditures and freeing up funds for other purposes. For example, the Scottsdale Unified School district in Arizona agreed to buy electricity at below-market rates from solar panels installed on 19 school facilities by solar developers, saving \$500,000 a year. “With the savings,” Superintendent David Peterson told the *Wall Street Journal* in 2012, “I was able two years ago to recall six teachers who had been laid off due to budget cuts.”³
- **Sustainability.** Solar photovoltaic systems require no fuel—only occasional maintenance and cleaning. Therefore, they produce no carbon emissions or other pollution, other than that which occurred in the original manufacturing of the systems and their transport to the installation site. Many governments have ambitious goals for reducing carbon pollution, which would be furthered by wider use of solar power.
- **Energy Diversity.** Increased use of solar power makes the energy system more diverse. As both the supply and prices of fossil and nuclear fuels are subject to global market forces and cannot be guaranteed into the future, it is prudent to diversify energy portfolios.
- **Resilience.** Distributed generation, such as rooftop solar photovoltaic systems, can be incorporated into “microgrids” that generate, store, and distribute power in a local area and can operate independently of the larger grid to which they are connected under normal conditions. Due to this independence and potential autonomy, microgrids are more resilient in the face of natural disasters or other disruptions to the larger electrical grid.
- **Responsiveness.** Solar PV systems generate the most energy during the sunniest part of the day, providing electricity to the grid when it is subject to the heaviest demand, largely from air conditioning systems. This reduces the risk of brownouts or blackouts.
- **Infrastructure Savings.** Solar PV systems owned by households, businesses, and public institutions can help meet growing demands for electricity, thereby reducing the need for the construction of extremely expensive central power plants, the costs of which are borne by all utility customers.

³ Jim Carlton, “The Enlightened Classroom,” *Wall Street Journal*, 18 June 2012, <http://online.wsj.com/news/articles/SB10001424052702303674004577433930635426386>

Challenges to Widespread Solar PV Installation in Florida

Due to the relatively low cost of electricity in Florida, the financial advantages of rooftop solar PV systems are not as overwhelming as they are in other markets with higher electricity prices.

Therefore, to spur greater development of solar PV systems in Florida, the actual hardware costs of solar PV systems must be reduced, the non-hardware or “soft” costs of solar PV installation systems must be reduced (permitting, design, etc.), financing options need to be made more widely available, or a combination of all three.

Solar PV systems have both hard and soft costs, and both can be reduced. Hard costs include the cost of the physical equipment—panels, inverters, frames, and other elements of solar PV systems. The price of solar panels has dropped 99 percent over the past 40 years,⁴ and additional improvements in technology and lower soft costs could reduce the overall costs of solar PV systems even further.

Local governments have a special role to play in reducing some of the soft costs of solar PV. Soft costs include the expenses associated with the design, permitting, and installation of solar PV systems. Efforts by local governments to streamline and standardize the permitting and approval processes for solar installations could lead to significantly lower soft costs. Indeed, this is the main purpose of the Go SOLAR Florida initiative.

According to research by the National Renewable Energy Laboratory, soft costs accounted for 64 percent of total solar installation costs on residential property, as of the first half of 2012. Soft costs accounted for 57 percent of total costs for commercial installations of less than 250kW, and 52 percent of larger commercial installations.⁵

The other strategy for increasing solar PV adoption is making financing more widely available. Here, local governments can play a significant role, both through financing solar PV systems for their own facilities and through policies that expand financial options for residential and commercial property owners. The State of Florida and federal government can also adopt policies which improve financing options for households and businesses.

⁴ Bloomberg New Energy Finance, “Global Trends in Clean Energy Investment,” April 2012.

⁵ Barry Friedman, Kristen Ardani, David Feldman, Ryan Citron, Robert Margolis, and Jarett Zuboy, “Benchmarking Non-Hardware Balance-of-System (Soft) Costs for U.S. Photovoltaic Systems, Using a Bottom-Up Approach and Installer Survey – Second Edition,” National Renewable Energy Laboratory, Technical Report NREL/TP-6A20-60412, October 2013.

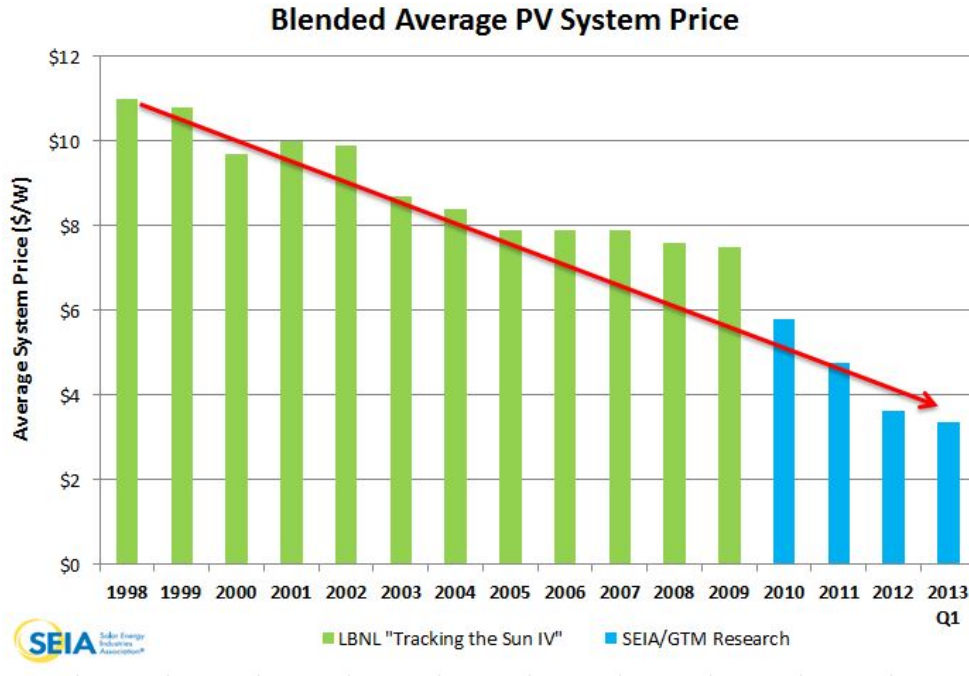


Figure 1. The cost of solar photovoltaic systems dropped from \$11/watt in 1998 to less than \$4/watt in 2013.⁶

State and Federal Contexts and Incentives

Policies and incentives at the state and federal level play important roles in establishing the context in which Florida’s electricity sector operates and in determining many of the other financing options discussed later in this report.

Federal Context

The Clean Power Plan proposed by the US Environmental Protection Agency in June 2014 could bring significant changes to the state’s electricity sector. In its current version, the Clean Power Plan would require existing power plants to reduce their carbon dioxide emissions by 40 percent by 2030. The proposed reductions for each state were calculated by examining the effect of four common strategies, including the expansion of renewable energy, in each state, but the EPA will not mandate how to meet the overall target. Each state is free to meet the target however it wishes. The state of Florida, therefore, will be able to decide how much emphasis to place on renewable energy strategies in its plan to meet the Clean Power Plan goal. Given the state’s solar potential, solar photovoltaic energy could play a significant role.

⁶ Solar Energy Industries Association.

The federal government has begun to place a greater emphasis on preparing for disasters and national security threats through programs and infrastructure that strengthen communities’ resilience—in other words, their ability to recover from disruptions and continue functioning. The traditional electrical system, with transmission lines emanating from a central generation facility, is much less resilient than a distributed grid, with many small, interconnected generating units (such as solar systems). Communities and utilities might therefore expect greater federal funding opportunities for programs and projects that improve the resilience of the electrical grid through greater use of distributed generation and “smart grid” technologies that can cope with the more dynamic, back-and-forth flow of electricity associated with distributed generation.

Federal Incentives

Residential Renewable Energy Tax Credit

The federal government currently provides a 30 percent investment tax credit for solar PV systems (and other renewable energy equipment) installed on property owned by and used as a residence by an individual taxpayer, but this tax credit is set to expire on December 30, 2016.

Corporate Renewable Energy Tax Credit

Similarly, the federal government grants corporate taxpayers a 30 percent investment tax credit for solar PV (and other renewable energy) systems they place into service. However, this tax credit will drop to 10 percent for systems installed after December 31, 2016.

Florida Context

In the state of Florida, grid-delivered electricity is provided by five investor-owned utilities, 34 municipally-owned electric utilities , and 18 rural electric cooperatives.

The top 11 utilities in Florida, according to 2012 electricity consumption, are listed in the following table:

Name	Type of Utility	2012 Consumption (MWh)
Florida Power & Light Company	Investor-owned	102,486,274
Duke Energy Florida	Investor-owned	36,380,683
Tampa Electric Company	Investor-owned	18,408,580
JEA	Municipal	11,906,884
Gulf Power Company	Investor-owned	10,987,832
Withlacoochee River Electric Cooperative	Rural electric cooperative	3,570,119
Orlando Utilities Commission	Municipal	3,223,235*
Clay Electric Cooperative	Rural electric cooperative	2,971,589
Sumter Electric Cooperative	Rural electric cooperative	2,771,266
City of Lakeland	Municipal	2,770,042
Gainesville Regional Utilities	Municipal	1,699,935

* 2011 Consumption (2012 figure was unavailable)

Each of the utilities and cooperatives has an exclusive service area in which it is the sole provider of electricity. In exchange for this monopoly power and a guaranteed rate of return, the state's investor-owned utilities are required to provide universal electric service and meet the regulatory requirements set by the Florida Public Service Commission (PSC). Municipal electric utilities and rural electric cooperatives are not subject to the same level of regulation by the PSC. All the investor-owned utilities own generation facilities; some of the municipal and rural electric cooperatives generate power, while others purchase it from other producers and resell it to their customers.

State Incentives

Residential Solar Equipment Property Assessment Exemption

Solar PV equipment on residential property in Florida is essentially exempt from property taxes, thanks to a constitutional amendment approved by Florida voters in November 2010 which prohibits the consideration of renewable energy devices and wind resistance improvements in residential property assessments. Following passage of implementing legislation by the Florida Legislature in 2013, this exclusion began impacting assessments in 2014.

Net Metering

Under net metering laws, electricity generated by a residential or commercial solar PV installation (or other renewable energy system) is measured as it is fed into the electric grid, thereby offsetting the customer's electric bill for the facility where the system is installed. Should an installation produce more electricity than is consumed on site, the electric utility pays the customer for the "net excess generation" (NEG). In Florida, the NEG is carried forward to the customer's next bill as a credit. At the end of 12 months, the utility pays the customer for any remaining NEG credit at the avoided-cost rate (Avoided cost is essentially the utility's cost of producing additional electricity from its own facilities and is therefore lower than the retail cost.) There is therefore little incentive for a property owner to install more generating capacity on his/her property than would be consumed onsite.

Florida law permits the Public Service Commission to adopt net metering rules for the state's five investor-owned utilities. The state's municipal and cooperative utilities are also required to offer net metering to their customers, but as they are not subject to the same level of oversight by the Public Service Commission as investor-owned utilities, they are only required to submit annual reports on net metering participation to the PSC.

Net metering annual reports are available on the Florida Public Service Commission website:
<http://www.psc.state.fl.us/utilities/electricgas/customerrenewable/index.aspx>

Utility Incentives

Under a 2009 order of the Florida Public Service Commission, the five investor-owned utilities in the state were required to offer solar rebate programs to residential and commercial customers.

The PSC order expires in 2014, and investor-owned utilities have already effectively ended their solar rebate programs for residential and commercial customers (some rebate applications may still be in process).

Some municipal utilities and rural electric cooperatives in Florida continue to offer renewable energy incentives.

Public Investments by Local Government

Solar-supportive local governments in Florida can lead by example, electing to install solar PV systems on their facilities. Such installations not only have obvious environmental benefits and demonstrate local government commitment to green practices, but they may also be financially responsible, allowing governments to obtain electricity at a stable, lower-than-retail rate.

Many local governments throughout the country have begun to establish renewable energy targets for their operations. For example, in early 2013, the Broward County Commission adopted a resolution to obtain 20 percent of the electricity used in County operations from renewable sources. Solar installations can be a useful strategy for meeting these goals.

In addition, local governments in Florida are required by state law to meet green building standards. Green building systems frequently award points for or recommend on-site renewable energy generation, including solar PV systems. Local governments can advance rooftop solar PV systems in Florida by ensuring that such systems are part of any building project undertaken.

Under Section 255.2575 Florida Statutes, county and municipal buildings in Florida must be constructed to meet the requirements of a national model green building code or sustainable building rating system, such as the US Green Building Council's Leadership in Energy and Environmental Design (LEED), the Green Building Initiative's Green Globes rating system, Florida Green Building Coalition standards, International Green Construction Code, or other system approved by the Department of Management Services.

Many local governments have gone a step further and adopted their own ordinances specifying the green building standards to be used for their buildings. For example, Broward County established a green building policy by ordinance that requires eligible construction projects to achieve a minimum rating of "LEED Certified."

The City of Gainesville, in Alachua County, passed a requirement that all City-owned civic, office, and residential projects meet either Florida Green Building Coalition standards (residential projects) or US Green Building Council LEED certification (non-residential projects). This requirement is embedded within a more expansive green building program that seeks to spark voluntary participation by private builders by offering lower building-permit fees, fast-track permit processing, and other incentives.

Of course, local governments may not wish to wait for new building projects or substantial renovations to install solar PV systems on their facilities. For local governments pursuing solar PV on existing facilities, local governments have several financing options. Appendix B features a table which briefly outlines some of the major advantages and disadvantages of each of the options described below.

Direct Purchase

Solar PV systems can be purchased outright by local governments for installation on their property through funds provided by the annual appropriations process. Absent strong community and political support for solar installations on public facilities, however, local governments are unlikely to consider large upfront expenditures for the outright purchase of solar systems. This situation would change if state or federal grants were provided to local governments for solar PV installations, of course.

Bond Financing

Local governments could also choose to pay for solar PV systems through bond financing. In Florida, local government ad valorem bond and general obligation bond issues, both of which are backed by property tax proceeds, must be approved by voters. In addition, both municipalities and counties are subject to a borrowing cap equal to 10 mills (1 percent) of the assessed value of real estate and tangible personal property within the respective jurisdiction.

General Obligation Bonds

Traditional general obligation bonds, in which municipalities use tax revenues to repay the principal plus interest to investors, are one option.

Qualified Energy Conservation Bonds

Qualified Energy Conservation Bonds (QECCBs) will soon be another potential option for some communities in Florida. QECCBs were created through federal legislation enacted in 2008 and 2009 to allow state, local, and tribal governments to finance energy-efficiency and clean energy projects at below-market rates. In essence, the federal government picks up some or all of the interest costs of the bonds. States must opt in through legislation or an executive order from the governor. In Florida's case, legislation authorizing the issuance of these bonds passed during the 2014 session.

The \$3.2 billion nationwide bond cap was allocated to states based on their population; Florida's share is \$190 million. The Florida Office of Energy is currently working to establish a program for the allocation of the QECCB bond authority based on a population formula established in the federal legislation. Only counties and municipalities with populations exceeding 100,000 (as of 2007) will be eligible, subject to the specific federal formula; the state will receive any remaining allocation. Qualifying municipalities and counties are not required to issue QECCBs; should they choose not to, their share of the allocation will revert to the state, which can either add it to its share or reallocate it to other participants.

Seventy percent or more of the bond proceeds must be spent on public facilities or programs, with up to 30 percent of the bond proceeds potentially able to support private-sector projects.

Solar Leasing

Alternatively, local governments unable or unwilling to purchase their own solar PV equipment can consider solar leasing agreements. Under solar leasing, a solar developer leases the rooftop PV equipment to the property owner, who uses the electricity generated by the system onsite. (Power purchase agreements, under which the developer owns the equipment and sells the power generated onsite to the customer, are not currently permitted under Florida law.)

Solar Services

A rarer type of third-party ownership is structured to sell “solar services.” A solar developer would contract with a customer to provide services including ownership, operation, maintenance, and performance guarantees for the solar PV equipment for a monthly fee. The customer uses the power generated by the equipment, but because the sale is for services rather than the electricity itself, this “solar service” agreement would be permitted in states like Florida that classify and regulate as utilities any entities selling electricity to customers.

One example of this type of third-party financing model has recently emerged from a solar development company in Virginia: Customer Self-Generation Agreements (CSGAs). Unlike Power Purchase Agreements, in which a customer purchases the electricity generated by the solar PV equipment installed on the customer’s property by a developer, under a CSGA, the customer “self-generates” electricity from the solar PV equipment, which is owned and offered as a service by the solar developer. Customers pay a monthly service fee to the developer, in exchange for the solar equipment ownership, operation, and maintenance services provided by the developer. The performance of the solar PV system is guaranteed by the developer.

Currently, CSGAs are a proprietary product of the Virginia developer, Secure Futures, but the company’s founder and chief executive officer, Tony Smith, has expressed interest in licensing the CSGA model to a nonprofit group that could propagate the model more widely.⁷

Performance Contracting

Guidance from the US Department of Energy suggests that local governments consider including solar PV systems and other renewable energy improvements as part of energy savings performance contract (ESPC) arrangements, which many local governments have been pursuing. ESPCs allow local governments to receive building energy-efficiency improvements up front, paid for by a vendor, with repayment to the vendor over the contract period from the savings resulting from lower energy bills. Renewable energy systems could be incorporated in ESPC procurements from the outset, combining

⁷ <http://powerforthepeopleva.com/2014/03/31/a-new-business-model-for-non-profits-brings-solar-into-hostile-territory/>

in cost-effective ways with energy-efficiency improvements and maximizing the total energy-reduction benefits of the overall project.⁸

Bulk Purchases

Local governments could potentially reduce the cost of solar PV equipment for installation on their own facilities by coordinating bulk purchases of solar PV equipment with other local governments.

One leading example of this type of initiative is the Alameda County Regional Renewable Energy Procurement Project (R-REP), a collaborative procurement and purchasing effort among three counties, 11 cities, and four other local government units in the region east of San Francisco Bay in California.⁹

R-REP began organizing in 2011, building on the successes—and lessons learned—from an earlier collaborative purchasing effort, the Silicon Valley Renewable Energy Project (SV-REP), among many of the same entities. R-REP is coordinated by two local nonprofit conveners, a government agency in charge of leading the government procurement process and negotiations with possible participants and vendors, and a steering committee of participants and experts providing overall direction and leadership. These three leadership entities also hired technical consultants, a finance consultant, and an economic analyst to provide specialized expertise.

Ultimately, R-REP produced discounted solar projects for 186 sites, including schools, municipal facilities, medical centers, and libraries. Before selection, projects were evaluated for their suitability. R-REP solicited bids for bundles of sites, rather than individual sites, which not only reduced the administrative workload for the collaborative, but were also more attractive to potential vendors.

According to Caroline Judy, assistant director of the Alameda County General Services Agency, projects under the R-REP procurement saved 15–47 percent over market prices. “We’re going to save taxpayers \$108 million and generate 470 local jobs,” she told [Solarenergy.net](http://solarenergy.net).¹⁰

Although two-thirds of participating entities opted to sign Power Purchase Agreements for solar power under R-REP, the remaining one-third of the participants purchased the solar PV equipment directly or entered into a solar lease.¹¹

⁸ *Solar Powering Your Community: A Guide for Local Governments. Second Edition.* January 2011. US Department of Energy.

⁹ A Model of Collaborative Solar Purchasing: The Alameda County Regional Renewable Energy Procurement Project, Clean Energy States Alliance

¹⁰ <http://solarenergy.net/News/how-one-calif-county-takes-group-solar-purchasing-to-huge-new-level/>

¹¹ A Model of Collaborative Solar Purchasing: The Alameda County Regional Renewable Energy Procurement Project, Clean Energy States Alliance

Combination of Strategies

Local governments in Florida could choose to combine two or more of the above strategies in deploying solar PV energy systems on their facilities, depending on their specific needs and circumstances.

Fostering Solar in Local Communities

Of course, government facilities make up only a small fraction of the potential sites for rooftop solar PV installations. Local governments looking to foster solar deployment on residential and commercial properties in their communities have a variety of financial options they can employ. In addition, Appendix C features a table which briefly outlines some of the major advantages and disadvantages of each of the options described below.

Property Assessed Clean Energy (PACE) Programs

Property Assessed Clean Energy (PACE) programs have taken hold in many local communities across the United States. In PACE programs, property owners receive up-front financing from lenders to pay for renewable energy systems (or other improvements) and repay the loan over a period of years through a special assessment included in property tax bills. The debt is attached to the property, rather than the owner, and can transfer to the new owner upon a sale.

One significant barrier to wider use of this tool in the United States by homeowners is the Federal Housing Finance Authority's prohibition on any federally-backed mortgages from participating in PACE programs. As approximately 90 percent of all mortgages in the United States are backed by Freddie Mac or Fannie Mae, this presents a challenge. But the remaining 10 percent of homes and all homes owned outright, as well as commercial buildings, still represent a sizable number of properties which could participate in PACE programs. (See Federal-Level Options for more information.)

The Florida Legislature authorized PACE in Florida in 2010. Municipalities, counties, dependent special districts of a county or municipality, and separate legal entities created by interlocal agreements may create PACE programs. Local governments must authorize PACE programs within their jurisdiction by adopting a resolution or ordinance creating a program or joining an existing program by interlocal agreement.

The law governing PACE in Florida permits property owners to finance not only renewable energy improvements such as wind energy and solar energy systems, but also energy efficiency and wind resistance improvements. In addition, under Florida law, the sponsoring local government or entity may engage a third party to offer the financing and administrative services.

Communities in Florida looking to offer PACE within their jurisdictions have three options:

- Join an existing statewide program
- Join an existing local program
- Create their own program

Two entities currently offer multi-jurisdictional PACE programs to municipalities and counties statewide:

- The Florida Green Finance Authority offers the Florida Green Energy Works program, which provides PACE funding to commercial properties. (It has not yet offered residential PACE programs.) The Authority was initially formed by the towns of Lantana and Mangonia Park in Palm Beach County.
- The Florida PACE Funding Agency was created by the city of Kissimmee and Flagler County and offers residential and commercial PACE programs.

To join either of these programs, a local government would need to adopt by resolution or ordinance an interlocal agreement with the sponsoring agency.

In addition, several locally-focused PACE programs have been established in Go SOLAR Florida partner jurisdictions.

- The Clean Energy Green Corridor District was formed by seven municipalities in Miami-Dade County to offer PACE financing. The municipalities are South Miami, Pinecrest, Palmetto Bay, Miami, Miami Shores, Cutler Bay, and Coral Gables. Both commercial and residential properties are eligible for PACE financing in five of the seven municipalities; however, only commercial properties are eligible in Coral Gables, and Miami does not allow single-family residential properties to participate.
- A Clean Energy Coastal Corridor District is under development by the communities of Surfside, Bay Harbor Islands, Biscayne Park, Key Biscayne, El Portal, and North Bay Village in Miami-Dade County, but is not yet fully operational. In the meantime, however, the Coastal Corridor District entered into an interlocal agreement with the Clean Energy Green Corridor District to allow eligible property owners to access PACE financing immediately.
- A third district is also developing in northwest Miami-Dade County. Miami Lakes and Medley are the first jurisdictions to participate.
- Broward County has taken significant action to establish a PACE program, but it is not yet operational. The Broward County Commission elected to contract with two third-party administrators to offer PACE financing within the County. Once the program is active, property owners will be able to assess both administrators' offerings and select the financing arrangement that suits them best.
- The Solar and Energy Loan Fund, based in St. Lucie County, unveiled a commercial PACE program in 2014.
- Alachua County and Monroe County are currently considering PACE programs, and Miami-Dade County is looking into PACE for properties in unincorporated areas.

In October 2014, the Florida Bankers Association filed a lawsuit asserting that the Florida Property Assessed Clean Energy Act unconstitutionally allows PACE special assessments to take priority over other property liens, such as mortgage loans. Many communities pursuing PACE programs are watching this case carefully, with some even pausing their efforts to create programs while they await a decision by the Florida Supreme Court, which is expected in early 2015.

Low-Interest Loans

Local Government Authority

At least one local government in Florida offers low-interest loans for solar PV systems directly to its residents: Lauderhill in Broward County. Residents may apply to borrow between \$400 and \$2,000 interest-free for up to two years; the loan term may be shortened if desired. If the application is approved by city staff, the loan funds are paid directly to the contractor installing the solar PV system. Ten percent of the loan amount is held back until a project completion certificate is signed by both the contractor and the borrower and copies of all required permits are submitted to the city.

Community Development Financial Institutions

Community Development Financial Institutions (CDFIs) are private-sector financial organizations with community development goals, focusing especially underserved areas or populations.

The Solar and Energy Loan Fund (SELF) was created in 2009 by the St. Lucie Board of County Commissioners as a nonprofit organization to finance clean energy and energy efficiency improvements for homeowners and businesses. SELF won a \$2.9 million grant from the US Department of Energy in 2009, including \$1.65 million to capitalize a revolving loan fund. Lending operations began in St. Lucie County in 2011, and the US Department of the Treasury certified SELF as a CDFI in December 2012.

SELF targets low- and moderate-income households in its service areas. Upon pre-approving a borrower, SELF conducts an energy assessment on the borrower's property and assists in identifying the energy efficiency improvements and solar systems that would be most cost-effective. Solar PV is one of the options. Residential loans for solar PV systems average approximately \$25,000, with a maximum term of 10 years and an interest rate of 6.5-7.5 percent, while commercial solar PV loans average \$30,000, with a maximum loan term of 15 years and a similar interest rate, 6.5-7.5 percent.

SELF has expanded beyond St. Lucie County to also offer its services in Okeechobee, Martin, Indian River, and Brevard counties. It will expand into the metro Orlando area in late 2014, and it has also identified the Tampa Bay area as a likely area for future expansion.

Partnerships with Financial Institutions

Local governments and municipal or cooperative utilities could work with financial institutions to offer low-interest loans for solar PV systems.

For example, the Orlando Utilities Commission (OUC) has partnered with the Orlando Federal Credit Union to offer low-interest loans to OUC customers for solar PV systems. The property must be owner-occupied, but single-family, townhouse, duplex, and condominium units can qualify.

Economic Incentive Programs

Mitigation of the Tangible Personal Property Tax on Leased Equipment

Solar leasing arrangements offer benefits similar to power purchase agreements without violating the state's prohibition on the third-party sale of electricity. Property owners lease a solar PV system from a provider for a predictable monthly fee, and the electricity generated by the system offsets the property's electrical bill through net metering. At the end of the lease term, customers often have the option of purchasing the system outright.

However, one barrier to wider adoption of solar leasing arrangements in Florida is the tangible personal property tax that solar equipment providers must pay on any equipment leased to customers. Solar developers have estimated that this tax can add 2.5 cents or more per kWh of electricity generated by leased solar PV systems, thereby undermining the financial case for solar leasing.

Counties and municipalities could seek to induce wider adoption of solar leasing by using revenue generated by the tangible personal property tax to fund an economic incentive program for leased solar installations. In essence, the county or municipality's share of the tangible personal property tax generated by a solar PV leasing project would be refunded to the project developer. Knowing its tax burden would be reduced, a solar developer might be more likely to offer solar leasing agreements in the jurisdiction offering the incentive.

Such a program would be revenue-neutral, as the revenue would be generated by solar leasing activity which would not otherwise occur but for the existence of this incentive.

The program would be even more effective if both a county and municipality were to offer the incentives. In Broward County, for example, the County receives roughly 25 percent of the property tax collected; a municipality receives approximately 20 percent. Combined County and municipality incentives could reduce the property tax burden by nearly half.

This incentive program could be designed to end automatically should a Florida law take effect reducing or eliminating the tangible personal property tax on leased renewable energy equipment.

Broward County is currently investigating the practicality of this approach.

Cash Incentives and Rebates

Local governments could also choose to fund economic-incentive programs for residential or commercial rooftop solar PV systems directly out of their operating budgets or through other means (e.g., grants). Such incentives could be designed in any number of ways, including rebates or grants for set amounts tied to the type and size of solar PV systems or a production-based incentive linked to the amount of energy produced by a solar PV system. The budgetary impact of such incentive programs could be limited, by capping the number of participants or setting a maximum expenditure level.

Bulk Purchasing

In addition to establishing bulk purchasing programs for government entities themselves (see above), local governments could facilitate bulk purchases by homeowners and businesses.

For example, the Solar Chicago bulk purchasing program offers discounted solar PV systems to owners of single-family or two-family residences in seven counties in the Chicago metro area. The program sponsors—the City of Chicago, World Wildlife Fund, Vote Solar, the Environmental Law and Policy Center, and ICLEI-Local Governments for Sustainability—issued a Request for Proposals in early 2014 and selected Juhl Renewable Energy System and Microgrid Solar as the solar installer team. Their winning proposal offered a base cost of \$3.49 per watt for solar PV systems, “more than a 25 percent discount off the average market installation costs.”

Additional per-watt charges apply for installations outside of the City of Chicago and several other central partner municipalities, to account for travel costs. Furthermore, as the amount of solar capacity installed through the program reaches certain levels, property owners will receive additional rebates at the end of the program (\$0.15/watt if total capacity exceeds 100 kW and \$0.30/watt if total capacity exceeds 400 kW). The installation team also partnered with a local bank to offer loans through the program.

Local Government Infrastructure Surtax

County governments in Florida are allowed to impose a local-option sales tax within their jurisdictions to raise revenue for a variety of purposes. One variety of this local sales tax is the Local Government Infrastructure Surtax, which can be set at either ½ cent or 1 cent. In 2012, the Florida Legislature expanded the permissible uses of this surtax to include the provision of loans, grants, or rebates to both residential and commercial property owners for energy efficiency improvements, including solar PV systems.

To levy the Local Government Infrastructure Surtax, a county commission would have to adopt an ordinance, which voters would then have to approve by referendum. Similarly, authority to use the surtax revenue for energy efficiency improvements requires both a county ordinance and approval of the ordinance by countywide referendum.

To date, no county in Florida has pursued this method for funding energy-efficiency improvements, but it remains available.

Qualified Energy Conservation Bonds

Up to 30 percent of the proceeds of the Qualified Energy Conservation Bonds described earlier may be used to support private-sector initiatives, including solar equipment rebate programs and PACE programs. By designing a program that meets the “green community program” requirements of the

QECB regulations, however, up to 100 percent of the bond proceeds could be used to support private-sector loans.¹²

The Sustainable and Verifiable Energy Savings (SAVES) program in St. Louis County, Missouri, pursued this 100-percent option. Established in 2011, using a \$10 million QECB allocation and approximately \$600,000 in Energy Efficiency and Conservation Block Grant funds, the program offered loans of between \$2,500 and \$15,000 for owner-occupied single-family residential homes at a maximum interest rate of 3.5 percent. Although the program was primarily designed to finance energy efficiency improvements, renewable energy systems were eligible if the home was already energy efficient. Borrowers were required to have a minimum credit score of 660 and a debt-to-income ratio of 45 percent or less. After applying the federal interest rate subsidy, St. Louis County's effective interest rate on the bonds was only 0.7 percent.¹³

St. Louis County hoped to provide as many as 1,400 loans through the SAVES program.¹⁴ As of November 2012, the County had approved 311 loans and 178 projects had been initiated.¹⁵

Combination of Strategies

As noted above, some of these strategies could work together effectively.

State-Level Options

The Florida Legislature and Florida Public Service Commission have a variety of options available to them for supporting solar PV development in the state.

Power Purchase Agreements

At present, according to Section 366.02, Florida Statutes, any private entity selling electricity in Florida is considered to be a "public utility" subject to regulation by the Florida Public Service Commission. In practice, this prevents the use of power purchase agreements (PPAs), a financing strategy used in many other states. Under a PPA, a developer installs a solar PV system on a property and sells the electricity generated by the system to the property owner. This sale generally takes the

¹² Using Qualified Energy Conservation Bonds (QECBs) to Fund a Residential Energy Efficiency Loan Program: Case Study on Saint Louis County, MO, Clean Energy Financing Policy Brief, June 20, 2011, Lawrence Berkeley National Laboratory.

¹³ Ibid.

¹⁴ Ibid.

¹⁵ "Miami-Dade County Energy Efficiency and Renewable Energy Finance Program - Update of Existing Programs," November 2013, Office of Sustainability, Department of Regulatory and Economic Resources, Miami-Dade County.

form of a long-term contract, which provides both the solar developer with a predictable income stream and the property owner with a fixed price for electricity. In many markets, this electricity price is lower than the retail rate of electricity offered by utilities, which provides a powerful financial incentive for participation.

To allow power purchase agreements in Florida, the Legislature can amend Florida statutes to permit limited third-party sales of electricity.

Commercial Property Renewable Energy Constitutional Amendment and Implementing Legislation

Excluding renewable energy equipment from property assessments eliminates one potential barrier for property owners considering solar PV systems. Currently, residential properties in Florida enjoy this benefit. The Florida Taxation and Budget Reform Commission placed a proposed constitutional amendment on the ballot in 2008 to allow the Legislature to prohibit the consideration of renewable energy devices and wind resistance improvements in residential property assessments. Florida voters approved the amendment in November 2008, but the Florida Legislature did not pass legislation implementing this assessment exclusion until 2013.

During its 2014 session, the Florida Legislature considered a resolution to place a similar amendment regarding renewable energy equipment on commercial property before voters, but it failed to pass. This proposed amendment did not address the issue of the tangible personal property tax on leased solar PV or other renewable energy devices, however.

During 2015 or 2016, the Florida Legislature can adopt a resolution to place an amendment on the November 2016 ballot allowing the Legislature to prohibit consideration of renewable energy devices in the assessment of commercial property and to exempt leased renewable energy equipment from the tangible personal property tax. The Legislature could also pass legislation implementing these policies, contingent on the passage of the constitutional amendment. This would permit the legislation to take effect on January 1, 2017.

Virtual Net Metering/Community Solar

Florida law currently restricts net metering benefits to the site where the renewable energy is generated. Condominium dwellers, renters, and customers with properties unsuitable for solar installations (e.g. due to shade) might be interested in supporting renewable energy, but are unable to do so on their home site. The Florida Legislature or the Florida Public Service Commission could allow for “virtual” net metering, in which customers buy or lease solar PV panels at a different site, but are allowed to receive credit on their bills for the electricity produced by those solar panels. These off-site solar installations are also known as “community solar farms” or “community solar gardens” in many locations.

The Florida Keys Electric Cooperative offers a Simple Solar Program to its members that shares some features in common with virtual net metering and community solar gardens. Customers lease one or more panels (for \$999 each) and receive bill credits each month for the electricity produced. The Cooperative credits its customers at the retail rate, in contrast to Florida’s existing net metering policy, in which electricity use is offset by the power produced by solar panels, any net excess

generation rolls over to the next month (for a total of 12 months), and any excess at the end of the 12-month period is bought by the investor-owned utility at the avoided-cost rate.

Renewable Portfolio Standard

The Florida Legislature could join over 30 other states and the District of Columbia in establishing a renewable portfolio standard (RPS) for the electric utility sector in the state. An RPS sets a minimum level of electric generation which must come from renewable sources (usually including solar PV, solar thermal, wind, biomass, hydroelectric, geothermal, landfill gas, and other technologies) by a certain date.

The highest renewable portfolio standards to date are in New York, which is requiring utilities to generate 30 percent of their electricity from renewable sources by 2015; Colorado, requiring 30 percent by 2020; California, requiring 33 percent by 2020; and Hawaii, requiring 40 percent by 2030. Most other states set RPS goals between 10 to 25 percent, with compliance dates generally ranging from 2015 to 2025.

Solar Ready Requirements for New Construction

The Florida Legislature could mandate, through the *Florida Building Code*, that new construction in the state be "solar ready," allowing buildings to easily accommodate solar PV systems at any point during their useful life. Modifying a building to accommodate solar after its construction would generally be more expensive than including the needed features from the beginning. Solar ready features include roofs that are properly oriented to the sun and built to support solar PV equipment, as well as electrical systems equipped to handle the power that would be generated by solar PV panels.

Solar Energy Requirements for New Construction

The Florida Legislature could require, through the *Florida Building Code*, that all new construction in the state include solar PV installations. Such a requirement would likely establish conditions under which this requirement would apply—for example, exempting buildings under a certain size or allowing for exceptions for economic hardship, in historic districts, and under other circumstances.

This idea is not without precedent. Lancaster, California, a city of 155,000 in Los Angeles County, now requires newly-constructed single-family homes to include a solar PV system producing at least one kilowatt, though builders are allowed to bundle the solar systems for a group of homes on a smaller number of buildings (rather than on every home) or meet the requirement by buying credits from other solar systems elsewhere in the city.

The *Florida Building Code, Energy Conservation*, where a solar PV requirement would likely reside, applies statewide. Municipal and county governments cannot therefore pass their own local amendments to require solar PV systems on new construction like in Lancaster.

Federal-Level Options

Residential Renewable Energy Tax Credit

The federal government currently provides a 30 percent investment tax credit for solar PV systems (and other renewable energy equipment) installed on property owned by and used as a residence by an individual taxpayer, but this tax credit is set to expire on December 30, 2016. Congress can pass legislation to extend this tax credit.

Corporate Renewable Energy Tax Credit

Similarly, the federal government grants corporate taxpayers a 30 percent investment tax credit for solar PV (and other renewable energy) systems they place into service. However, this tax credit will drop to 10 percent for systems installed after December 31, 2016.

Congress can pass legislation to keep the investment tax credit for solar energy systems at 30 percent past 2016.

As non-taxable entities, local governments are not normally able to take advantage of this tax credit. However, certain third-party models allow a private entity to capture the tax benefit and pass the savings onto the local government. In this way, the continuation of the Corporate Renewable Energy Tax Credit would benefit governments as well as the private sector.

Lifting PACE Restrictions

In 2010, the Federal Housing Finance Agency directed Fannie Mae and Freddie Mac, the federal housing lenders it regulates, to place restrictions on federally-backed mortgages subject to Property Assessed Clean Energy (PACE) liens. Because PACE financing is repaid via voluntary assessments through the property tax collection system, PACE liens, like liens for the non-payment of property taxes, are considered senior to mortgage loans.

These restrictions included:

1. The possibility that a homeowner signed up for a PACE program would have to pay off the entire PACE assessment before he/she could refinance the mortgage.
2. Possible loan default for borrowers who participate in a PACE program without permission from their mortgage company, requiring immediate payment of the entire home loan.
3. Possible redlining of communities that create PACE programs, meaning tougher borrowing terms for any conforming loans (i.e. below a certain amount, for example \$625,000 for single-family homes) within the jurisdiction.

According to material prepared for the Berkeley Energy Commission in Berkeley, California, in July 2014, there are no known cases of items 2 and 3 above, and the restriction described in item 1 is not

uniformly enforced. “To date,” the memo states, “To date, the only action taken by lenders has been to require that PACE assessments be paid upon sale or refinancing existing mortgages.”

Nevertheless, these restrictions have limited the spread of PACE programs in the United States, often limiting possible participants to homeowners who have paid off their mortgages and to commercial property owners.

The Federal Housing Finance Agency, the President, or Congress could lift or loosen these restrictions, thereby encouraging wider adoption of PACE programs by local governments and expansion of solar PV energy through the use of PACE financing by residential and commercial property owners.

Conclusion

The options presented in the Plan are exactly that: options. Every community must decide for itself which solar financing tools it wishes to employ, based on its own unique conditions and circumstances.

For those local governments interested in supporting solar PV deployment on their own facilities and by residents and businesses in their communities, there is no better time to act than the present. Solar PV systems are nearing price parity—even in Florida, with its generally low electricity prices—and action by local government could spark a wave of widespread solar PV adoption. Local governments, supported by positive policy choices at the state and federal levels and participation from homeowners and businesses, can make the Sunshine State truly live up to its name.

Appendix A: **Action Steps**

HOMEOWNERS

Homeowners can:

1. Investigate solar options for their homes, taking advantage of any appropriate financing options.
2. Discuss solar energy policies with their state, local, and federal legislators.
3. Spread the word about the [Go SOLAR Florida website](#) to others to promote solar energy and increase awareness of financing options.

BUSINESSES

Businesses can:

1. Offer support for this Action Plan.
2. Offer support for policies and legislation which promote solar energy at the local, state, and federal level.
3. Consider installation of solar PV systems on their facilities, taking advantage of any financing options that fit their circumstances.
4. Join the Solar Users Network.
5. Market the Go SOLAR Florida website to customers and colleagues to promote solar energy and increase awareness of financing options.

LOCAL GOVERNMENT

Local governments can:

1. Identify solar advocates within their organizations. One strategy local governments might consider is identifying one commission member to champion policy change and a staff member to implement it.
2. Study this document and other resources to become informed on the available financing options.
3. Select and implement those options that best fit local conditions and preferences for solar PV investments on public facilities:
 - a. Direct purchase
 - b. Bond financing
 - i. General obligation bonds
 - ii. Qualified Energy Conservation Bonds
 - c. Solar leasing
 - d. Solar services
 - e. Performance contracting
 - f. Bulk purchases
 - g. Combination of strategies
4. Select and implement locally-appropriate policies to support solar PV among homeowners and businesses:
 - a. Property Assessed Clean Energy (PACE) programs
 - b. Low-interest loans

- i. Local government authority
 - ii. Community development financial institutions
 - c. Partnership with financial institutions
 - d. Economic incentive programs
 - i. Mitigation of the tangible personal property tax on leased equipment
 - ii. Cash incentives and rebates
 - e. Bulk purchasing
 - f. Local government infrastructure surtax
 - g. Qualified Energy Conservation Bonds
 - h. Combination of strategies
- 5. Pursue commission approval of a resolution in support of solar energy and solar financing options in Florida (see Appendix E for sample language) and transmit it to the Go SOLAR Florida partners for posting online.
- 6. Offer support for legislation and policies at the state and federal level which promote solar energy (e.g., in a local government’s legislative program), including the policies described in the state and federal options sections of this Plan.
- 7. Market the Go SOLAR Florida website to individuals and businesses to promote solar energy and increase awareness of financing options.

STATE GOVERNMENT

The Florida Legislature can:

- 1. Pass legislation permitting power purchase agreements.
- 2. Place a constitutional amendment on the ballot to exclude renewable energy systems from property assessments for commercial property (as is currently the case for residential property) and from the tangible personal property tax.
- 3. Pass legislation implementing the exclusions in item 2, contingent on the approval of the constitutional amendment by voters.
- 4. Explore other means of reducing property taxes for renewable energy systems on commercial property and on leased solar PV equipment.
- 5. Expand existing net metering laws to allow for virtual net metering and community solar gardens.
- 6. Establish a renewable portfolio standard for electric utilities.
- 7. Require new building construction in Florida to be solar ready.
- 8. Require new building construction in Florida to include solar PV systems.

The Florida Public Service Commission can:

- 1. Require investor-owned utilities to continue to offer solar rebates to customers.
- 2. Consider additional measures to promote rooftop solar PV systems.

The Florida Office of Energy can:

- 1. Market the Go SOLAR Florida website to individuals, businesses, and local governments in Florida.
- 2. Finance rooftop solar PV projects through its Qualified Energy Conservation Bond program.

FEDERAL GOVERNMENT

Congress can:

1. Pass legislation extending the residential renewable energy tax credit.
2. Pass legislation extending the commercial renewable energy tax credit.
3. Pass legislation allowing properties with federally-backed mortgages to participate in PACE programs.

The President or the Director of the Federal Housing Finance Agency can:

1. Issue new regulations allowing properties with federally-backed mortgages to participate in PACE programs.

Appendix B: Public Investments by Local Government – Advantages and Disadvantages

Options	Advantages	Disadvantages
Direct Purchase	<ul style="list-style-type: none"> • Straightforward • Renewable Energy Credits accrue to buyer • Local government owns the asset 	<ul style="list-style-type: none"> • Large up-front cost • Federal tax credits unavailable to tax-exempt entities (e.g. local governments)
General Obligation Bonds	<ul style="list-style-type: none"> • Commonly used local government financing method 	<ul style="list-style-type: none"> • Bonds backed by property tax proceeds require voter approval in Florida
Qualified Energy Conservation Bonds	<ul style="list-style-type: none"> • Federal government subsidizes interest payments and lowers effective borrowing cost 	<ul style="list-style-type: none"> • May require voter approval, if backed by property tax proceeds • More complicated than general obligation bonds • Bond amount is limited to amount established by federal law
Solar Leasing	<ul style="list-style-type: none"> • No upfront costs for consumer • Known payments for lease term 	<ul style="list-style-type: none"> • Performance of system may not be guaranteed (i.e. less electricity may be generated than initially forecast) • If retail cost of electricity drops, lessee could end up paying higher-than-market rates • Federal tax credits unavailable to tax-exempt entities (e.g. local governments) • Renewable Energy Credits accrue to leasing company • Lease agreements show as debt on balance sheets, according to Financial Accounting Standards Board rules • No ownership

Options	Advantages	Disadvantages
Solar as Service	<ul style="list-style-type: none"> • Customer is buying a service, not electricity, so seller will not be regulated as a utility [end result is something similar to a Power Purchase Agreement (PPA)] • Maintenance and system performance are guaranteed • Federal tax credits accrue to lessor and savings can be passed on to local government lessee • Local government could retain Renewable Energy Credits (must be negotiated with service provider) 	<ul style="list-style-type: none"> • Relatively uncommon, so standardized contract language is not yet available • Local government customer assumes weather risk (i.e. output not guaranteed) • No ownership
Performance Contracting	<ul style="list-style-type: none"> • No up-front cost; contractor paid out of savings from reduced energy expenditures 	<ul style="list-style-type: none"> • Main focus is energy efficiency
Bulk Purchases	<ul style="list-style-type: none"> • Could significantly reduce purchase cost of solar systems 	<ul style="list-style-type: none"> • Could be complex to arrange, if multiple jurisdictions are involved

Appendix C: Fostering Solar in Local Communities – Advantages and Disadvantages

Options	Advantages	Disadvantages
Property Assessed Clean Energy	<ul style="list-style-type: none"> • No cost to sponsoring local governments (financing issued by private entities) • Administration of program conducted by vendor(s) • Uses existing, familiar property tax billing system to collect assessments to repay financing • Jurisdictions can opt into existing programs easily by resolution 	<ul style="list-style-type: none"> • Initial setup and vendor selection can be complex if jurisdictions choose to create their own programs, rather than join existing programs • Florida PACE statute under legal challenge at present time
Low-Interest Loans – Local Government Authority	<ul style="list-style-type: none"> • If loans are repaid, no net cost to jurisdiction (other than staff time/administration) • Creates a revolving fund if repaid loans are loaned out again • Interest and administrative fees could support program administration; any profits could be plowed back into the loan fund 	<ul style="list-style-type: none"> • Requires program setup and administration • Risk to jurisdiction from bad loans
Low-Interest Loans – Community Development Financial Institutions	<ul style="list-style-type: none"> • If loans are repaid, no net cost to institution (other than staff time/administration) • Focus on low- and moderate-income households 	<ul style="list-style-type: none"> • Requires existence of Community Development Financial Institution serving the area in question • Requires program setup and administration • Risk to institution from bad loans

Options	Advantages	Disadvantages
Economic Incentive Programs – Tangible Personal Property Tax Mitigation	<ul style="list-style-type: none"> • Since little or no tax revenue is being generated from solar leasing projects now, local governments would not be losing any funds by choosing to mitigate the tangible personal property tax for solar leasing projects • Agreement by county and municipal governments to offer this incentive could cut tax bills by roughly half (depending on local tax rates) 	<ul style="list-style-type: none"> • Concept still in its infancy • As any one local government’s share of the total tangible personal property tax bill is fairly small (25-35% at most), the incentive would be similarly modest
Economic Incentive Programs – Cash Incentives and Rebates	<ul style="list-style-type: none"> • Direct and easy to understand • Can be tailored to focus on low- and moderate-income households 	<ul style="list-style-type: none"> • Requires program setup and administration • Local government must expend funds for incentives and rebates
Bulk Purchasing	<ul style="list-style-type: none"> • No cost to local government (other than program setup and administration) 	<ul style="list-style-type: none"> • Requires program setup and administration
Local Government Infrastructure Surtax	<ul style="list-style-type: none"> • Option already exists in statute • Proceeds could support loans or economic incentives described above 	<ul style="list-style-type: none"> • Untried for this purpose • Requires voter approval

Options	Advantages	Disadvantages
Qualified Energy Conservation Bonds	<ul style="list-style-type: none"> • Federal government subsidizes interest payments and lowers effective borrowing cost • Proceeds could support loans or economic incentives described above • Successful models exist 	<ul style="list-style-type: none"> • May require voter approval, if backed by property tax proceeds • More complicated than general obligation bonds • Bond amount is limited to amount established by federal law • Use for residential rebates or other private-sector incentives requires program setup and administration

Appendix D:
Existing Solar Financing Options in Go SOLAR Partner Jurisdictions

Jurisdiction	Local Government	Municipal Utility
Monroe County	<ul style="list-style-type: none"> • PACE program under consideration 	<ul style="list-style-type: none"> • Florida Keys Electric Cooperative <ul style="list-style-type: none"> ○ Net metering ○ Simple Solar community solar program (lease of FKEC-owned panel, customers are credited for electricity generated) • Keys Energy Services <ul style="list-style-type: none"> ○ Net metering
Miami-Dade County	<ul style="list-style-type: none"> • PACE program in certain areas • PACE for unincorporated areas under consideration 	<ul style="list-style-type: none"> • n/a <ul style="list-style-type: none"> ○ (only Homestead has a municipal utility, and it offers no incentives)
Broward County	<ul style="list-style-type: none"> • PACE program under development 	<ul style="list-style-type: none"> • n/a
St. Lucie County	<ul style="list-style-type: none"> • Solar and Energy Loan Fund (SELF) <ul style="list-style-type: none"> ○ Low-interest loans for homeowners ○ Low-interest loans for businesses • PACE for commercial properties (through Florida Green Energy Works and SELF) 	
City of Venice	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • n/a
Orange County	<ul style="list-style-type: none"> • None 	Orlando Utilities Commission incentives <ul style="list-style-type: none"> • Net metering (homes and businesses) • PV production credit program of \$0.05/kWh for homes and businesses (essentially a feed-in tariff) • Community solar program (customers subscribe to 1 kW blocks of solar PV array and enjoy the same \$0.05 production credit as customers with solar on their properties) • Low-interest loans through Orlando Federal Credit Union (homes)

Jurisdiction	Local Government	Municipal Utility
Alachua County	<ul style="list-style-type: none"> • PACE program under consideration 	Gainesville Regional Utilities incentives <ul style="list-style-type: none"> • Net metering (for both homes and businesses) • Feed-in-tariff (for both homes and businesses) – suspended for 2014

Note: In areas not served by municipal utilities, net metering is available through investor-owned utilities.

Appendix E:
Sample Resolution of Support for Solar Photovoltaic Energy
and the Florida Solar Financing Action Plan

WHEREAS, solar photovoltaic energy offers many potential benefits, including lower electricity costs for homeowners, businesses and governments, local jobs and economic development, reduced dependence on imported fuels, pollution-free electricity generation, and a more resilient electric grid; and

WHEREAS, Florida has the third-highest potential for rooftop solar energy generation in the United States, but currently ranks 12th in the nation for installed solar capacity; and

WHEREAS, in late 2013, the Go SOLAR Florida team, consisting of Broward, Alachua, Miami-Dade, Monroe, Orange and St. Lucie counties, the City of Venice, the Florida Solar Energy Center, and Florida Atlantic University, received a \$1.6 million Rooftop Solar Challenge II grant from the US Department of Energy to expand the streamlined online solar permitting system developed by Broward County under an earlier grant award; and

WHEREAS, one of the Rooftop Solar Challenge II grant deliverables is a Florida Solar Financing Action Plan, exploring the benefits of solar energy and outlining a strategy to improve access to solar financing in the state; and

WHEREAS, the Florida Solar Financing Action Plan contains a variety of financing options for homeowners, businesses, and local, state, and federal governments to consider, while recognizing there is no one-size-fits-all solution for the diverse types of communities, families, and businesses in the State of Florida; and

WHEREAS, to build support for solar photovoltaic energy and awareness of solar financing options within the State of Florida, the Go SOLAR Florida team is seeking to secure resolutions of support from all 67 counties in Florida; NOW, THEREFORE,

BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF _____
COUNTY, FLORIDA:

Section 1. The Board supports the expansion of solar photovoltaic (PV) energy in the State of Florida.

Section 2. The Board welcomes the publication of the Florida Solar Financing Action Plan (Exhibit 1) as a valuable resource for local governments seeking to expand the use of solar photovoltaic energy in their communities, without specifically endorsing any of the individual options contained within.

Section 3. The Board directs County staff to review the Florida Solar Financing Action Plan and determine if any of the options within should be pursued by the County.

Section 4. The Board encourages all other counties in Florida to adopt this Resolution.

Section 5. EFFECTIVE DATE.
This Resolution shall become effective upon adoption.