




SolarReadyFlorida

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Tampa Bay Regional Planning Council

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SOLAR IN FLORIDA

- ❑ Florida ranks **3rd** in **U.S. for solar potential**, but is **14th** in **installed solar capacity (2014)**
- ❑ **19 other states** installed more solar electric capacity than Florida did in 2014
- ❑ **4,800 solar industry jobs** in Florida at 409 companies/firms (2014)



SOLAR IN THE U.S.

- ❑ **\$13.4 billion market** in U.S. for solar PV in 2014
 - ❑ Up from \$3 billion in 2009
- ❑ 6,201 megawatts installed in 2014 – **30% increase** from previous year
- ❑ 40% of all new electricity brought online in 1st half of 2015 was solar, **outpacing natural gas**



PROJECT OVERVIEW

U.S. Department Of Energy SunShot Initiative Rooftop Solar Challenge



SOLAR READY II REGIONAL PARTNERS

CNY RPDB Central New York Regional Planning and Development Board

DV RPC Delaware Valley Regional Planning Commission

MAG Maricopa Association of Governments

MW COG Metropolitan Washington Council of Governments

MARC Mid-America Regional Council

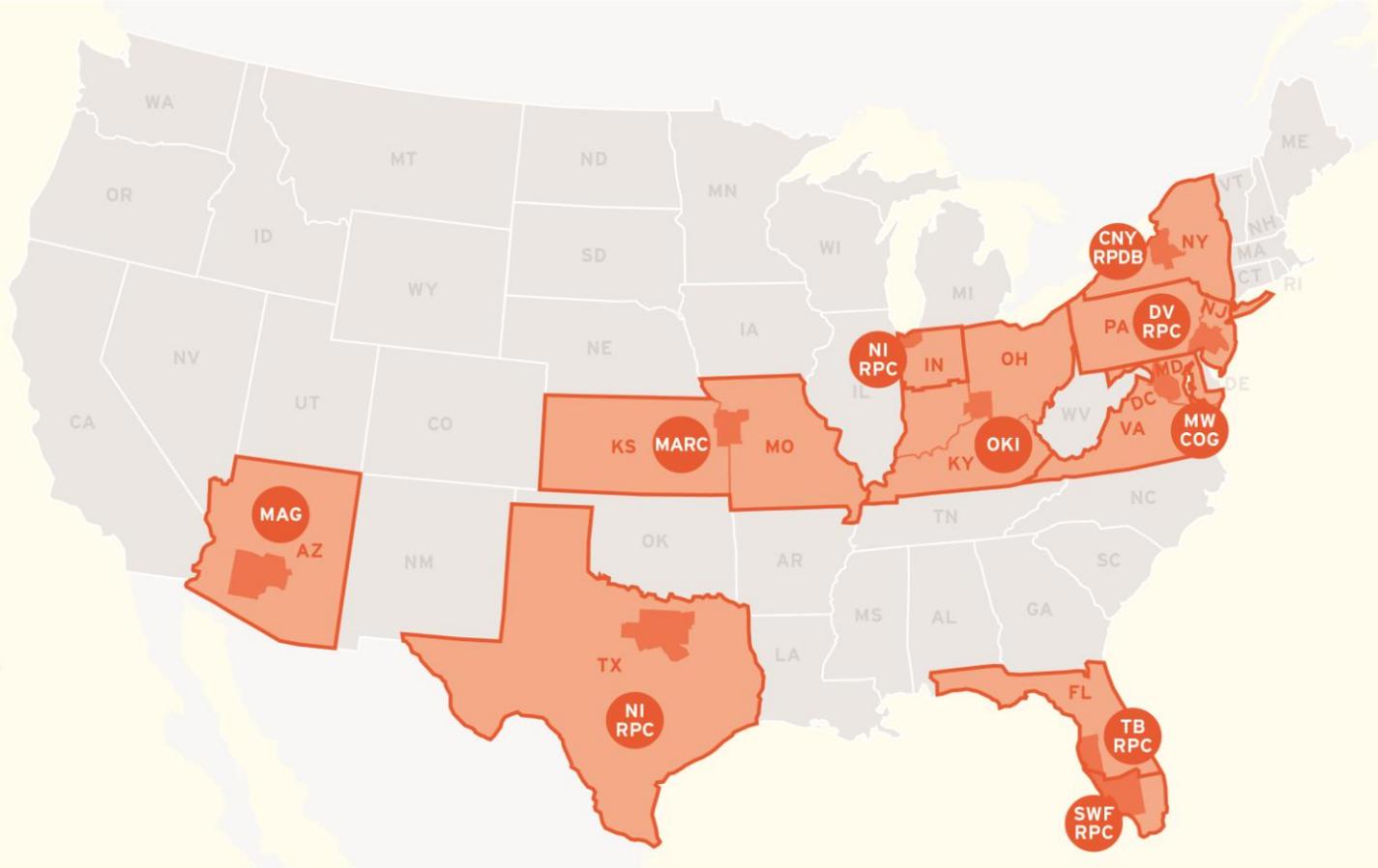
NCT COG North Central Texas Council of Governments

NI RPC Northwestern Indiana Regional Planning Commission

OKI Ohio-Kentucky-Indiana Regional Council of Governments

SWF RPC Southwest Florida Regional Planning Council

TB RPC Tampa Bay Regional Planning Council



PROGRAM GOALS

Remove barriers

Reduce “soft” costs of solar PV installs

Increase access to financing

Promote solar adoption



SOLAR READY FLORIDA PROGRAM

- ❑ Local government participation
- ❑ Stakeholder engagement
- ❑ Convene working group meetings
- ❑ Identify solar best practices for the Tampa Bay Region
- ❑ Provide training opportunities through our project partners
- ❑ Research the region's solar market conditions



SOLAR READY FLORIDA PROGRAM

- ❑ Project runs through Spring 2016
- ❑ Current focus is on
 - ❑ Local government and stakeholder engagement
 - ❑ Collecting “solar metrics” data for individual jurisdictions
 - ❑ Solar best management practices implementation



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 - ❑ Collecting “solar metrics” data for individual jurisdictions
 - ❑ Solar best management practices implementation



SOLAR BEST MANAGEMENT PRACTICES



SOLAR BEST MANAGEMENT PRACTICES

- ❑ Develop **Solar Ready Guidelines** for new residential construction
 - ❑ Local Gov't Implementation Action: Distribute voluntary solar ready construction guidelines as part of the permitting process for new residential construction



DRAFT Solar Ready Construction Guidelines For Consideration by the Local Governments of the Tampa Bay Region October 2014

These voluntary guidelines have been developed for the local governments of the Tampa Bay region to provide guidance for home builders/developers in the design and construction of new residential buildings. By incorporating these guidelines early in the design process, developers can make new homes solar ready without adding unduly to the cost of new construction. Homeowners in solar-ready buildings can make the decision to install solar later with less difficulty and at lower cost.

1. Orientation and Location of Building

1.1 Orient Roofs to Face the South. Buildings should be oriented to afford a south-facing roof and designed in a way that minimizes the obtrusiveness of solar panels that may be located on the south face of the roof.

1.2 Avoid Shading. Buildings should be designed in such a way that there is no shading to the south. Shade tree species should be selected and planting locations identified that will allow trees to shade windows and walls but not the identified solar collector location on the roof (See the FAQ – How do I balance shade trees and solar?)

2. Roof Design

2.1 Preserve Rooftop Space for Solar Collectors. The south-facing portion of the roof should include a contiguous area, free of rooftop obstruction, of sufficient size to allow for a solar system. At minimum, an area of several square feet (100 sq. ft. per kW) should be identified. Residential solar systems in Florida may cover up to 1,000 square feet of roof space. (See the FAQ – How much rooftop space does solar need?)

2.2 Flat Roof Configuration. For flat roofs, designers should ensure that the building has adequate roof access, and should consider integrating rooftop safety equipment such as guardrails when appropriate. The area identified for solar collection should be near the middle of the roof, away from any parapets to avoid shading. Any rooftop HVAC equipment should be positioned to avoid conflicting with the location of the solar collector.

2.3 Pitched Roof Configuration. For pitched roofs, designers should take into account the degree of pitch that would maximize the generation of solar panels located flush against the roof. In the Tampa Bay region, an optimal roof pitch for solar is 27° to 29°. (See the FAQ – Why is this the right pitch?)

2.4 Allow for additional weight. The roof should be adequately reinforced to allow for the additional weight, including both the weight of the solar systems itself, and up to 45 lbs. per square foot to the roof's dead ballasted system is installed on a flat roof, it may add up to 20-30 lbs. per square foot to the roof's dead load.

2.5 Record Roof Reinforcements. Any reinforcements to the roof should be recorded on official drawings, such as the code sheet, for the benefit of solar developers.

(continued next page)

DRAFT Solar Ready Construction Guidelines (p. 2 of 2)

3. Inverter & Mechanical Systems

3.1 Reserve Wall Space for Inverter. A 3'x3' area of wall space next to the building's main electrical panel, with an additional 3' of clearance space in front of the wall, should be reserved for the installation of an inverter. To minimize voltage loss, the meter box and reserved inverter space should be located just below the rooftop space reserved for the solar collector.

3.2 Install Conduit. Metallic conduit at least 2" in diameter should be installed that will run through the building from the area identified for the inverter to the area identified for the solar collector.

3.3 Leave Room for PV Breaker. The electric panel should include the necessary space for a power input breaker at the opposite end of the electric service panel from the main breaker.

3.4 Provide Adequate Home Electrical Service. Electrical service of at least 200 amperes in residential buildings is preferable to ensure that PV power generation can be accommodated.

Frequently Asked Questions

1. How do I balance shade trees and solar?

Some municipalities may encourage the planting of shade trees on the south side of homes in order to provide shade and reduce cooling loads. However, solar cannot be installed cost-effectively on a shaded roof. There is a direct trade-off between shading a home's roof with trees and preserving the ability to install rooftop solar. One strategy to deal with this is to encourage the planting of tree species that will grow high enough to shade a home's roof, but will still shade windows and walls or to encourage other "green" building techniques that minimize cooling loads.

2. How much rooftop space does solar need?

As a rough guide, solar panels produce 1 kW of energy per 100 square feet. In Florida, a 10 kW system—the largest that can easily be installed by a Florida homeowner under current policies and regulations—would take up approximately 1,000 square feet of roof space. With Florida's solar resources, a 10 kW would produce roughly 13,600 kWh every year, just under the average statewide household consumption of 5,000 kWh. Many homeowners choose to install a smaller system that does not completely offset their energy usage, but these will still require several hundred square feet of rooftop space.

Why is this the right pitch?

In general, the pitch of a solar system should be equal to the latitude at which the system is installed. In the Tampa Bay region (Hillsborough, Manatee, Pasco, and Pinellas Counties) is between 27.2°N and 30.3°N. Pitch is less critical to maximizing solar output than orientation and shading, though, and there is flexibility for solar-ready homes in this regard.

DUNEDIN SOLAR READY GUIDELINES BROCHURE

FREQUENTLY ASKED QUESTIONS

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How much roof space does solar need?
As a rough guide, solar panels produce 1 kW of energy per 100 square feet. In Florida, a 10 KW system—the largest that can easily be installed by a Florida homeowner under current policies and regulations—would take up approximately 1,000 square feet of roof space. With Florida's solar resources, a 10 KW would produce roughly 13,600 kWh every year, just under the average statewide household consumption of 15,000 kWh. Many homeowners choose to install a smaller system that does not completely offset their energy usage, but these will still require several hundred square feet of rooftop space.



FREQUENTLY ASKED QUESTIONS, CONT.



Why is this the right pitch?
In general, the pitch of a solar system should be equal to the latitude at which the system is installed. The latitude of Dunedin is 28.0° N. Pitch is less critical to maximizing solar output than orientation and shading, though, and there is some flexibility for solar-ready homes in this regard.

The cost of electricity is getting higher every day, and will only continue to rise. But by generating your own power with solar, you can stabilize your cost of electricity and even reduce its sensitivity to future rate hikes.

By considering these Solar Ready design guidelines for new residential construction, homebuilders can make new homes solar ready without adding to the cost of construction. Owners of solar-ready homes can then make the decision to install a solar electric system later, with less difficulty and at a lower cost.

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Guidelines for Solar Ready Design

*Going Solar Can Save
Money*



DUNEDIN
Home of Honeymoon Island



CITY OF BRADENTON COMPREHENSIVE PLAN – COASTAL MANAGEMENT AND CONSERVATION ELEMENT

City of Bradenton Comprehensive Plan | Coastal Management and Conservation Element

Objective 7.4 Solar Energy

The City will promote, support and require, as appropriate, the use of solar energy.

Policy 8.4.1 Solar Ready Buildings

The City will require where feasible, all new buildings be constructed to allow for easy, cost effective installation of solar energy systems in the future, using such "solar-ready" features as:

- Designing the building to include optimal roof orientation with sufficient south-sloped roof surface,
- Clear access without obstructions (e.g. chimneys, heating and plumbing vents) on the south sloped roof;
- Designing roof framing to support the addition of solar panels;
- Installation of electrical conduit to accept solar electric system wiring; and
- Installation of plumbing to support a solar hot water system and provision of space for a solar hot water storage tank.

Policy 7.4.2 Passive Solar Design

The City will require that any building constructed in whole or part with City funds incorporate passive solar design features.

Policy 7.4.3 Protection of Solar Elements

The City will protect existing, active and passive solar design elements and systems from shading by proposed neighboring structures and landscape elements.

Adopted September 23, 2009 | Page CMC-31



CITY OF BRADENTON COMPREHENSIVE PLAN – COASTAL MANAGEMENT AND CONSERVATION ELEMENT

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SOLAR BEST MANAGEMENT PRACTICES

- ❑ Create a **Centralized Information Source** for disseminating info about solar permitting and more
 - ❑ Local Gov't Implementation Action: Create a Solar Landing Page for the city's or county's website



ABOUT US

- [Our Mission](#)
- [TBRPC Staff Directory](#)
- [Historical Timeline](#)
- [Member Governments](#)
- [Organizational Chart](#)
- [Laws Referencing RPCs](#)
- [Florida RPCs](#)
- [Acronyms List](#)
- [Strategic Regional Policy Plan \(SRPP\)](#)
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SOLAR PERMITTING AND RESOURCE INFO LANDING PAGE TEMPLATE

This template may be used by local governments as guidance for creating a solar landing page specifically for their jurisdiction's website. Some links are placeholders (as noted with an asterisk), and will require the local government to provide information specific to their jurisdiction, as applicable.

The sun offers tremendous potential for use as a renewable energy source in Florida. The Sunshine State ranks third in the U.S. for solar electricity potential. Solar electricity is generated when light falls on solar panels containing photovoltaic (PV) cells. These PV cells convert the sun's light energy to electricity. For homeowners and businesses that install solar PV systems, solar energy can reduce the amount of electricity needed from the grid, lowering utility costs and reducing fossil fuel emissions into the air.

SOLAR PERMITTING INFORMATION

- [Solar Permit Guide](#) - PDF (*Boston example)
- [Solar PV Inspection Guidelines](#) - PDF (*San Diego example)
- [Solar PV System Permit Application](#) - PDF (*Miami-Dade example)
- [Permit Fee Schedule](#) - PDF (*Miami-Dade Example)
- [Map of Solar Permits Issued within the City](#) - PDF (*St. Petersburg example)

SOLAR INFORMATION RESOURCES

- [Solar Electricity Basics](#) - Florida Solar Energy Center
- [PVWatts® Calculator](#) - National Renewable Energy Laboratory (NREL)
- This site allows you to estimate the performance of a potential solar PV installation for your specific location.
- [Solar Access Laws in Florida](#) - DSIRE / U.S. Department of Energy

UTILITY INTERCONNECT AND NET METERING INFO

These pages link to solar information pages for the region's electric utilities. They include information on interconnection procedures and net metering.

- [Duke Energy Renewables and Customer Generation Page](#)
- [Tampa Electric \(TECO\) Customer-Owned Generation Page](#)
- [FPL Solar Information Page](#)

INCENTIVES

- [Federal Residential Renewable Energy Tax Credit](#) - U.S. Department of Energy
- [Florida Solar Sales Tax Exemption](#) - Florida Department of Revenue

OTHER LINKS

- [Solar Ready Florida](#) - Tampa Bay Regional Planning Council
- [Florida Solar Energy Center](#) - University of Central Florida
- [Florida Solar Energy Industry Association \(FLSEIA\)](#)
- [National Renewable Energy Laboratory \(NREL\) Solar Research](#)

CONTACT INFORMATION

For more information on Solar Ready Florida, please contact Brady Smith at TBRPC, (727) 570-5151 ext. 42 or brady@tbrpc.org.

SOLAR LANDING PAGE TEMPLATE

http://www.tbrpc.org/solarreadyflorida/solarlandingpage_template.shtml



HILLSBOROUGH COUNTY SOLAR ENERGY INFORMATION PAGE

The screenshot shows the website for the Environmental Protection Commission of Hillsborough County. The header features the commission's logo and the tagline "ENVIRONMENTAL EXCELLENCE IN A CHANGING WORLD". Below the header is a navigation menu with links for "ABOUT US", "DIVISIONS", "HOW DO I?", and "SERVICES". The main content area displays a breadcrumb trail: "Home > Services > Green Hillsborough > Solar Energy Information". A blue banner reads "Solar Energy Information". Below this is the "GREEN Hillsborough" logo and a photo of solar panels on a roof. The text under "Solar Energy Information" states: "An excellent energy source for the state of Florida is the power of the sun. Solar energy can be captured through the use of solar photovoltaic (PV) systems, generally placed on rooftops. Hillsborough County government supports solar energy and in fact, has one of the largest urban PV systems in the country atop the Old Main County Courthouse in downtown Tampa." A sidebar on the left contains a search bar, social media links, and other utility buttons.

<http://www.epchc.org/index.aspx?NID=310>



NEXT STEPS - SPARC

- ❑ **SPARC - Solar Powering America by Recognizing Communities**
- ❑ U.S. Department of Energy designation program to recognize communities that implement **solar best management practices**
- ❑ Implementing solar BMPs will put Tampa Bay area local governments ahead of many other regions



NEXT STEPS - SPARC

- ❑ Designation program and criteria will launch **March/April 2016**
- ❑ **Technical assistance** will be available to communities that want to become designated
- ❑ Late 2016 launch of **SPARC Fellows** program which will house a fellow in a local government or regional organization to be a point person to encourage communities to become designated and provide technical assistance



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www.SolarReadyFlorida.com

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