

PLANNING AND PROMOTING SOLAR ENERGY

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Presentation Overview

- SolSmart Overview
- Solar Development Goals
- Solar Ready Concepts
- Solar Financing Options & Incentives
- Mitigating Risk

SolSmart Overview

- SolSmart is a **national designation program** that recognizes cities, counties, and regional organizations that foster the development of mature solar markets.
- Our national team of experts provides **no-cost technical assistance** to help communities become “open for solar business”.
- SolSmart uses **objective criteria** to designate communities as SolSmart Gold, Silver, and Bronze.



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Benefits of Solar PV

- Economic development and job creation
- Environmental and public health benefits
- Reduced and/or stabilized energy costs
- Local power generation
- Value to the utility
- Local goals and targets



SOLAR DEVELOPMENT

GOALS

Solar Development Goals

- Some ways communities can take action related to solar development goals include:
 - Establish and sharing public goals through a resolution or proclamation
 - Incorporate solar goals into Comprehensive Plan and other plans
 - Discuss community goals for solar with the local utility
 - Engage the community around solar goals

Comprehensive Plans

- Key visioning documents
- Important to align additional planning documents with Comprehensive Plan e.g. Neighborhood, Energy, Climate plans
- Recognize potential conflicts early e.g. farmland fragmentation

Smithville, TX

- The City of Smithville developed a public solar statement that outlined local solar goals and established a commitment to achieving these goals.

Smithville's goals include:

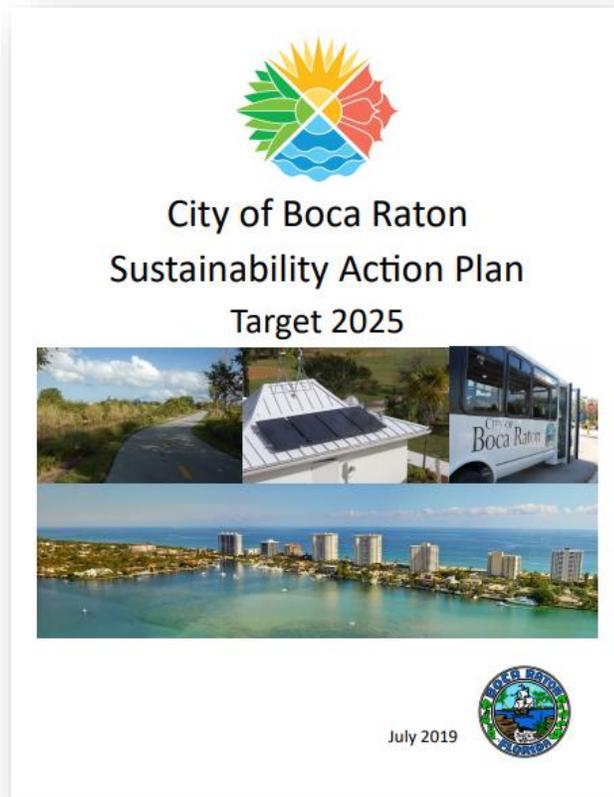
- Install solar energy systems on key local government facilities
- Develop a streamlined process for solar permitting or inspections
- Evaluate net metering for solar utility customers
- Develop an educational campaign, including grass-roots marketing campaign championed by a local volunteer.



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Boca Raton, FL

- The city of Boca Raton incorporated local solar goals into the City's Sustainability Action Plan



Boca Raton's goals include:

- Certify as a SolSmart community
- Create a solar policy for new City construction
- Identify opportunities to include solar energy on existing facilities
- Utilize solar + storage for hurricane resiliency
- Create incentives for solar energy systems
- Create requirements for solar energy systems

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Key Resources

- To learn more about solar development goals, please visit the following resources:
 - American Planning Association. [Integrating Solar Energy into Local Plans.](#)
 - American Planning Association. [Planning for Solar Energy.](#)
 - SolSmart: [Planning, Zoning & Development: SolSmart's Toolking for Local Governments](#)

Mitigating Risks

- Be proactive on planning for solar PV
- Identify interests and engage stakeholders
- Pay attention to special use districts and make processes for solar transparent
- Include language on decommissioning of large-scale solar PV within local planning documents

SOLAR-READY CONCEPTS



Solar Ready Components

- Key considerations for solar-readiness include:
 - Sizing of electrical panels and utility rooms
 - Conduit from roof to panel
 - Roof load and orientation
 - Placement of roof equipment
 - Compatible roofing for solar

Solar Readiness

- Key actions a community can take to promote solar readiness include:
 - Developing solar ready construction guidelines for property or real estate developers to enable lower cost installation of future solar PV on buildings.
 - Adoption of solar-ready codes in building codes such as the commercial or residential IECC solar-ready appendices.
 - Incentivizing or requiring new construction be solar ready in at least one zoning district

Fairfax County, VA

- Fairfax County shared design guidelines for solar PV aligned with the National Electric Code and fire codes.

FAIRFAX COUNTY VIRGINIA

TYPICAL RESIDENTIAL SOLAR ELECTRICAL PLANS WITHOUT ENERGY STORAGE SYSTEM

Address: _____ Up to 14 PV's per string
Max 3 strings

Qty of modules: _____
Total power: _____
Amount of strings: _____

Conductor Schedule:

Key	Wire Gauge	N/L/EGC	Color
①	PV wire	Manufactures specs	
②	6#AWG	THWN-2 *	
③	6#AWG	THWN-2 EGC	

* number of conductors is contingent on the number of PV strings

Residential solar panels 5 05/2019

FAIRFAX COUNTY VIRGINIA

TYPICAL RESIDENTIAL SOLAR CONSTRUCTION PLANS

Address: _____ Up to 14 PV's per string
Max 3 strings

Qty of modules: _____
Total power: _____
Amount of strings: _____

Design Criteria
Applicable Code year 2015 VRC, 2015 VCC
Risk Category II
Wind Speed 115mph
Ground Snow Load 25psf
Roof Dead Load 15psf
Roof Live Load 25psf

Roof System Information

Roof construction: Rafter Trusses Other

Rafter size _____ X _____

Rafter span _____

Rafter spacing _____ inches on center

Max unsupported span _____

Are the rafters over spanned? Yes No (Use table R802.4.1 in VRC)

Module and mounting information

- Mounting manufacture _____
- PV module product name and model number _____
- Total dead weight of PV modules and rails _____
- Total number of attachment points _____
- Weight per attachment point (c + d) _____
- Total surface area of PV modules _____
- Distributed weight of PV module on roof (c + f) _____

Residential solar panels 4 05/2019

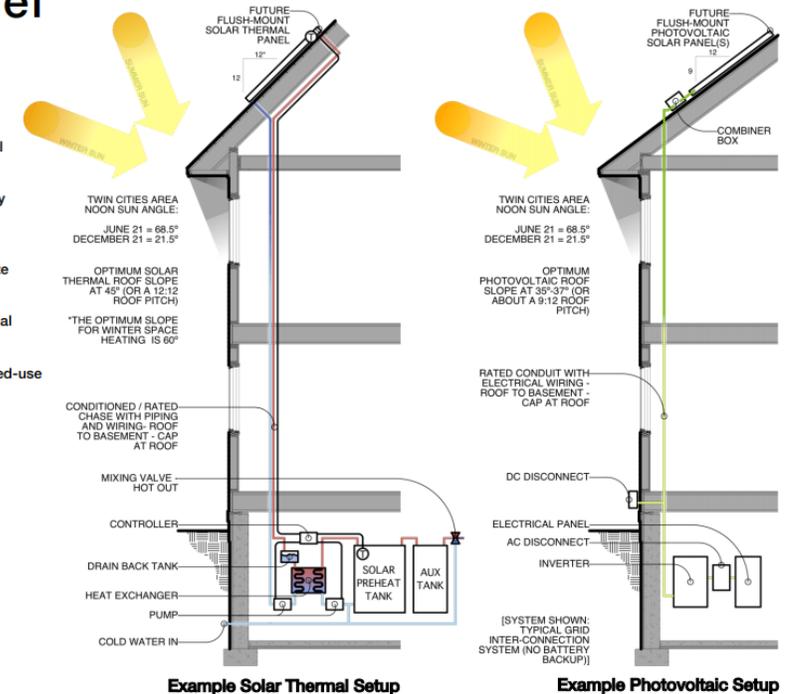
Minneapolis, MN

- The City of Minneapolis supported the development of Solar Ready Building Design Guidelines to help Minnesota architects, engineers, contractors and their clients understand and plan for future solar PV and solar hot water systems.

Solar Model

Budget Allowance for Solar Ready Construction

- ✓ \$1,000 for a two-story residential building
- ✓ \$5,000 to \$7,500 for a three-story mixed-use building
- ✓ Estimated Cost for Retro-fitting Existing Structures to Incorporate Solar Ready Requirements
- ✓ \$5,000± for a two-story residential building
- ✓ \$20-30,000 for a three story mixed-use building



Solar Ready Building Design Guidelines for the Twin Cities, Minnesota

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Pinecrest, FL

- The Village of Pinecrest required new construction and remodeling worth more than 50 percent of the property's assessed value to be solar ready in order to complete future installations at lower cost.



Photovoltaic System Requirements:

- ✓ Installation of an appropriate sized conduit, a minimum of one-inch diameter, leading from an exterior south-, east- or west- facing roof where a minimum of four hours of direct sunlight is achieved, to a subbed junction box adjacent to the electrical meter.
- ✓ All exposed conduit shall be capped and provided with adequate flashing
- ✓ The conduit shall not be located on or in the direction of a north-facing roof.
- ✓ Roof reinforcements shall be addressed at the time of installation

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Key Resources

- To learn more about promoting solar readiness, please visit these resources:
 - NREL. Solar Ready: [An Overview of Implementation Practices](#)
 - SolSmart. [Solar Energy Toolkit for Local Governments.](#)
 - The Minneapolis Saint Paul Solar Cities program. [Solar ready Building Design Guidelines.](#)
 - OKI Regional Council of Governments. [Rooftop Solar Ready Construction Guidelines.](#)



FINANCING OPTIONS +

INCENTIVES

Financing Options and Incentives

- Communities can support solar market development by providing information on, or expanding, local financing options and incentives. Some key actions could include:
 - Provide information to consumers about residential and commercial solar PV financing options.
 - Provide local incentives or locally-enabled finance for solar PV.
 - Engage local banks, credit unions, foundations and/or community funds about lending for solar PV projects.

Oak Park, IL

- In 2015, the Oak Park Village Board approved the creation of a Renewable Energy Aggregation Fund through the creation of a renewable energy fee on residents' energy bills.
- In the first two years, the fund collected approximately \$600,000 to invest in renewable energy projects.



Coventry, CT

- The town of Coventry provides local incentives for solar PV via a property tax exemption.

“The town hereby authorizes the property tax exemption for active solar energy, heating or cooling systems set forth in G.S. § 12-81(56)(a), (b) and (c).”



South Miami, FL

- The city of South Miami waived all applicable City building permit fees relating to the installation of solar panels for residential and commercial properties.

Photovoltaic & Solar Thermal Systems Fee Schedule:

Residential Systems	Fee
Aggregate service capacity of 599 amps or less (240v)	\$100 No fee
Aggregate service capacity of 600 amps or more (240v)	\$200 No fee
Commercial Systems	Fee
Aggregate service capacity of 599 amps or less (240v)	\$200 No fee
Aggregate service capacity of 600 amps or more (240v)	\$350 No fee

Key Resources

- To learn more about expanding financing options and incentives for solar PV, please visit these resources:
 - Database of State Incentives for Renewables and Efficiency (DSIRE). [Policies and Incentives by State.](#)
 - Solar Outreach Partnership. [Introduction to Solar Project Finance.](#)
 - PACE Nation. [PACE Programs.](#)

THANK YOU

Questions?

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