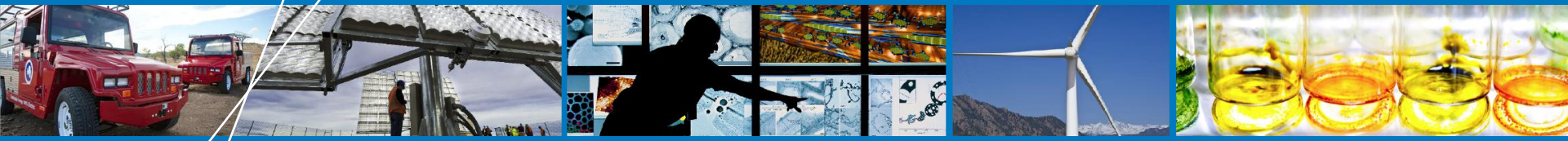
NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Solarize Solar Programs and the Role of Local Government



ICMA 2012 Annual Meeting

Phoenix, AZ

Jason Coughlin

October 8th, 2012

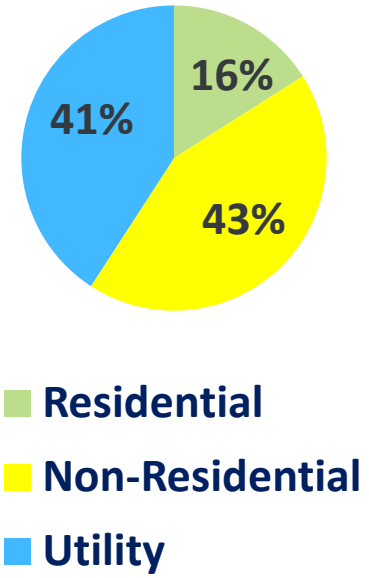
Quick Market Update

Market Snapshot

- US is 8-10% of world market
- 1,855 MW installed in 2011
- 109% growth over 2010
- Panel prices ↓ 50%
- Avg. price: $3.45/W (2Q12)
- Avg. residential: $5.46/W.

- Explosion of residential leasing and PPAs
- Chinese module production

MW Installed (2011)



Source of data: SEIA/GTM Research 2011 Year in Review and 2Q12 report

“Solarize” Group Buy

- Residential rooftop PV
- Many systems – many participants

Community Solar

- Single, larger system
- One system – many participants.

Elements of a Solarize Program

Group Purchase	Negotiated price discount	Limited Time Only	Multiple finance options
• Solar (PV) • Solar Hot Water • Energy Efficiency • Commercial projects	• 10-20% discount • Rebate at end of campaign based on installed capacity	• 3-6 months • Goal is to reduce sales cycle for solar. • Get people *Off the fence*	• Homeowner financed • Third party financed with Leases or PPAs

https://www.eeremultimedia.energy.gov/solar/videos/purchasing_solar_collectively_solarize

Role of local government in Solarize campaigns

- Act as Project Leader/Program Manager
  - Sustainability coordinator
  - Energy manager
  - Solar program coordinator
- Support Project Leader
  - Be on Project Team
    - Give Solar 101 presentations
    - Assist with RFP development
    - Assist in reviewing proposals from contractors
- Allow access to employees for Solarize campaign
  - “Lunch and learn” workshops
- Partner with ICLEI and its Energy Benefits Program
  - http://www.icleiusa.org/climate_and_energy/renewable-energy-guidance/energy-benefits

Solarize Portland

Details

Campaigns: 6

Projects: 560

Installed: 1700 kW

Price: $6.00/W (2011)

Partners:

- Neighborhood organizations
- City of Portland
- Energy Trust of Oregon.

Source: Energy Trust of Oregon and Solar Oregon

Solar Benefits Colorado

Details

Campaign: 1 (multi - employer)

Enrollment: 1083

Contracts: 113

Installed: 630 kW

Price: $3.90/W

Primary Partners:

- City of Denver
- State of Colorado
- ICLEI/GroupEnergy

Joe Lucas's Denver home has new PV on the roof thanks to the Solar Benefits Colorado program. REC Solar employee Brian Webster. Photos by Dennis Schroeder / NREL)

Solar Benefits Tucson

Details

Enrollment: 852

Contracts: 92

Installed: 621 kW

Price: $4.50-4.75/W

Partners:

- City of Tucson, Pima County, UA Medical Center, TEP, Ventana Medical Systems.
- ICLEI/Group Energy

http://solaronestopaz.org/

Solarize Seattle

Details

Campaigns: 6 (4 completed)

Projects: 134

Installed: 600 kW

Price: $5:00-$6.50/W

Project Lead: NWSEED (non-profit)

New partnership with City of Seattle thru the Municipal Utility

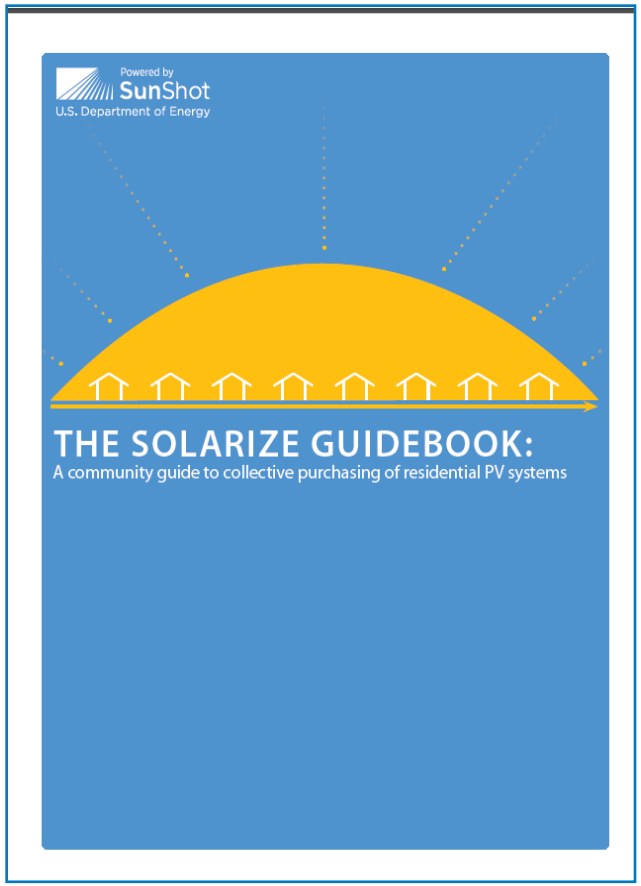
Picture Source: http://solarizewa.org/get-started/queenanne

The Solarize Guidebook

A Community Guide to Collective Purchasing of Residential PV Systems

Content

- Background on the Concept
- Case Studies
- Lessons Learned and Things to Consider
- Step by Step "How To" Guidelines



Where to find it:

http://www.nrel.gov/docs/fy12osti/54738.pdf

Guide to Community Shared Solar

Collaborative effort

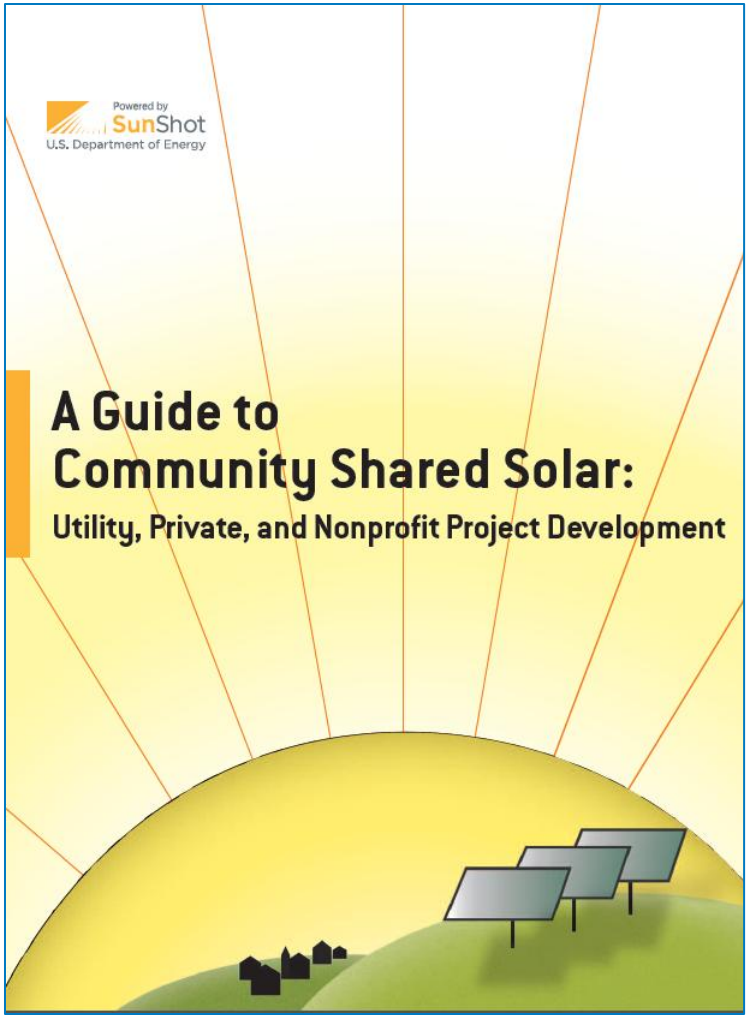
- U.S. Department of Energy SunShot Initiative
- NREL
- NWSEED
- IREC
- Stoel Rives, LLP.
- Bonneville Environmental Foundation

Focus

- Community Solar Project Structures
- Tax and Legal Implications
- Case Studies
- Worksheets
- IREC Model Community Energy Rules

Where to find it:

http://www.nrel.gov/docs/fy12osti/54570.pdf



State Technical Assistance Team (STAT)

- Solar-focused technical assistance provided by NREL to state and local governments.

- Recent topics have included interconnection, third party finance and community solar.

More information:

- Send email to stat@nrel.gov in order to be contacted when information is available.
- October 10th – tentative date to open next round of solicitations.

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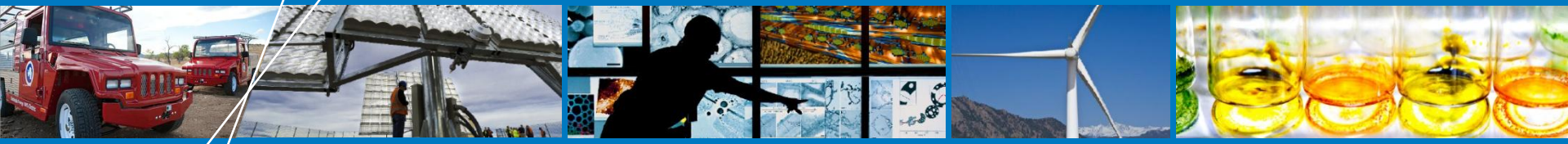

Contact Information

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Overcoming Utility Challenges with Community Solar Programs

Powered by SunShot

U.S. Department of Energy

About the SunShot Solar Outreach Partnership

The SunShot Solar Outreach Partnership (SolarOPs) is a U.S. Department of Energy (DOE) program designed to increase the use and integration of solar energy in communities across the US.

About the SunShot Solar Outreach Partnership

- Increase installed capacity of solar electricity in U.S. communities
- Streamline and standardize permitting and interconnection processes
- Improve planning and zoning codes/regulations for solar electric technologies
- Increase access to solar financing options

About SEPA

- Formed in 1992 as the Utility Photovoltaic Group
- Educational non-profit organization
- Provides unbiased solar information, services and events with a utility focus

A Utility Perspective on Solar

Benefits

- Potential for REC Benefits/Meet RPS Goals
- Peak Correlation Benefits
- Satisfy Customer Interests
- Rapidly Falling Prices

Concerns

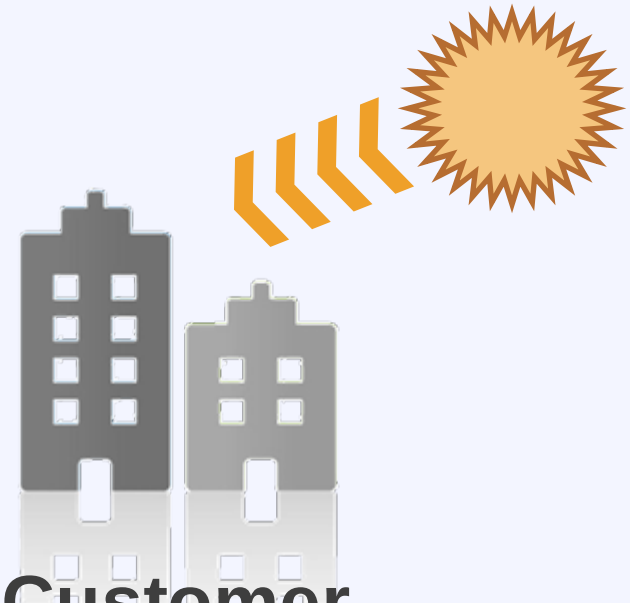
- Reduced Customer Sales/Revenue
- Billing or Metering Issues
- New Staff Resources/Expertise
- Technical Concerns

Net Metering

Net metering allows customers to export power to the grid during times of excess generation, and receive credits that can be applied to later electricity usage

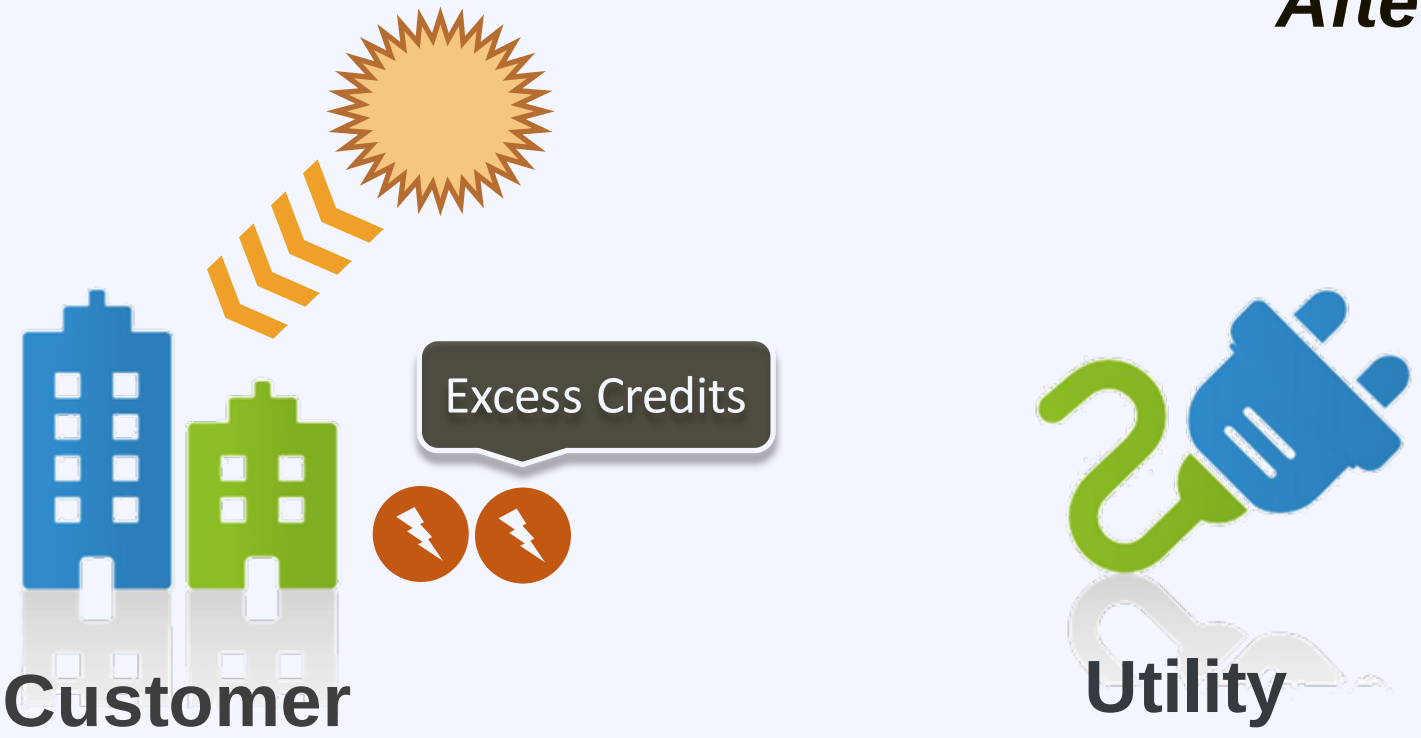
Net Metering: Overview

Morning



Net Metering: Overview

Afternoon



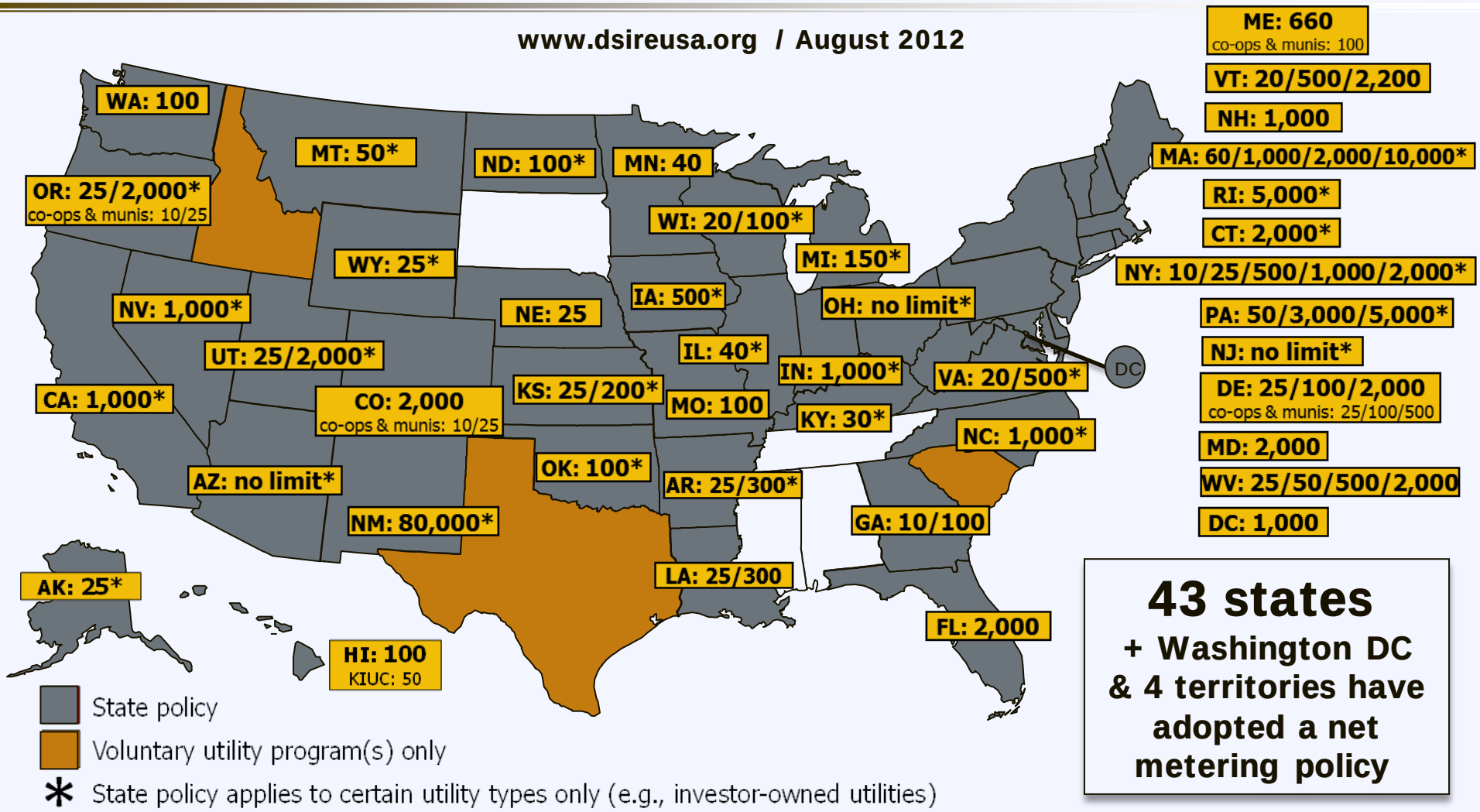
Net Metering: Overview

Night

Customer

Utility

Net Metering: State Policies



43 states
+ Washington DC & 4 territories have adopted a net metering policy

Note: Numbers indicate individual system capacity limit in kilowatts. Some limits vary by customer type, technology and/or application. Other limits might also apply. This map generally does not address statutory changes until administrative rules have been adopted to implement such changes.

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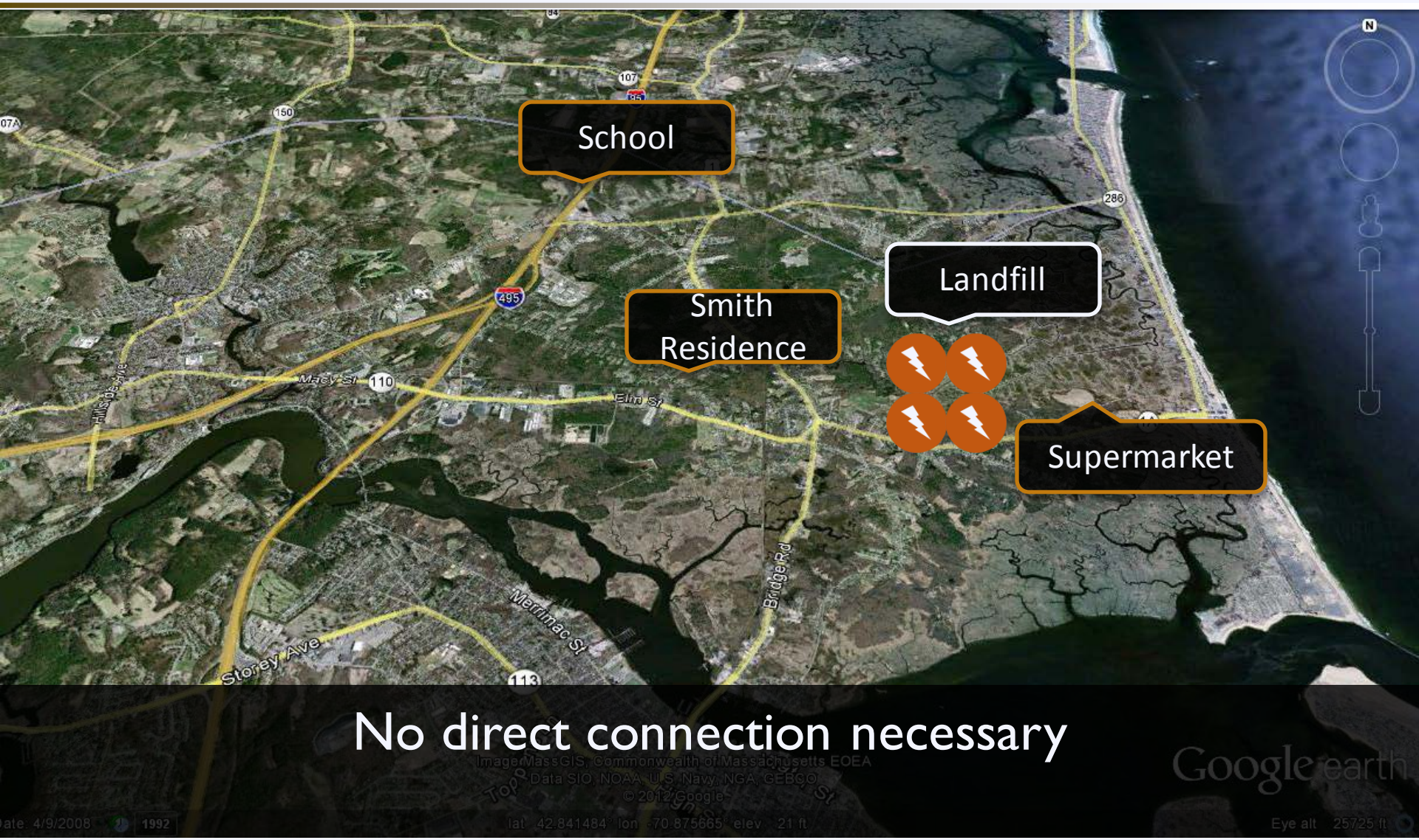
SEPA
solar electric power association

Net Metering: Virtual



Community Solar Programs

"Community Solar is defined as a solar-electric system that, through a voluntary program, provides power and/or financial benefit to, or is owned by, multiple community members."--NREL

A Guide to Community Solar Programs:
http://www.nrel.gov/docs/fy11osti/49930.pdf

Community Solar Programs

3 programs models:

- **Utility-managed**
- Special Purpose Entity
- Non-profit

Lower Risk for Participants

No high up-front costs and no responsibility for operations and maintenance.

Lower Risk for Participants

Community Solar is portable within the utility's service territory.

Benefits to the Customer

Customers can economically benefit, either through virtual net metering, or a fixed-tariff solar rate that acts as a hedge against future rate increases.

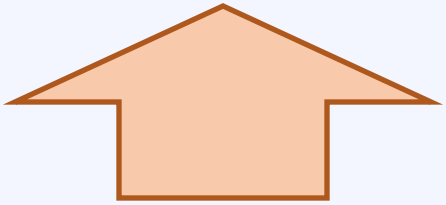
Benefits to the Customer

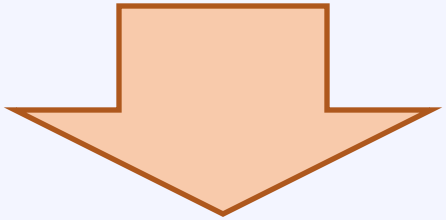
More customers can participate.

Utility Benefits

Community Solar is a way to mitigate the costs and operational difficulties with mandates and net-metering.

More Customers at Lower Cost





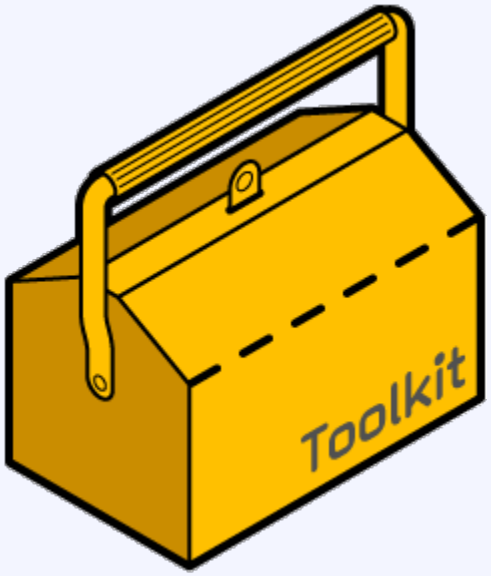
Utility Benefits

Utilities can meet consumer solar interest -- potentially at lower costs than traditional incentive programs.

Challenges…

- Utilities have to define who is eligible for program participation and what the rate structure will look like.
- There needs to be a clear economic value to the customer.
- How does the utility decide how big the system will be?
- We are still in a pilot phase.

Moving Forward



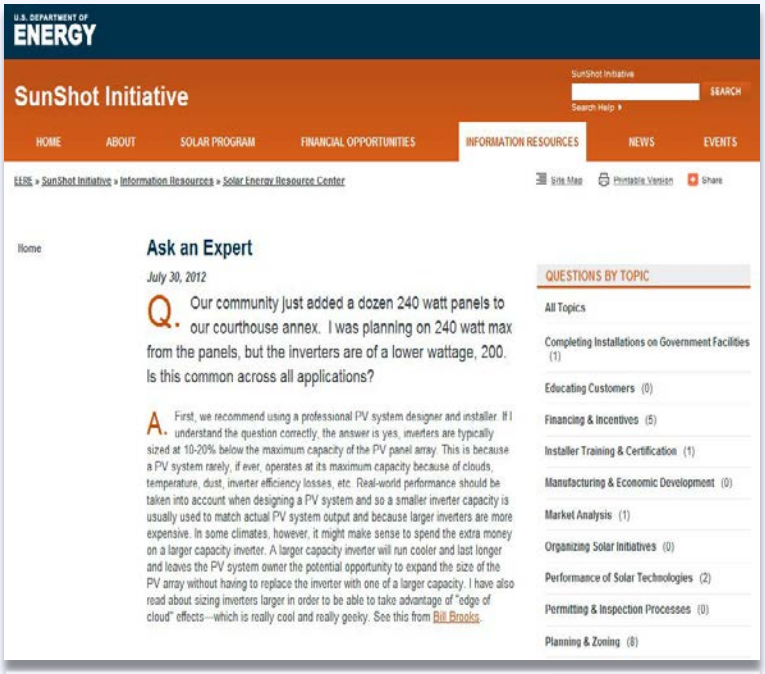
- No standard design toolkit has yet been established.
- However, with the greater emergence of these programs, a toolkit could be developed to help pave the way for wider adoption.

Coming in early 2013!

About the SunShot Solar Outreach Partnership

Technical Support

- 'Ask an Expert' Live Web Forums
- 'Ask an Expert' Web Portal
- Peer Exchange Facilitation
- In-Depth Consultations
- Customized Trainings



www4.eere.energy.gov/solar/sunshot/resource_center

For more information email: solar-usa@iclei.org

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Becky Campbell

Solar Electric Power Association

bcampbell@solarelectricpower.org

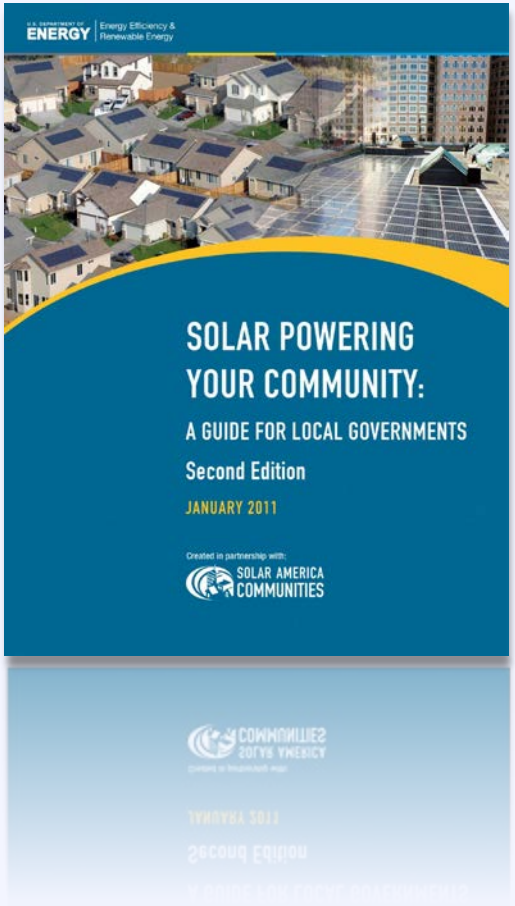
(202) 559 - 2030

About the SunShot Solar Outreach Partnership

Resource **Solar Powering Your Community Guide**

A comprehensive resource to assist local governments and stakeholders in building local solar markets.

www.energy.gov



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About the SunShot Solar Outreach Partnership

Resource Sunshot Resource Center

- Case Studies
- Fact Sheets
- How-To Guides
- Model Ordinances
- Technical Reports
- Sample Government Docs

www4.eere.energy.gov/solar/sunshot/resource_center

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