



Central New York Regional Planning & Development Board



SOLARIZECNY
COMMUNITIES



Central New York Regional Planning & Development Board

- Public agency established in 1966 by Cayuga, Cortland, Madison, Onondaga, and Oswego Counties
- Provides a range of services to Central New York communities with a focus on:
 - Comprehensive Planning
 - Economic Development
 - Environmental Management
 - Information and Research Services
 - Transportation Planning
 - **Energy Management**



Going Solar Together with SolarizeCNY

How is the Solar Market Changing?

How Can Municipalities Prepare and Support It?

- Permitting and Zoning

- New Construction Guidelines / Checklist

- Property-Assessed Clean Energy (PACE) Finance

- Solarize Campaigns

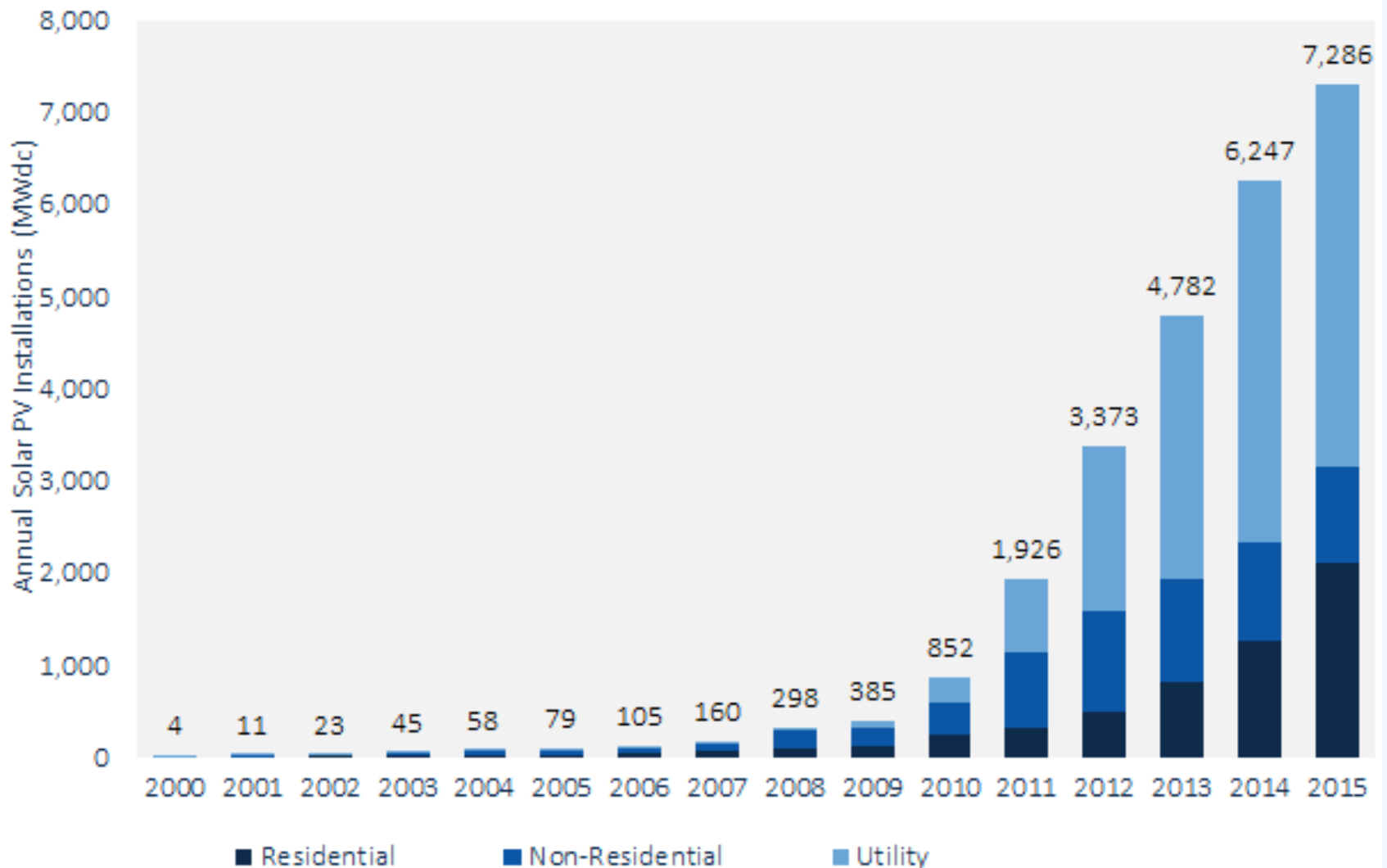
What Support is Available?

- NYSERDA – Community Solar NY Program

- U.S. Dept. of Energy – SPARC Program

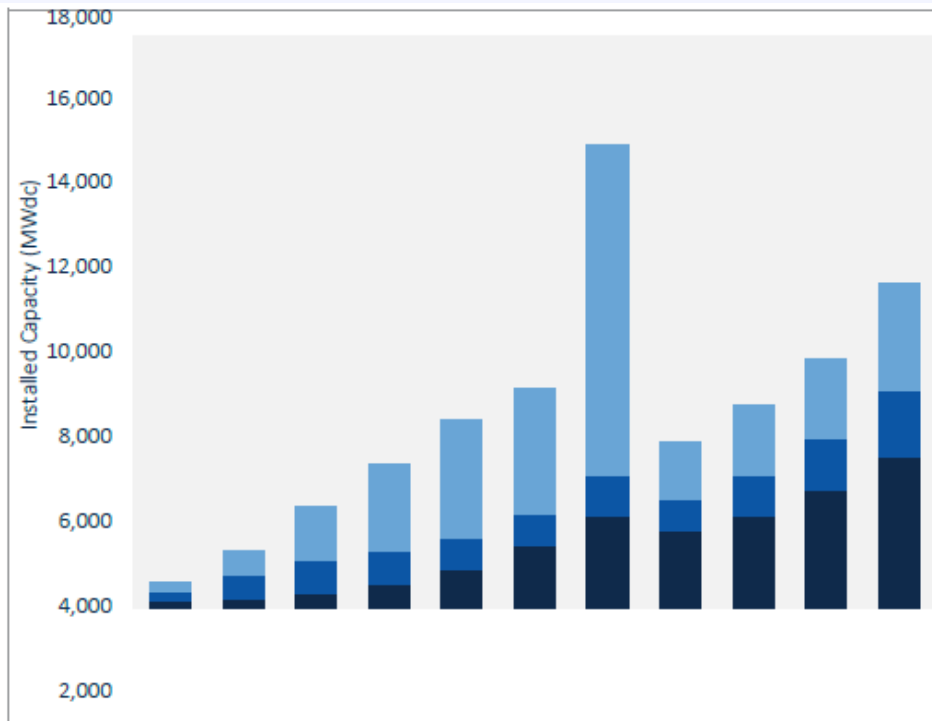
- CNY RPDB – Solarize CNY Program

U.S. Solar PV Installations, 2000-2015

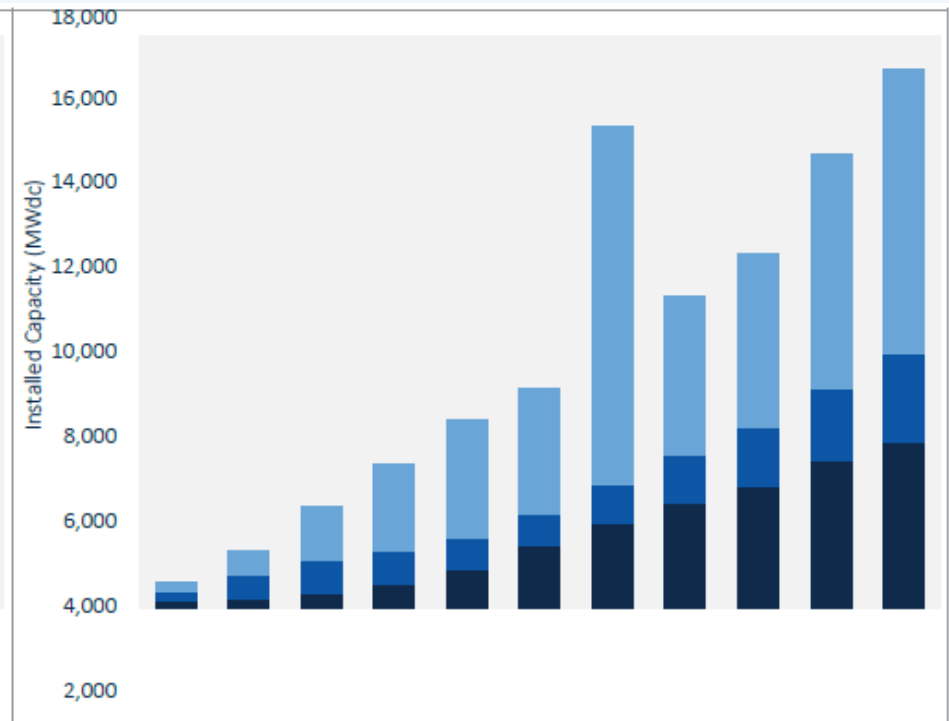


U.S. PV Installation Forecast

Pre-ITC Extension



Current



0 2010 2011 2012 2013 2014 2015 2016E 2017E 2018E 2019E 2020E

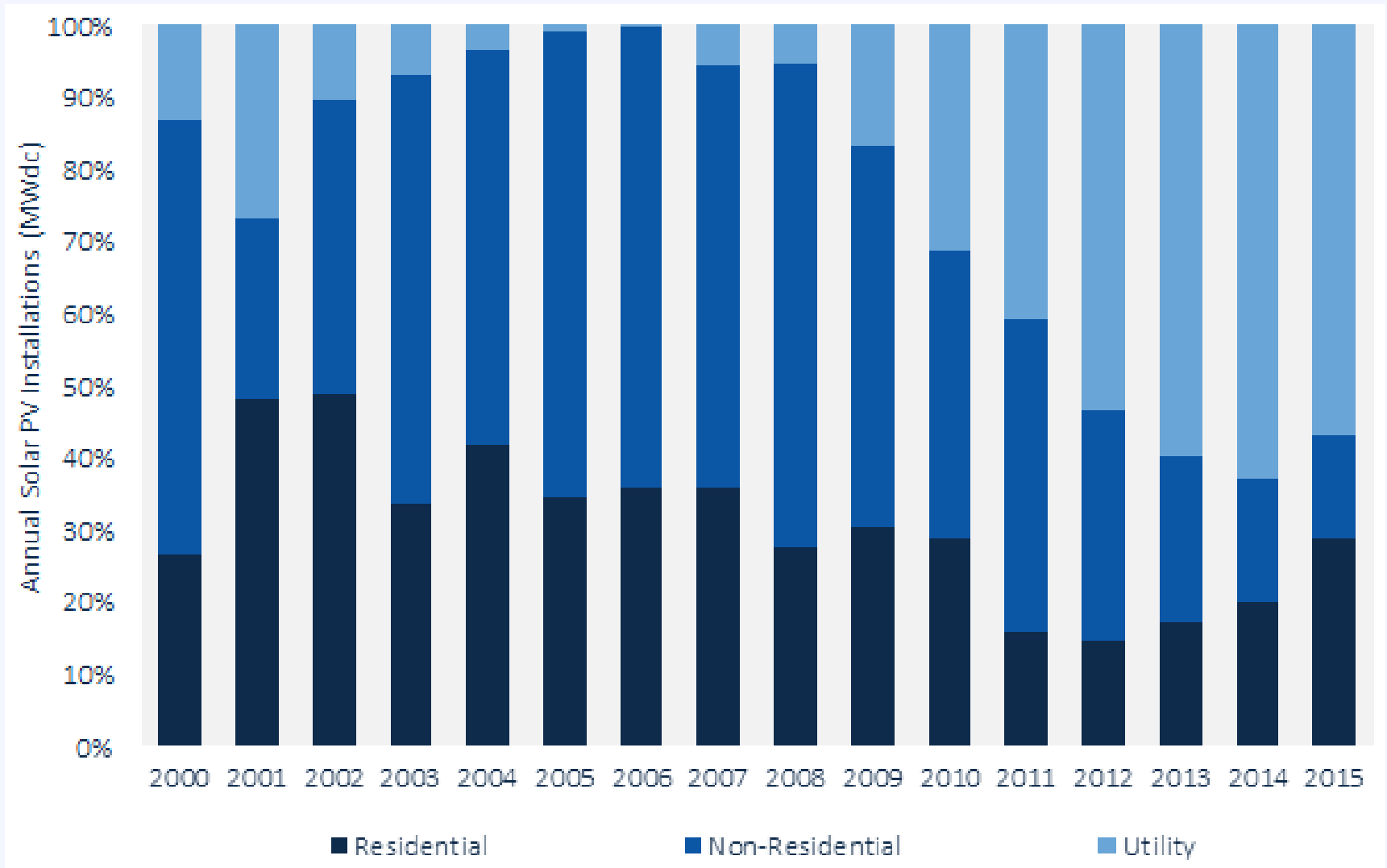
0 2010 2011 2012 2013 2014 2015 2016E 2017E 2018E 2019E 2020E

■ Residential PV ■ Non-Residential PV ■ Utility PV

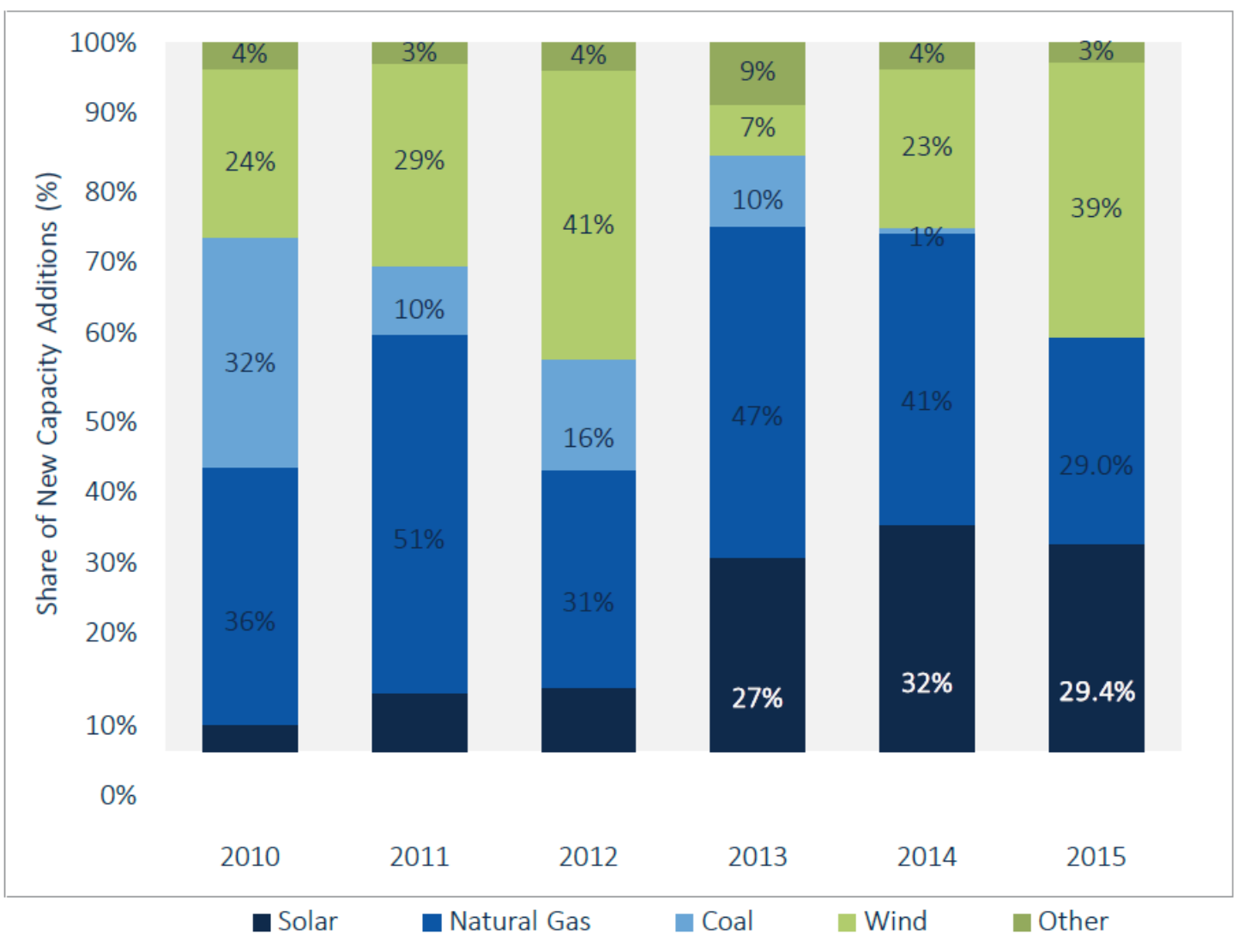
■ Residential PV ■ Non-Residential PV ■ Utility PV

Source: GTM Research / SEIA [U.S. Solar Market Insight report](#)

Share of U.S. PV Installations by Segment, 2000-2015



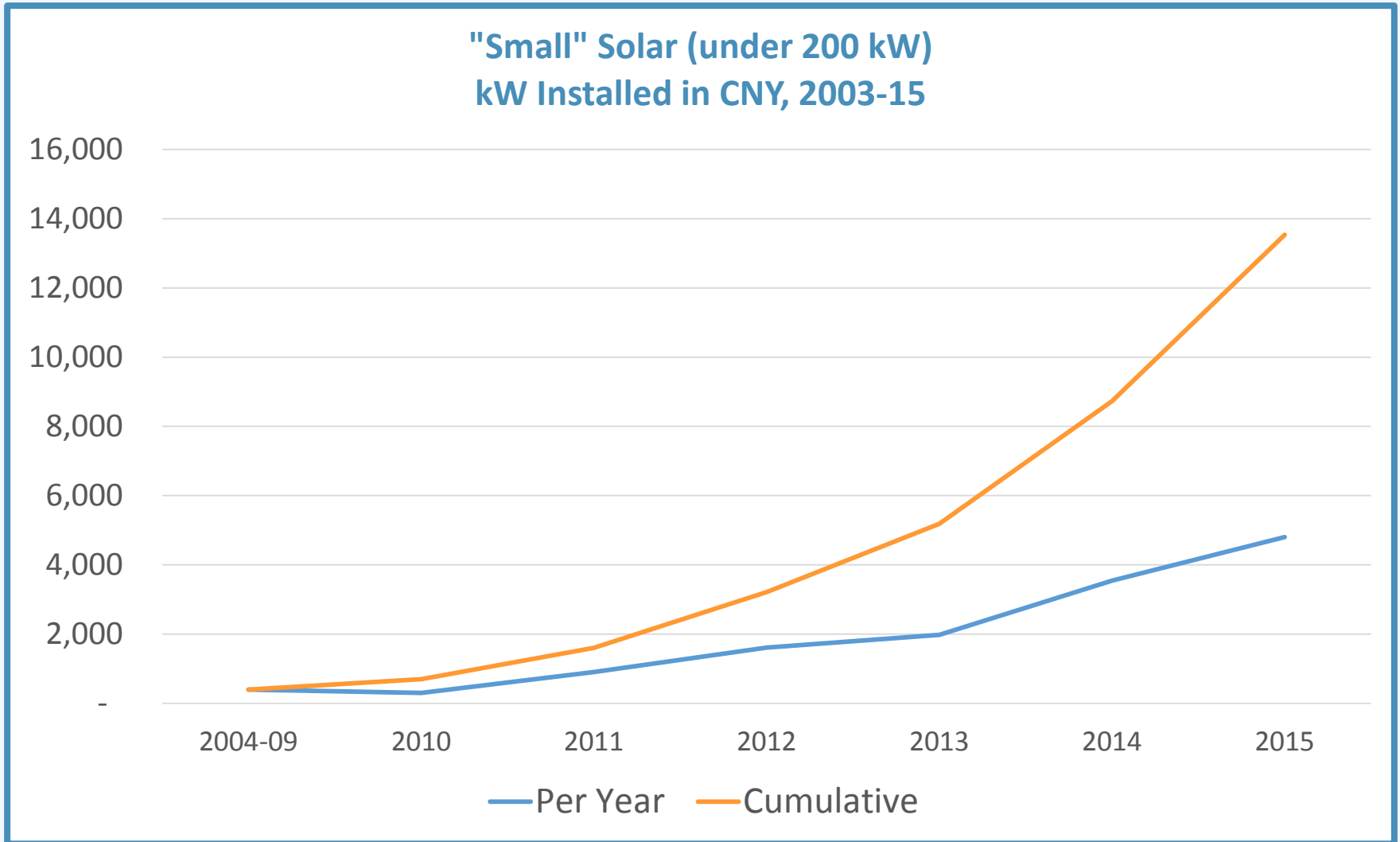
Electricity Generating Capacity Additions, 2010-2015



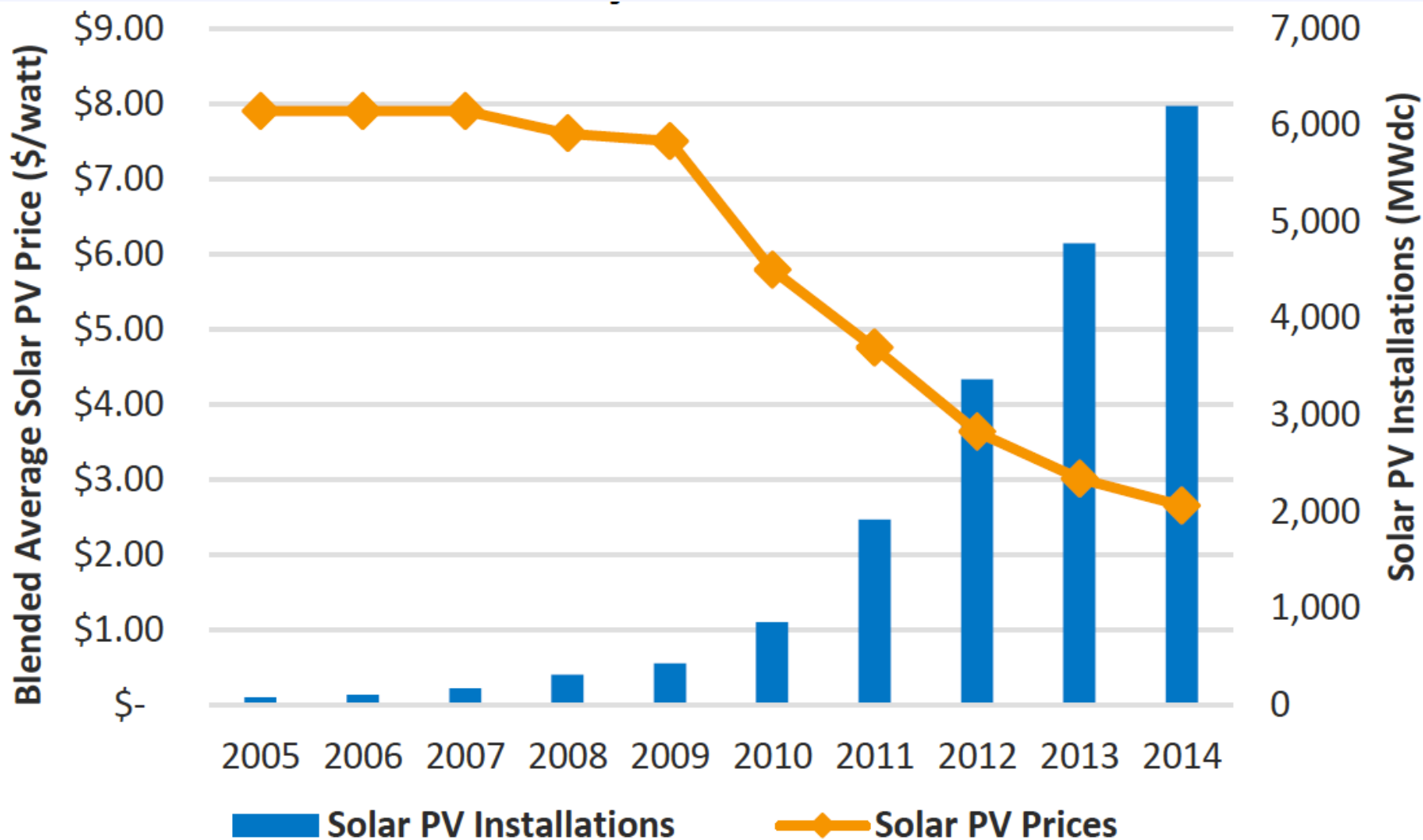
Ranking States by Annual PV Installations

State	Rank			Installations (MWdc)		
	2013	2014	2015	2013	2014	2015
California	1	1	1	2,621	3,549	3,266
North Carolina	3	2	2	335	397	1,134
Nevada	12	3	3	47	349	307
Massachusetts	4	4	4	240	317	286
New York	9	7	5	72	147	241
Arizona	2	5	6	421	247	234
Utah	30	23	7	2	14	231
Georgia	7	16	8	91	45	209
Texas	8	8	9	75	129	207
New Jersey	5	6	10	236	240	181

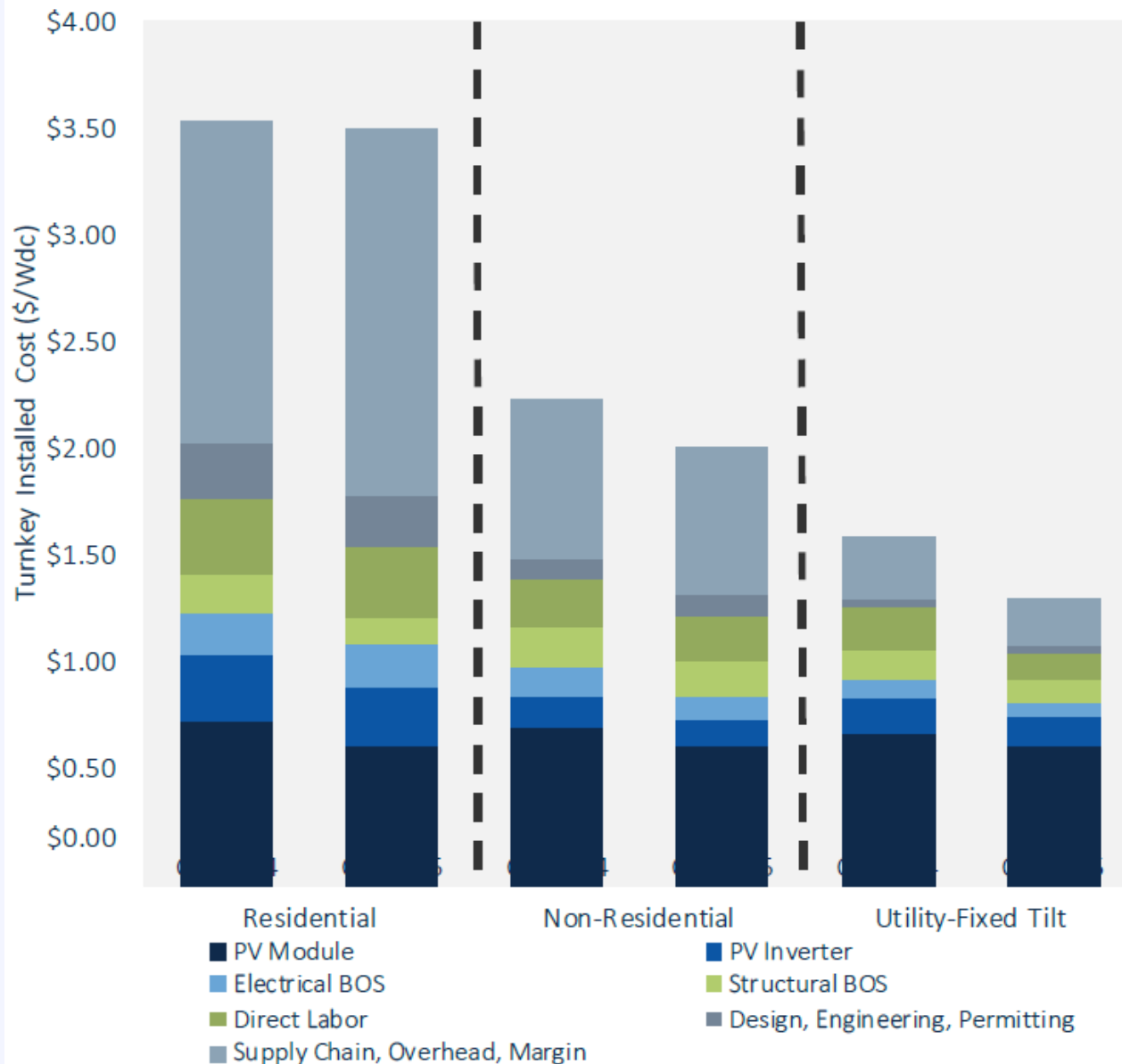
Central New York Installed Solar



Rapid Decline in Solar Prices

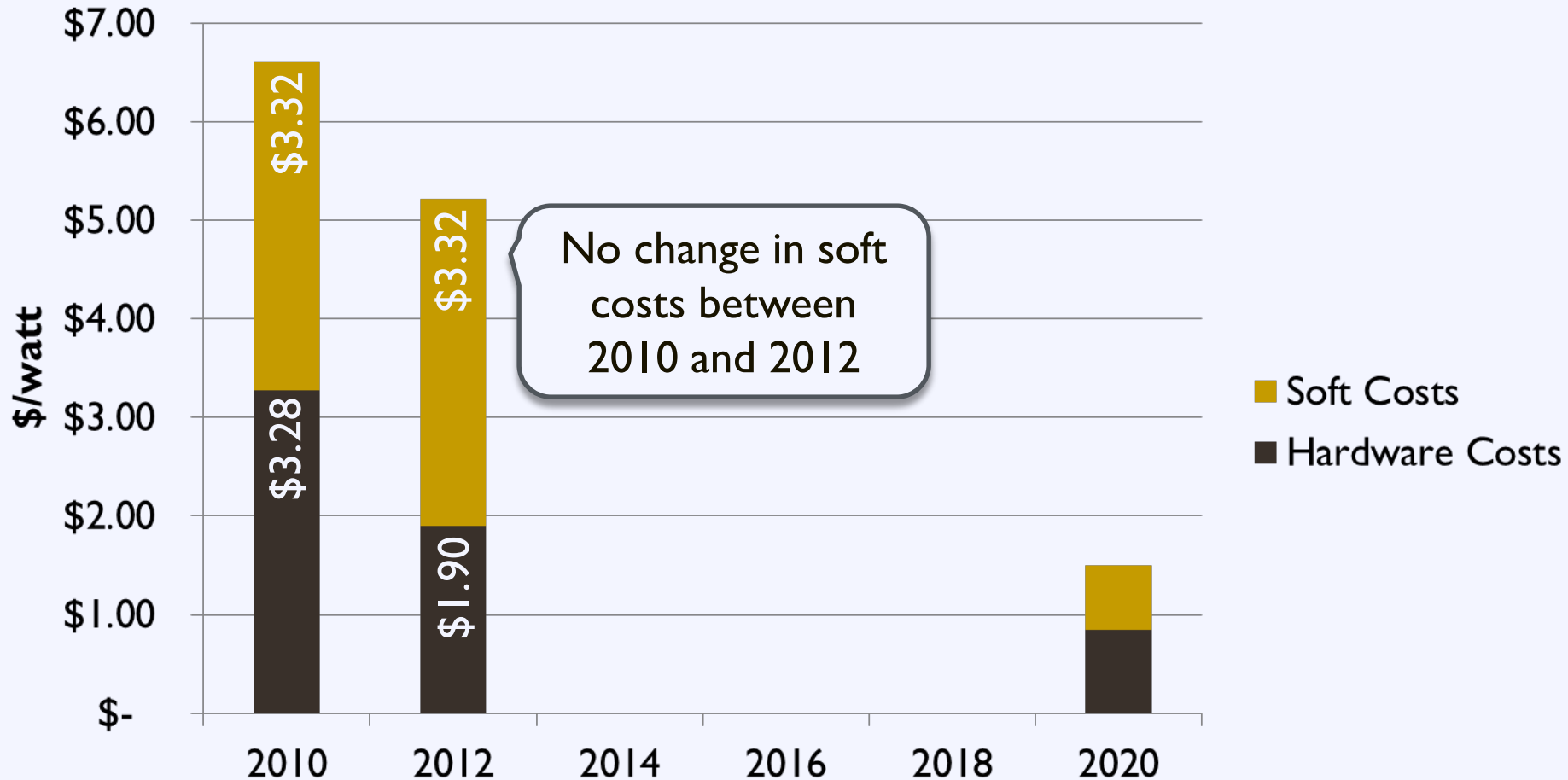


Average System Costs by Market Segment, Q4 2014 vs. Q4 2015



Cost of Solar in the US

Change in Soft Costs and Hardware Costs Over Time



What is SunShot targeting?

Soft Costs



Financing



Permitting



Customer Acquisition



Installation



Maintenance

=

~~Up to 50%~~ **over 64%** of
the cost of a solar
installation

How Can Municipalities Impact Soft Costs?

Hardware Costs

- Solar Panels
- Balance of System (racking, inverter, etc.)



Soft Costs

- Permitting and Zoning
- Installation
- Financing
- Customer Acquisition
- Maintenance



Total
System
Cost

Why Plan for Solar Now?

More solar applications likely as market improves.

Proactively prepare your permit process for increase of solar permitting applications.

- Will reduce municipal staff time and hassle
- Will increase your confidence in the permitting process
- Solar-friendly policies will encourage solar development and aid market growth

The CNY RPDB provides free technical assistance, guidance

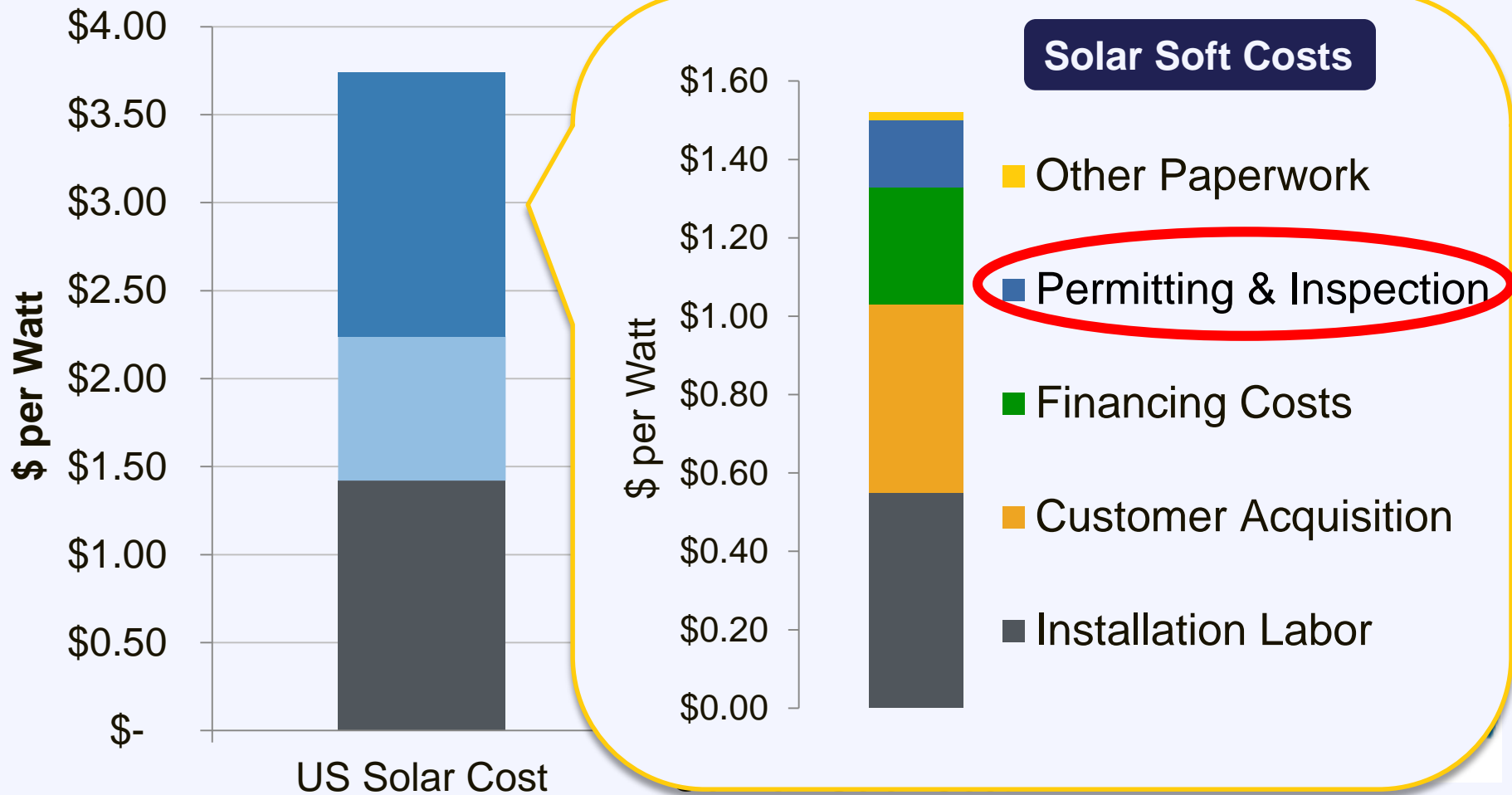
How can municipalities prepare and support?

Best practices are standard, clear, supportive:

Permitting: Transparent, standard, streamlined

Zoning: Supportive, standard, appropriate

Solar Soft Costs: Solarize



Permitting and Zoning Costs

- U.S. Dept. of Energy study of differences in residential costs in areas with strong and weak solar policies
- Calculated using Rooftop Solar Challenge and Vote Solar data





Permitting and Zoning Costs

Data Source	Rooftop Solar Challenge	Vote Solar
What's Measured?	Permitting, Interconnection, Planning & Zoning, Financing, Net Metering	Permitting Only
\$/W Difference	\$0.64 to \$0.93	\$0.18
5 kW System Price Difference	\$3,200 to \$4,700	\$700

NYS Unified Solar Permit

- Rooftop residential up to 12 kW
- \$2,500 grant
- first-come, first-served
- 41 CNY municipalities



New York State Unified Solar Permit

Expedited Solar Permit Process for Small-Scale Roof-Mounted Residential and Commercial Solar Electric

Requirements for Application Submittal – Part A

For use in all New York State counties with the exception of Nassau County and Suffolk County.

The expedited solar permitting process uses a unified permit across participating municipalities in New York State.






A combined building and electrical permit for a grid-tied solar electric system will be issued pending proper completion of forms, submission of approved plans and approval by municipality. All applicants must submit:

- 1. Unified Solar Permit for Small-Scale Solar Electric Systems Eligibility Checklist – PART B**
- 2. ____ set of plans that include:**
 - Site Plan showing location of major components of solar system and other equipment on roof or legal accessory structure. This plan should represent relative location of components at site, including, but not limited to, location of array, existing electrical service location, utility meter, inverter location, system orientation and tilt angle. This plan should show access and pathways that are compliant with New York State Fire Code, if applicable.
 - One-Line or 3-Line Electrical Diagram as required by:
 - Specification Sheets for all manufactured components. If these sheets are available electronically, a web address will be accepted in place of an attachment, at the discretion of the municipality.
 - All diagrams and plans must be prepared by a PE or RA as required by New York State law and include the following:
 - (a) Project address, section, block and lot number of the property; (b) Owner's name, address and phone number; (c) Name, address and phone number of the person preparing the plans; and (d) System capacity in kW-DC.
- 3. Unified Solar Permit for Small-Scale Solar Electric Systems Application – PART C**
- 4. Permit Fee Amount**

Permit Review and Inspection Timeline

Permit determinations will be issued within 14 calendar days upon receipt of complete and accurate applications. The municipality will provide feedback within 7 calendar days of receiving incomplete or inaccurate applications. If an inspection is required, a single inspection should be sufficient and will be provided within 7 calendar days of inspection request.

The NY-Sun Initiative, a dynamic public-private partnership, will drive growth of the solar industry and make solar technology more affordable for all New Yorkers.
Visit ny-sun.ny.gov for more information on the NY-Sun Initiative.



Zoning Best Practices

Supportive, Standard,
Appropriate

Zoning Best Practices

Typical Requirements:

- Permitted as accessory use
- **General Regulation Considerations**
 - Height – Flat roof vs pitched
 - Setbacks
 - on rooftop for first responder
 - Ground mounted setbacks for nuisance
 - Impervious coverage
 - ~~Glare~~
 - ~~Solar access~~

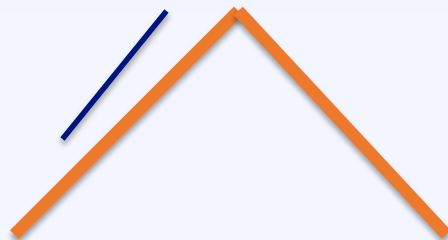


Zoning Guidance

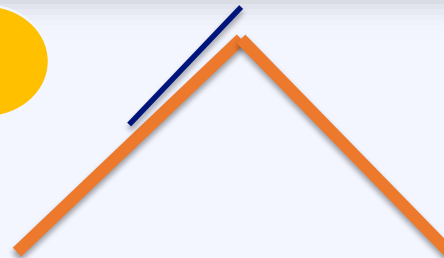
Section	Topics to Address
Intent/Background	Goals and benefits
Definitions	Define technologies & terms
Applicability	e.g. Primary vs. accessory use
General Regulations	<ul style="list-style-type: none">• Height• Size• Setbacks• Lot coverage

Example – Height (sloped)

Language	Comments and Guidance
<p>For a roof-mounted system installed on a sloped roof, the highest point of the system shall not exceed the highest point of the roof to which it is attached as allowed by setback requirements.</p>	<p>It is appropriate to not allow panels to exceed the height of the roof on a pitched roof to ensure adequate setback from the ridgeline and to protect the system from wind loading.</p>
<p><i>Solar Energy Systems shall not exceed a height of eight inches from the rooftop surface. In no event shall the placement of the solar panels result in a total height including building and panels than what is permitted in the zoning district.</i></p>	<p>This language is not recommended because it would prohibit the ability to tilt systems. Some systems will be designed with a 10 to 34 degree tilt to maximize solar access. A restriction of distance from the roof surface may prohibit this.</p>



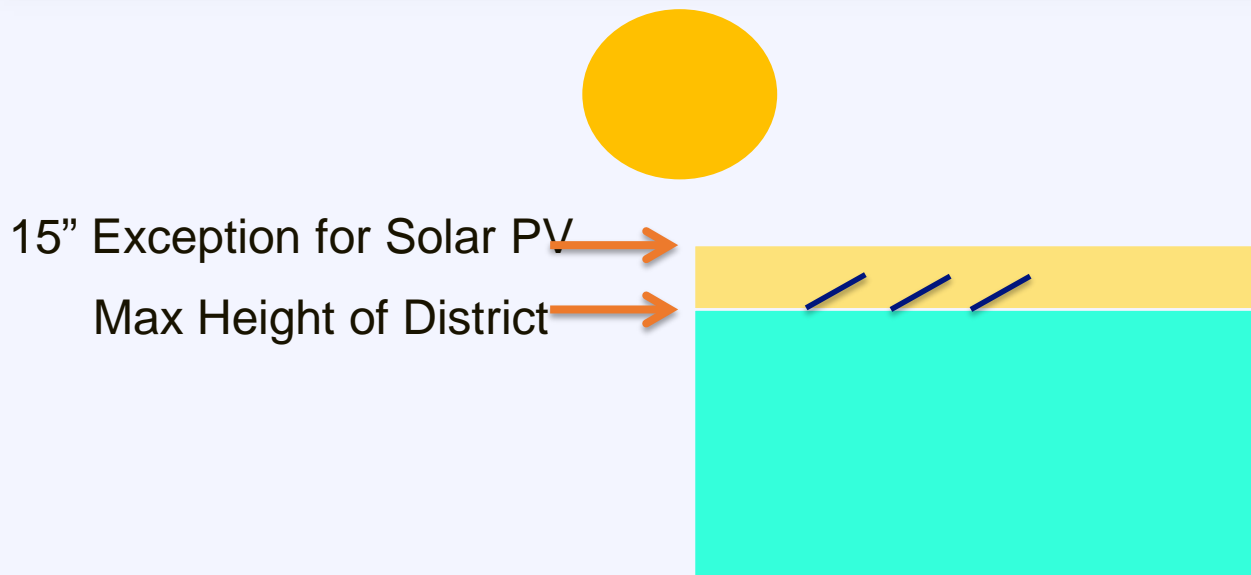
Yes



No

Example – Height (flat)

Language	Comments and Guidance
<p>For a roof-mounted system installed on a flat roof, the highest point of the system shall be permitted to exceed the district's height limit of up to fifteen (15) feet above the rooftop to which it is attached.</p>	<p>It is important to allow PV systems to exceed maximum height of building structure because the building may have already met maximum height. Additionally, as mentioned, some PV systems will be designed with a tilt to maximize solar access. The language option provided here gives a 15 foot flexibility above maximum height. Municipalities can be more restrictive than this, though it is not recommended that they limit to less than six (6) feet above the rooftop surface.</p>



Zoning – Historic Preservation

Typical Requirements:

- Prevent permanent loss of “character defining” features
- Possible design requirements
 - Ground mounted
 - Flat roof with setback
 - Panels flush with roof
 - Blend color



Source: SolarCentury

Zoning – First Responder Safety

Risk

- Shock
- Burns
- Roof Loads



Mitigate

- Setbacks
 - Access
 - Ventilation
- Labeling
- Education

- **ENGAGE FIRST RESPONDERS!**
- **Include appropriate (not restrictive) setback language as necessary for safety**

Zoning – Tree Preservation



- Solar Access vs. Tree Protection
- How should the two interact?
- Procedures reflect community priorities

Solar-Ready New Construction Checklist Elements

One-Page Checklist

1. Designing for Solar Access

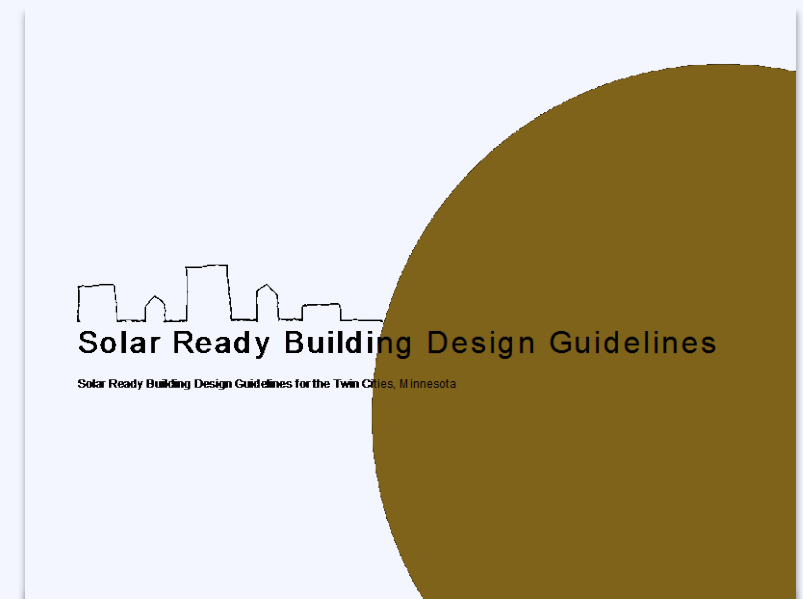
- South-facing
- Minimized roof shade

2. Electrical

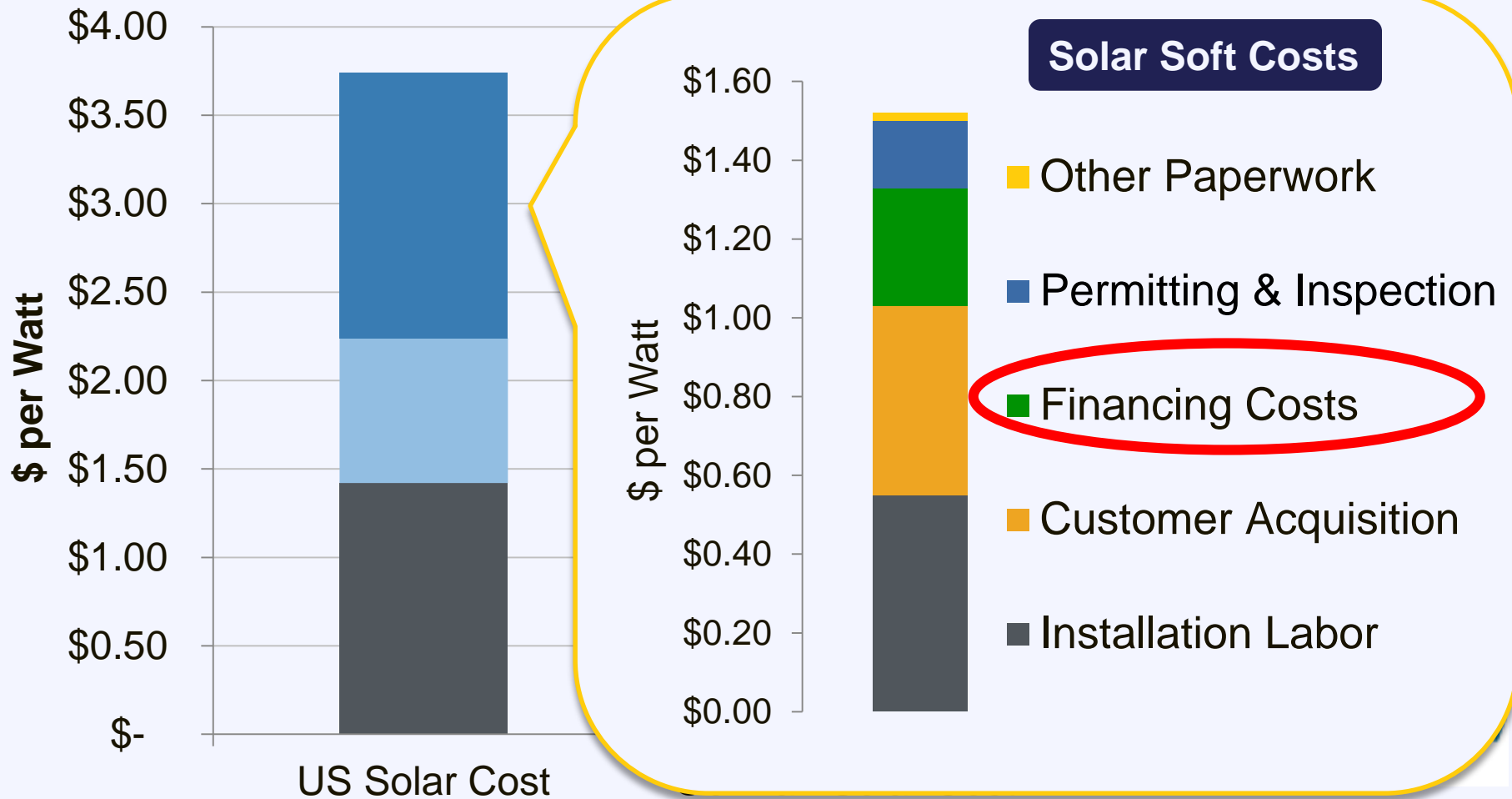
- Provide site plan & electrical schedule
- Electrical conduit & BOS

3. Structural

- Roof structure
- Warranties & records



Solar Soft Costs: Solarize



PACE Finance

Property Assessed Clean Energy

The local government finances the up-front costs of the energy investment, which is repaid through a special property tax assessment.

PACE Finance

City creates type of land-secured financing district or similar legal mechanism



Property owners voluntarily sign-up for financing and make energy improvements



Proceeds from revenue bond or other financing provided to property owner to pay for energy project



Property owner pays assessment through property tax bill (up to 20 years)



PACE Finance

Advantages Over Conventional Loan:

- Longer (20-year) term
- Repayment transfers with ownership
- Low interest rates
- Interest is tax deductible
- Lower transaction costs

Energize NY: New York's PACE Program



PROJECT PROFILE: 5 Spoke Creamery Farm, Goshen, NY

FINANCED BY:



ENERGIZE NY™
NY State's PACE Program

Project cost: \$164,859

Incentives:

NYSERDA: \$ 51,977
USDA: \$ 41,215

Amount financed: \$ 74,796

Term: 5 years

Interest Rate: 4.3%

Financing Cost: \$16,780/yr
(repaid as charge on annual tax bill)

Energize NY member:
Orange County



THE PROJECT

Building details

4 buildings

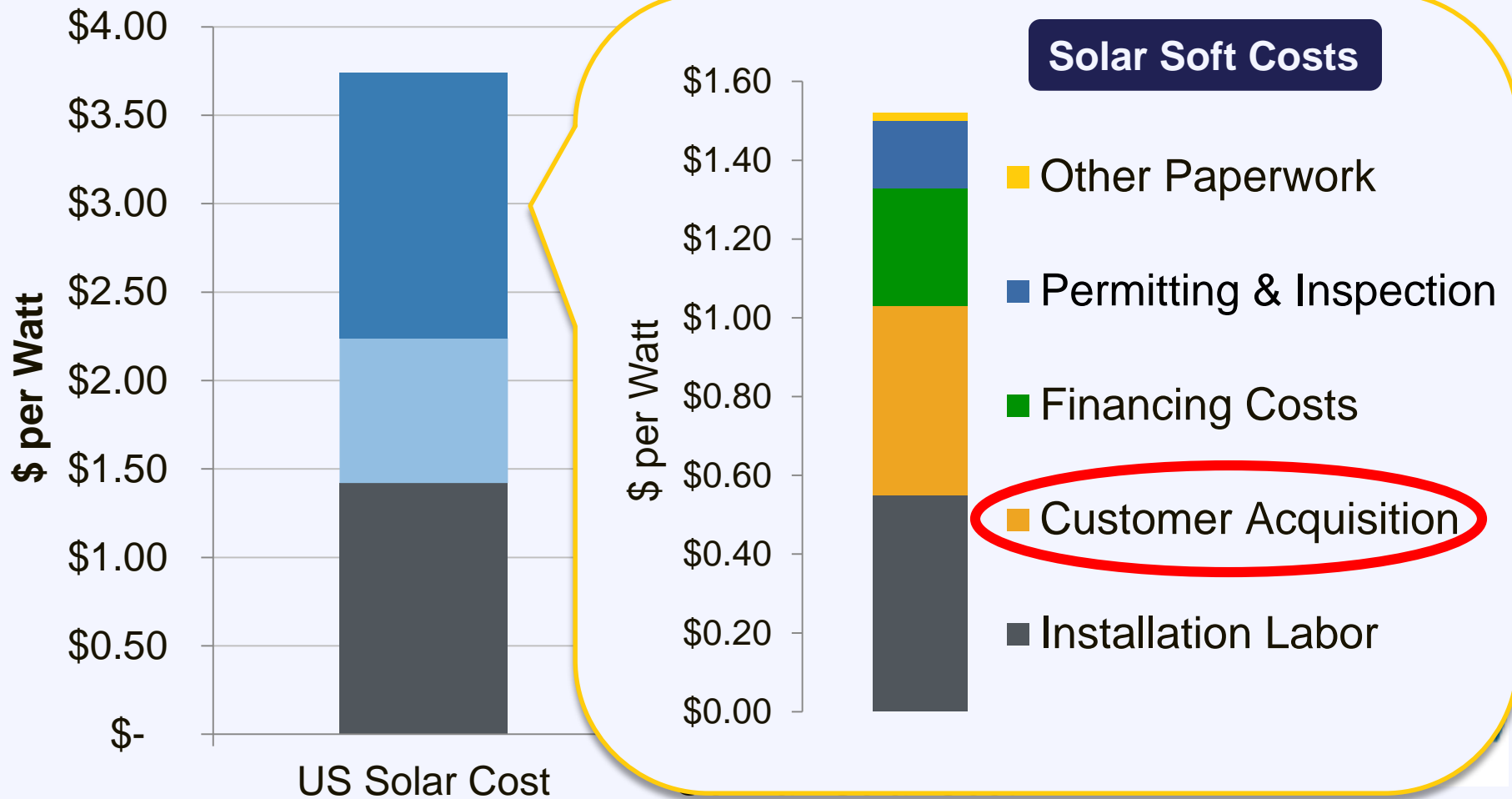
- Dairy barn & milk house
- Equipment barn
- Cheese making facility with cool storage
- Future local food store building

Renewable energy generation

- Ground mounted
- 53 kW solar electric system

Project Completed:
March 2015

Solar Soft Costs: Solarize



What is Solarize?

- A community-driven outreach campaign and support system to assist residential and commercial customers overcome **financial and logistical barriers** to going solar.
- Competitive selection of solar installers.
- Limited time (6-9 months)
- A well-established model with room for innovation.
- A growing movement to engage communities in order to stimulate local solar market and:
 - ✓ Save money
 - ✓ Support green jobs and local economy
 - ✓ Reduce pollution

Benefits of Solarize Programs

Barriers

Knowledge



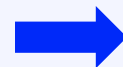
High upfront cost



Complexity



Customer inertia



Solutions

Public education and outreach

Group purchase, volume discount

Installer selection, community outreach

Limited-time offer

Solarize Programs

solarize portland

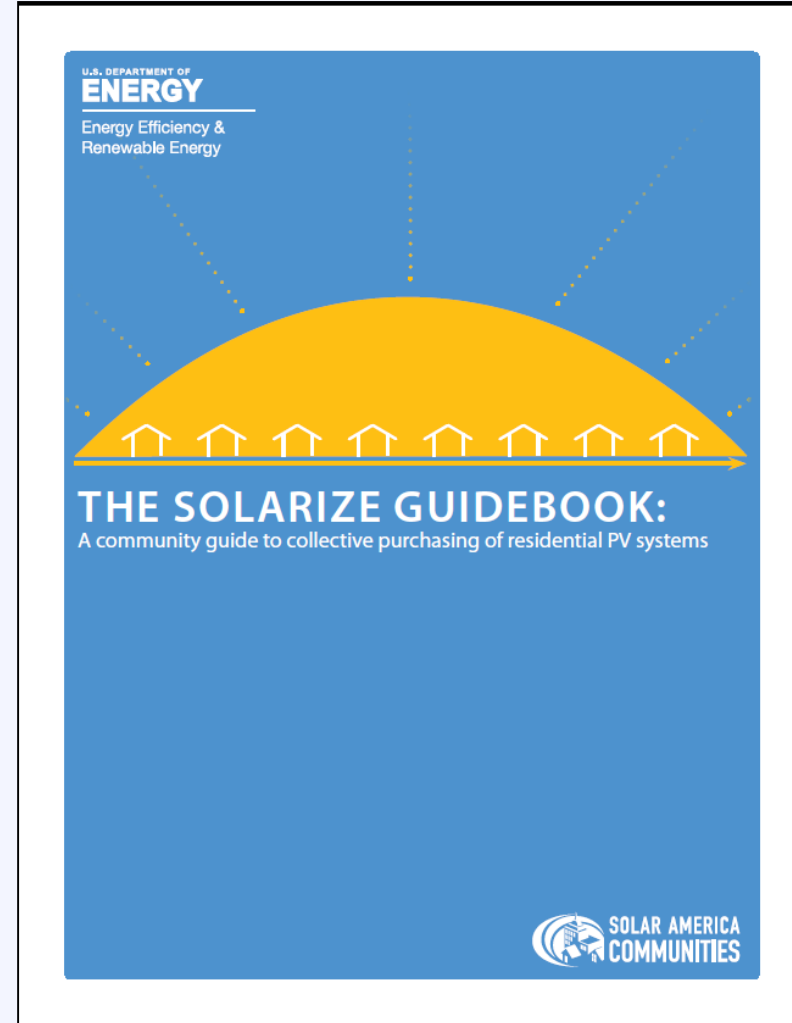


solarize washington
a program of northwest seed



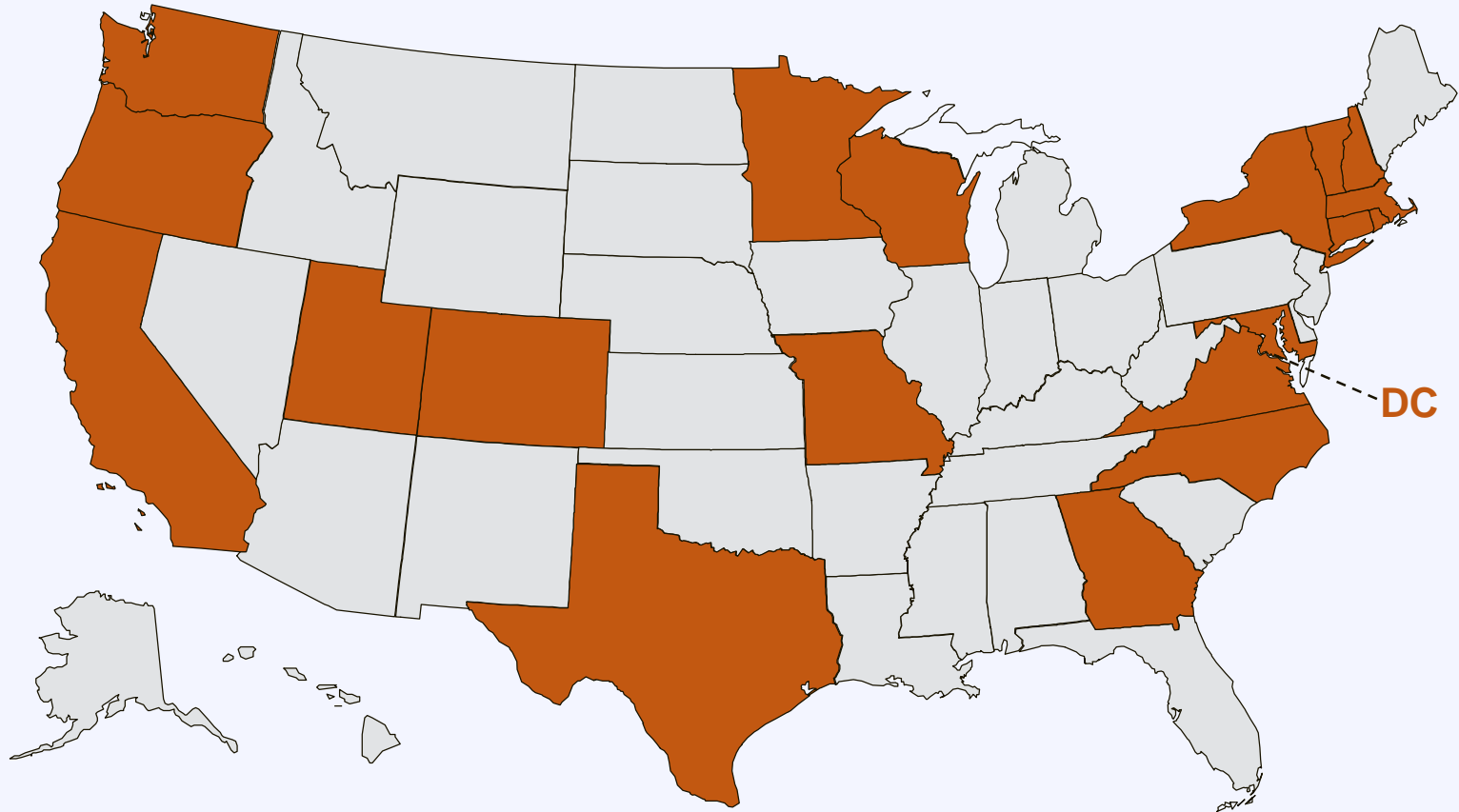
SOLARIZE
BROOKLYN

solarize
ASHEVILLE



www1.eere.energy.gov/solar/pdfs/54738.pdf

Growth of the Solarize Model



To date, over **220 Solarize campaigns** have been conducted in **20 states + DC**

Market Transformation

A household is

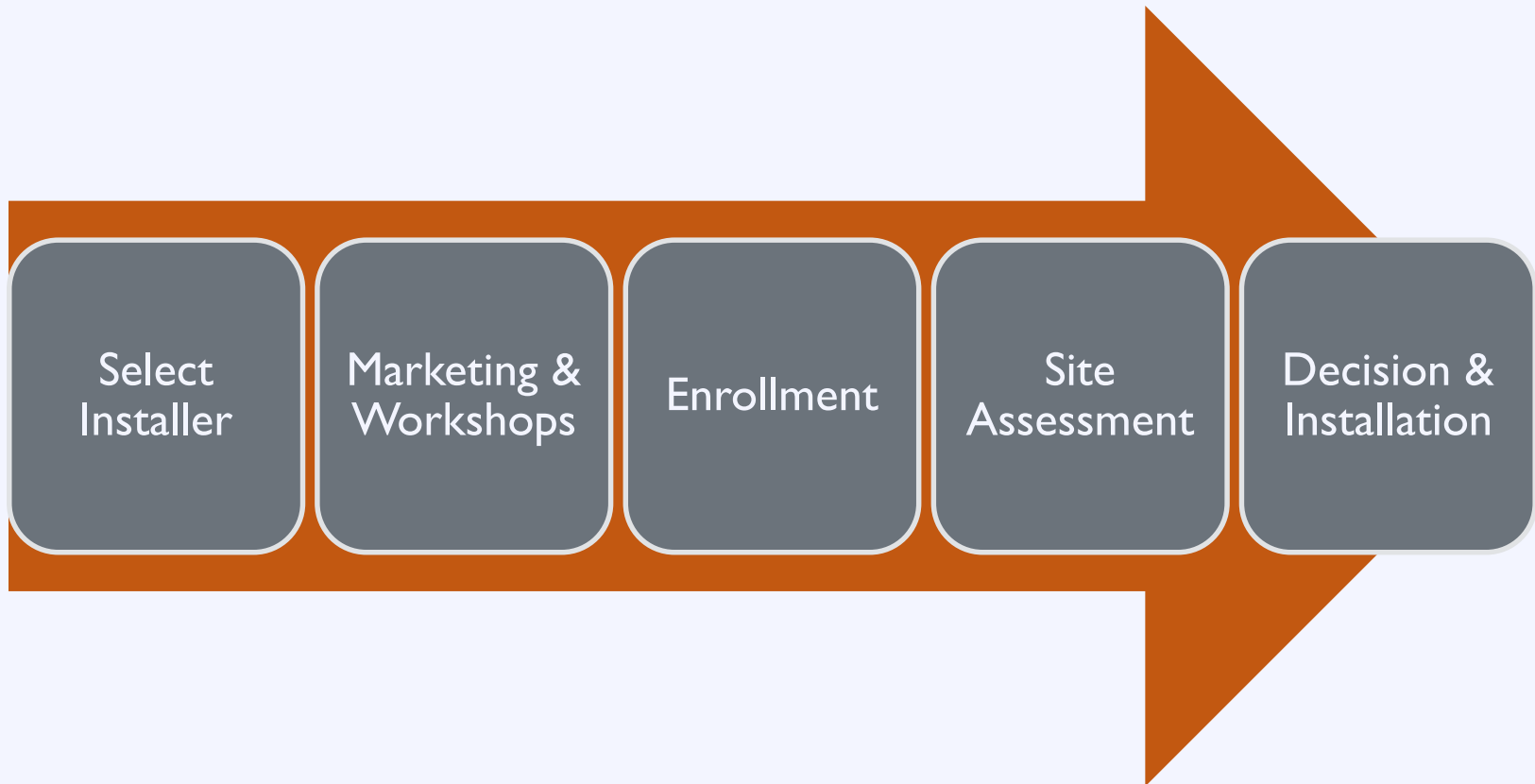
~1% more likely to adopt solar

for

each additional installation in their zip code

Source: NYU Stern and Yale School of Forestry, *Peer Effects in the Diffusion of Solar Panels*

Solarize Process



Solarize Partners:

- Central New York Regional Planning & Development Board
- Alliance for a Green Economy (AGREE)
- 20+ municipalities, non-profits and community-based organizations
- The BEST volunteers!



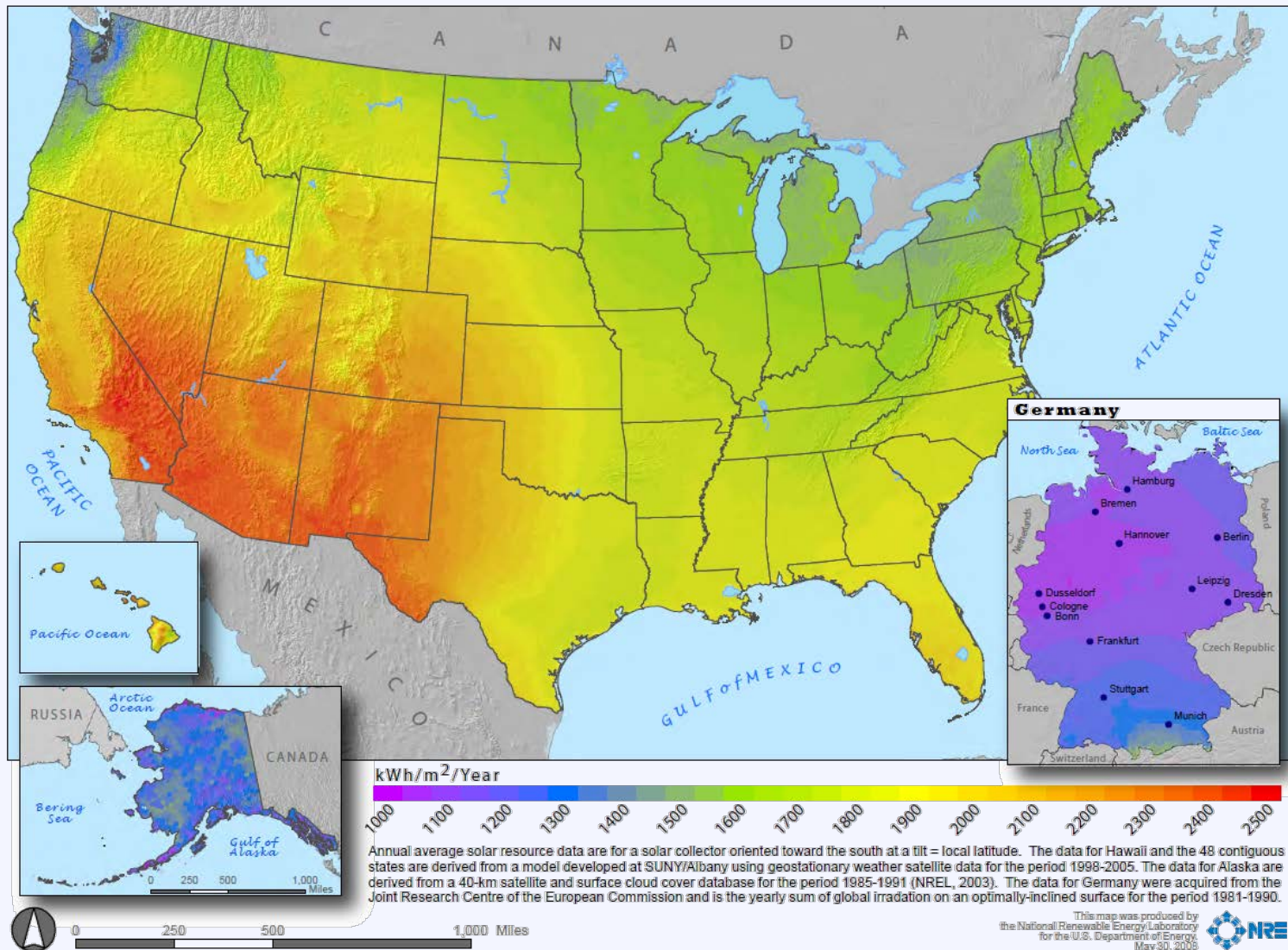
Solarize Outreach



2,500 people attended community workshops and events



Myth: It's not sunny enough in Central NY



Solar PV Works



Solarize Syracuse

Solarize CNY
Community

87% response rate, 2-days response time
Respond faster to turn on the badge

1,191 likes +3 this week
Liz Compitello and 80 other friends

955 post reach this week

View Pages Feed
See posts from other Pages

Invite friends to like this Page

Boost Your Page for \$5
Reach even more people in United States
[Promote Page](#)

PAGE TIPS

Easily Manage Your Page From Anywhere
Get the Pages Manager app to post and respond to Page visitors on the go.

How to Create Effective Posts
Short, visual posts created for the right audience are more successful.

Status **Photo / Video** **Offer, Event +**

Write something...

Solarize CNY
Published by Chris Carrick [?] · February 16 at 3:04pm ·

Please share this with your networks and colleagues. We are very excited to host this workshop with a great lineup of national experts!
#CNYCSForum

March 18, 2016
Genesee Grande Hotel
Syracuse, NY
Registration: 9:00 AM

rsvp
communitysolarforum.eventbrite.com

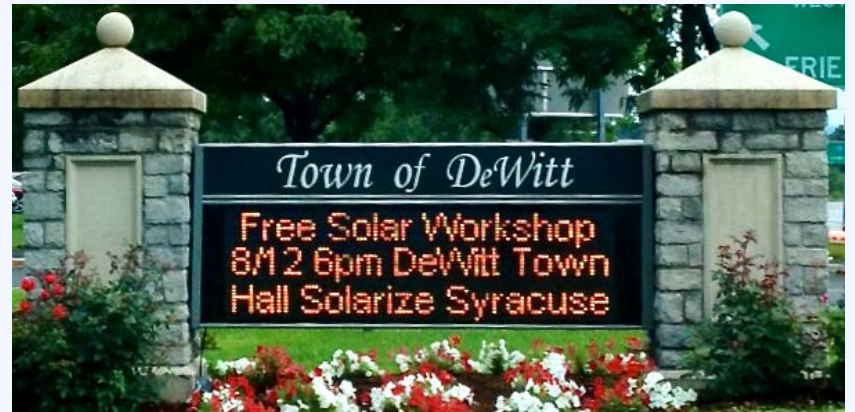
You're Invited to the Central New York Community Solar Summit. March 18 in Syracuse

Social media and local networks help spread the word.

Nearly 1,200 followers on Facebook – and counting.

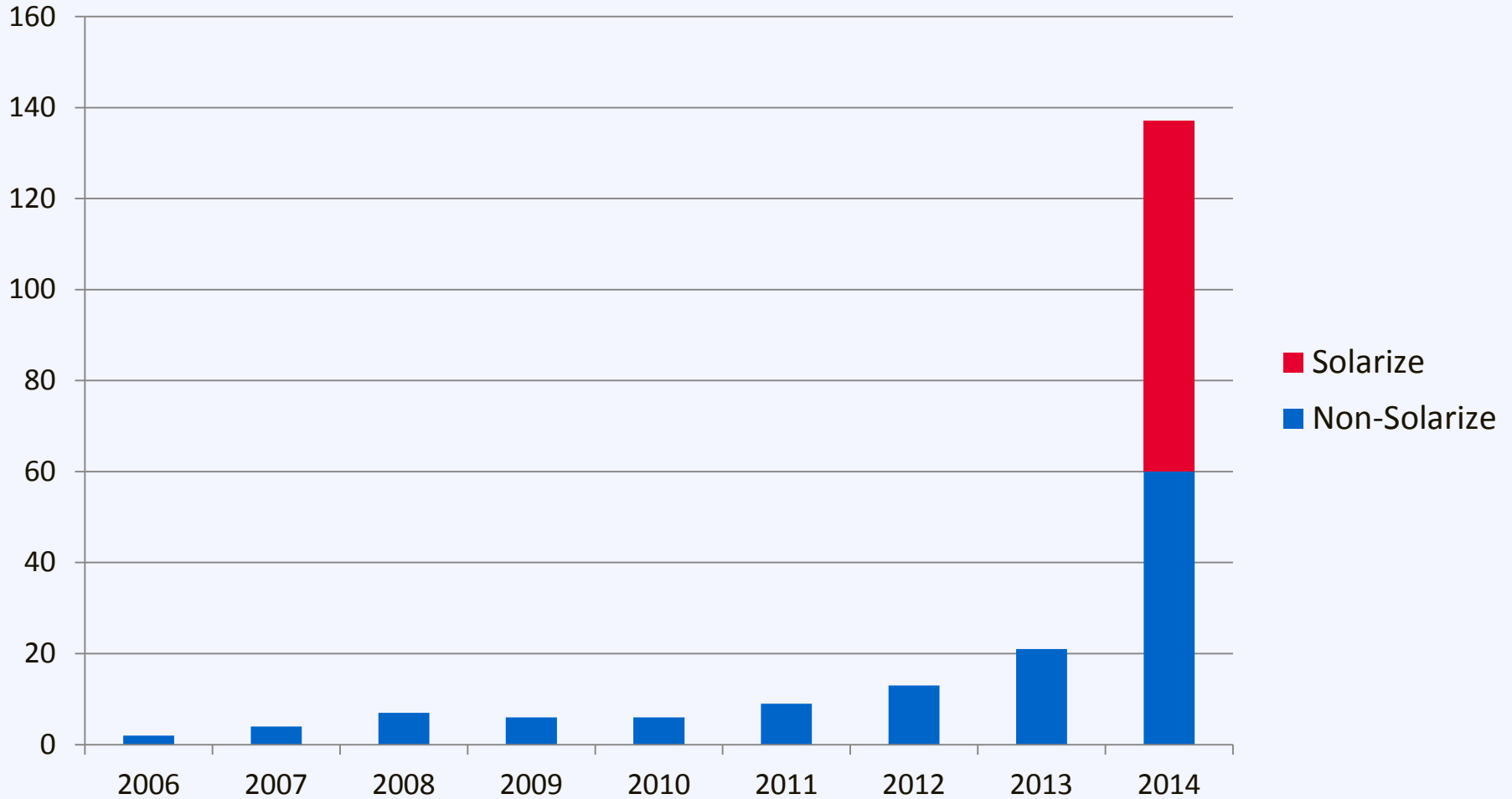
Solarize Syracuse

Media coverage and municipal support are critical success factors.



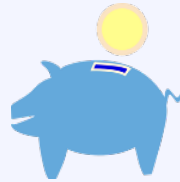
Syracuse 2014

Residential Solar Projects by Year in Solarize Target Area



Solarize Impact

Customer Savings



\$1.5 million

Economic Impact



\$13.1 million

Jobs Created



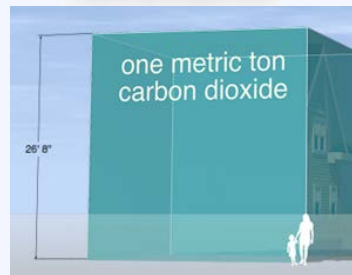
> 81

Market Impact



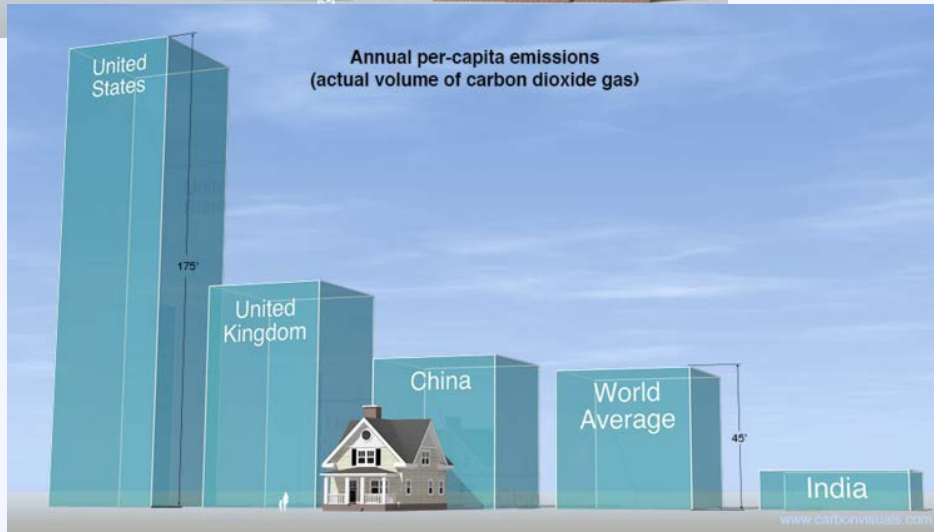
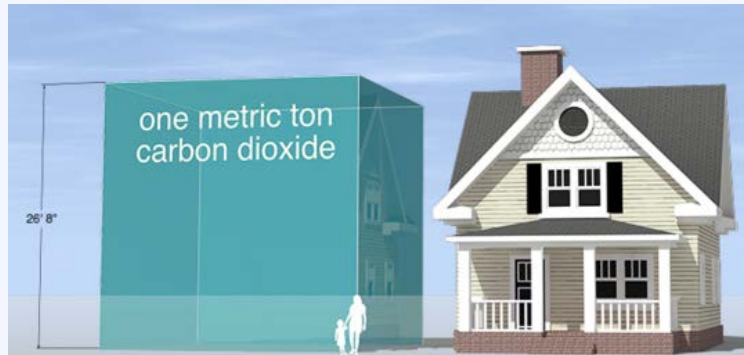
1/3 of all residential PV

Carbon Reduced



2,400 metric tons

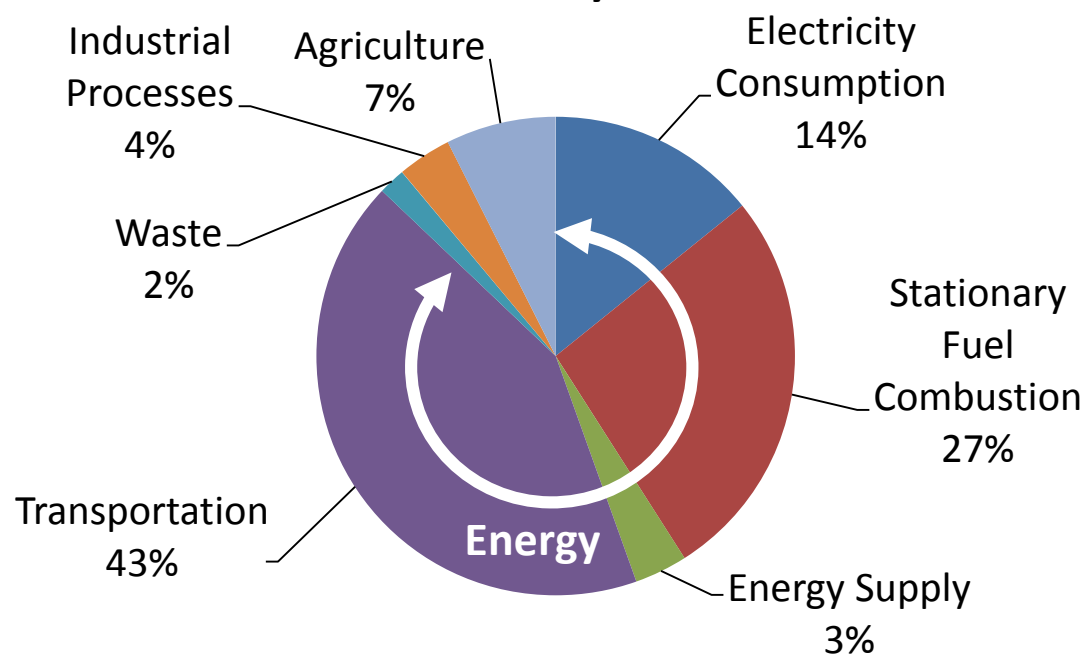
Solarize Impact



Greenhouse Gas Emissions

9.9 million metric tons CO₂e (MMT CO₂e)

Emissions by Sector

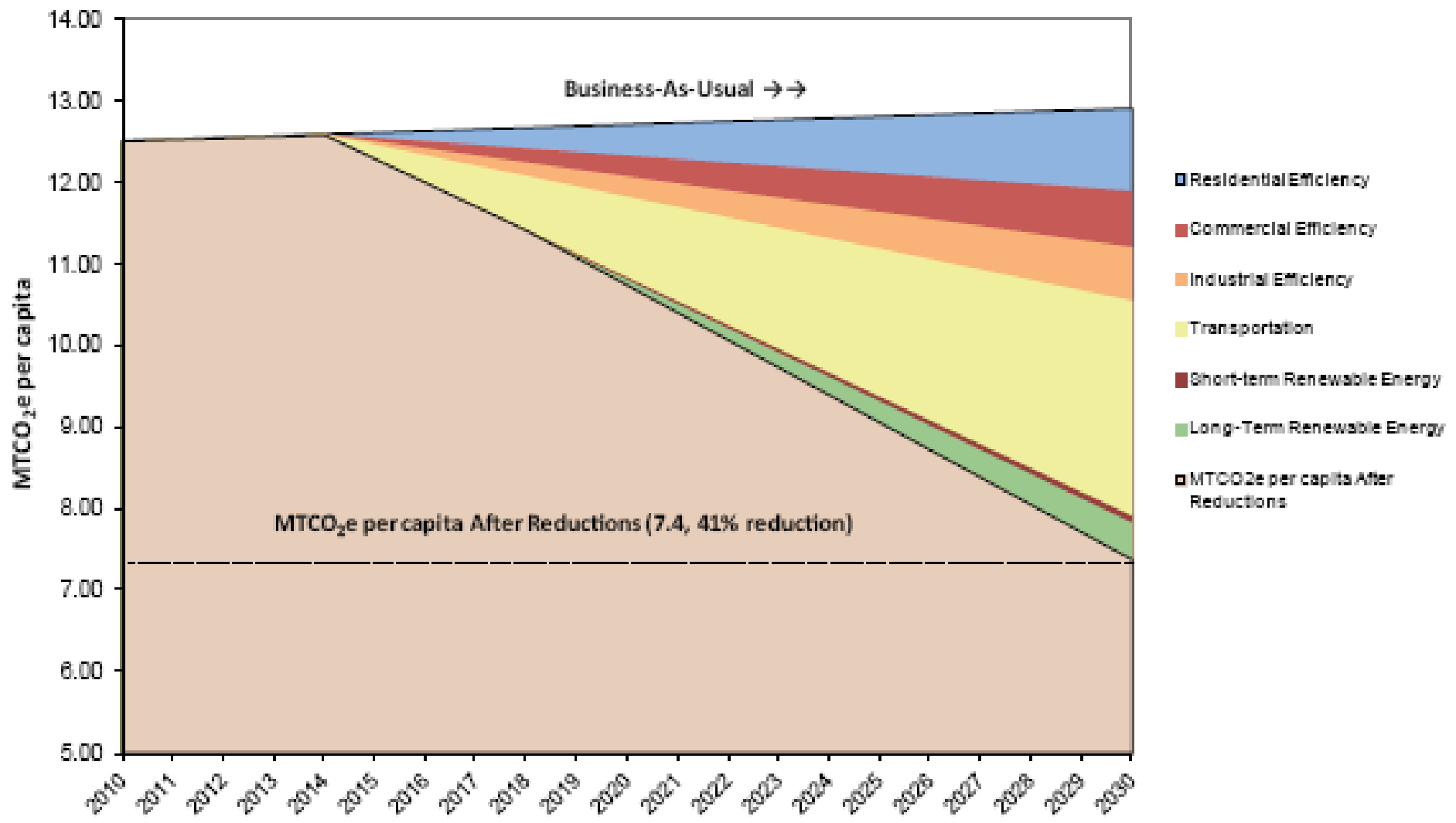


Approximate 2010 energy costs: **\$2.45 billion** (8% of GRP)

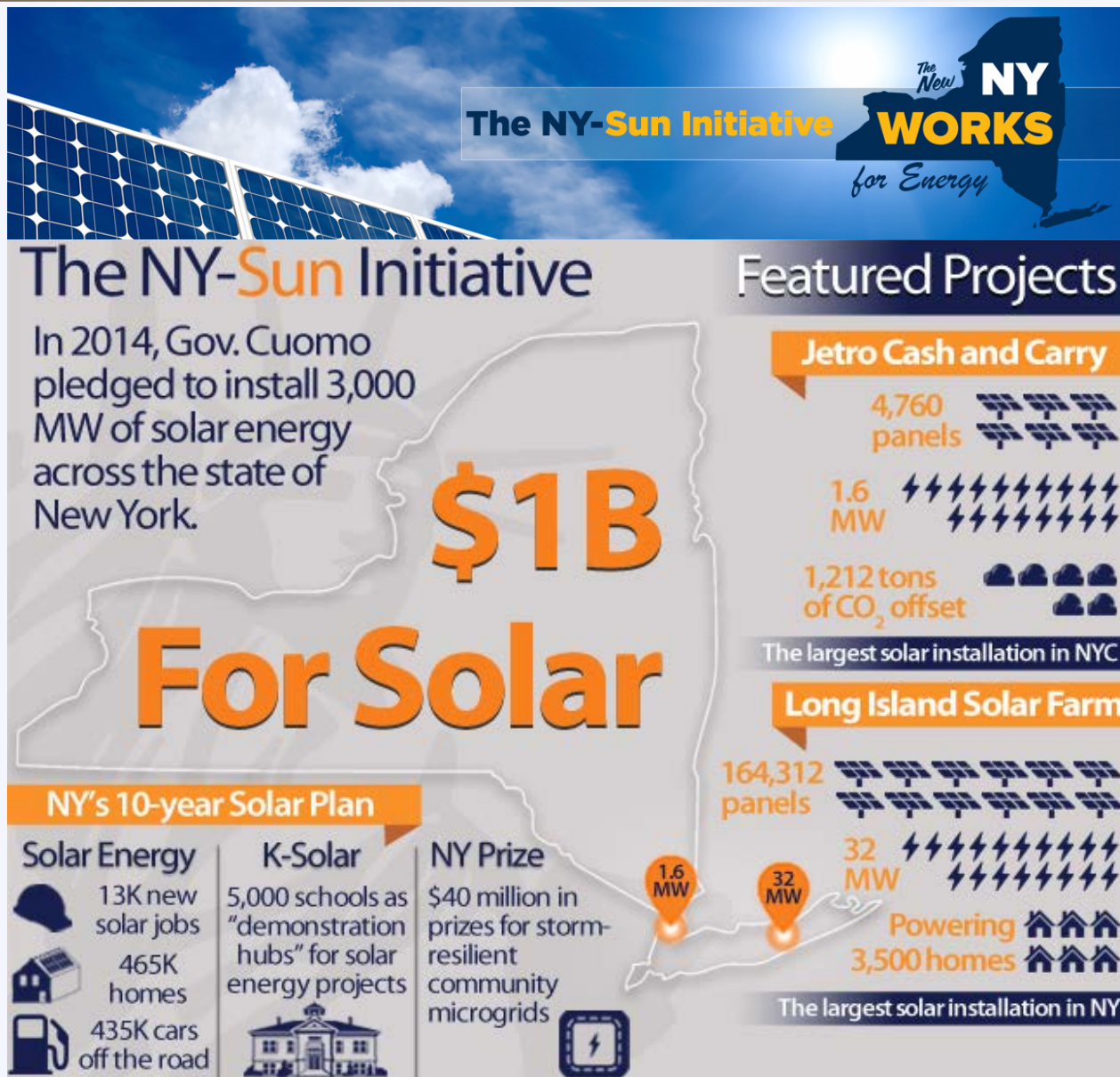
New York State greenhouse gas inventory



Goals and Implementation



Available Resources: The NY-Sun Initiative



Available Resources: PVTN



NY-Sun PV Trainers Network

About the Program

The NY-Sun PV Trainers Network aims to expand adoption and reduce installation costs of solar energy in New York State. Through education, training, and technical assistance, the Network helps local governments and stakeholders identify opportunities, mitigate barriers, and create programs that drive development of solar photovoltaic (PV) markets in communities across New York State.

Why Training and Education?

Solar energy plays a crucial role in helping local governments meet economic development, public health, and sustainability goals; however, obstacles still stand in the way of widespread adoption. In particular, costs associated with solar PV permitting, installation, inspection and internal approval processes, often called the soft costs, present a major challenge to both local jurisdictions and their constituents. Not only have unintended regulatory barriers and process inefficiencies contributed to a 35% price premium for new solar installations in NY, but they also add unnecessary review and approval costs to the jurisdiction.

The NY-Sun PV Trainers Network is providing training and education programs to help local governments reduce these soft costs, making the adoption of solar energy easier for residents and businesses and increasing the efficiency and effectiveness of local policies and approval processes.

We offer NYSERDA funded support for jurisdictions to address solar development:

- Introductory workshops
- In-depth trainings
- Technical assistance
- Model code & documents

We work with local officials:

- Administrators
- Planners
- Code Officials
- Inspectors
- First responders
- Village engineers

Contact us
info@training.ny-sun.ny.gov



PV Trainers Network

Available Resources: Community Solar NY

- Best practices and guidelines
- Marketing materials and templates
- Document templates (RFPs)
- Technical assistance, oversight
- Funding



Available Resources:

U.S. Dept. of Energy SPARC Program

Solar Powering America by Recognizing Communities (SPARC)



<http://www.gosparc.org/take-action-1/>



Available Resources: CNY RPDB



- Educate
- Organize
- Motivate
- Facilitate

Local
Government

Local
Government

Local
Government

Climate Smart Communities



- Partnership between New York State and local governments
- Provides resources and services to:
 - Reduce energy use and greenhouse gas emissions
 - Save taxpayer dollars
 - Advance community goals for:
 - health and safety
 - economic vitality
 - energy independence
 - quality of life

**CNY RPDB is the regional
Climate Smart Communities Coordinator**



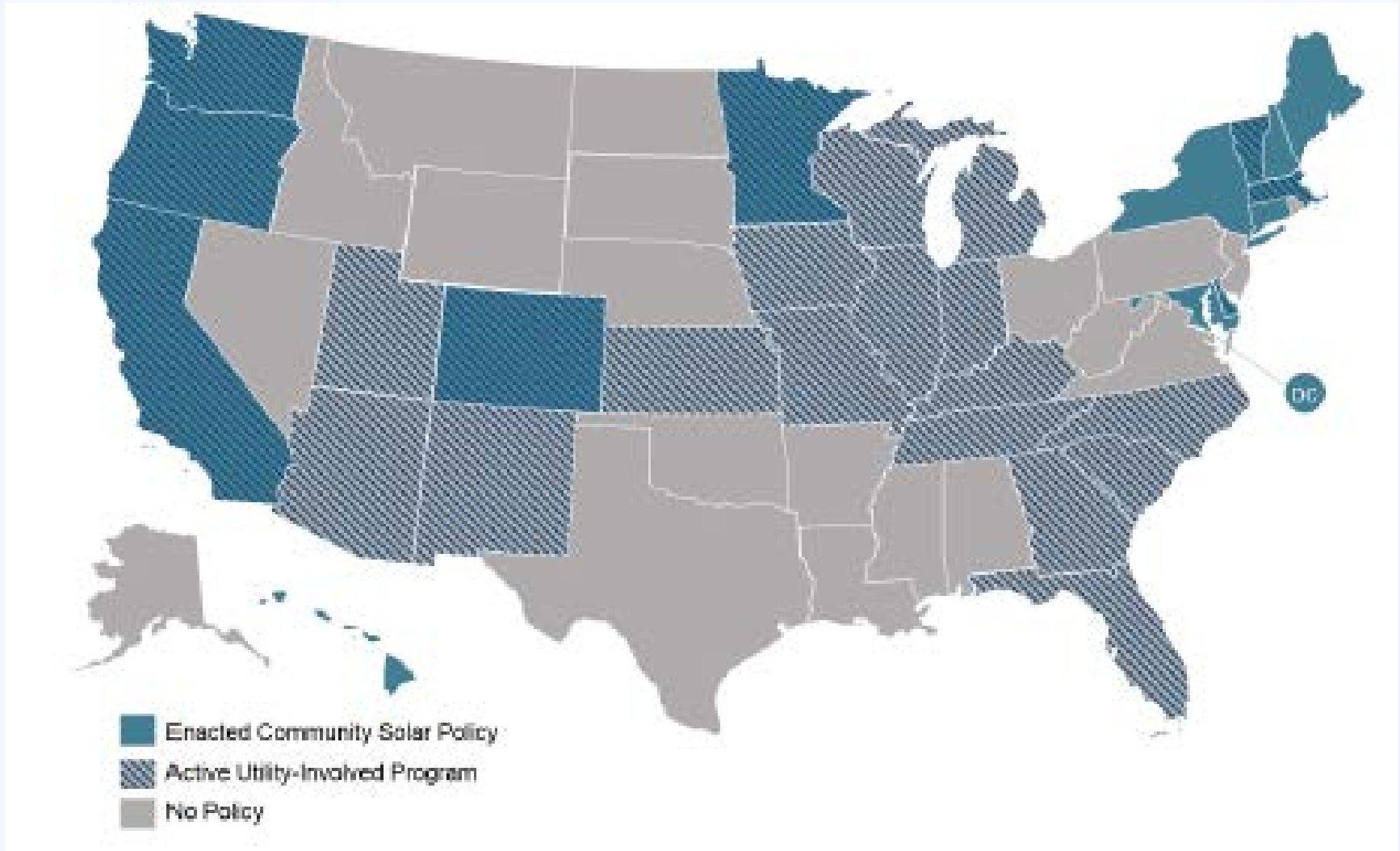
Solarize CNY – Municipal



- Cooperative solar procurement for municipalities
 - Average project cost reductions 10-15%
- CNY RPDB organizing municipal participants, completing feasibility studies and will issue RFP on behalf of the consortium
 - Savings up to 75% in administrative and transaction costs



Community Solar Policies and Programs



Community Solar for Central NY



Coming Soon!

SOLARIZECNY
COMMUNITIES

- Municipal, Agency, Higher Ed
 - 26 participants, 46 possible project sites
 - 33.5 MW potential (nearly 15 MW community solar)
- CNY RPDB Screening
 - 250 sites >> 50 sites
- Developer Controlled Parcels
 - ??

Moving the Solar Needle = Huge Regional Economic Impact

- Regional electricity consumption: 6,200 GWh/year
- Shifting just 10% to local, clean sources = 620,000,000 kWh
- This equates to approximately 560MW of solar capacity
- Resulting in more than \$1.4B in new economic activity

Metro Water Board Reservoir



DeWitt Town Hall





Central New York Regional Planning & Development Board



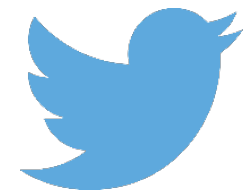
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COMMUNITIES

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Facebook!



Tweet us!
#solarizecny



Thank You!

Chris Carrick, Energy Program Manager

ccarrick@cnyrpdb.org 315-422-8276 ext. 213



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**Community
Solar NY**