

Solar Powering Your Community

Addressing Soft Costs and Barriers



Powered by

SunShot

U.S. Department of Energy

SunShot Solar Outreach Partnership: 2013-16



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.

SunShot Solar Outreach Partnership: 2013-16

- 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

Technical Resources

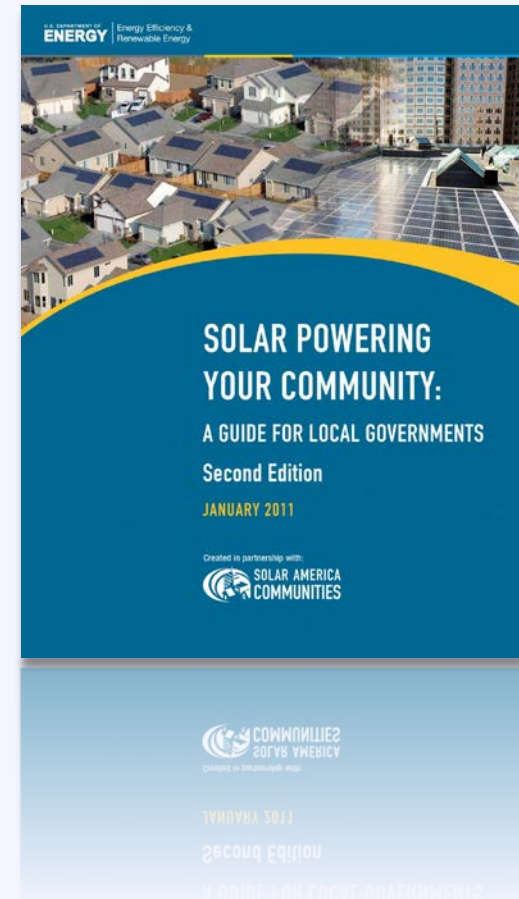
Resource

Solar Powering Your Community Guide

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

www.energy.gov

www.solaroutreach.org



Solar Development in the US

As of 2014, the US solar industry installed

645,000 solar installations

of which

93% were residential projects

Agenda

10:20 – 10:50	Putting Solar Energy on the Local Policy Agenda
10:50 – 11:20	State of the Local Solar Market
11:20 – 11:50	Federal, State, and Utility Policy Drivers
11:50 – 12:15	Break and Grab Lunch
12:15 – 12:45	Planning for Solar: Getting Your Community Solar Ready
12:45 – 1:20	Solar Market Development Tools
1:20 – 1:30	Break
1:30 – 2:45	Local Speakers
2:45 – 3:00	Solar Powering Your Community: Next Steps

Solar Technologies



Solar Photovoltaic (PV)



Solar Hot Water



Concentrated Solar Power

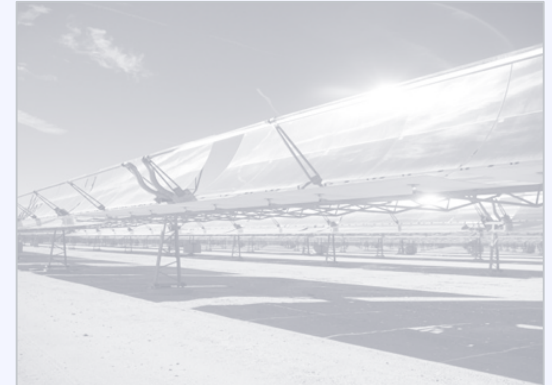
Solar Technologies



Solar Photovoltaic (PV)

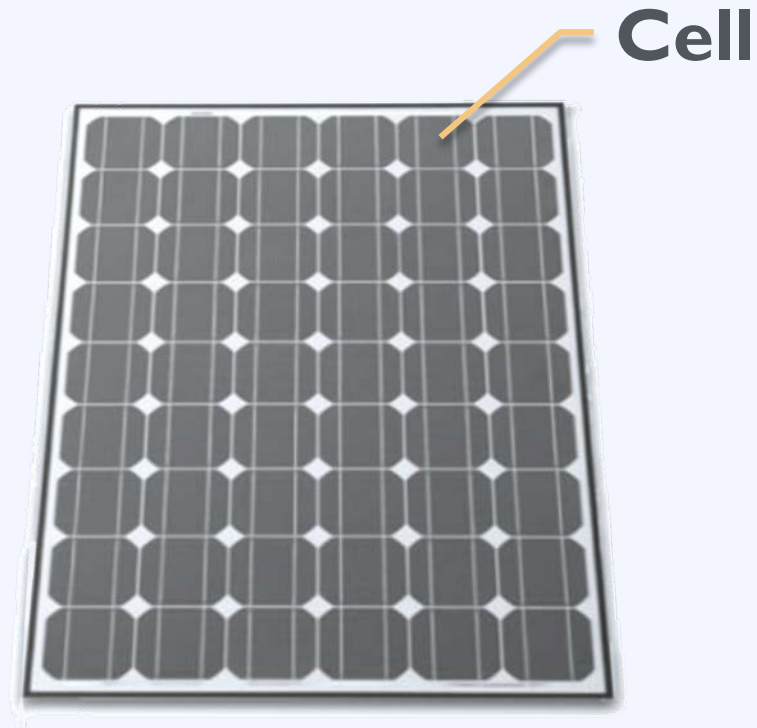


Solar Hot Water



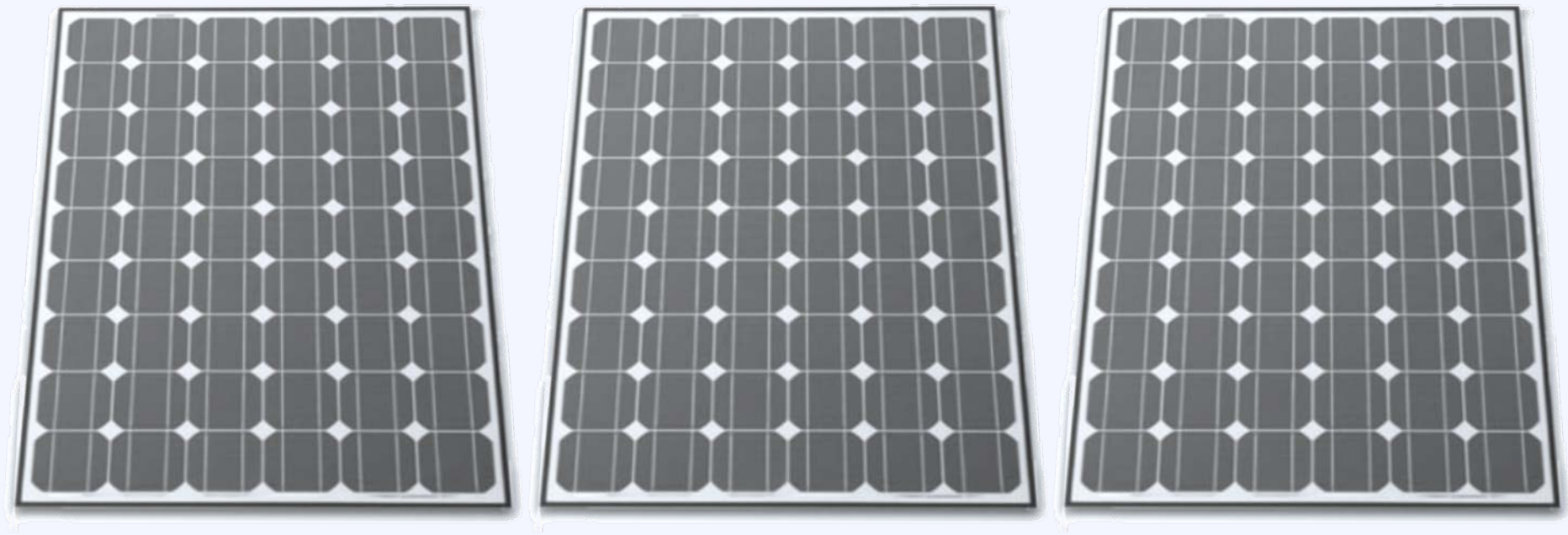
Concentrated Solar Power

Some Basic Terminology



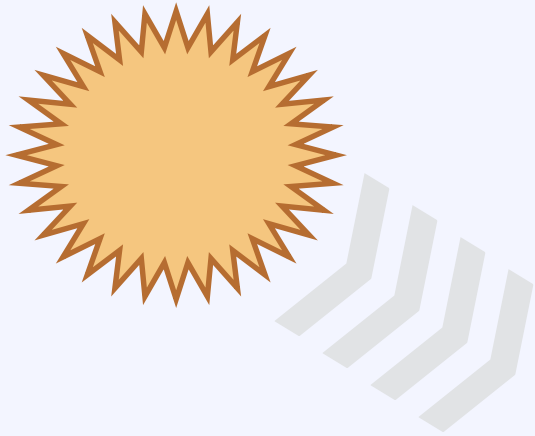
Panel / Module

Some Basic Terminology



Array

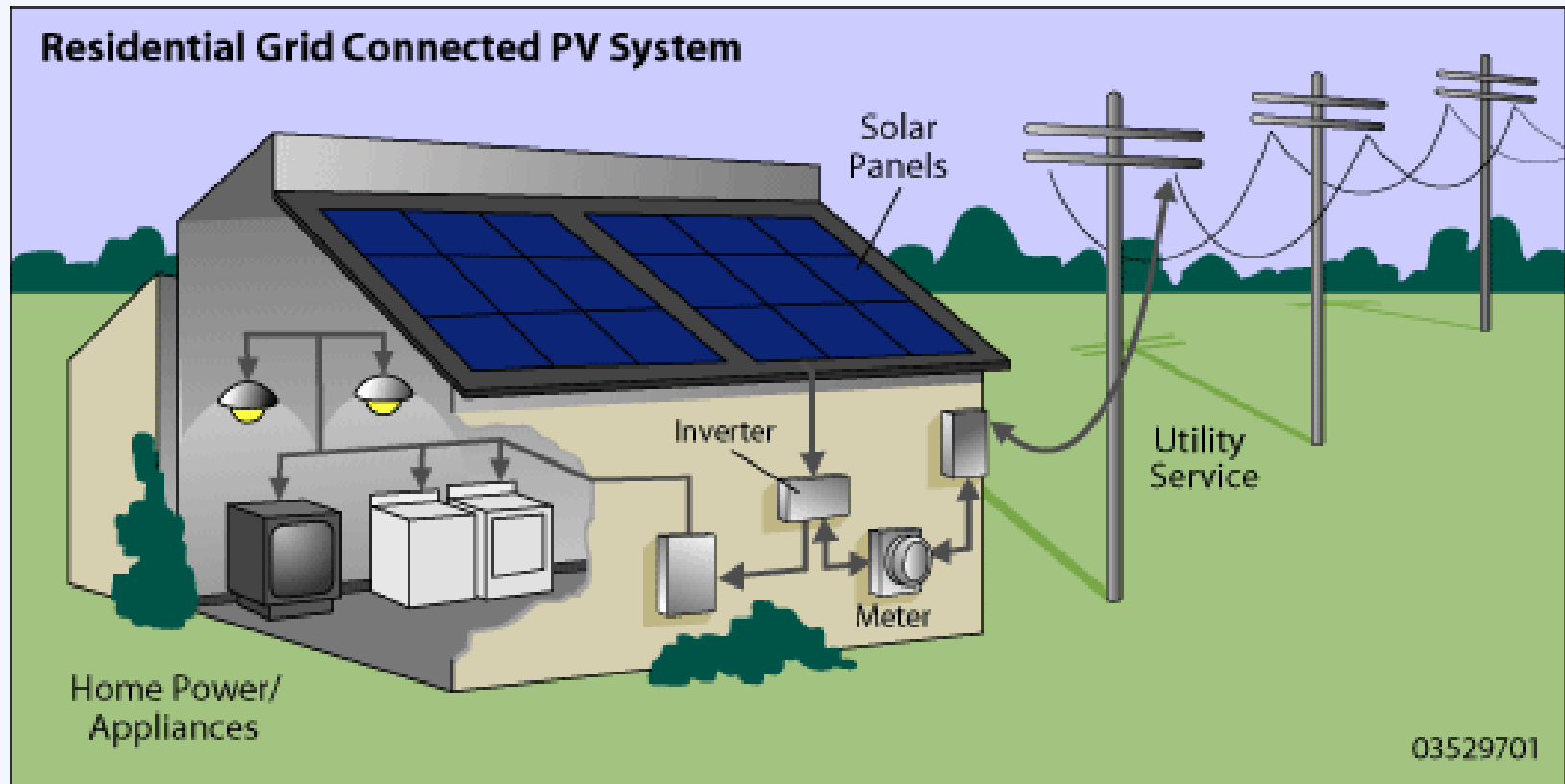
Some Basic Terminology



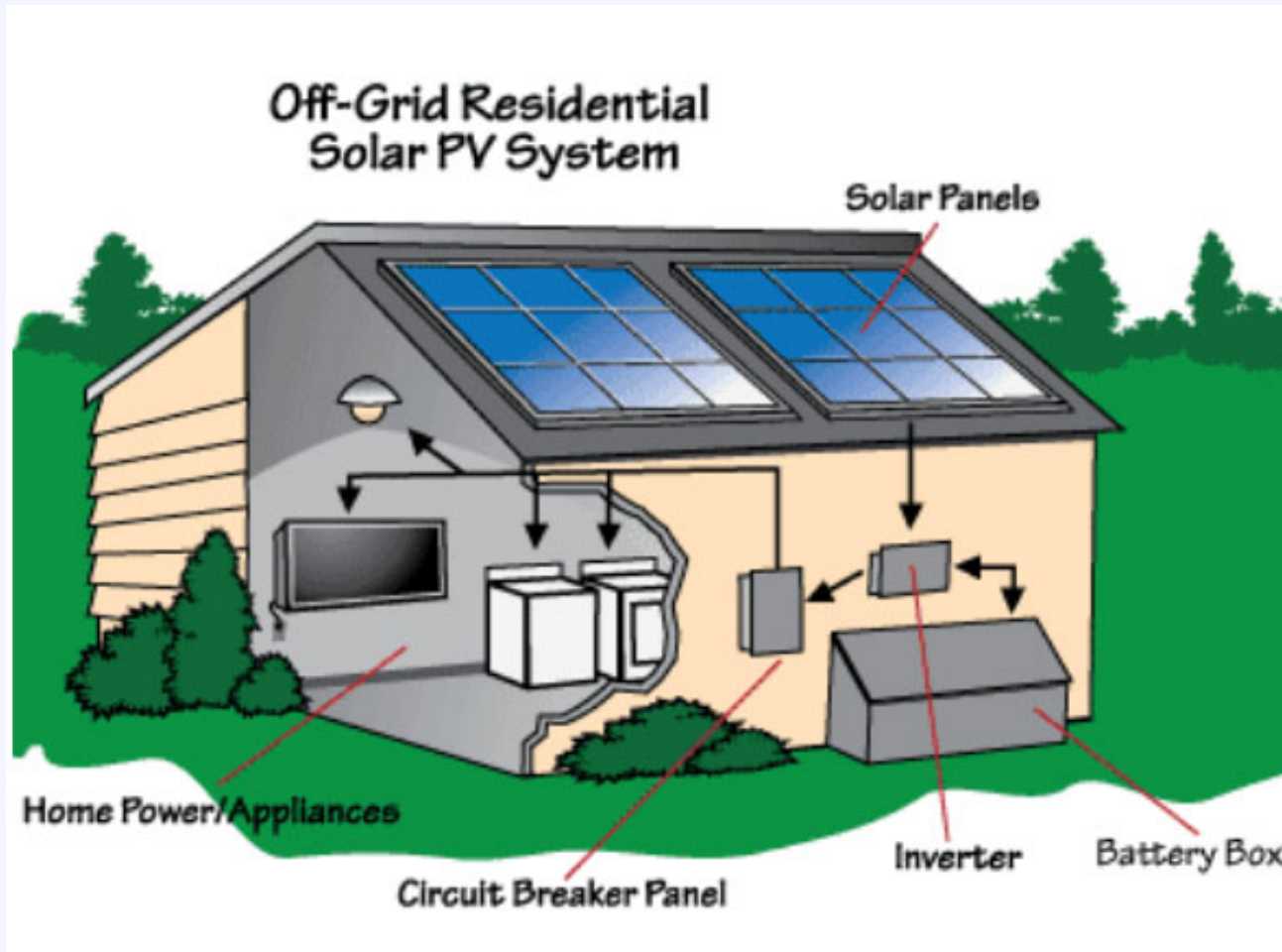
Production
Kilowatt-hour (kWh)

Capacity / Power
kilowatt (kW)

System Components



System Components – Off-Grid



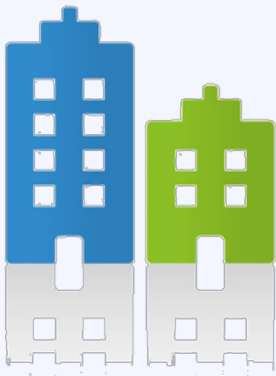
Some Basic Terminology



Residence
5 kW



Factory
1 MW+



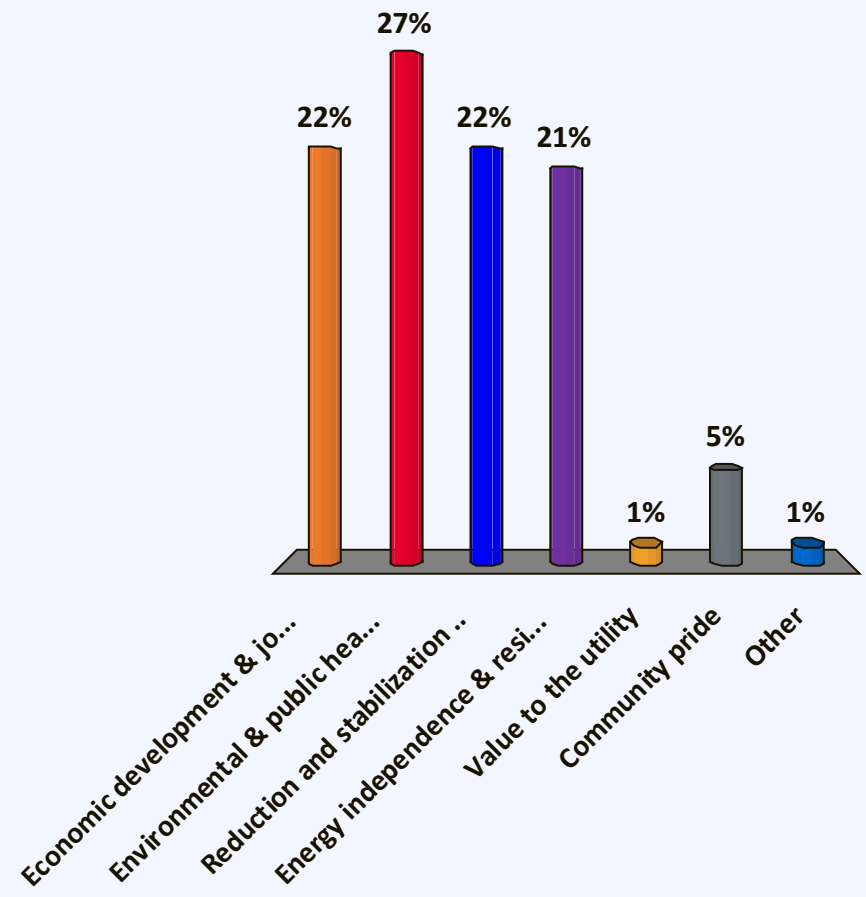
Office
50 – 500 kW



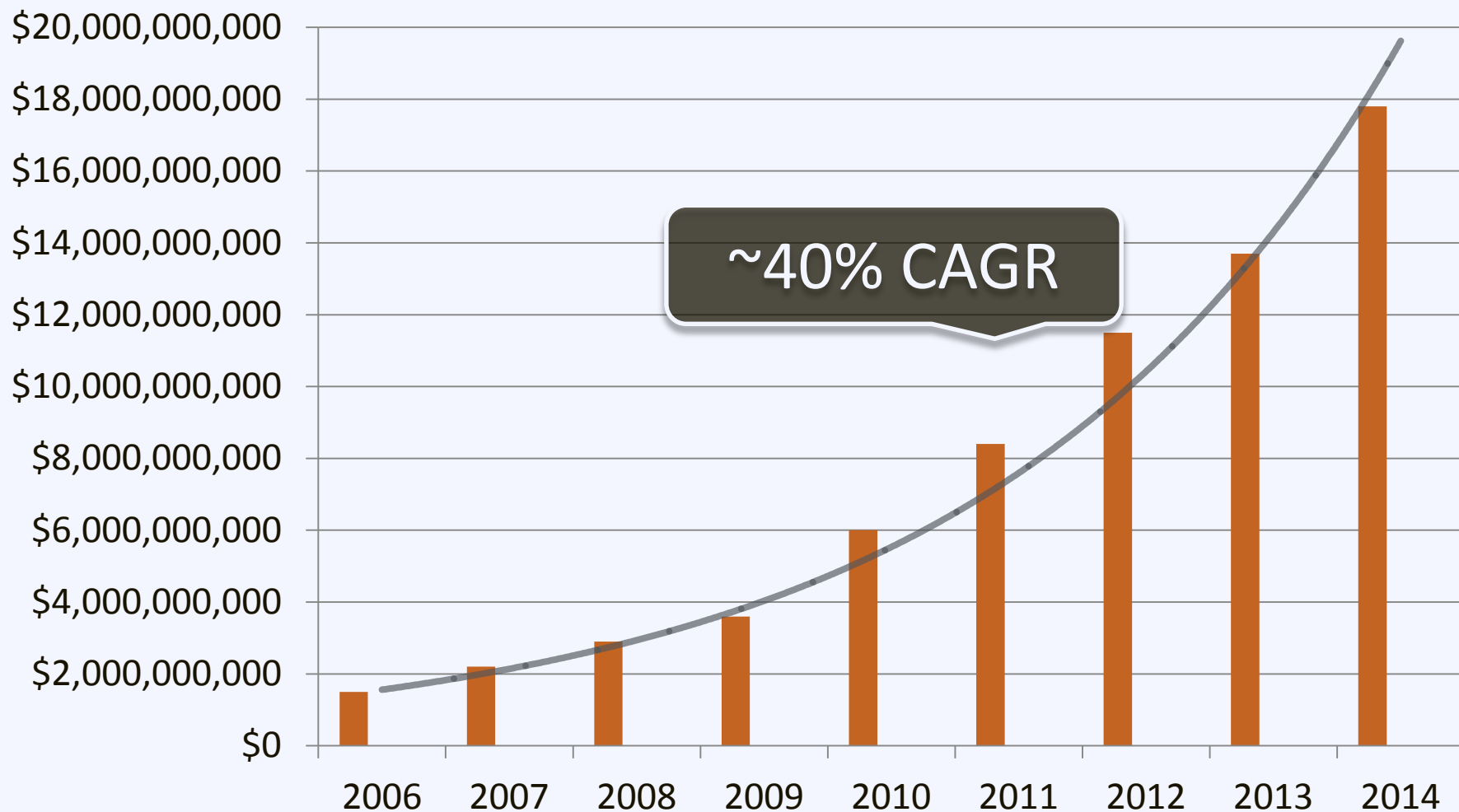
Utility
2 MW+

What are the top 3 benefits solar can bring to your community?

- A. Economic development & job creation
- B. Environmental & public health benefits
- C. Reduction and stabilization of energy costs
- D. Energy independence & resilience
- E. Value to the utility
- F. Community pride
- G. Other

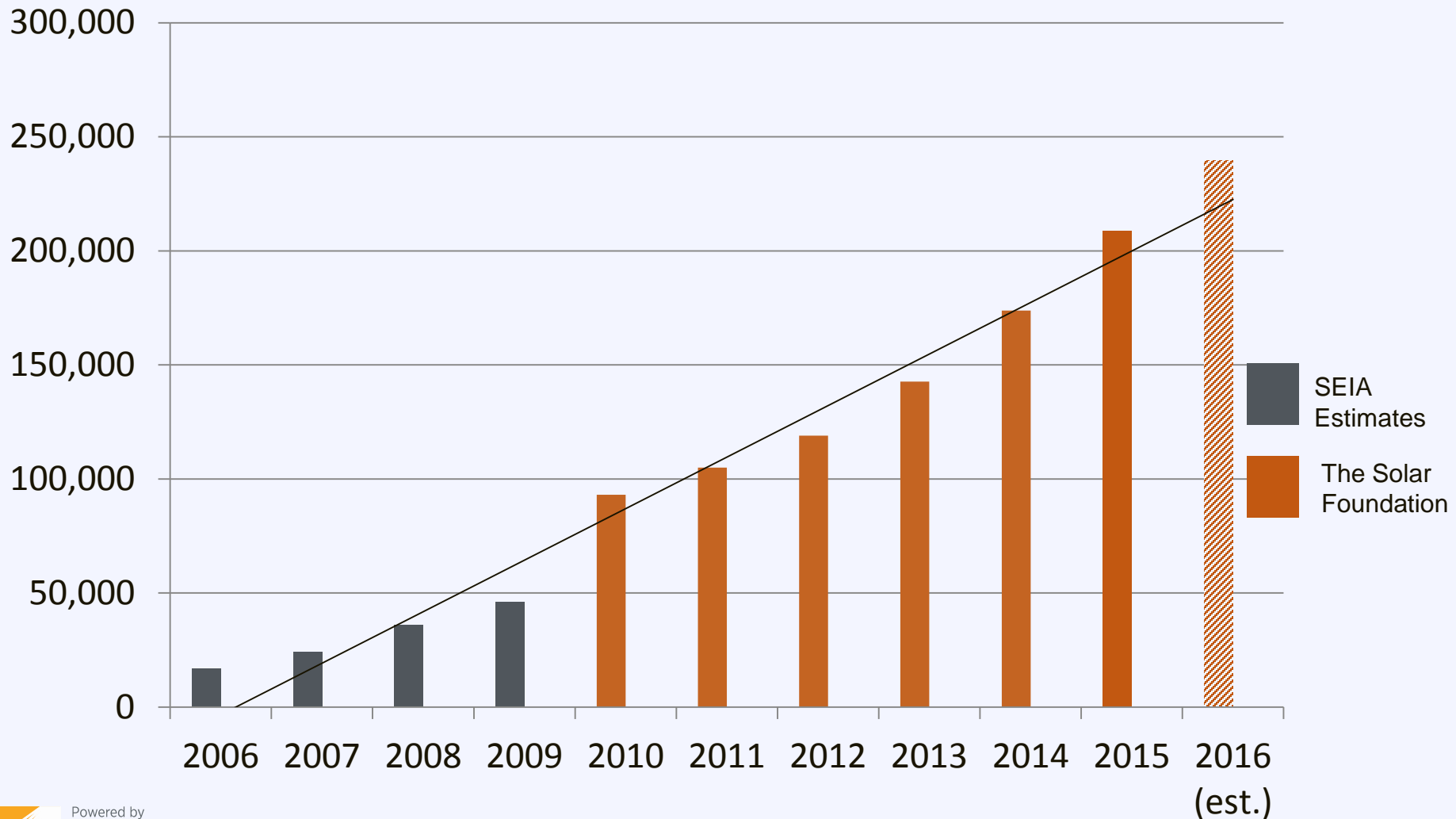


Benefits: Solar Economic Growth



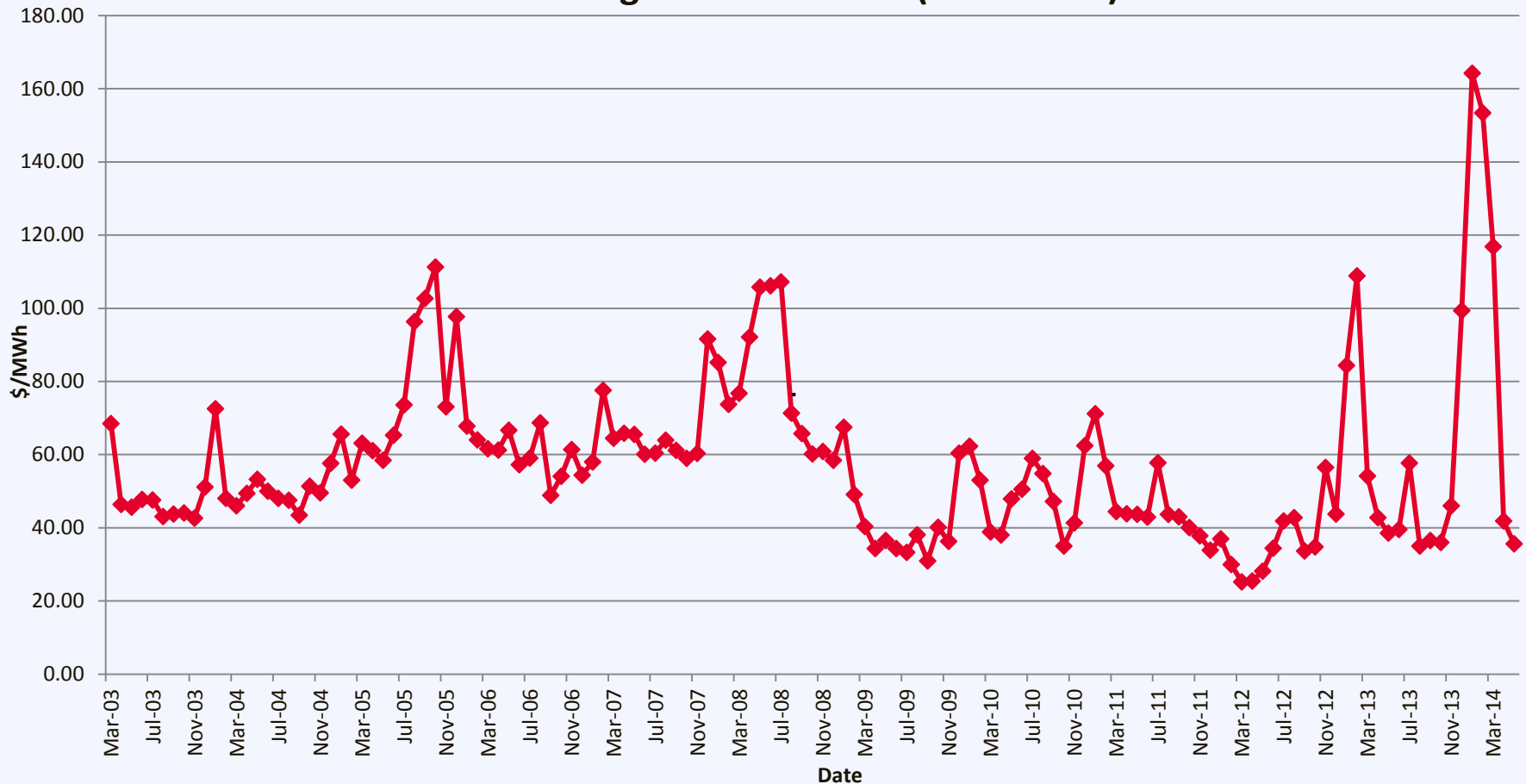
Benefits: Solar Job Growth

Solar Job Growth in the US

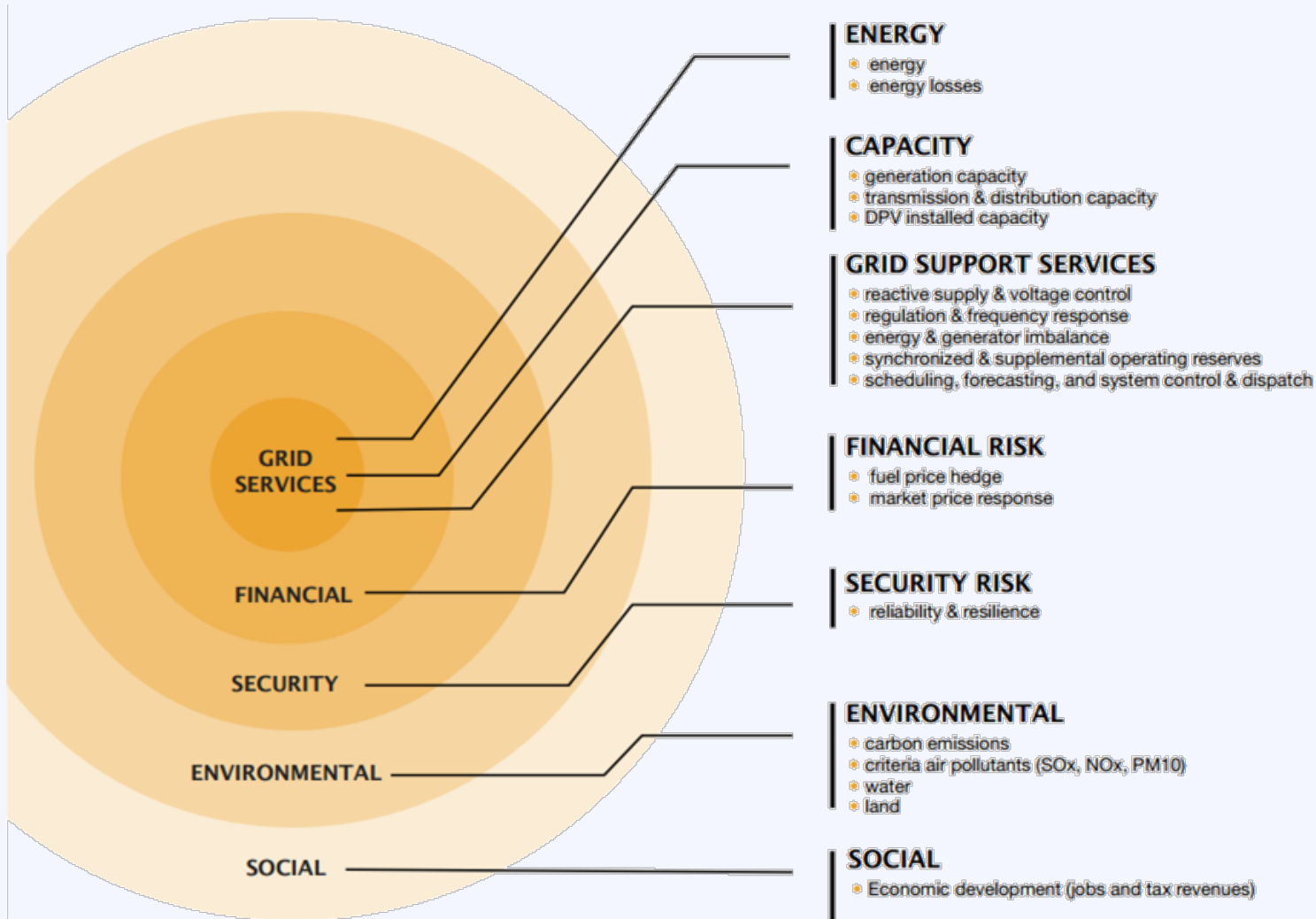


Benefit: Stabilize Energy Prices

Historical Avg Real-Time LMP (NEMABOS)



Valuable to Community & Utilities



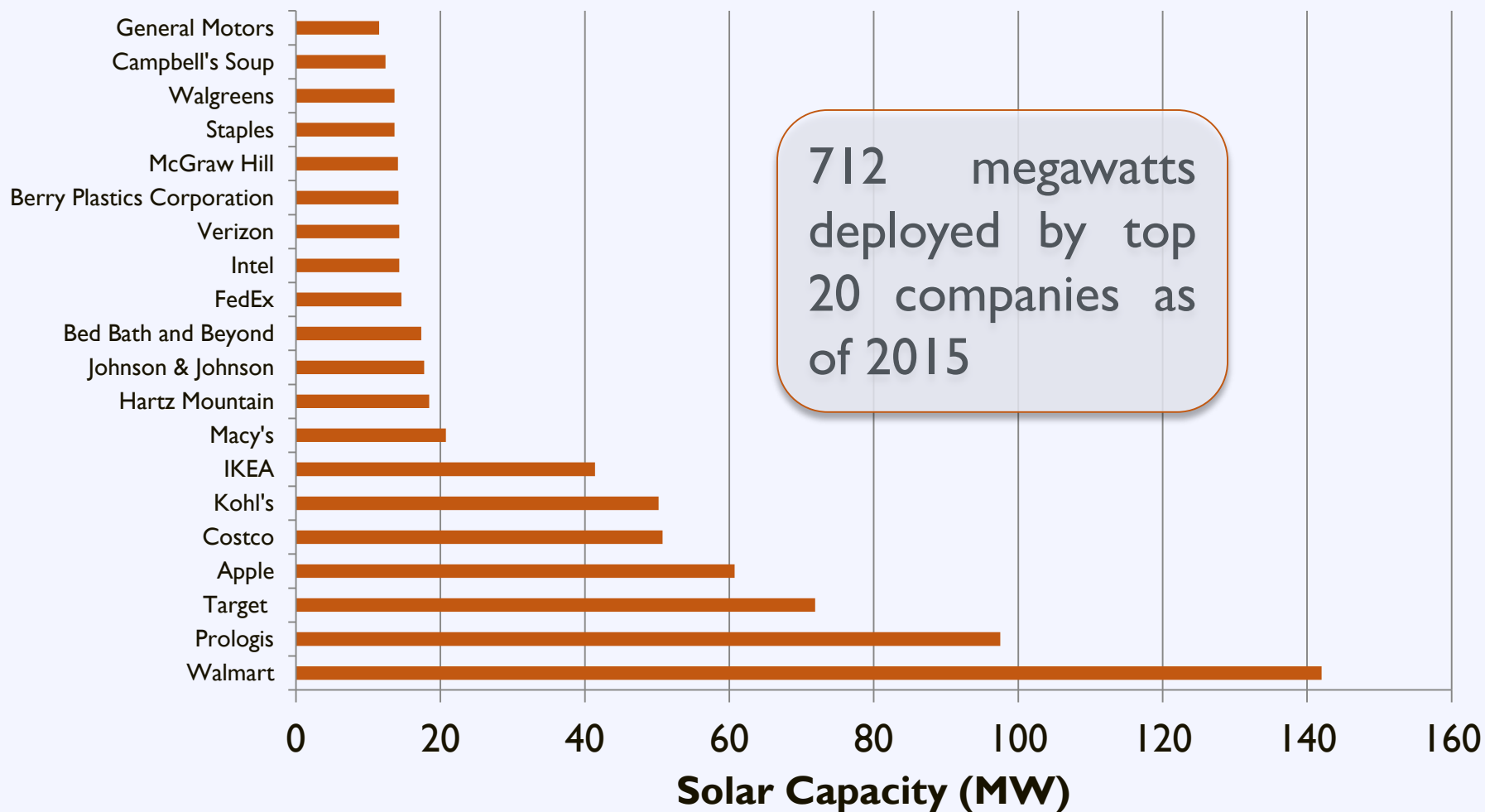
Smart Investment for Homeowners

A typical residential solar system increases a home's property value by

an average of \$11,000

Smart Investment for Businesses

Top 20 Companies by Solar Capacity



Smart Investment for Governments



Smart Investment for Schools

Current:



×

3,752



=

\$77.8m

Potential:



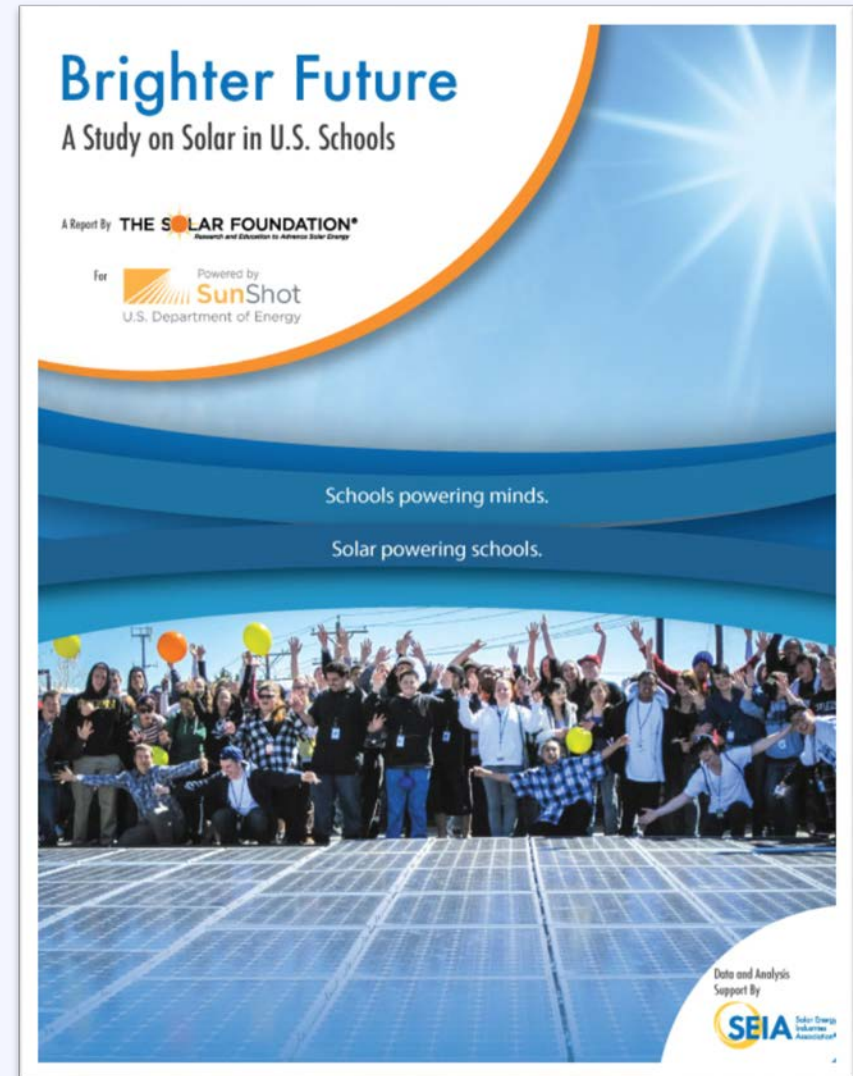
×

40,000 –
72,000



=

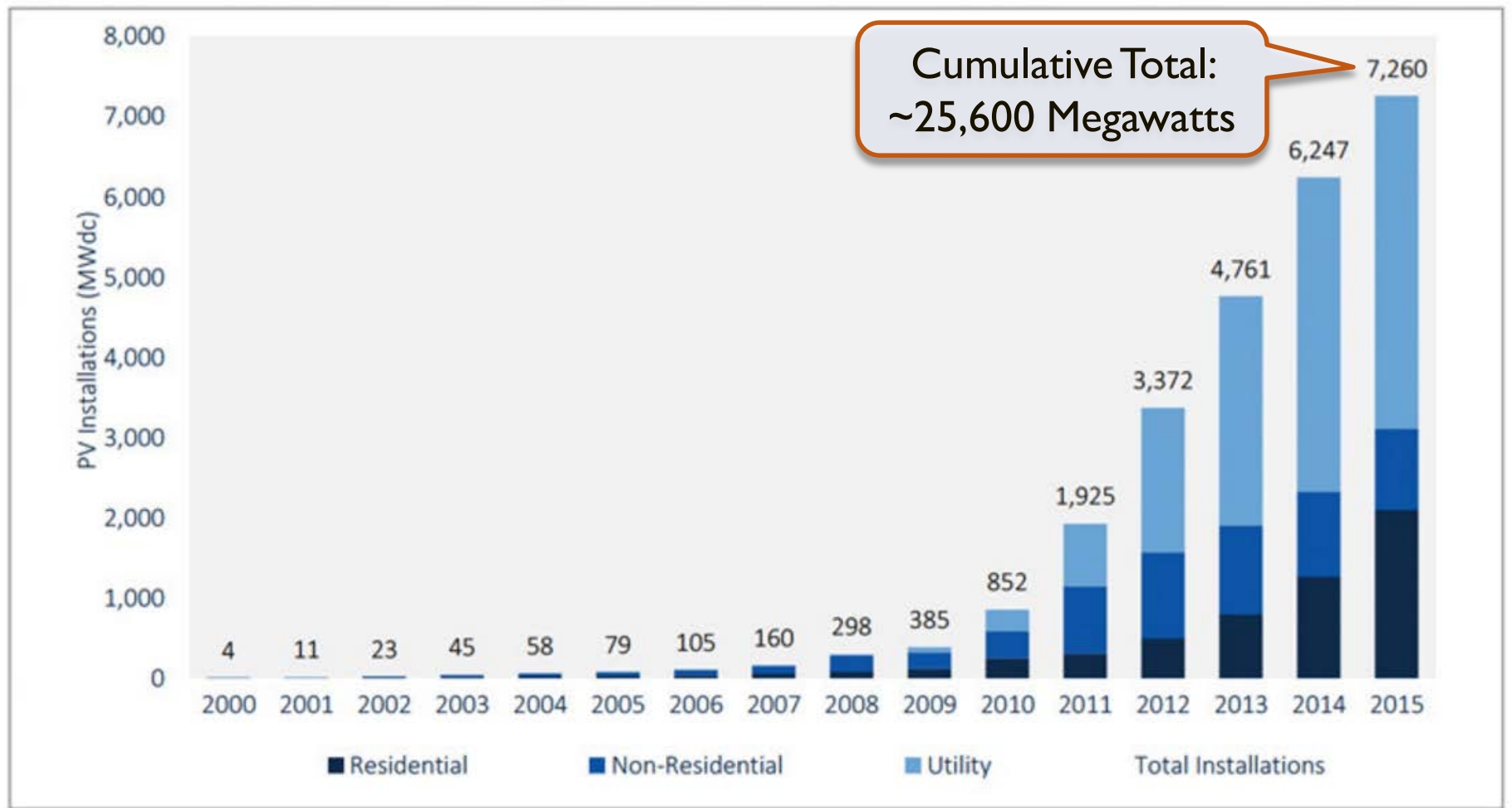
\$800m



Agenda

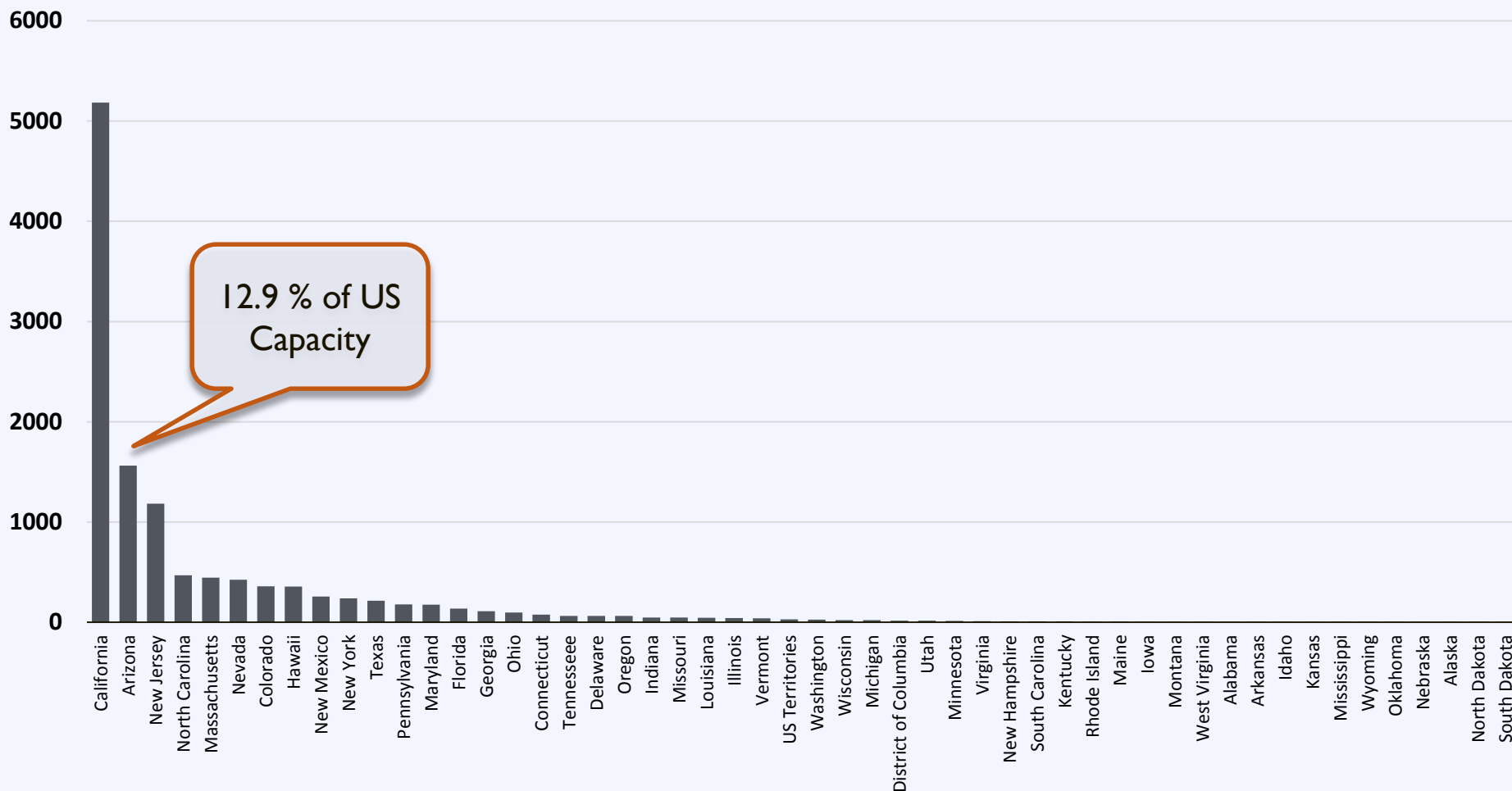
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US Solar Market

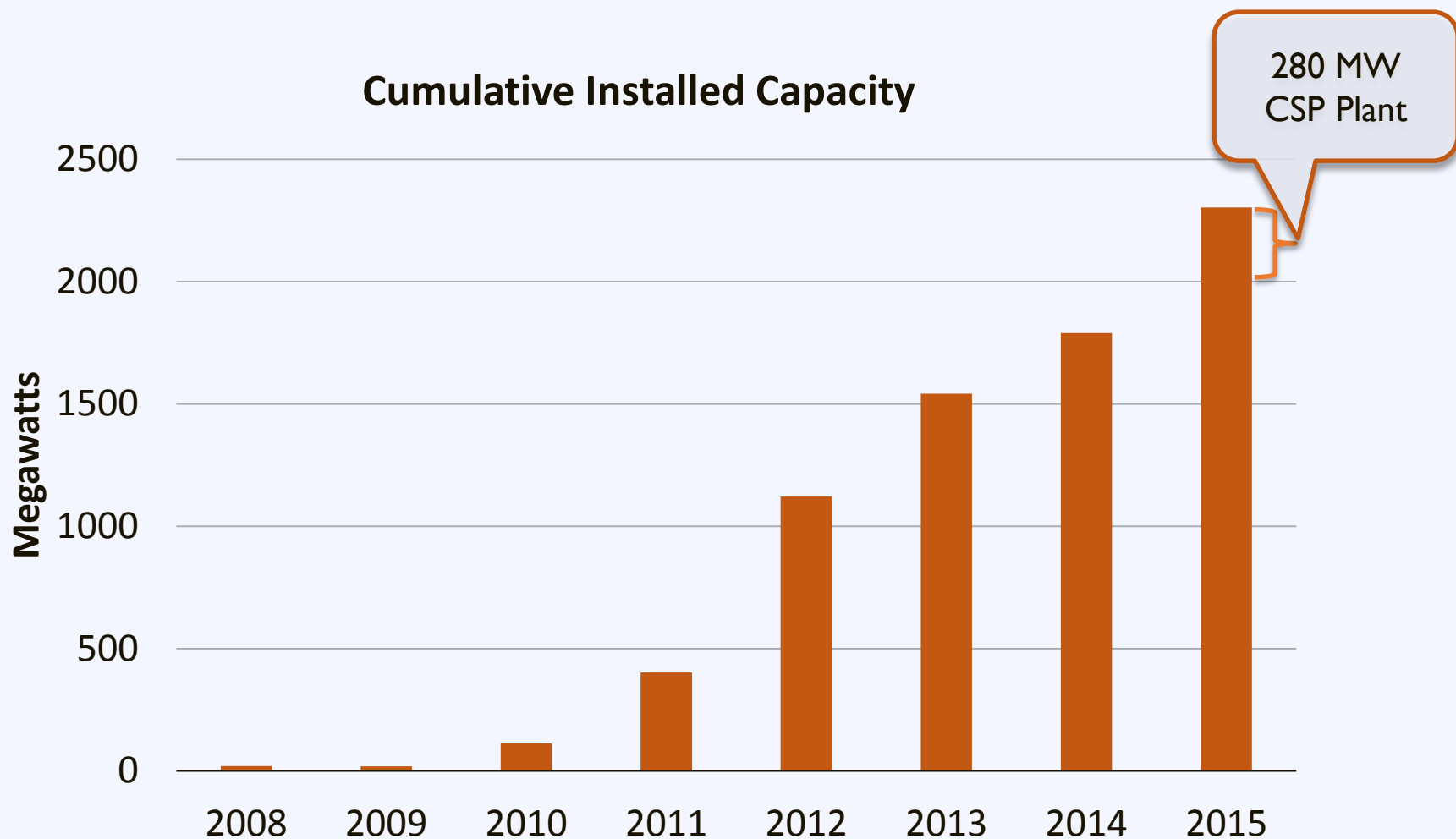


US Solar Market

Installed Capacity by State (MW) 2013

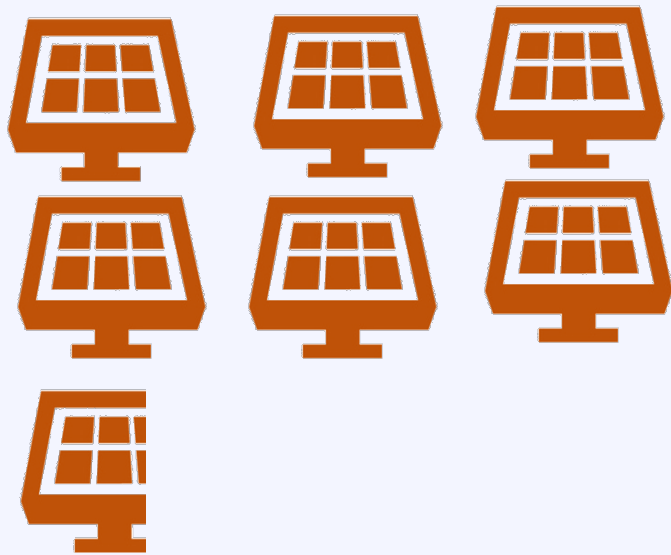


Arizona Solar Market



Arizona Solar Market

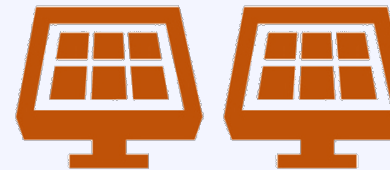
Arizona



337

watts per person

US



80

watts per person

Solar Jobs in Arizona

In 2015, Arizona had

6,922 solar jobs

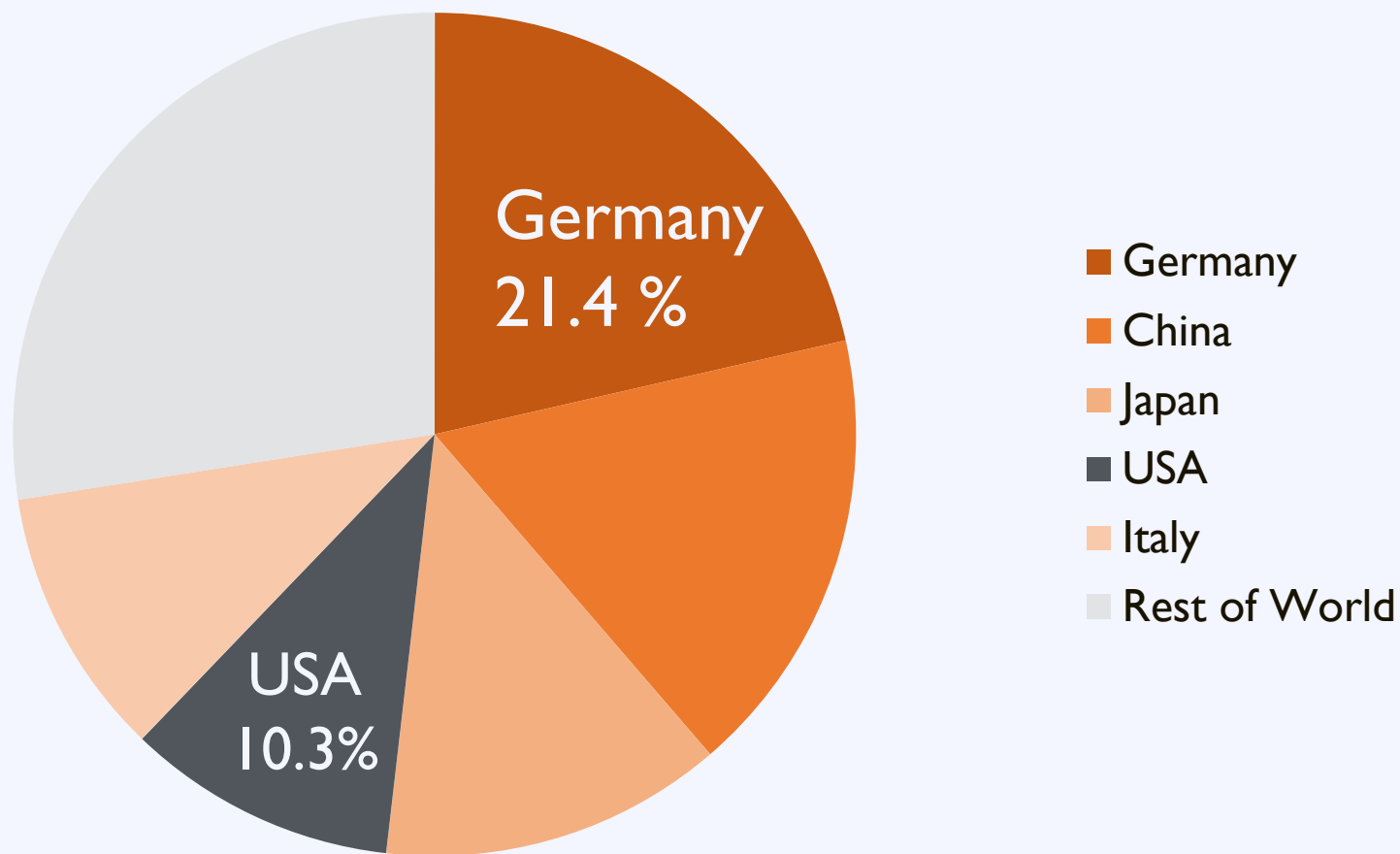
(~11.5% veterans)

roughly

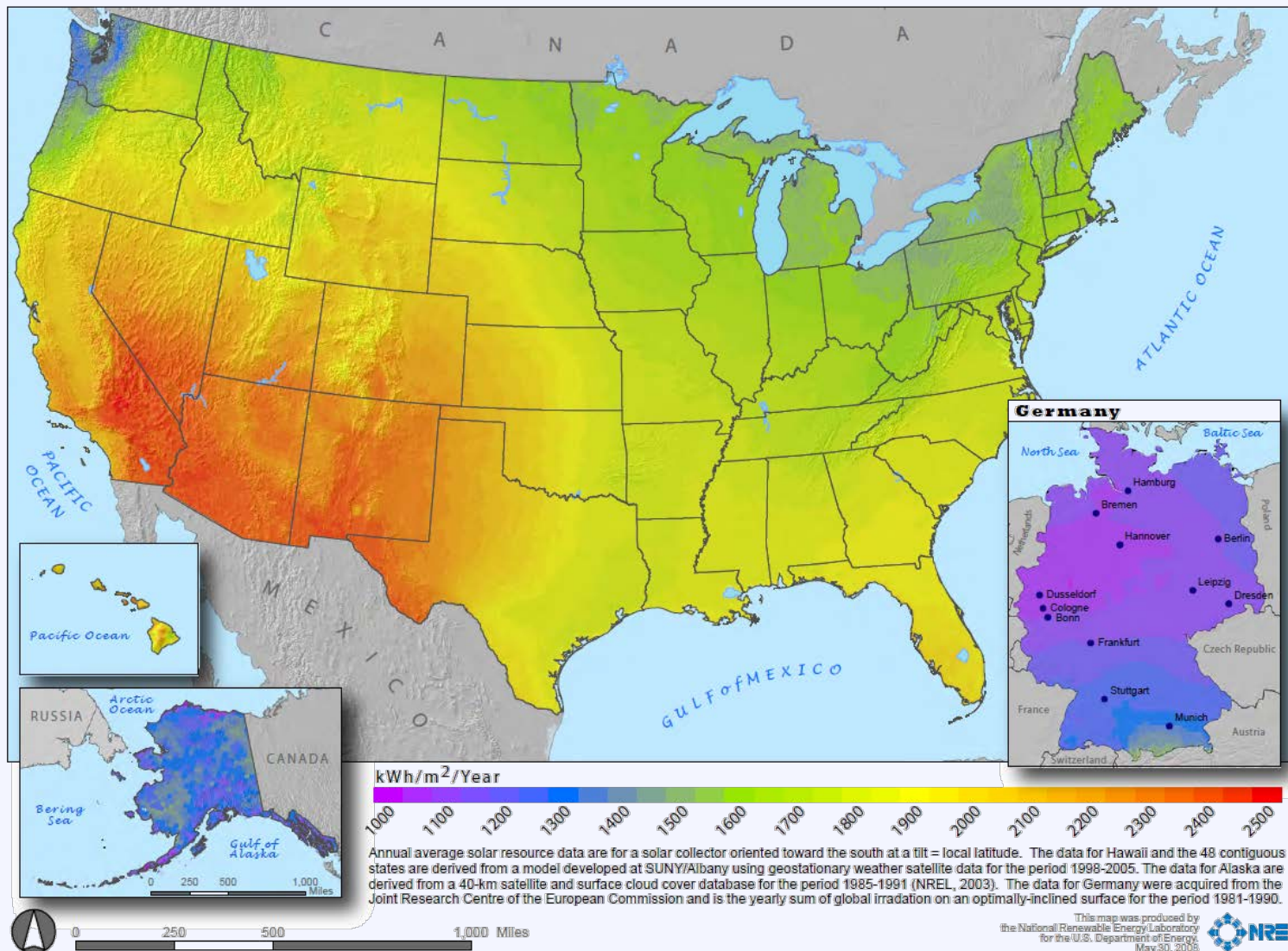
25% reduction since 2014

World Solar Market

Top 5 Countries Solar Operating Capacity (2014)

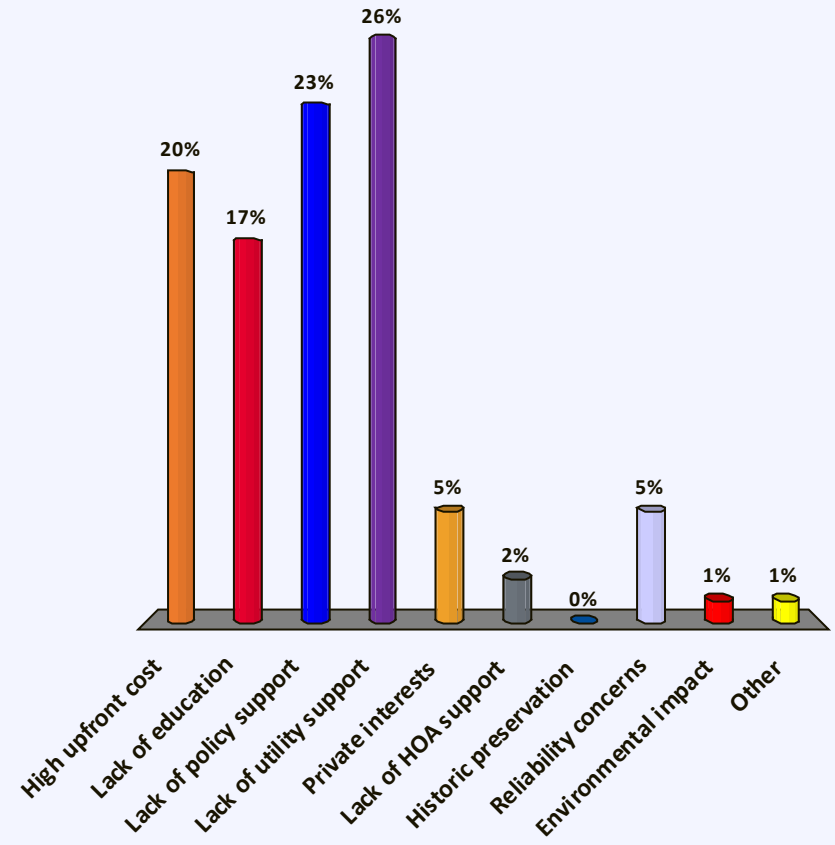


US Solar Resource



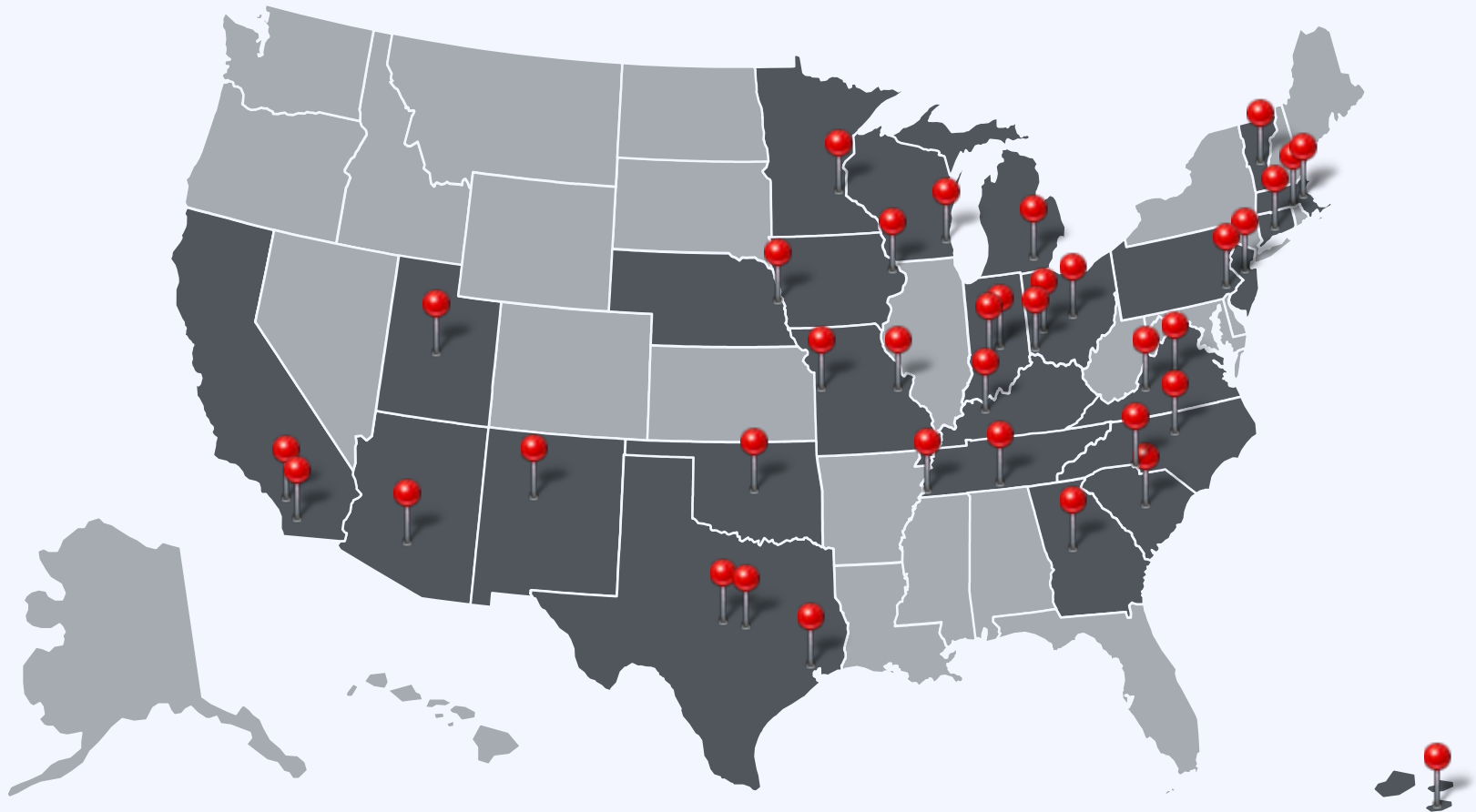
What are the top 3 barriers to solar adoption in your community?

- A. High upfront cost
- B. Lack of education
- C. Lack of policy support
- D. Lack of utility support
- E. Private interests
- F. Lack of HOA support
- G. Historic preservation
- H. Reliability concerns
- I. Environmental impact
- J. Other

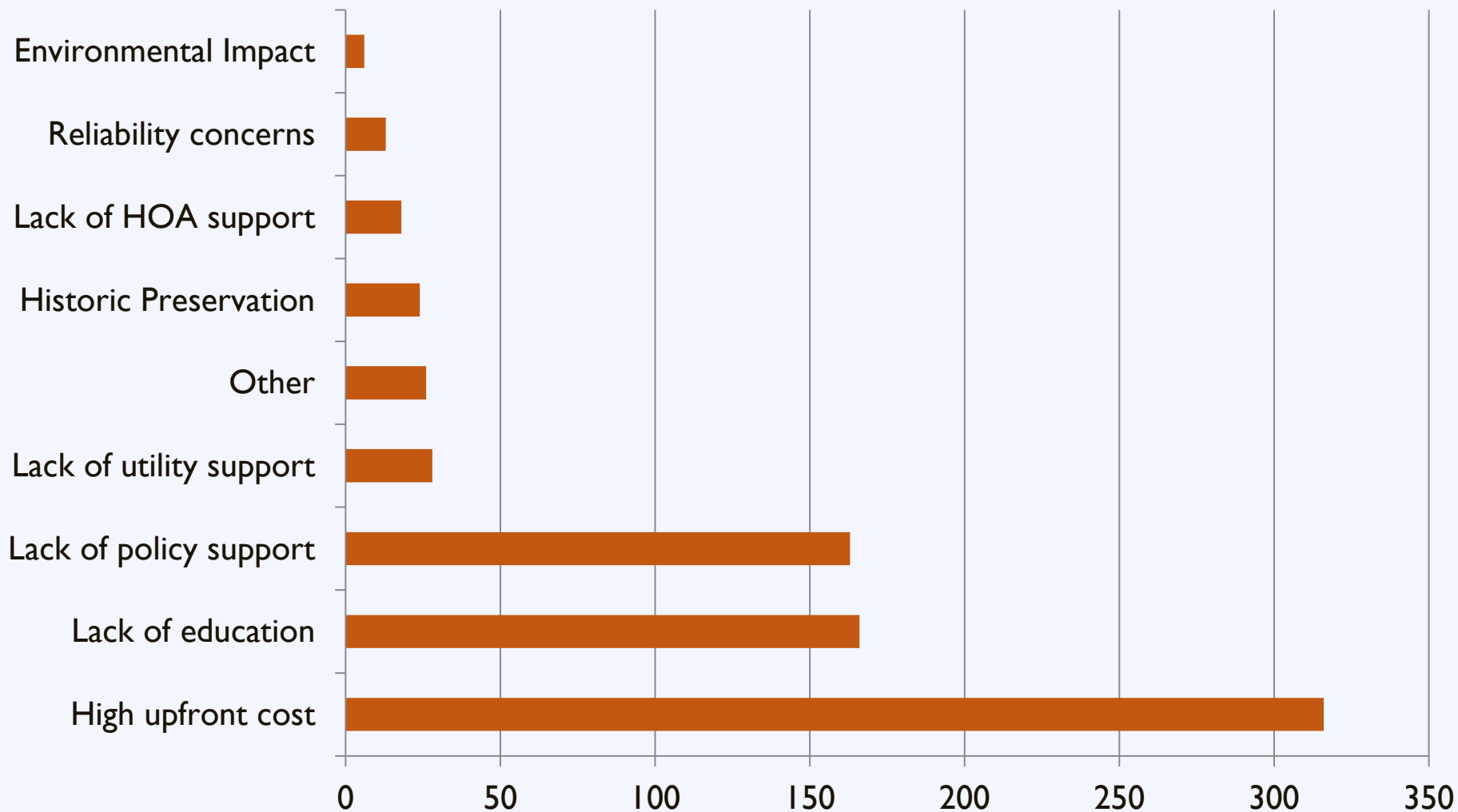


Regional Workshop Surveys

Q: What is the greatest barrier to solar adoption in your community?

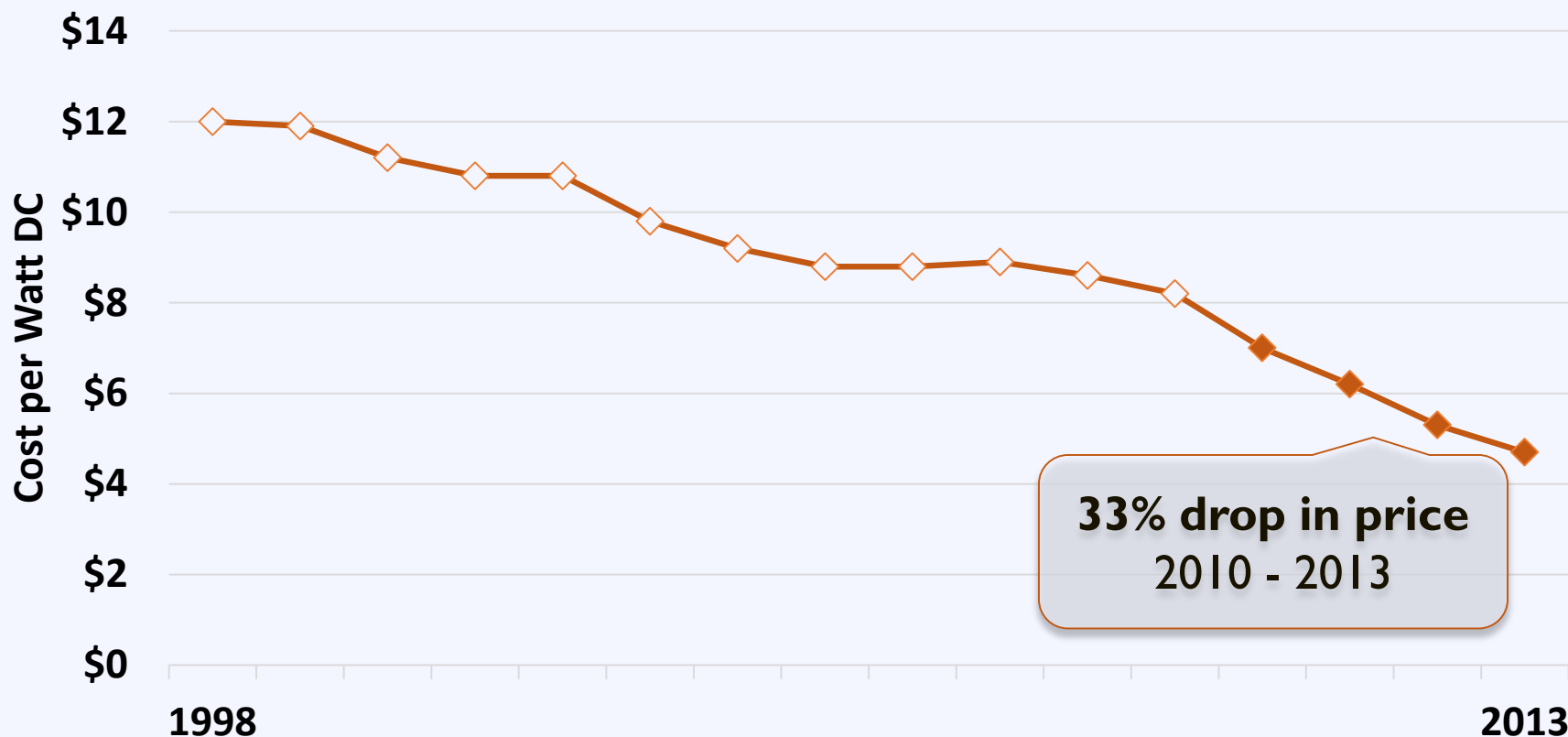


Activity: Addressing Barriers



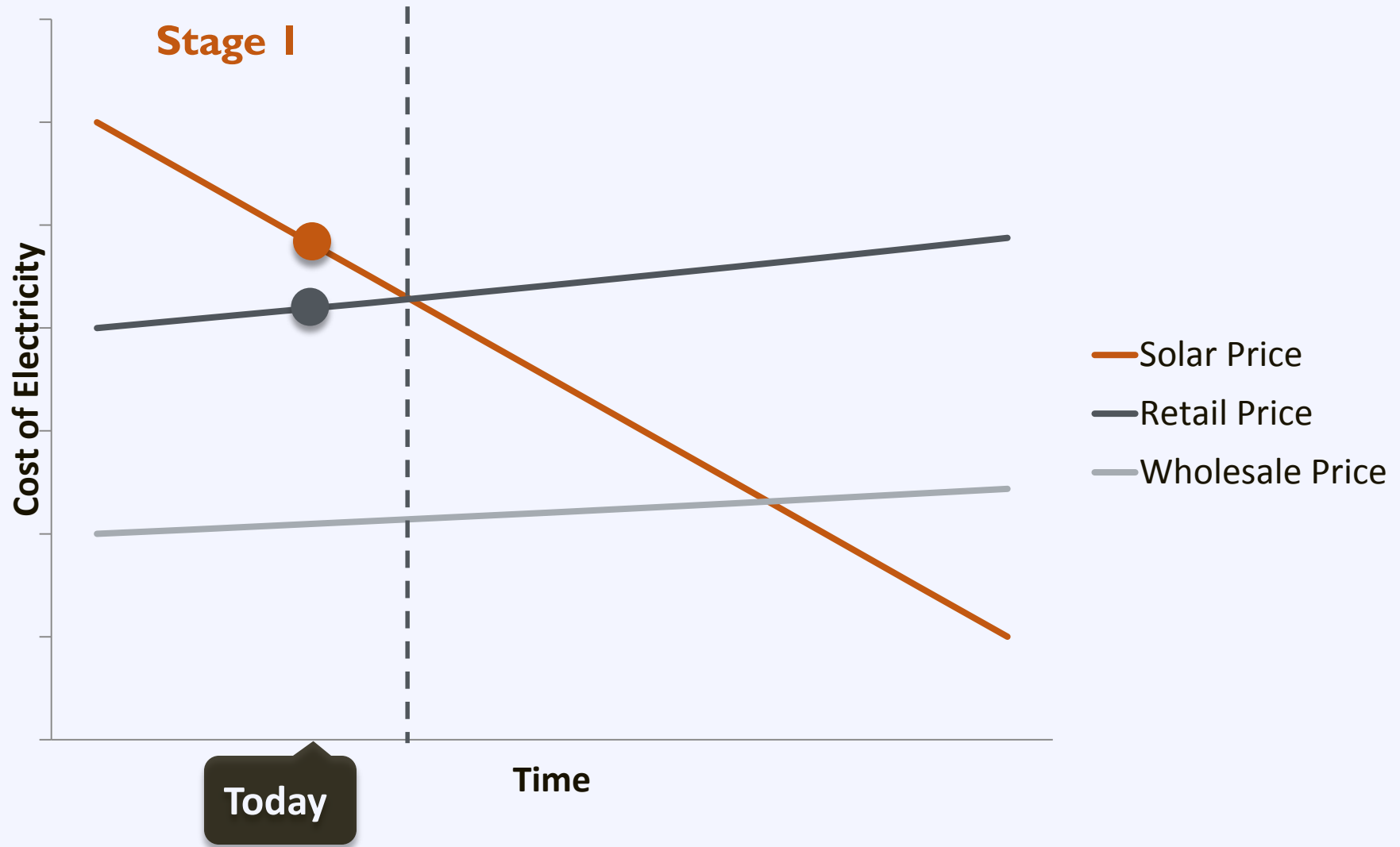
The Cost of Solar PV

US Average Installed Cost for Residential PV

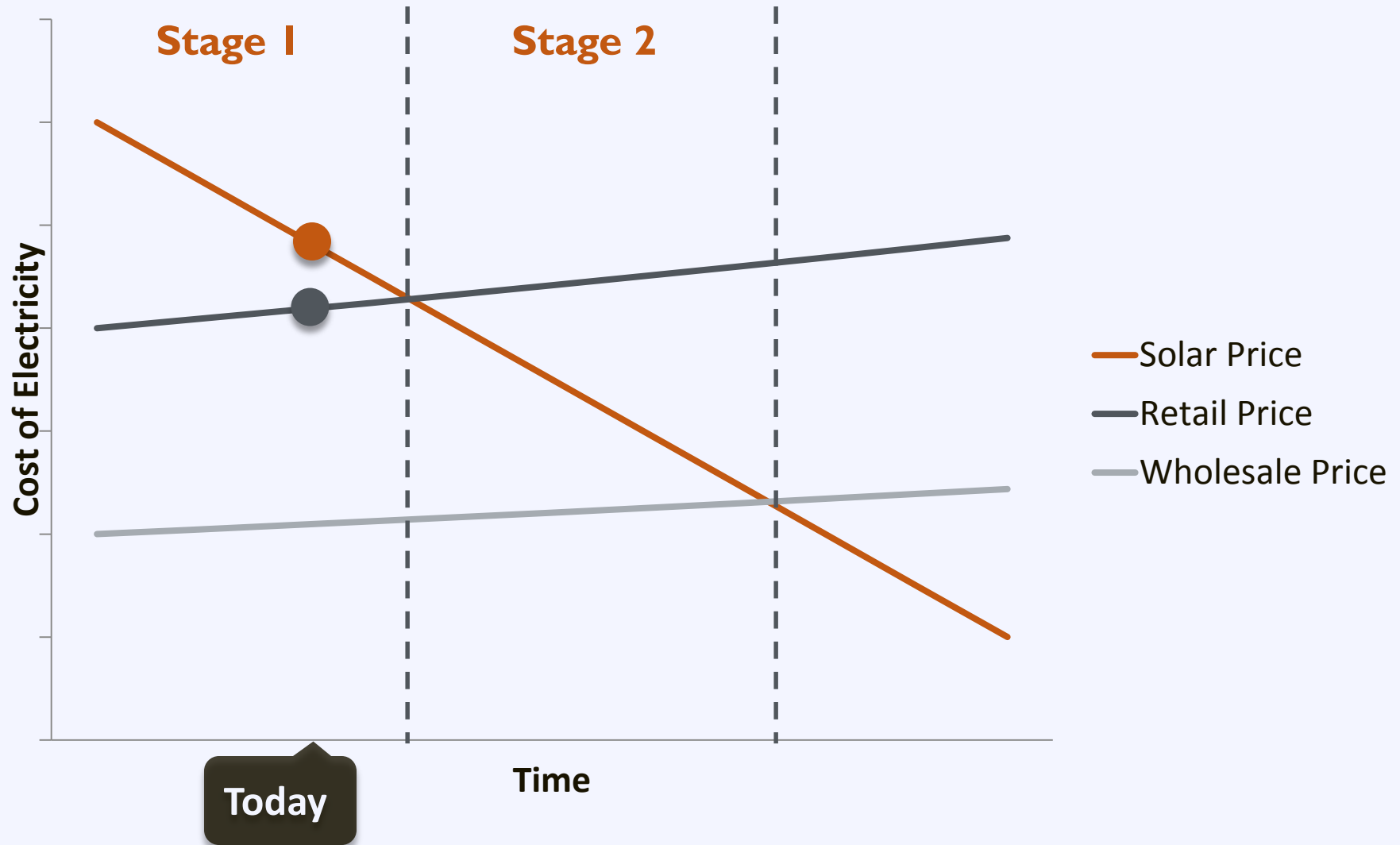


Avg. for 2015: \$3.50/W (SEIA)

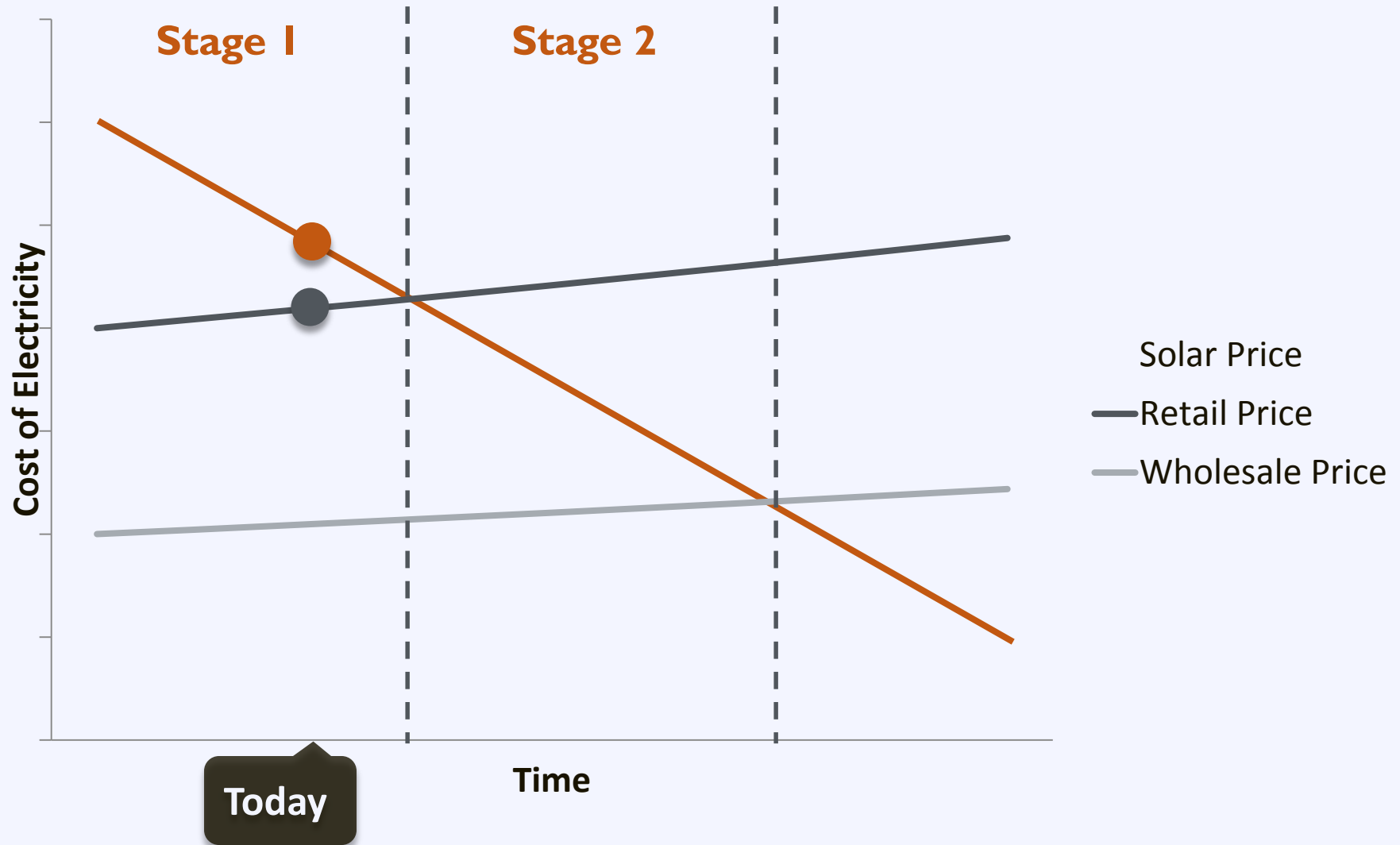
The Cost of Solar PV



The Cost of Solar PV

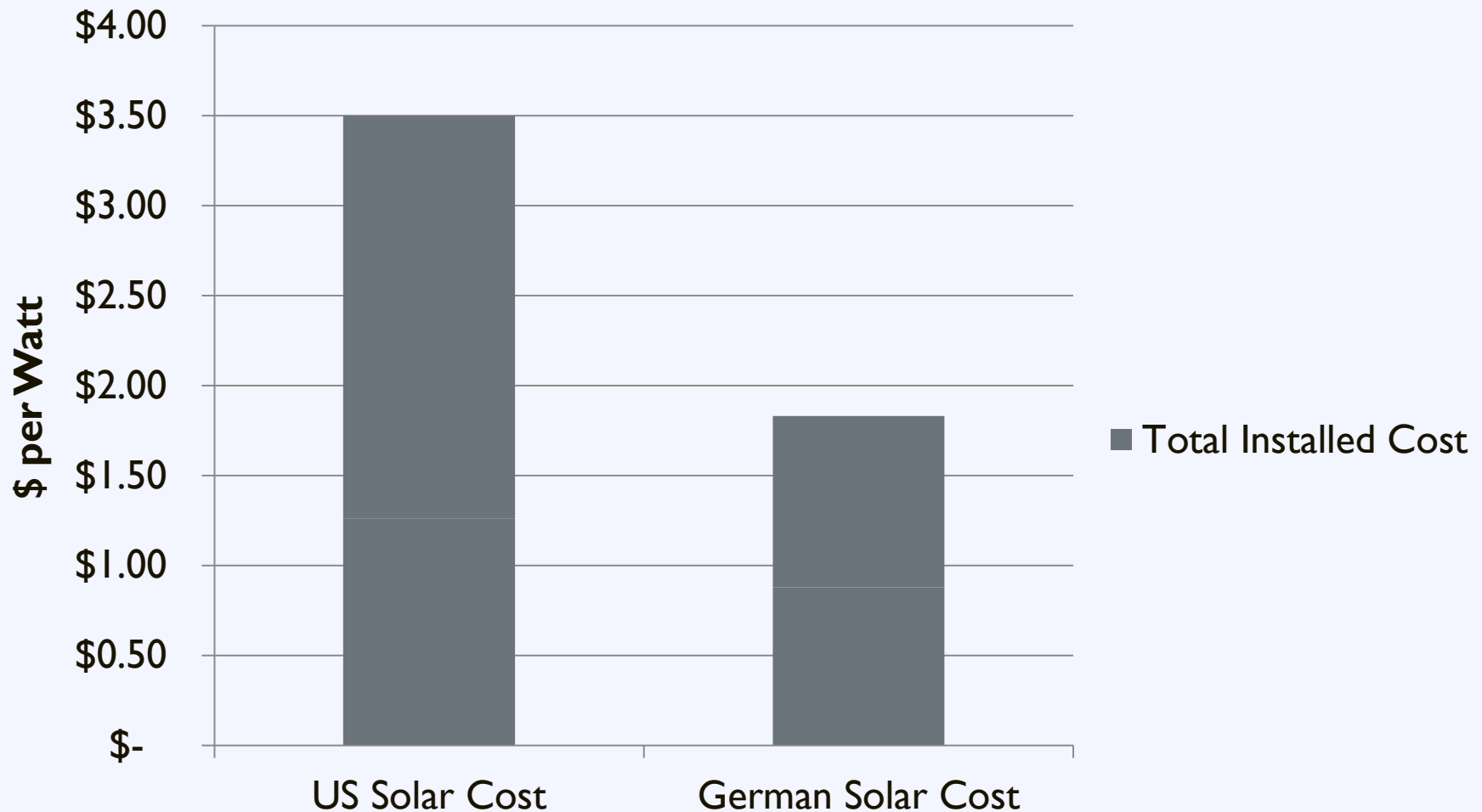


The Cost of Solar PV



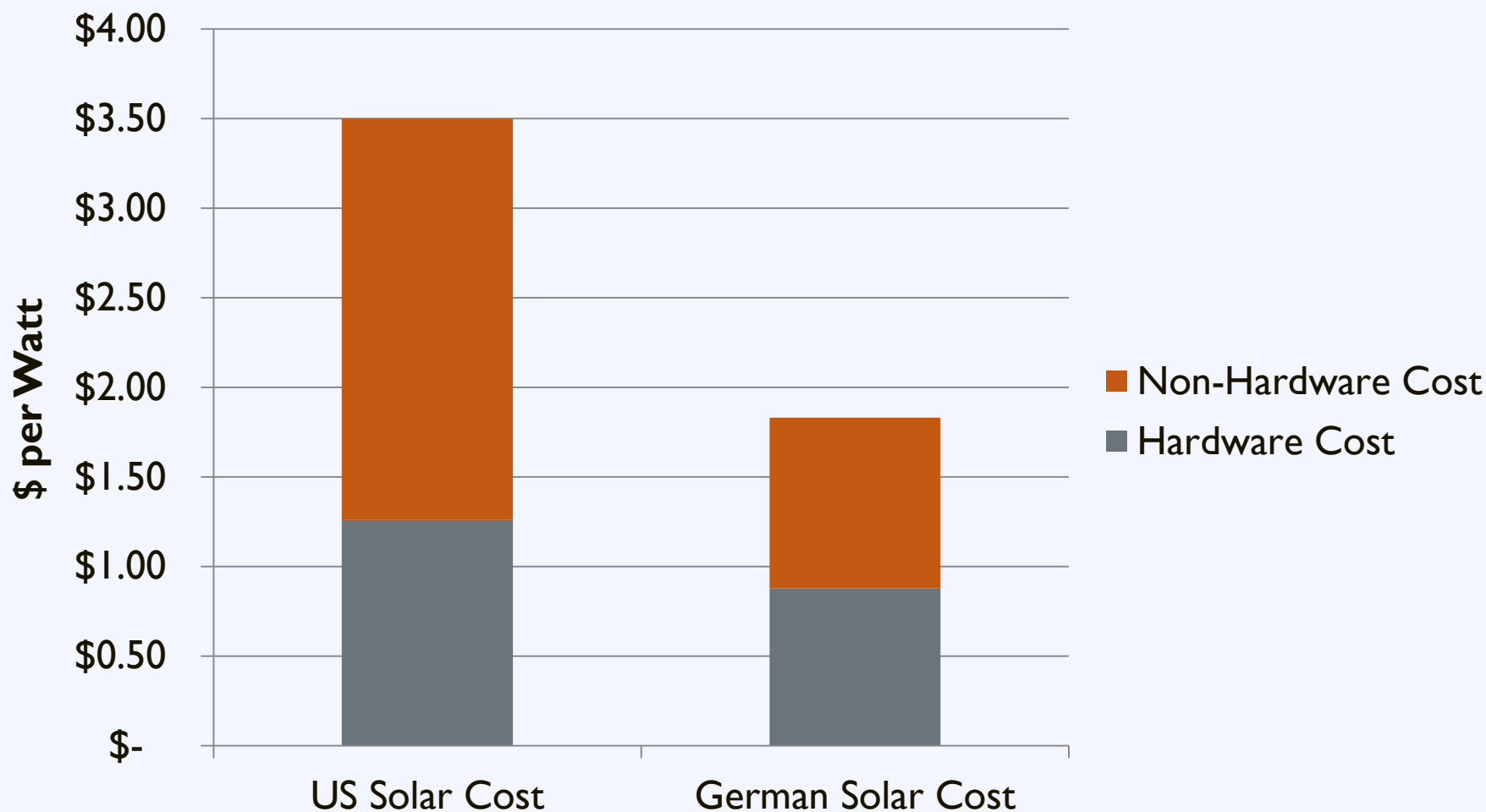
The Cost of Solar in the US

Comparison of US and German Solar Costs



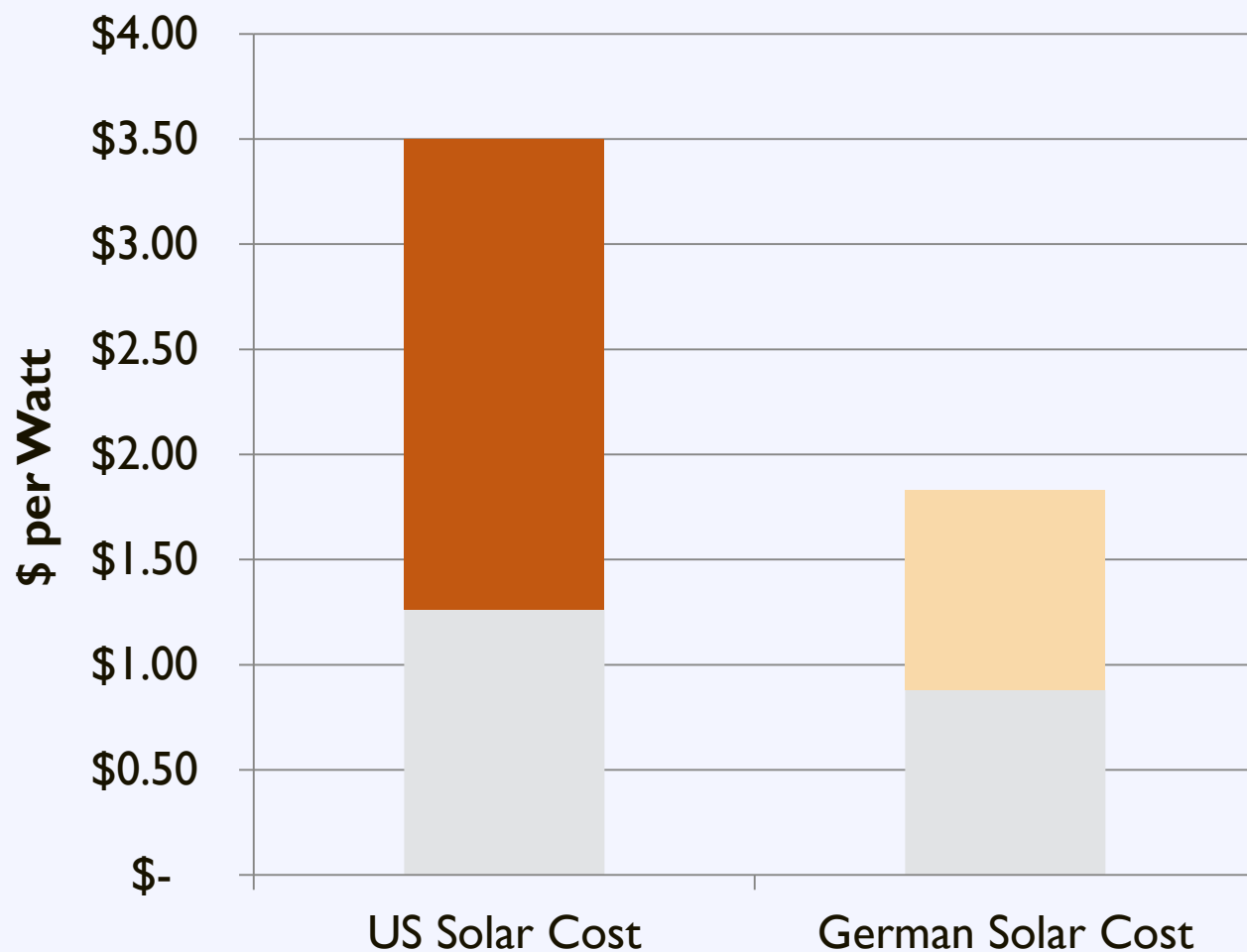
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Comparison of US and German Solar Costs



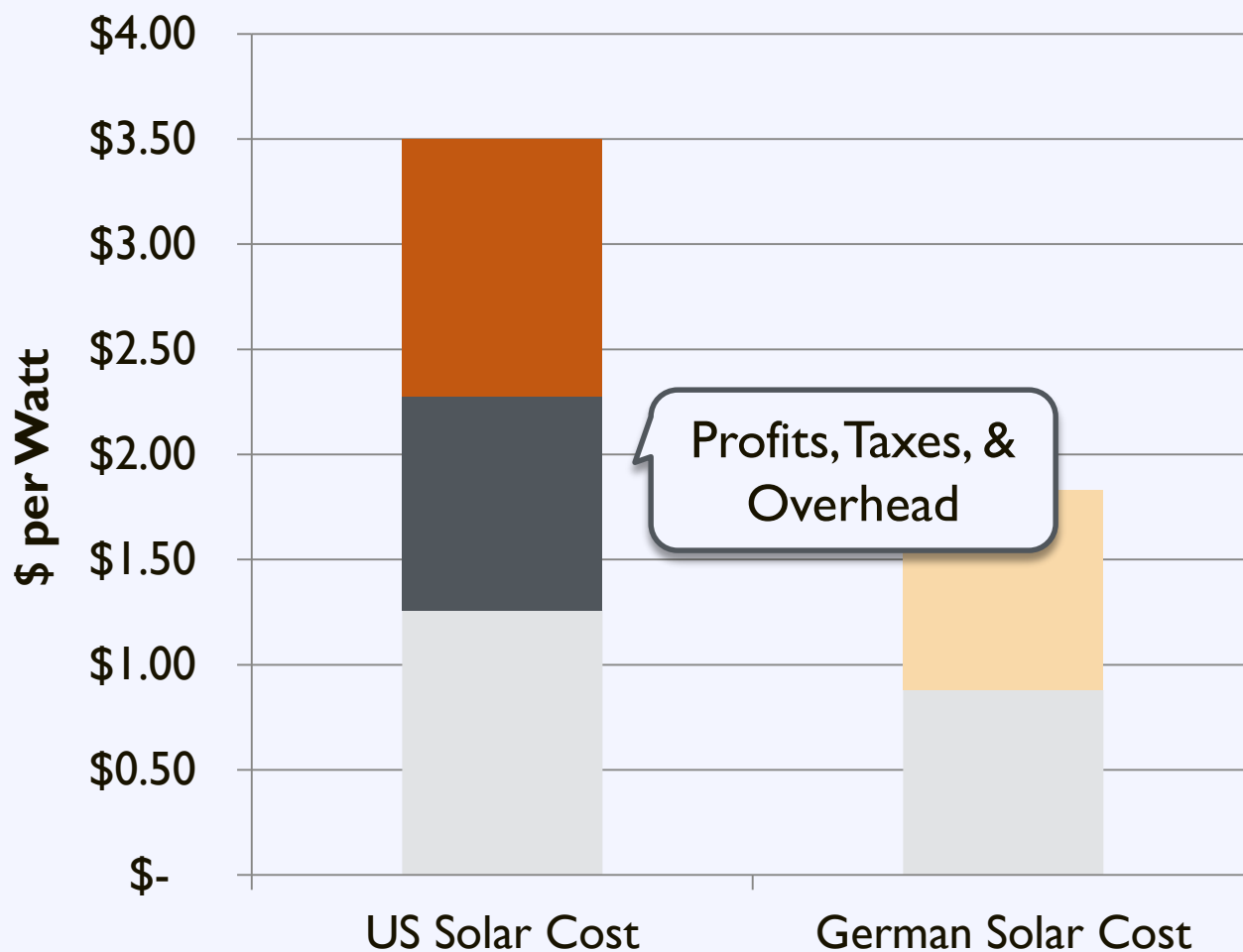
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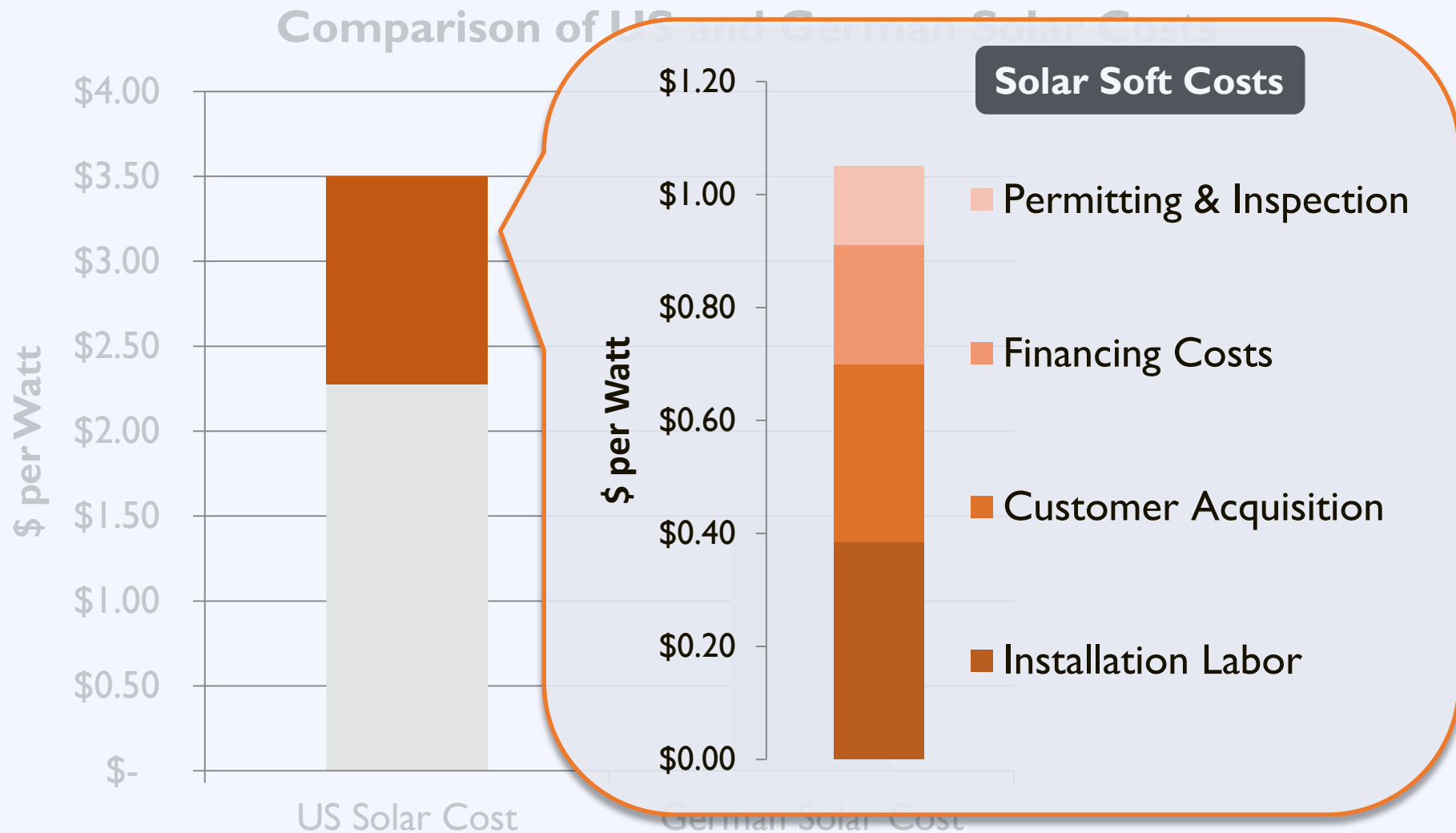


The Cost of Solar in the US

Comparison of US and German Solar Costs



The Cost of Solar in the US



Challenge: Installation Time



**New York City's
Goal**

100 days

from inception to completion



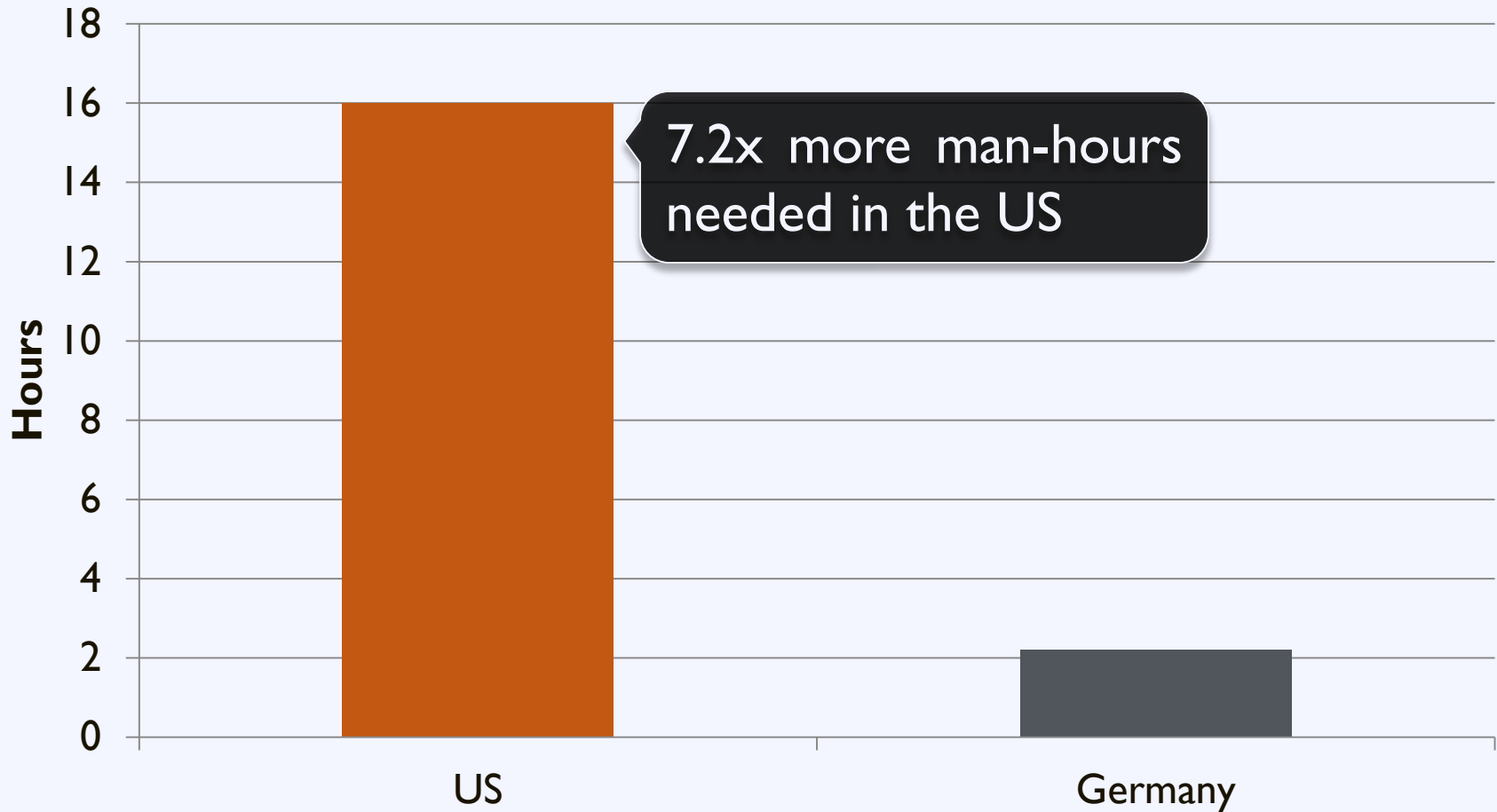
**Germany
Today**

8 days

from inception to completion

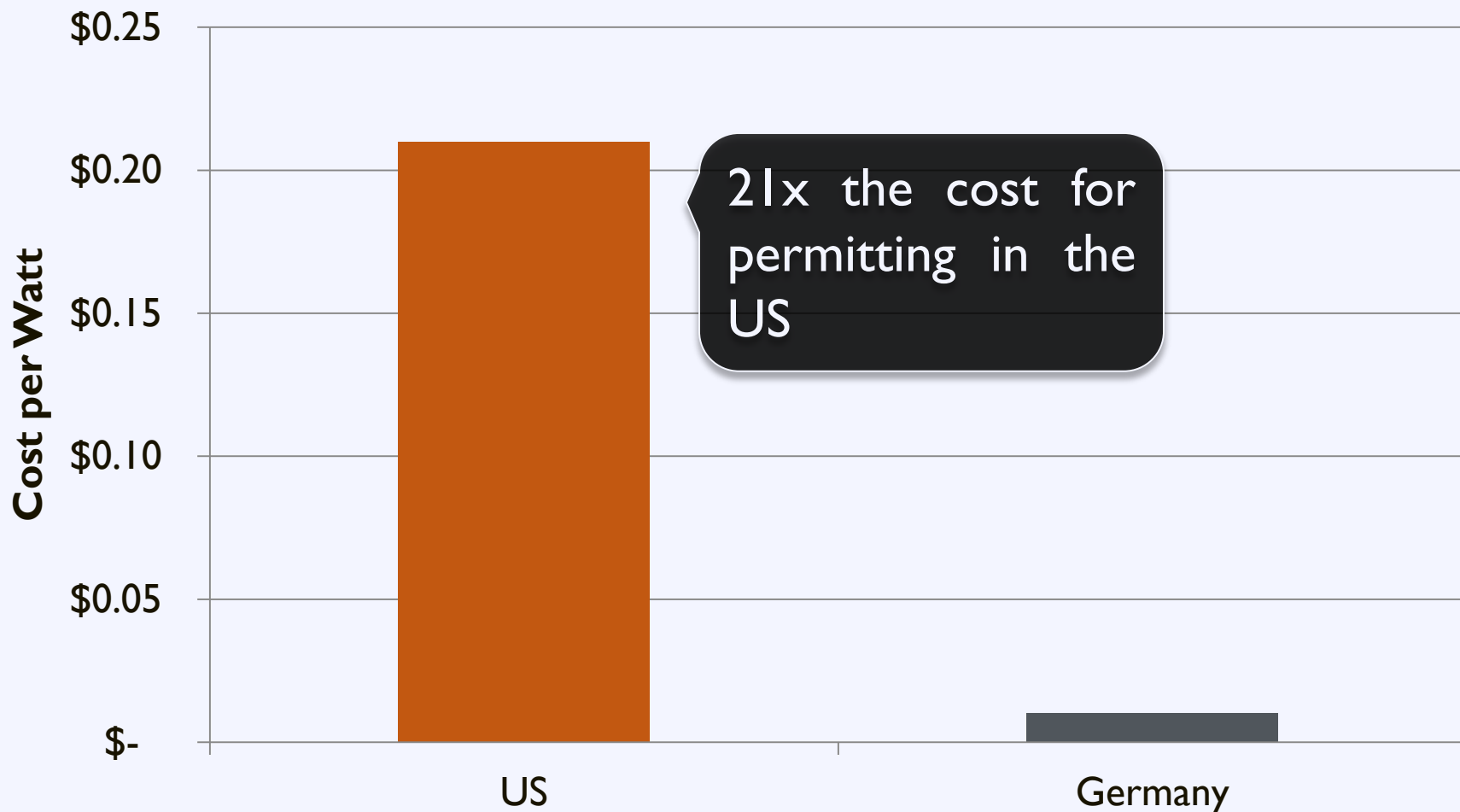
Time to Installation

Average Time to Permit a Solar Installation



Permitting Costs

Average Cost of Permitting in the US and Germany



Germany's Success

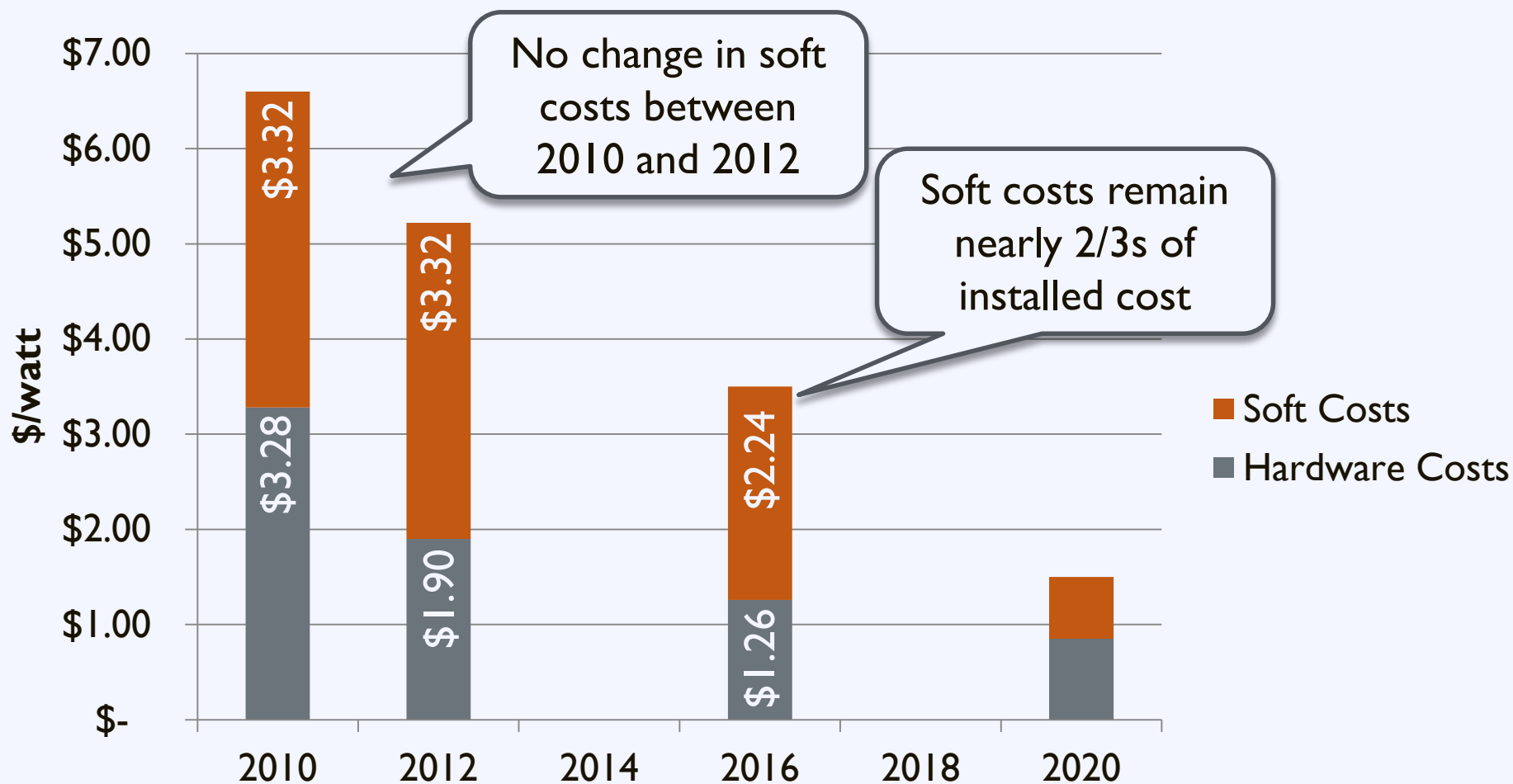
Consistency and Transparency

through

Standardized Processes

The Cost of Solar in the US

Change in Soft Costs and Hardware Costs Over Time



Local Government Impact

What would be the impact of a 25% reduction in local government-addressable soft costs on the value of a 5 kW solar investment?

Q4 2015 US Avg. Residential Installed Cost:	\$3.48/W
--	-----------------

Net Present Value:	\$2,924
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Payback Period:	14.8 years
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After 25% Reduction in addressable soft costs:	\$3.26/W
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Net Present Value:	\$3,696
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Payback Period:	13.9 years
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Difference:	\$0.22/W
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Net Present Value:	+ 26%
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Payback Period:	- 6%
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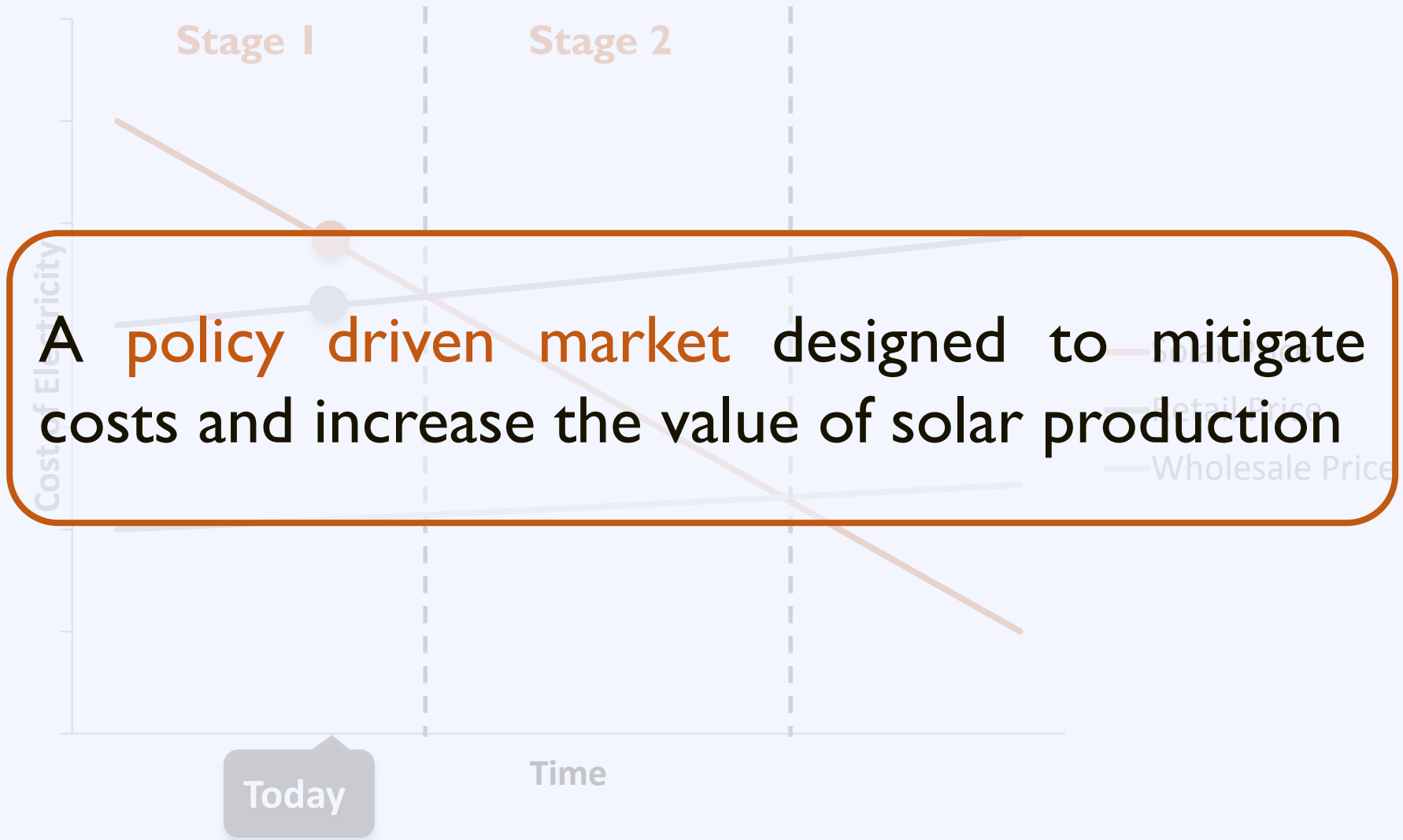
Workshop Goal

Enable local governments to replicate successful solar practices to **reduce soft costs** and **expand local adoption of solar energy**

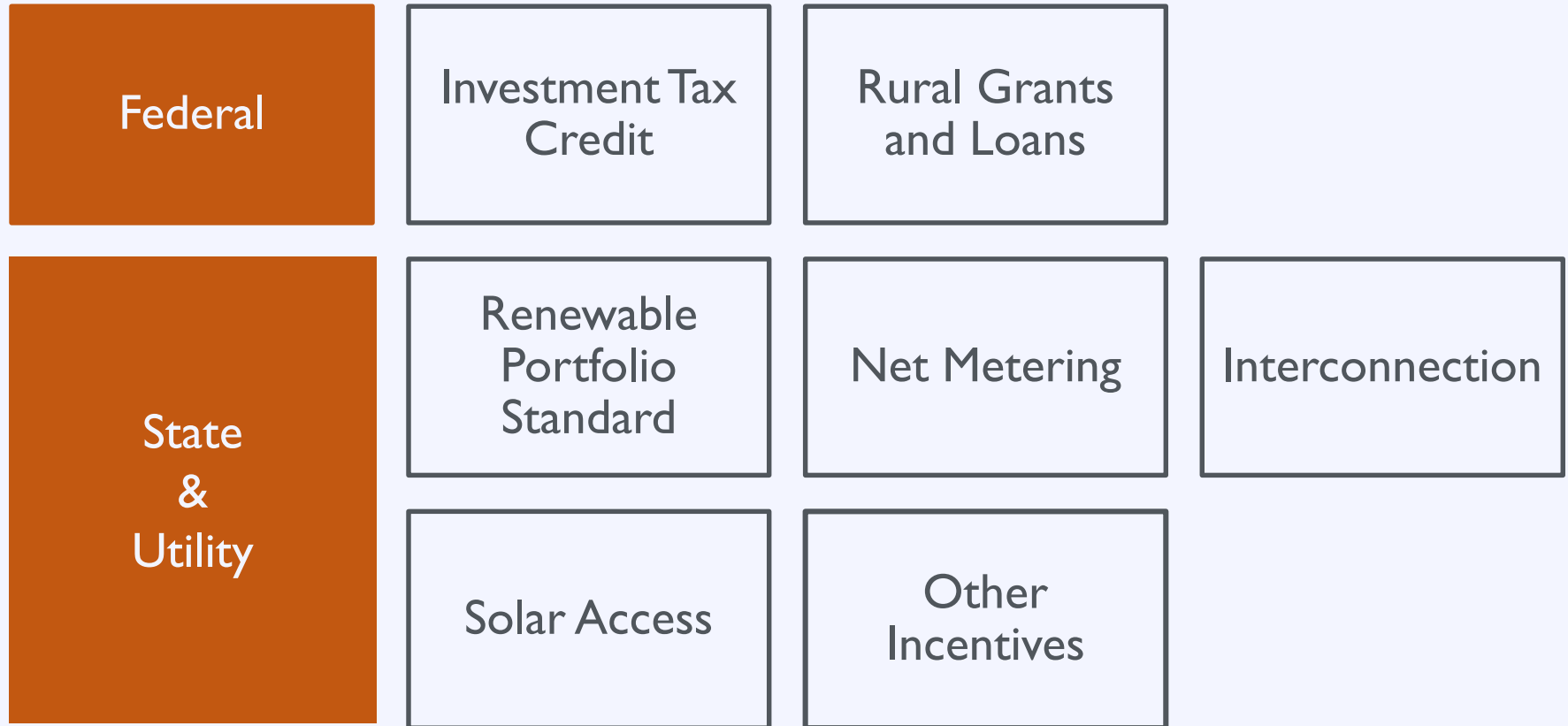
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Solar Market: Trends



A Policy Driven Market



A Policy Driven Market



Investment Tax Credit

Type: Tax Credit

Eligibility: For-Profit Organization

Value: 30% of the installation cost through 2019

Availability: Steps down 26% in 2020, 22% in 2021,
expires in 2022

Credit available if construction commences before end
of year (rather than system operational)

Modified Accelerated Cost Recovery System (MACRS)

Type: Accelerated depreciation

Eligibility: For-Profit Organization

Value: Depreciate solar asset over 5 years (vs. lifetime of system)

USDA Rural Energy for America Program

Type: Federal Grant and Loan Program

Eligibility: Rural small businesses and agricultural producers

Renewable energy grant: 25% of project cost

Energy efficiency grant: 25% of project cost

Loan Guarantees: 75% of project cost up to \$25 million

http://www.rurdev.usda.gov/bcp_reap.html

Rural Utilities Service EECLP

Type: Federal loans

Eligibility: Rural Cooperative and Municipal Utilities

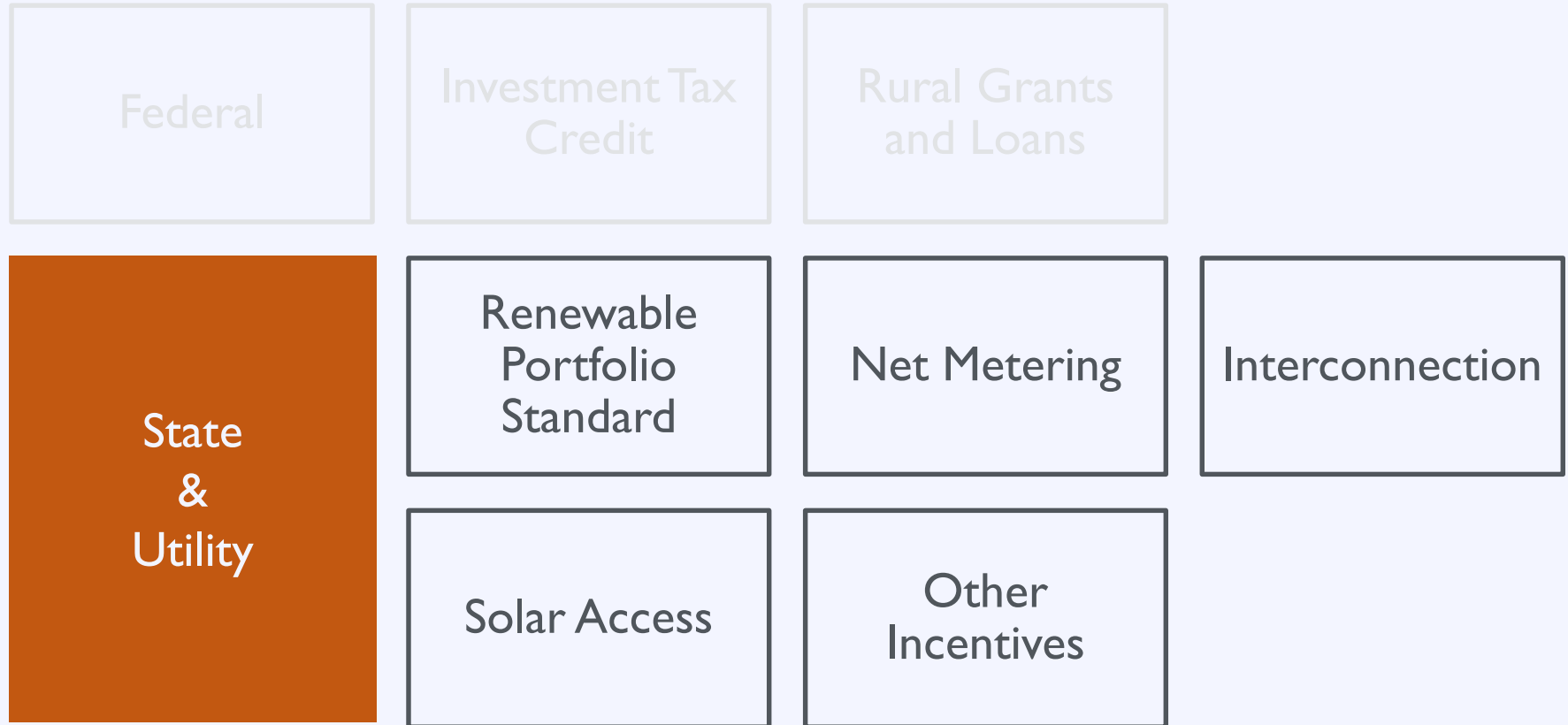
Low-cost lending based on treasury rate

Can be passed on to customers with on-bill repayment

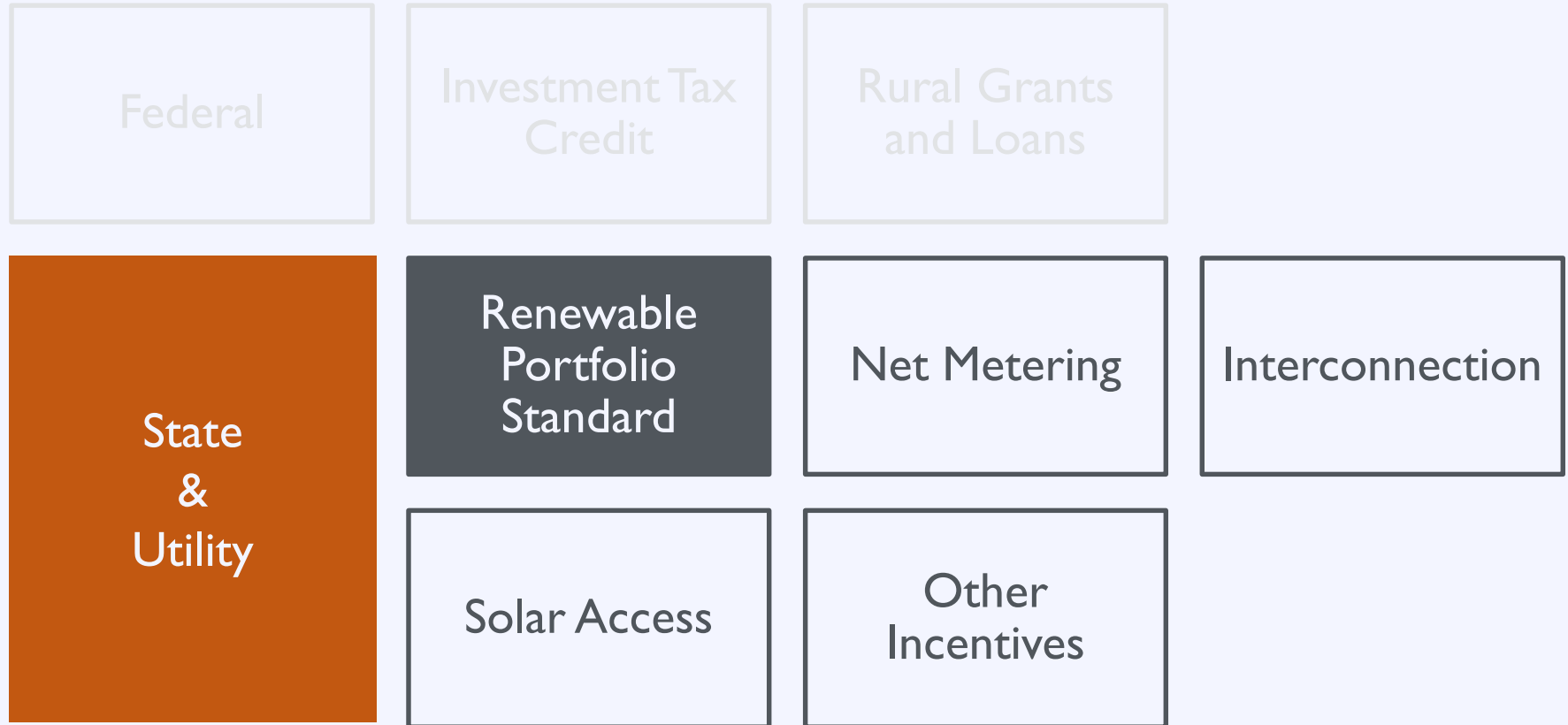
Complex application process for non-RUS borrowers

<http://www.rd.usda.gov/programs-services/energy-efficiency-and-conservation-loan-program>

A Policy Driven Market

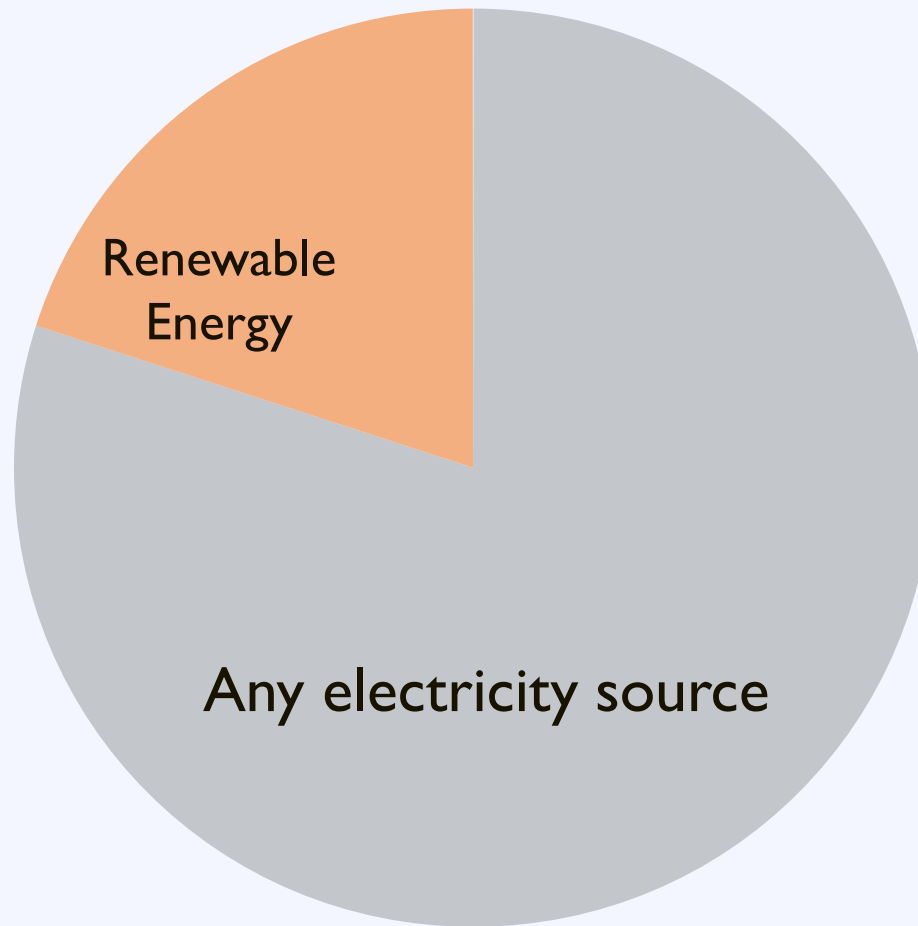


A Policy Driven Market



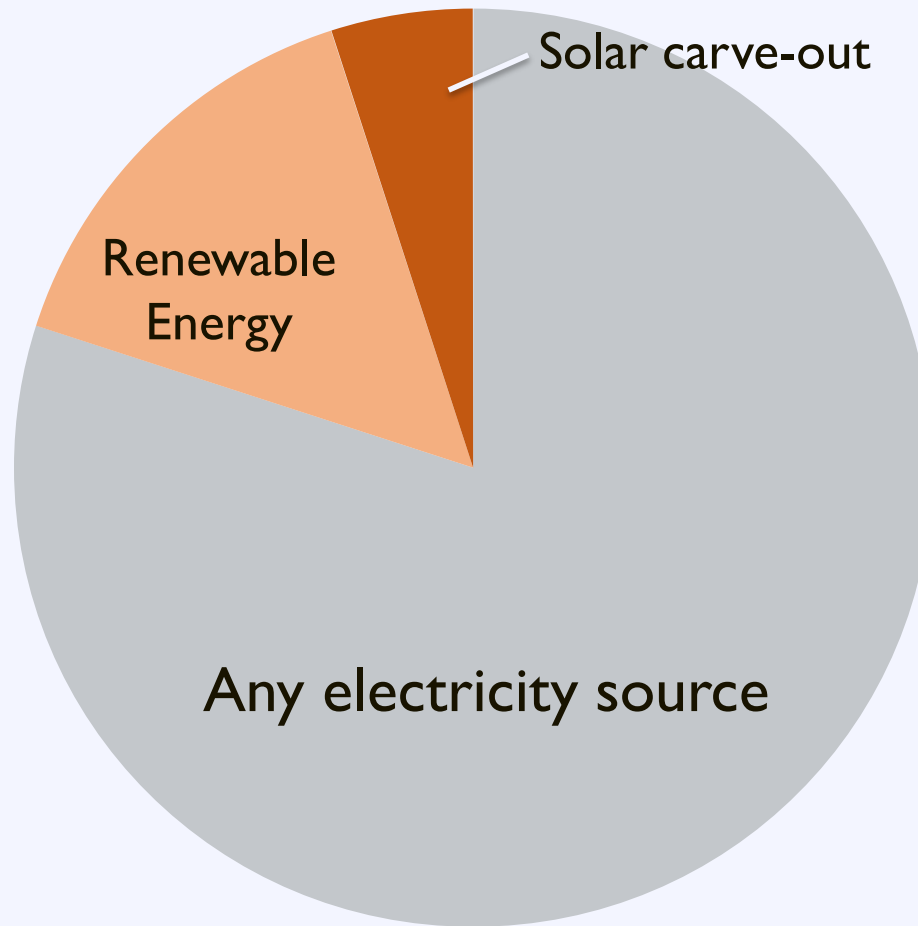
Renewable Portfolio Standard

Retail Electricity Sales



Renewable Portfolio Standard

Retail Electricity Sales



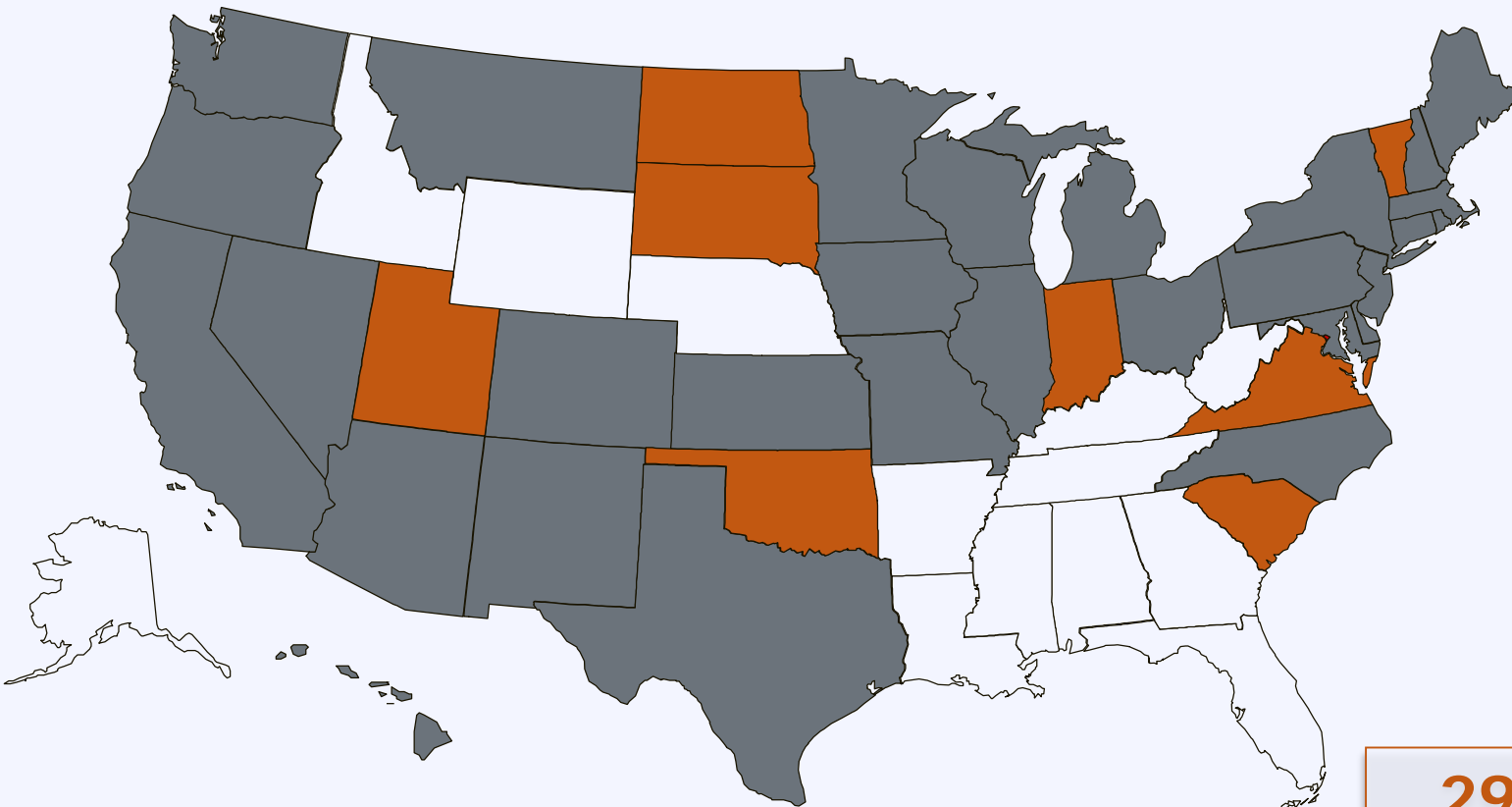
RPS Impacts: Solar Deployment

RPS and Solar/DG Status of Top Ten Solar States by Cumulative Installed Capacity (as of Q4 2013)

Ranks	State	RPS?	Solar/DG Provision?
1	California	Y	N
2	Arizona	Y	Y
3	New Jersey	Y	Y
4	North Carolina	Y	Y
5	Nevada	Y	Y
6	Massachusetts	Y	Y
7	Hawaii	Y	N
8	Colorado	Y	Y
9	New York	Y	Y
10	New Mexico	Y	Y

Renewable Portfolio Standard

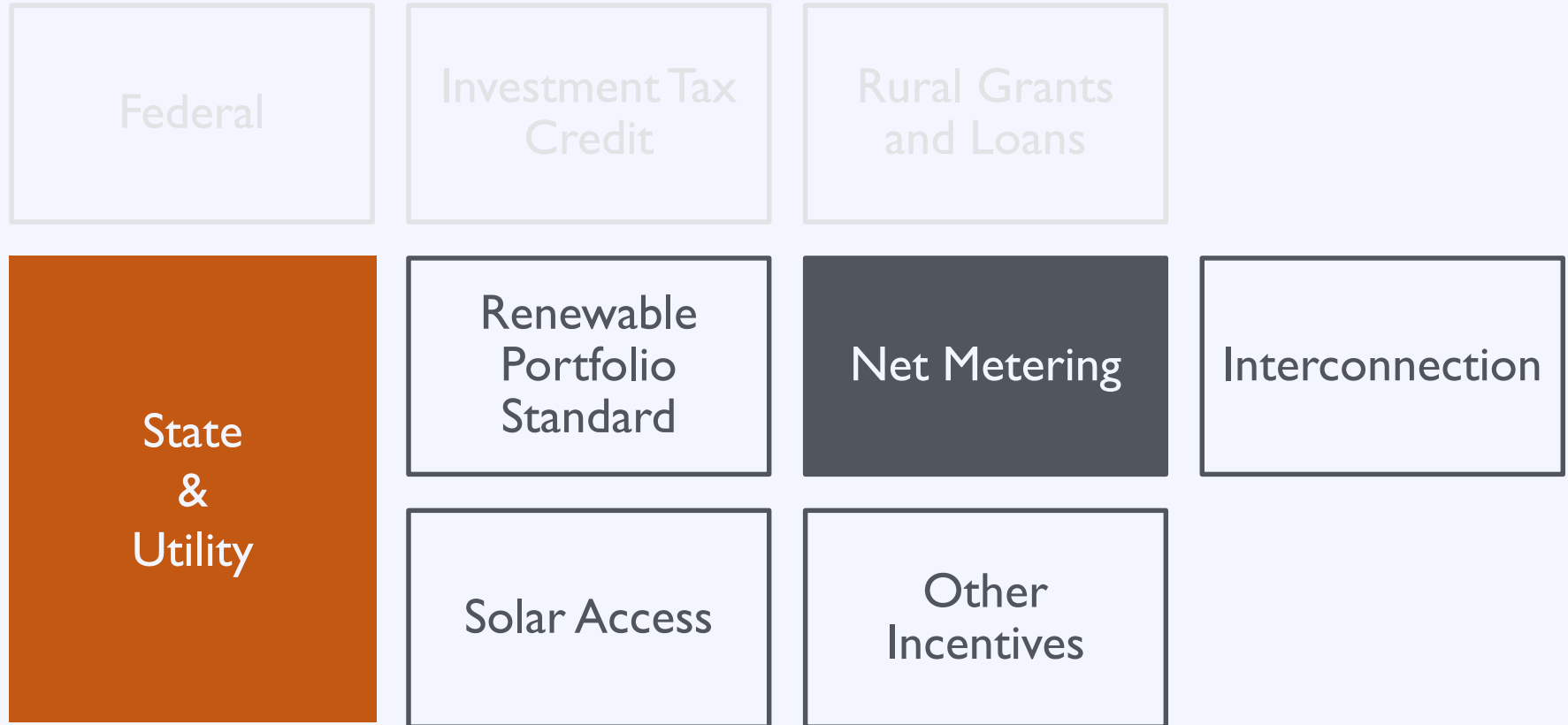
www.dsireusa.org / March 2015



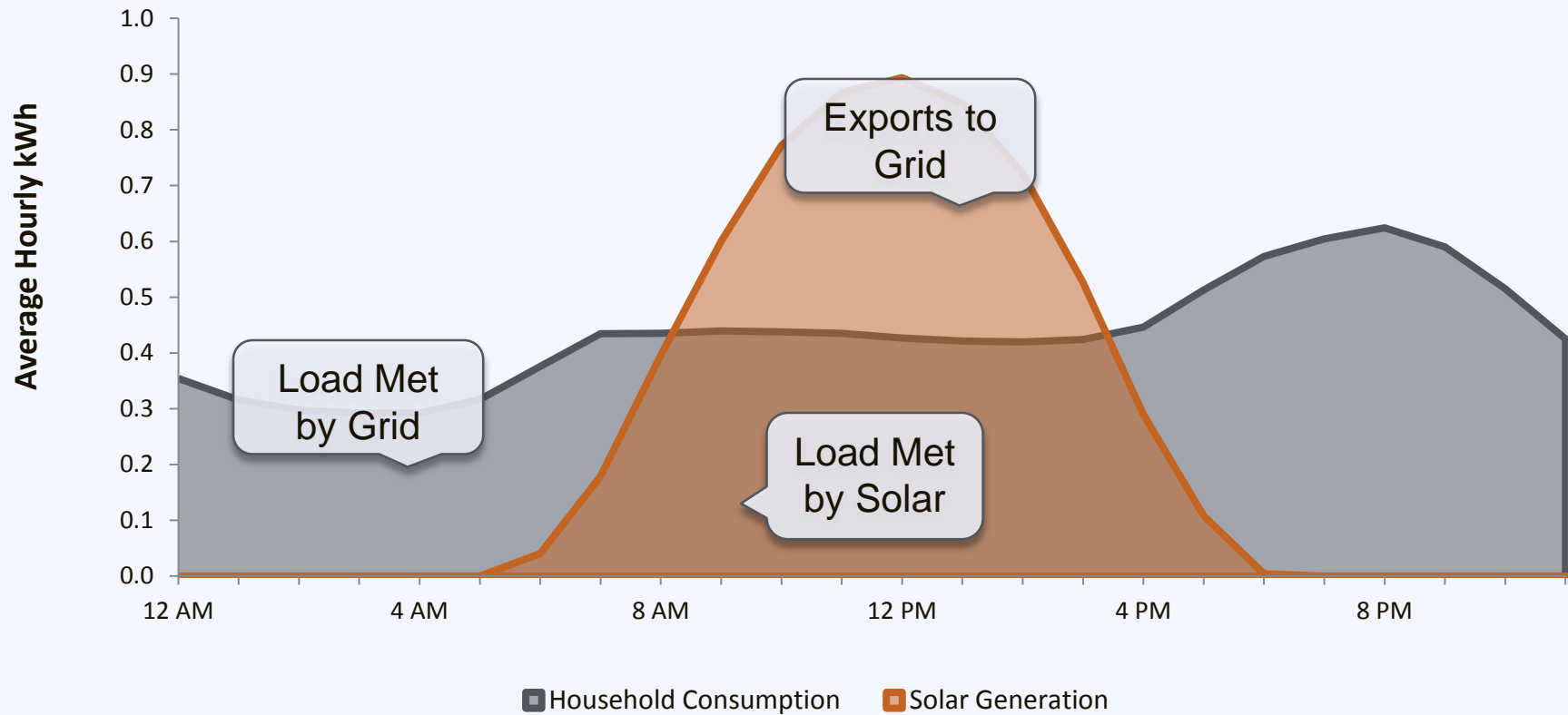
Gray box: Renewable portfolio standard
Orange box: Renewable portfolio goal

29 states +
Washington DC and 2
territories have
renewable portfolio
standards
*(8 states and 2 territories have
renewable portfolio goals)*

A Policy Driven Market



Net Metering



Net Metering

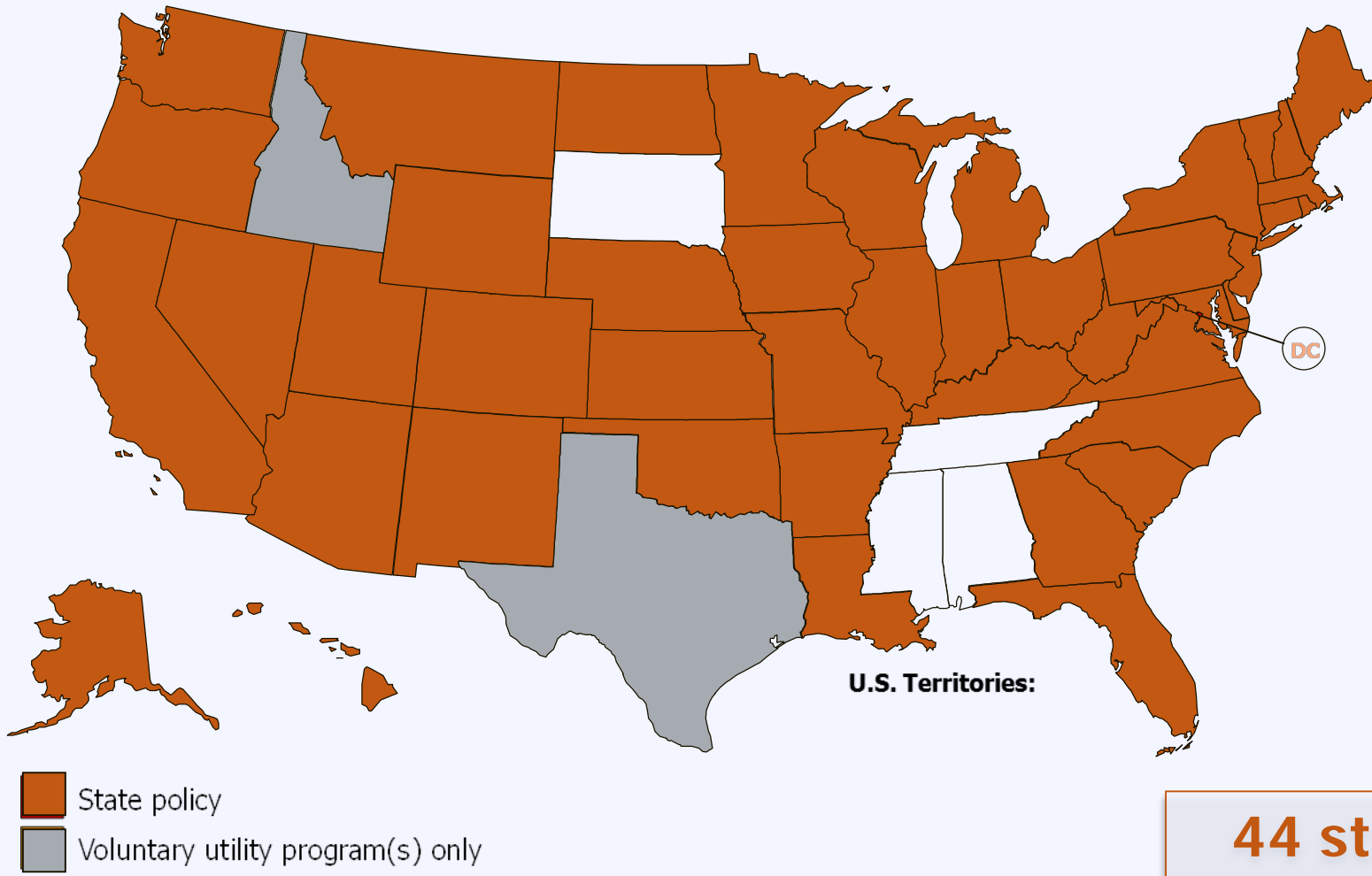
Net metering allows customers to export power to the grid during times of excess generation, and receive credits that can be applied to later electricity usage.

Net Metering: Market Share

More than **93%** of distributed
PV Installations are net-metered

Net Metering

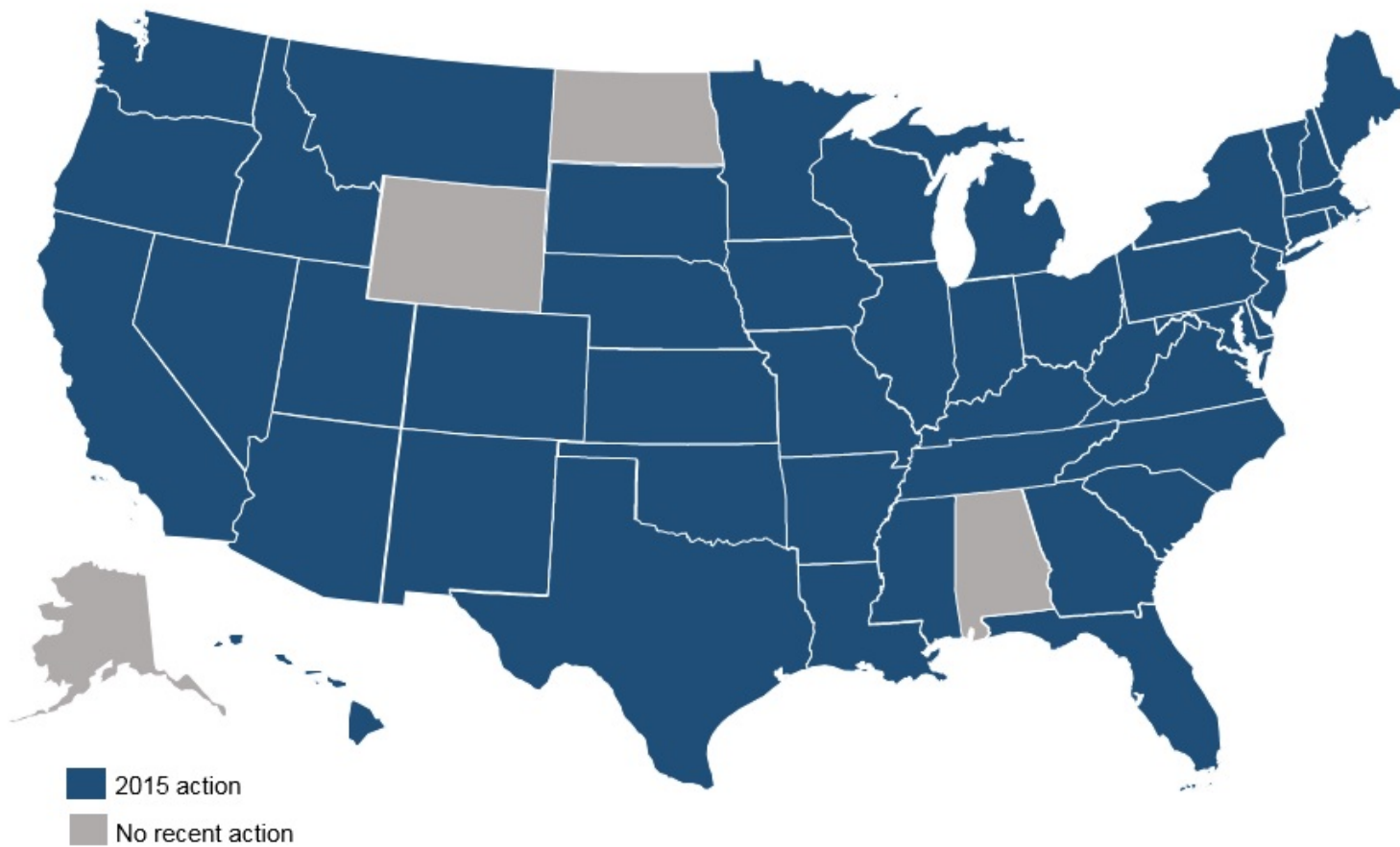
www.dsireusa.org / March 2015



44 states, +
Washington DC and 4
territories have net
metering policies

Net Metering

Figure 2. 2015 Policy Action on Net Metering, Rate Design, or Solar Ownership



Net Metering: Resources

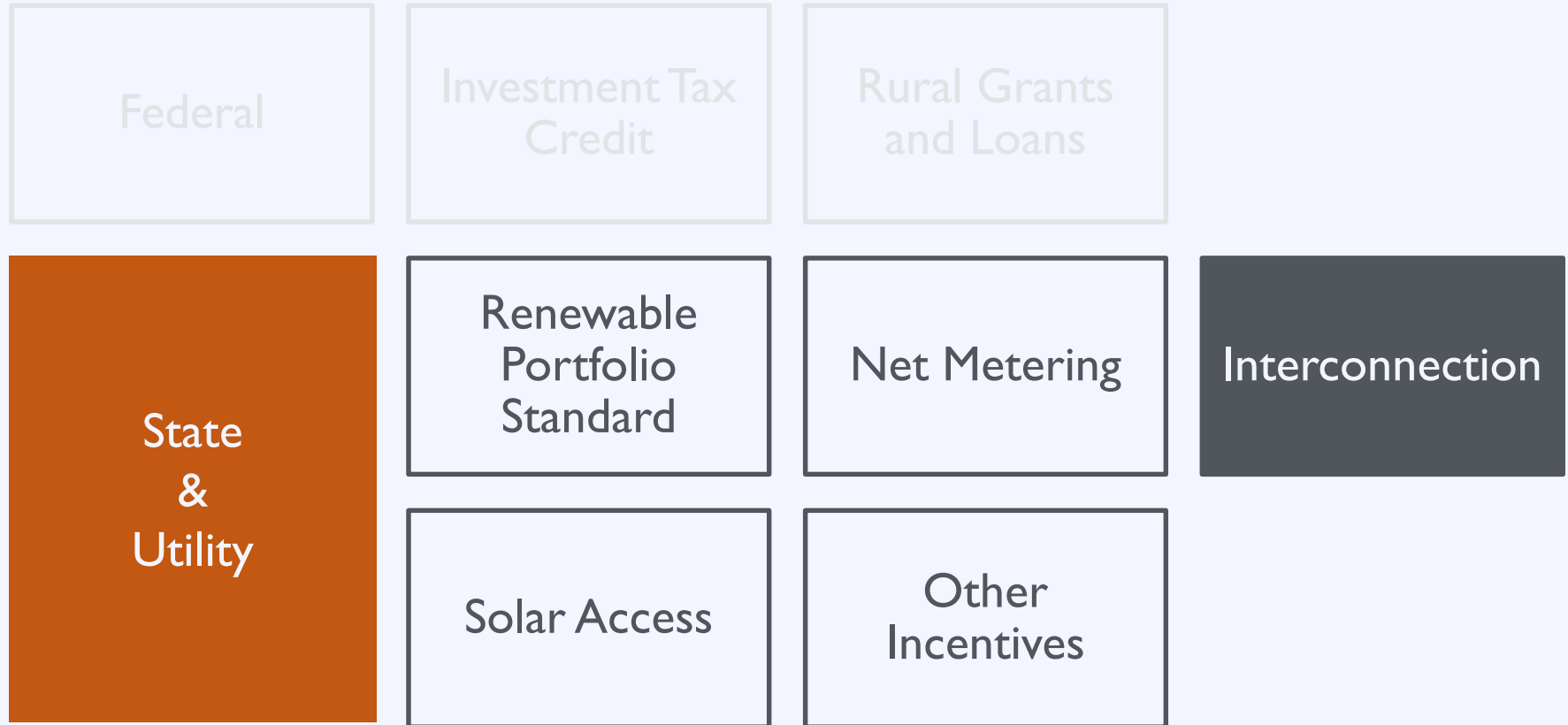
Resource Freeing the Grid

Provides a “report card” for state policy on net metering and interconnection

<http://freeingthegrid.org/>



A Policy Driven Market



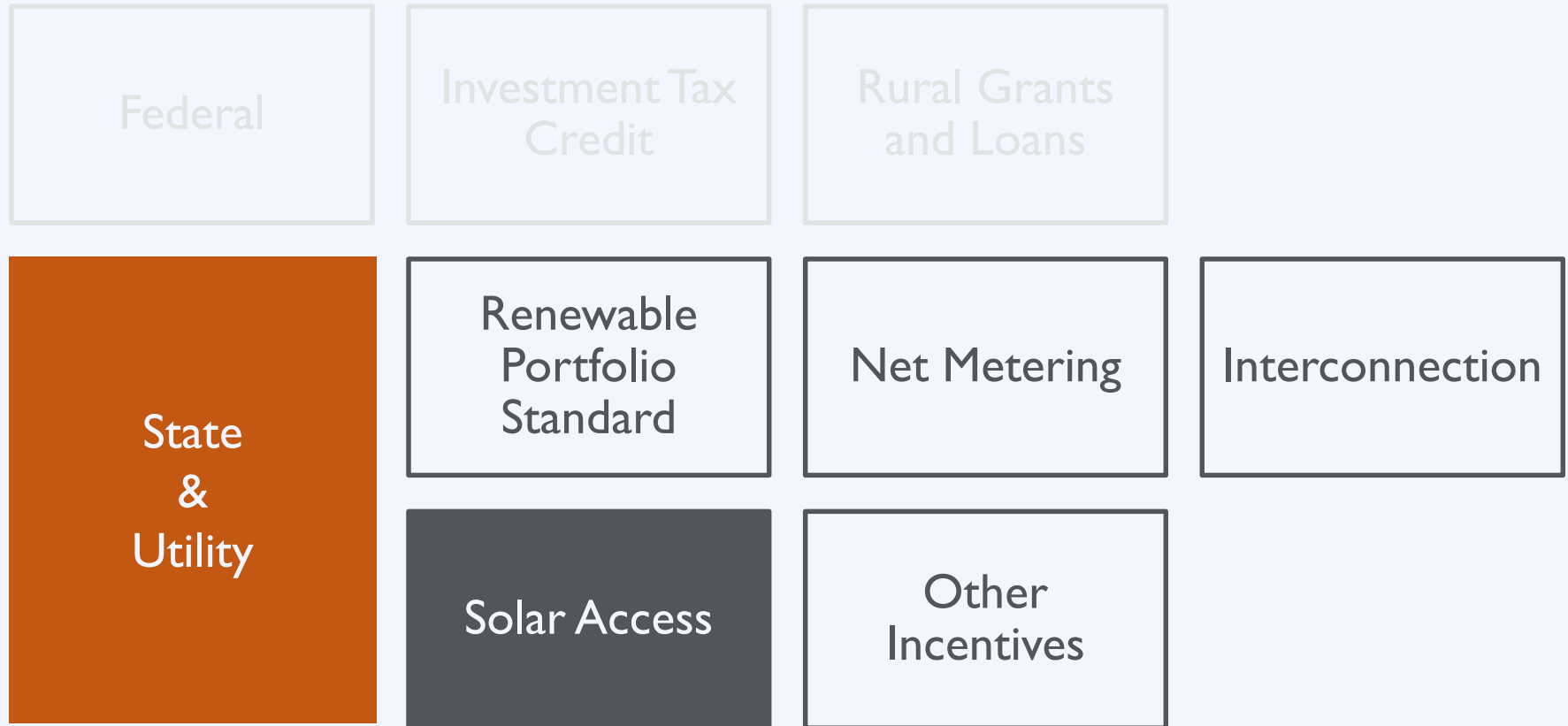
Interconnection

Standardized interconnection rules require utilities to provide a fair and transparent pathway for customer-generators and other developers of distributed energy resources to interconnect with the utility's grid.

Interconnection

- A 2015 NREL study analyzed 5 of the major solar markets in the U.S. and found that the median time for utility interconnection was **53 days**
 - Median times in CA and AZ: 50 days and 54 days
 - AZ has no standard timeframe requirements for interconnection (though AZ utilities do much better than some states that have such requirements!)
 - Only 7 states received an “A” grade from Freeing the Grid on their interconnection standards

A Policy Driven Market



Solar Access



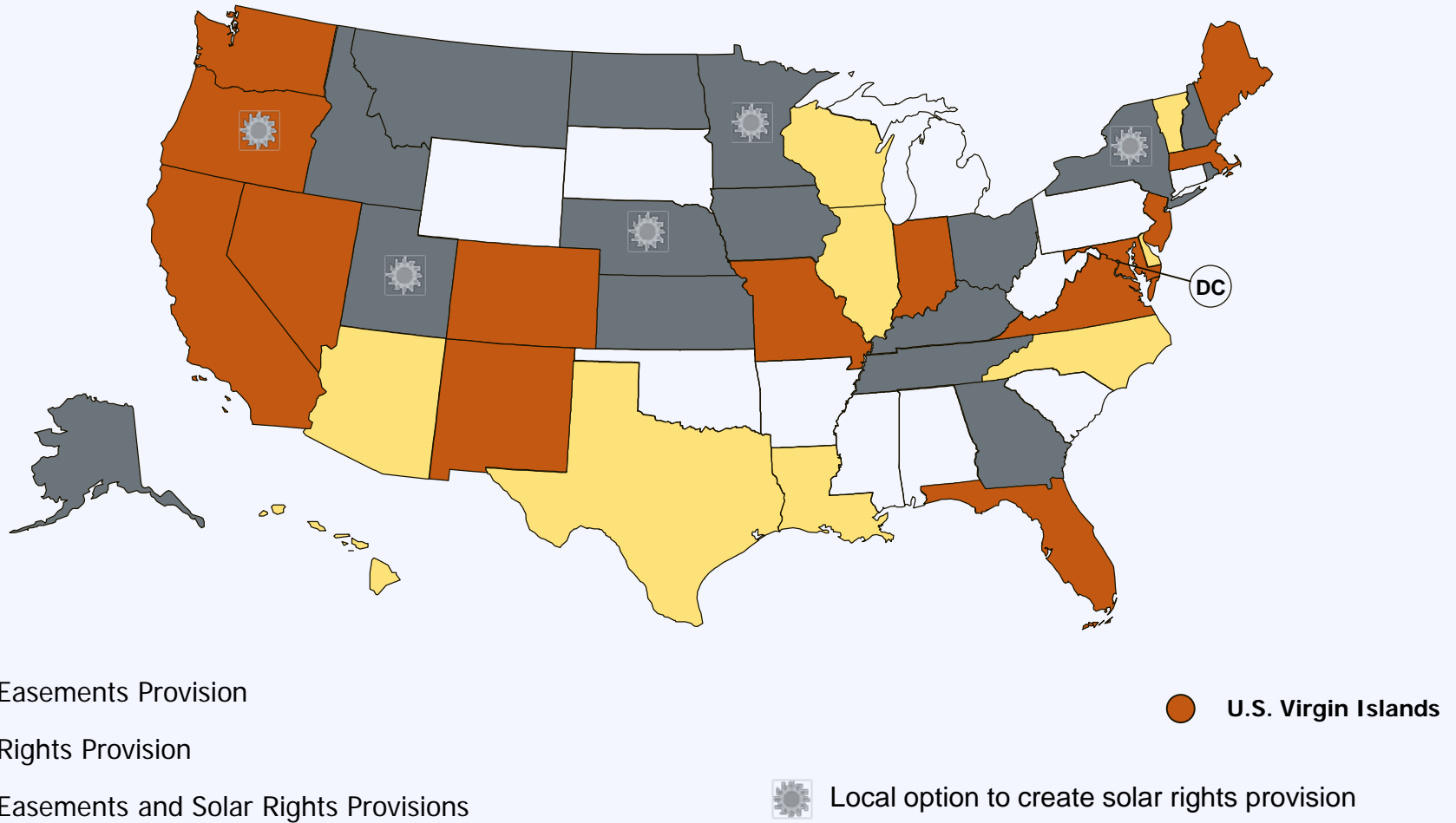
A landowner does not have any legal right to the free flow of light and air across the adjoining land of his neighbor

Solar Access

Solar Access Laws:

1. Increase the likelihood that properties will receive sunlight
2. Protect the rights of property owners to install solar
3. Reduce the risk that systems will be shaded after installation

Solar Access

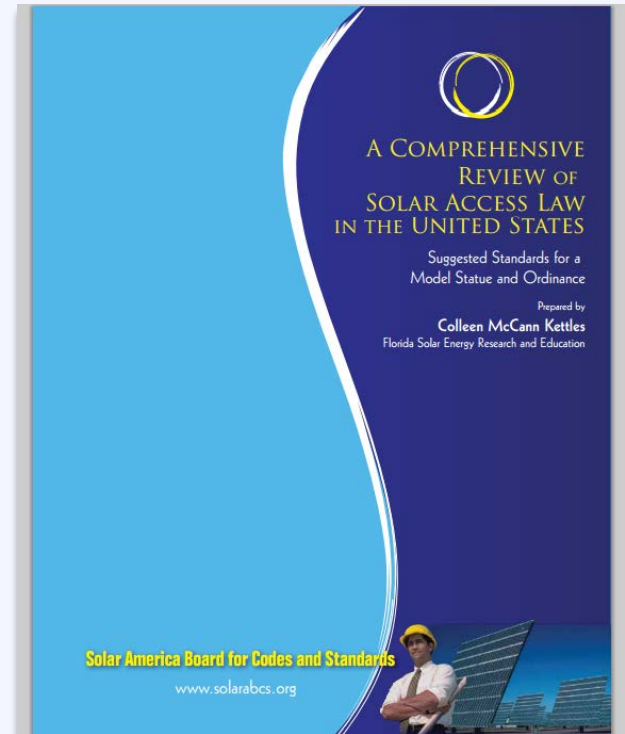


Solar Access

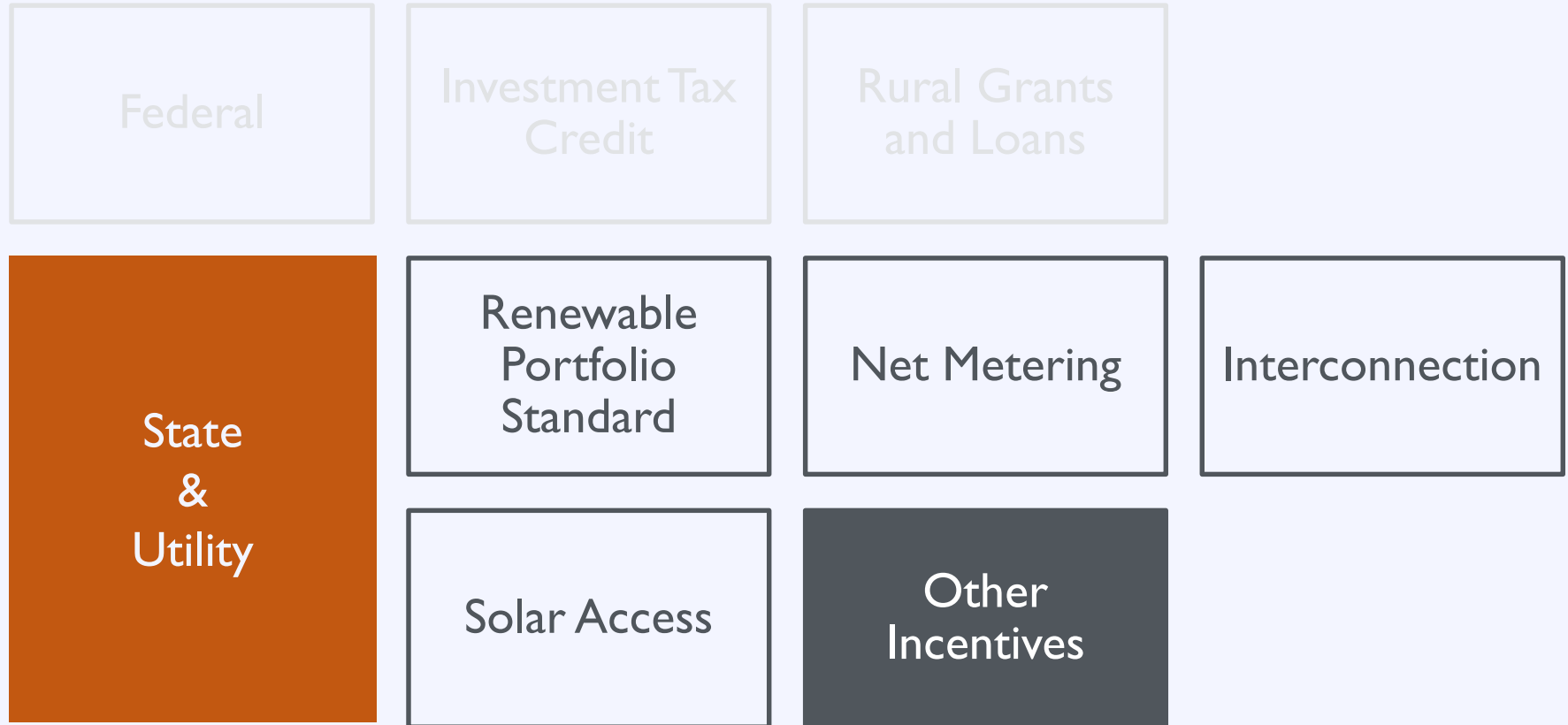
Resource Solar America Board for Codes & Standards

A comprehensive review of solar access law in the US – Suggested standards for a model ordinance

www.solarabcs.org



A Policy Driven Market



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Effective Local Solar Policy

Local Solar Policy

Planning for
Solar

Solar in
Development
Regulation

Effective Solar
Permitting
Process

Solar Market
Development
Tools

Effective Local Solar Policy

Local Solar
Policy

Planning for
Solar

Visioning &
goal setting

Effective Solar
Permitting
Process

Solar Market
Development
Tools

Visioning: Scales & Contexts

**Every community
is different!**

Is solar on residential
rooftops appropriate
for your community?



Visioning: Scales & Contexts

Every community is different!

Is solar on commercial rooftops appropriate for your community?



Visioning: Scales & Contexts

**Every community
is different!**

Is solar on historic
structures appropriate
for your community?



Visioning: Scales & Contexts

**Every community
is different!**

Is solar on
brownfields
appropriate for your
community?



Visioning: Scales & Contexts

**Every community
is different!**

Is solar on greenfields
appropriate for your
community?



Visioning: Scales & Contexts

**Every community
is different!**

Is solar on parking
lots appropriate for
your community?



Visioning: Scales & Contexts

Every community is different!

Is building-integrated solar appropriate for your community?



Planning for Solar Development

Communitywide Comprehensive Plan

Neighborhood
Plans

Corridor Plans

Special District
Plans

Green
Infrastructure
Plans

Energy Plan

Climate Action
Plan

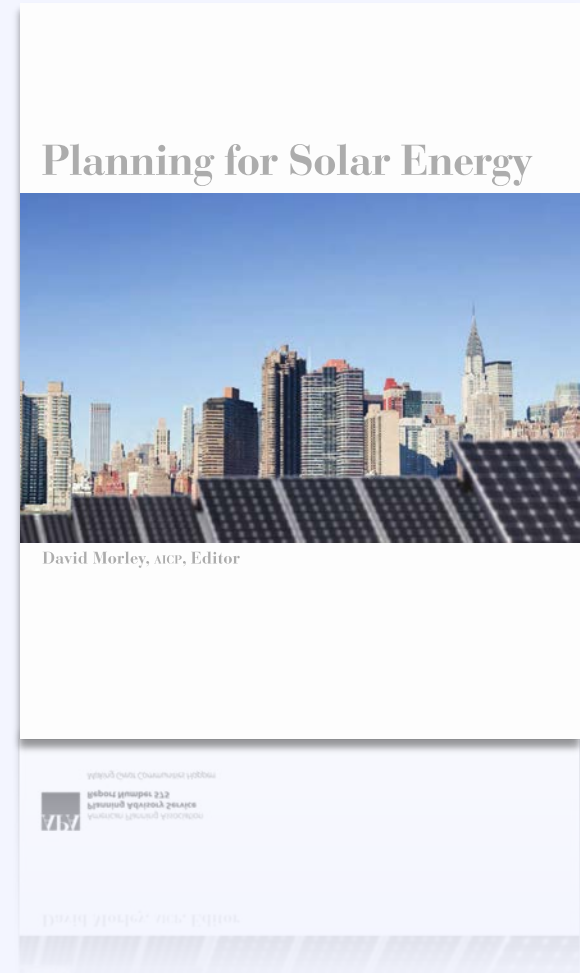
Technical Resources

Resource

Planning for Solar Energy

A guide for planners on determining and implementing local solar goals, objectives, policies, and actions

www.planning.org



Effective Local Solar Policy

Local Solar
Policy

Planning for
Solar

Solar in
Development
Regulation

Effective Solar
Permitting
Process

Solar Market
Development
Tools

Zoning Standards

Section	Topics to Address
Definitions	Define technologies & terms
Applicability	Primary vs. accessory use
Dimensional Standards	<ul style="list-style-type: none">• Height• Size• Setbacks• Lot coverage
Design Standards	<ul style="list-style-type: none">• Signage• Disconnect• Screening• Fencing

Zoning Standards: Small Solar

Typical Requirements:

- Permitted as accessory use
- Minimize visibility if feasible
- Requirements:
 - District height
 - Lot coverage
 - Setback



Zoning Standards: Large Solar

Typical Requirements:

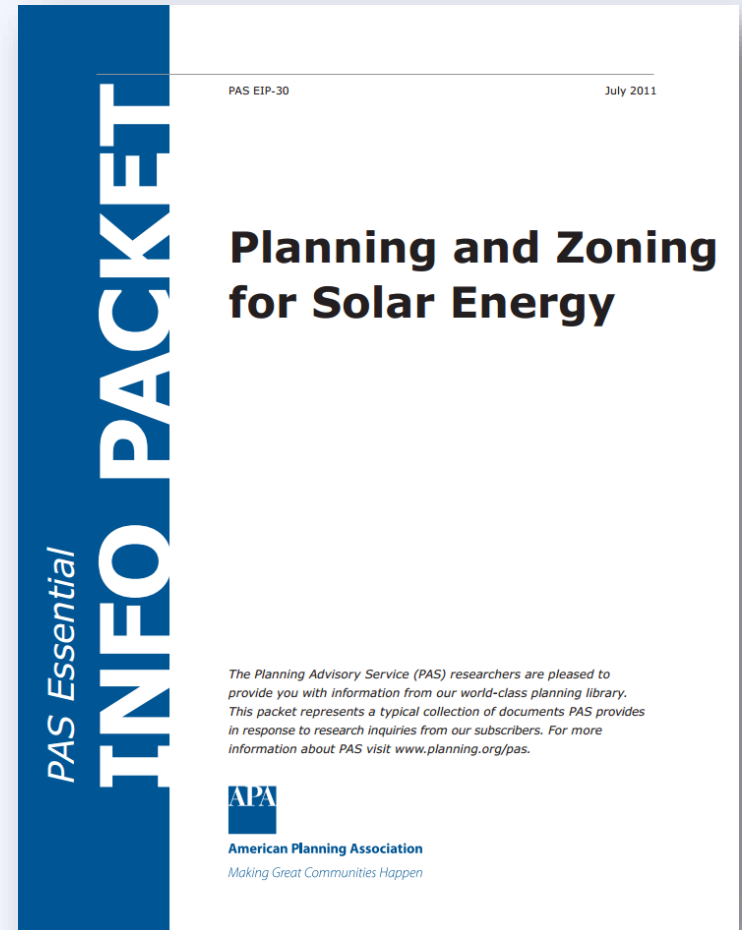
- Allowed for primary use in limited locations
- Requirements:
 - Height limits
 - Lot coverage
 - Setback
 - Fencing and Enclosure



Zoning Standards: Model Ordinances

Resource American Planning Association

This Essential Info Packet provides example development regulations for solar.



Zoning Standards: Historic

Typical Requirements:

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



Solar installation on rear of building out of sight from public right of way
Heritage Hill Historic District of Grand Rapids, Michigan
(Source: Kimberly Kooles, NC Solar Center)

Zoning Standards: Historic

Resource

North Carolina Clean Energy Technology Center

Provides sample design principles and example regulations incorporating historic preservation into sustainability and energy projects.

Installing Solar Panels on Historic Buildings

A Survey of the Regulatory Environment

August 2012

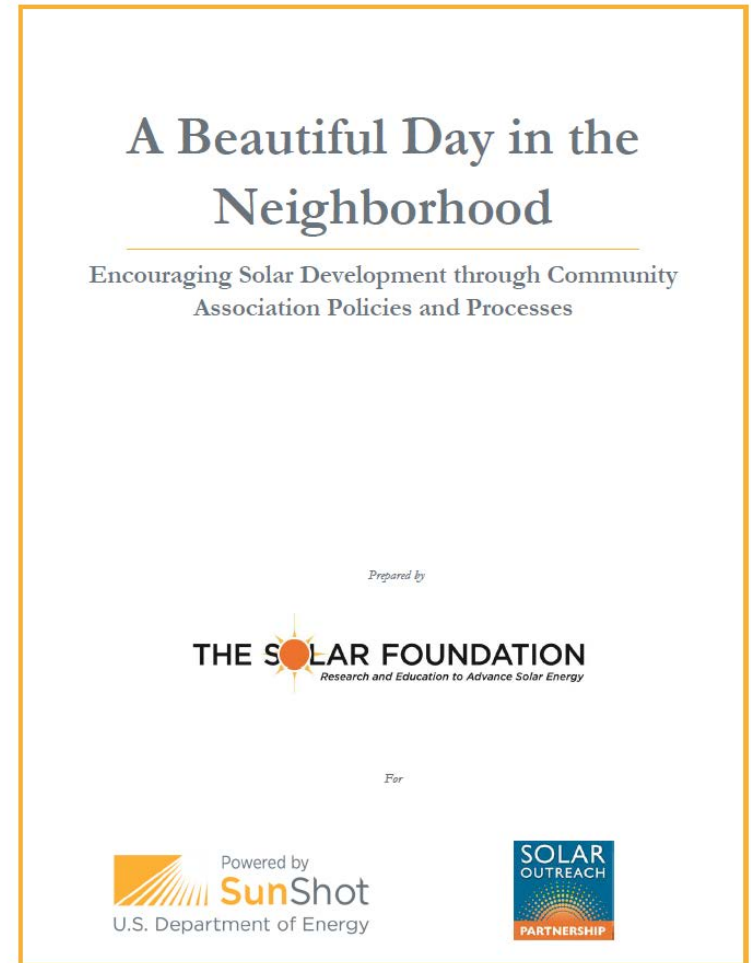
Prepared by



Private Rules on Residential Solar

Resource The Solar Foundation

Guide for HOAs on solar access law and simple recommendations for reducing barriers to solar in association-governed communities.



Solar in HOAs: Best Practices

- ✓ Provide clear, unambiguous design guidelines
- ✓ Post rules and requirements online
- ✓ Provide a list of all required documents
- ✓ Waive design rules that significantly increase cost or decrease performance
- ✓ Allow exceptions from tree removal rules for solar

Update Building Code

Solar Ready Construction:

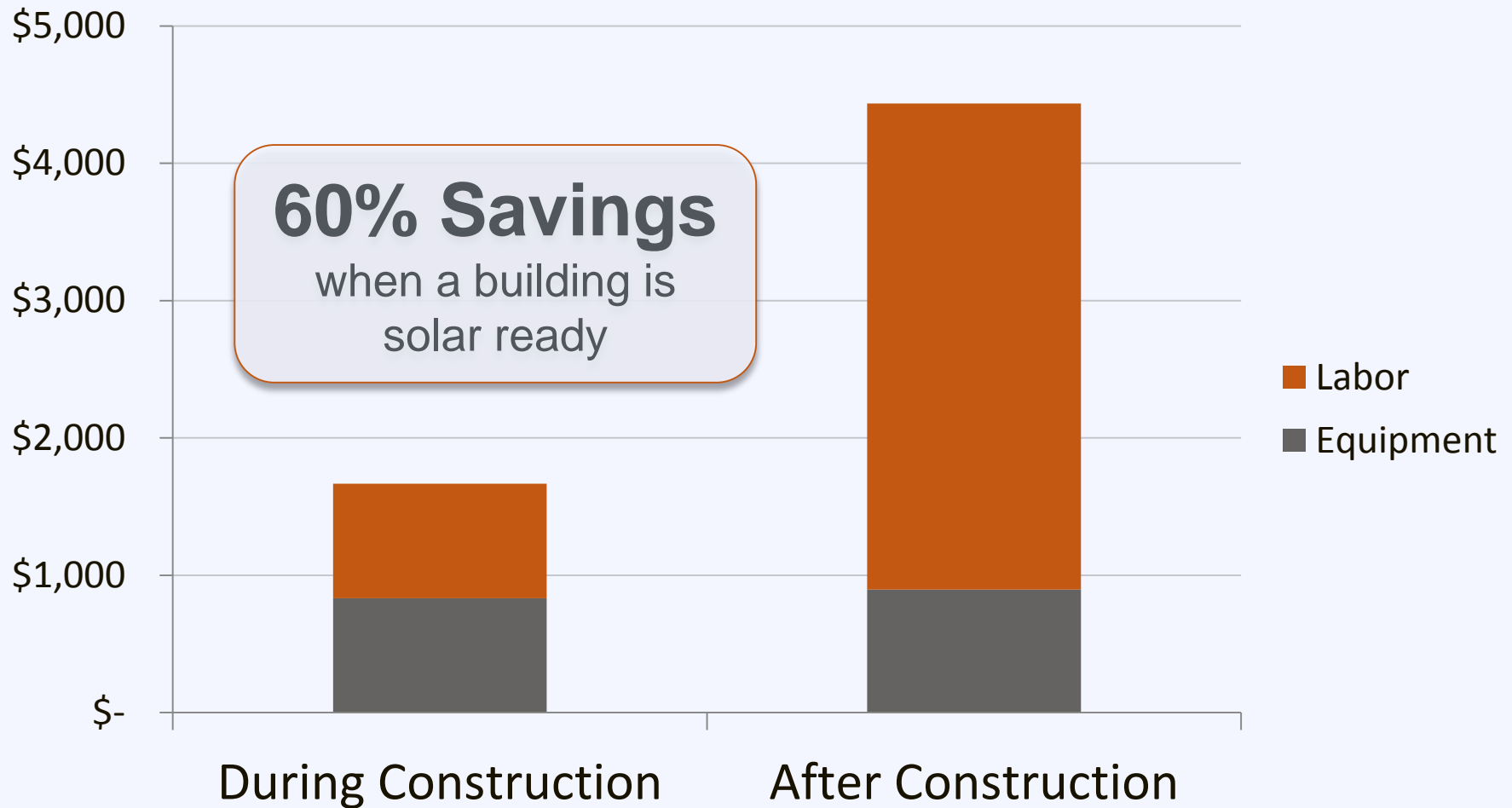
Preparing a building for solar at the outset can help make future solar installations easier and more cost effective.

Update Building Code

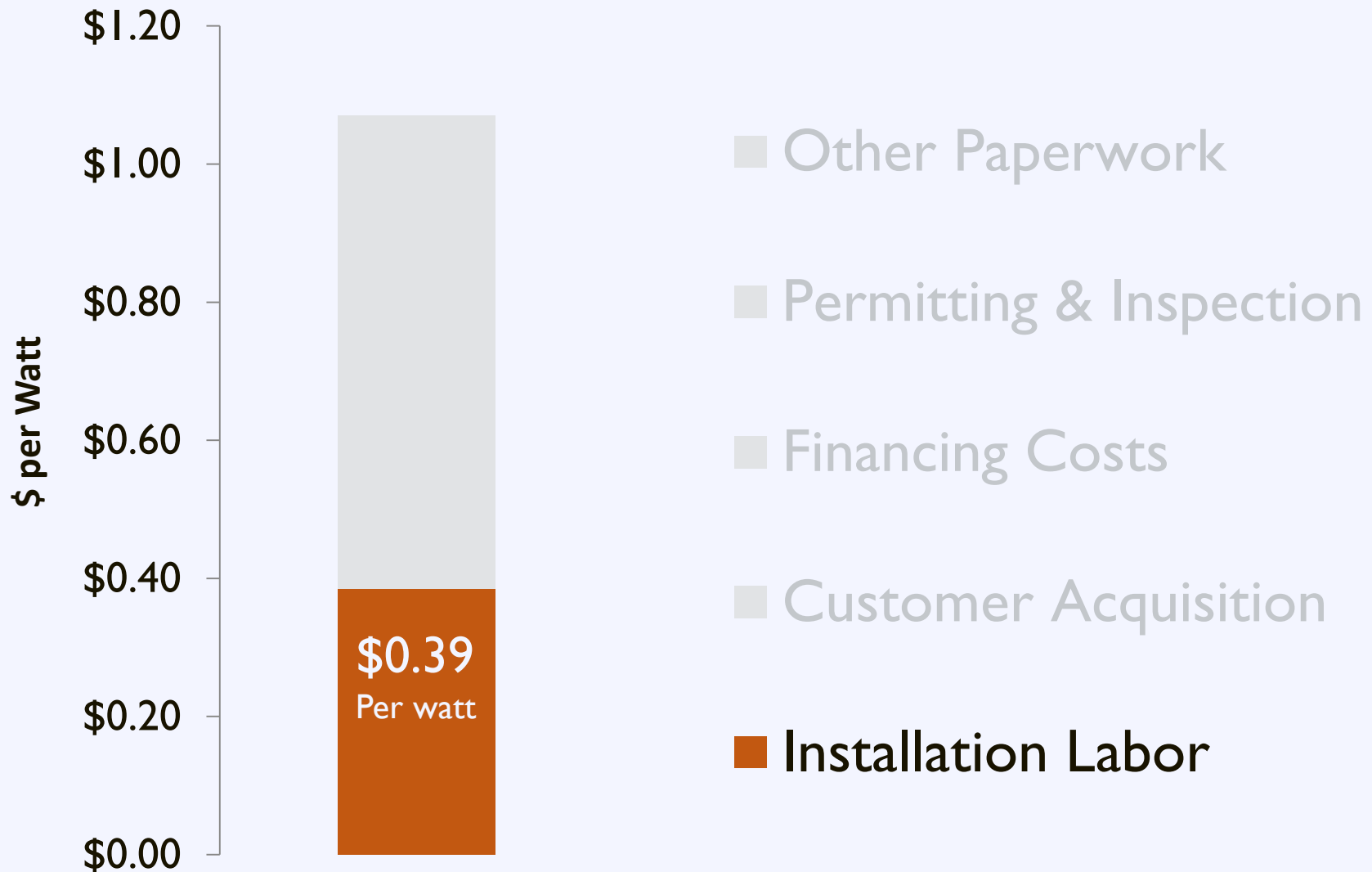
Require builders to:

- ✓ Minimize rooftop equipment
- ✓ Plan for structure orientation to avoid shading
- ✓ Install a roof that will support the load of a solar array
- ✓ Record roof specifications on drawings
- ✓ Plan for wiring and inverter placement

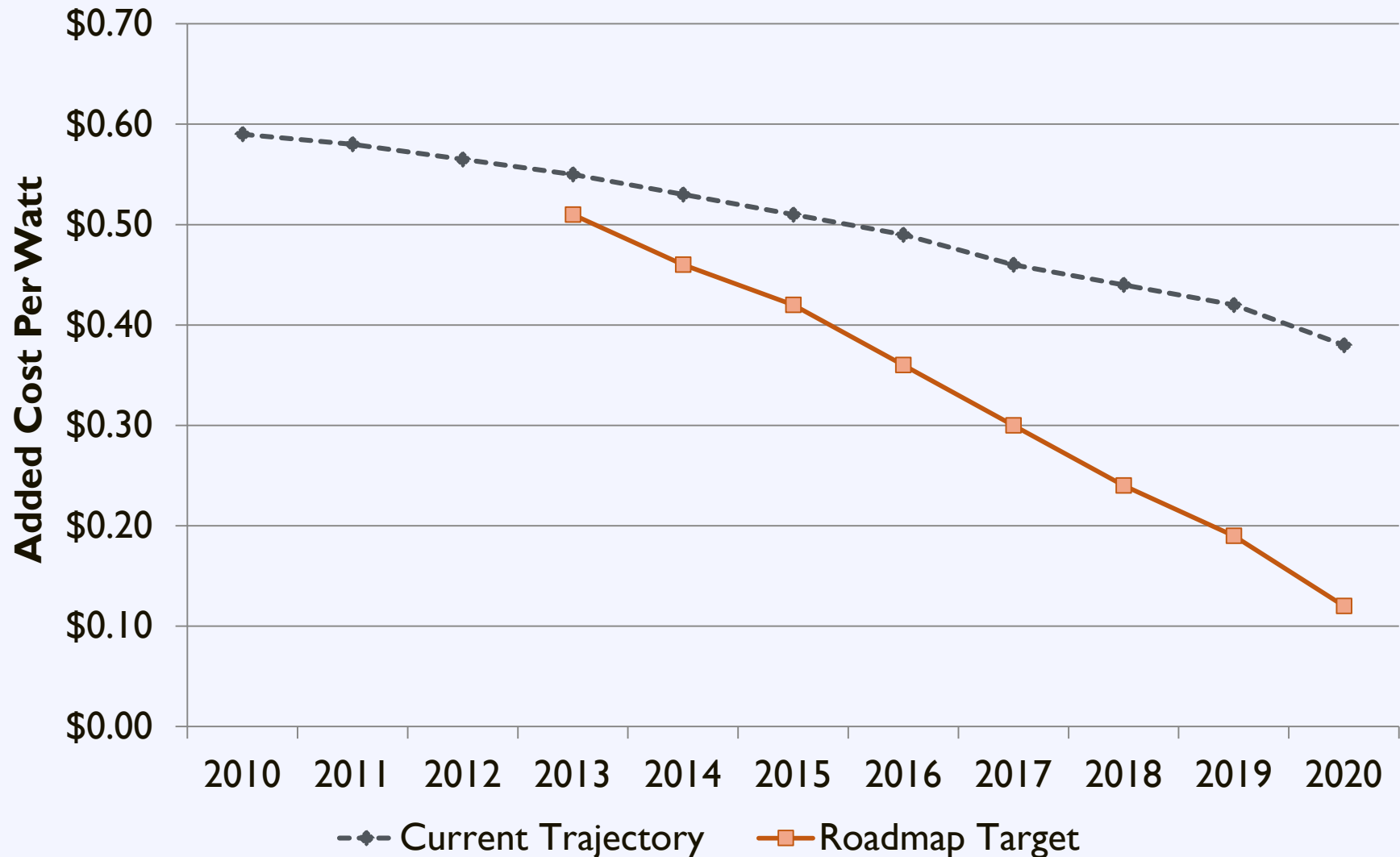
Update Building Code



Installation Soft Costs



Installation Labor Roadmap



Effective Local Solar Policy

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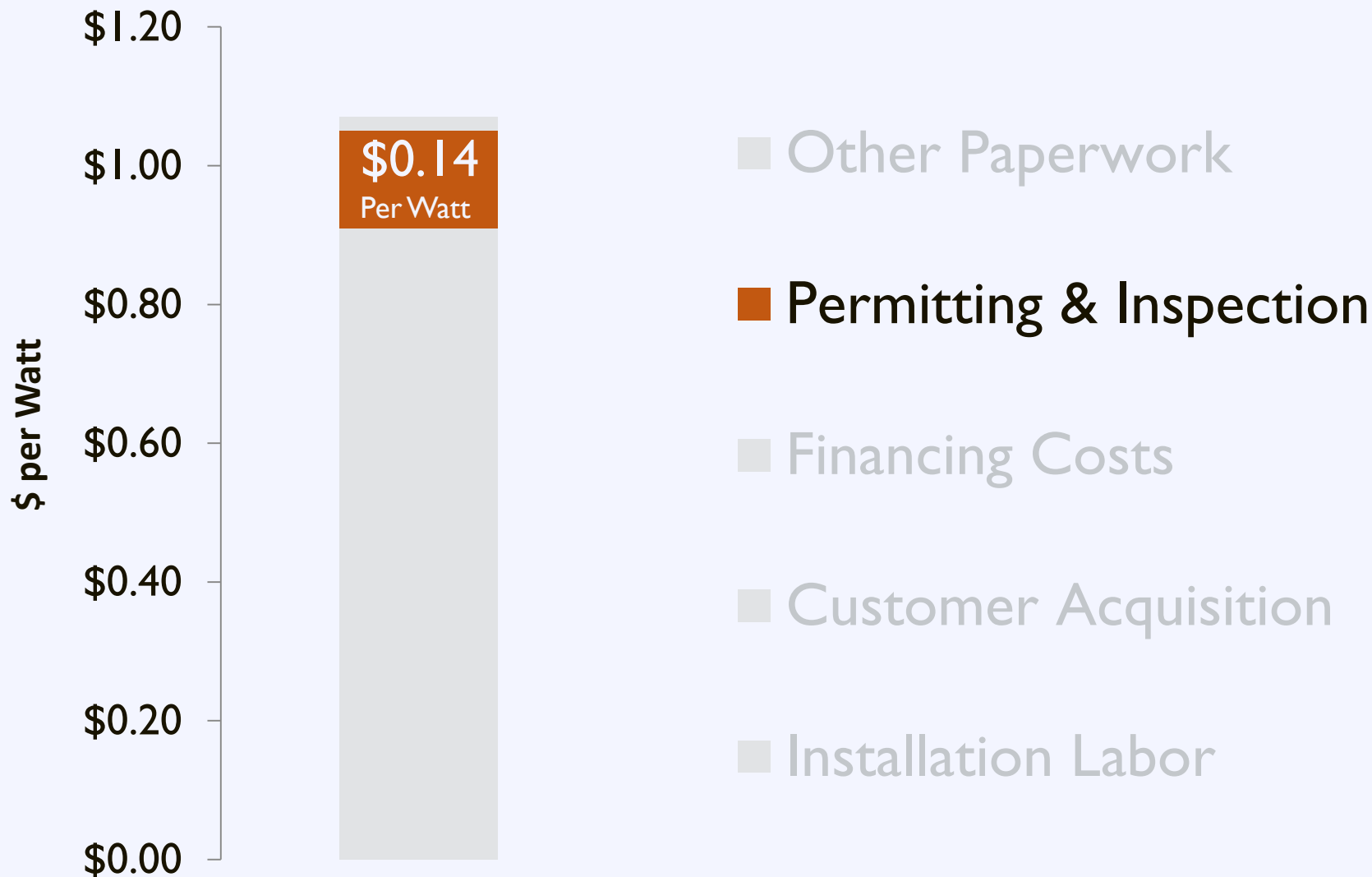
Challenge: Inconsistency

18,000+ local jurisdictions
with unique zoning and permitting requirements

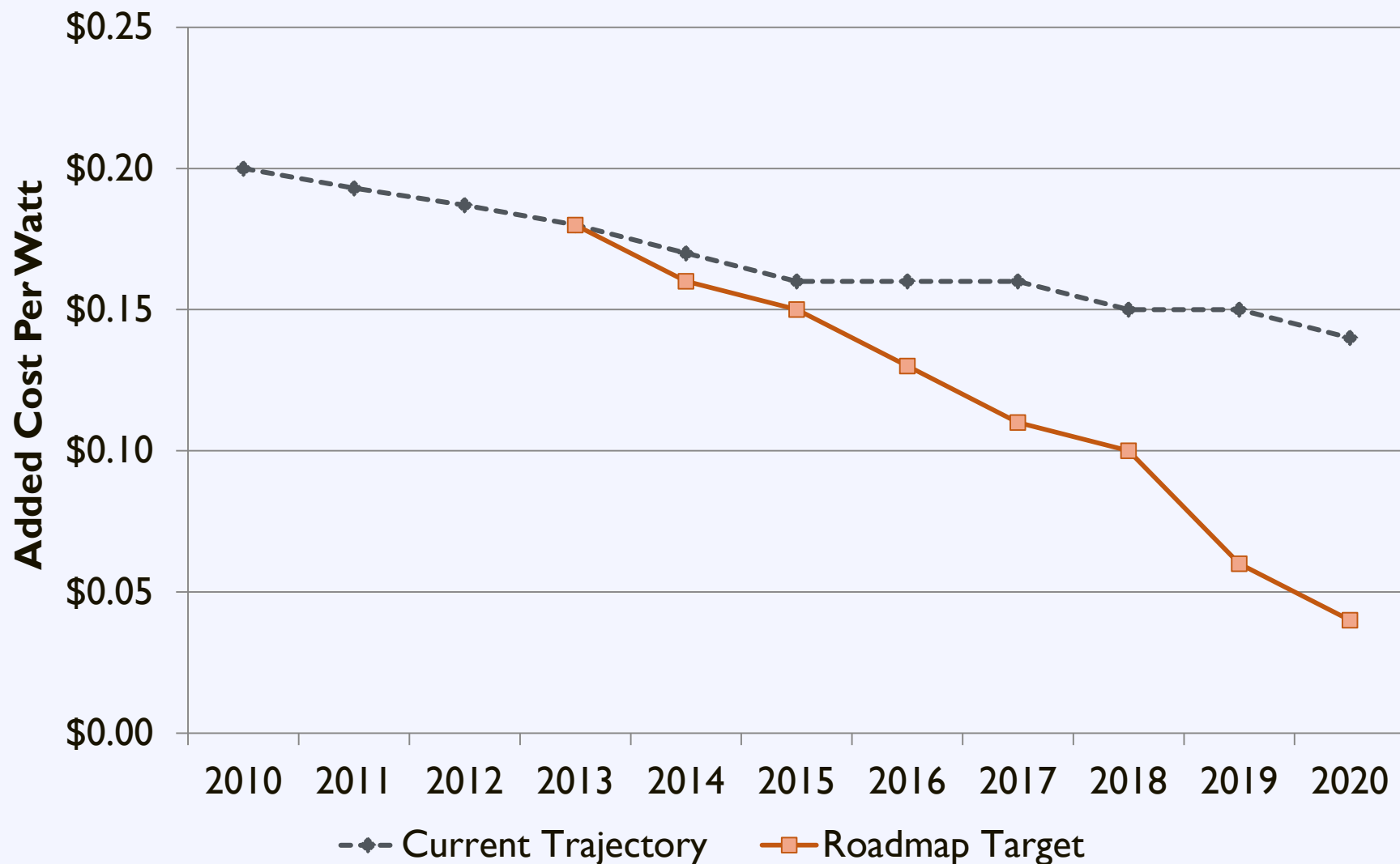
Consumer Challenges



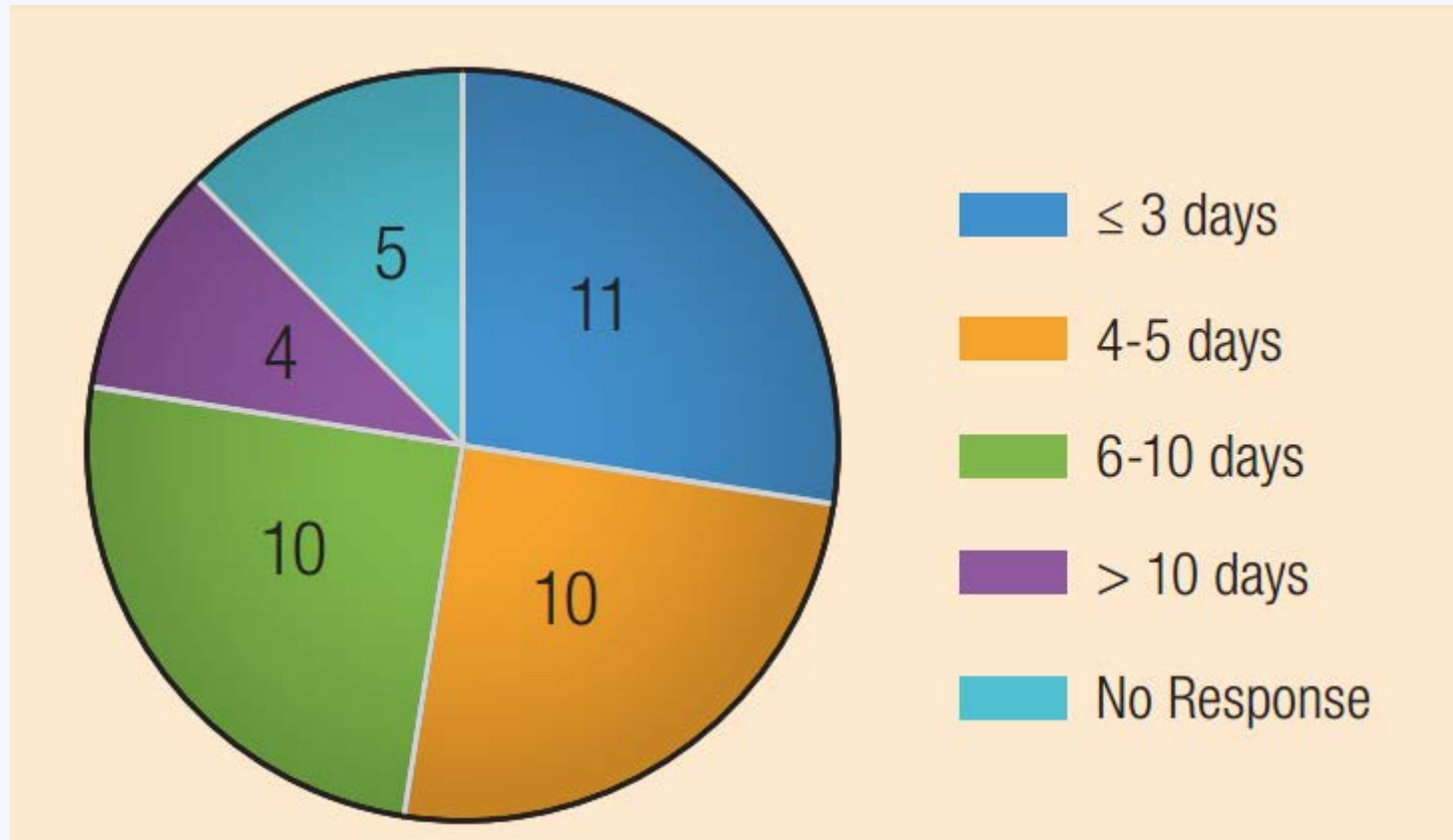
Regulatory Barriers



Planning & Permitting Roadmap



Sample of Arizona Jurisdictions



Estimated permitting time reported by 40 AZ jurisdictions to the Arizona Rooftop Solar Challenge team in 2013

Identifying Challenges

Solar Developer Perspective:

- Unclear or inconsistent requirements
- Lengthy application review process, even for small projects
- High or inconsistent fees
- Multiple inspections and long inspection appointment windows
- Lack of familiarity with solar

Added together, these cost a lot of time and money!

Identifying Challenges

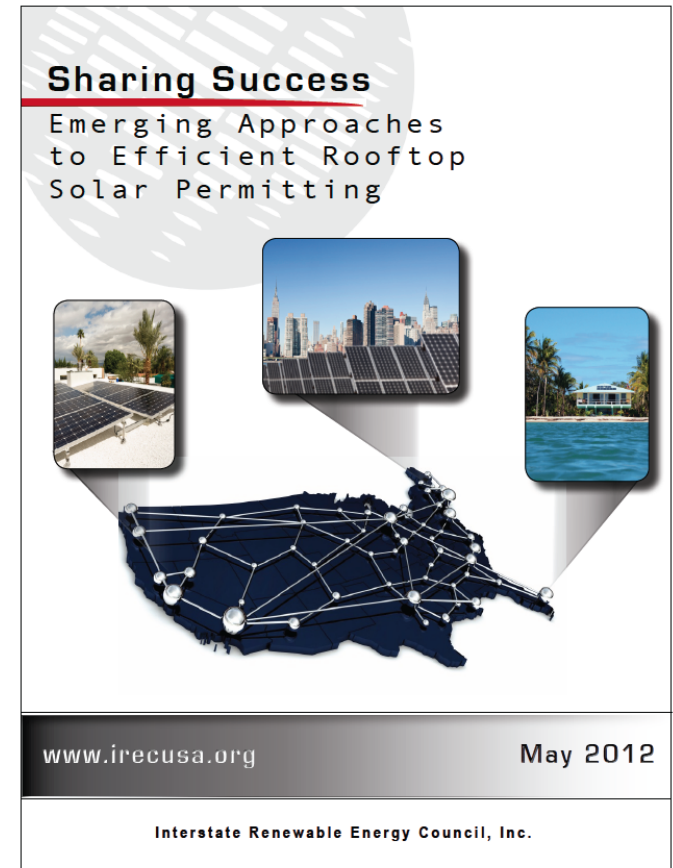
Local Government Perspective:

- Solar permitting is a small portion of everything else local governments do
- Many local governments are resource-constrained
- Inexperienced installers submit incomplete applications
- Installations do not match design drawings

Importance of balancing government needs and demands with encouraging solar energy and economic development

Implementing Improvements

- **Responsibility** for change should be shared between permitting authorities and the solar industry.
- Changes to permitting policies should **benefit both** local governments and solar installers (as well as their customers).



Expedited Permitting

Solar Permitting Best Practices:

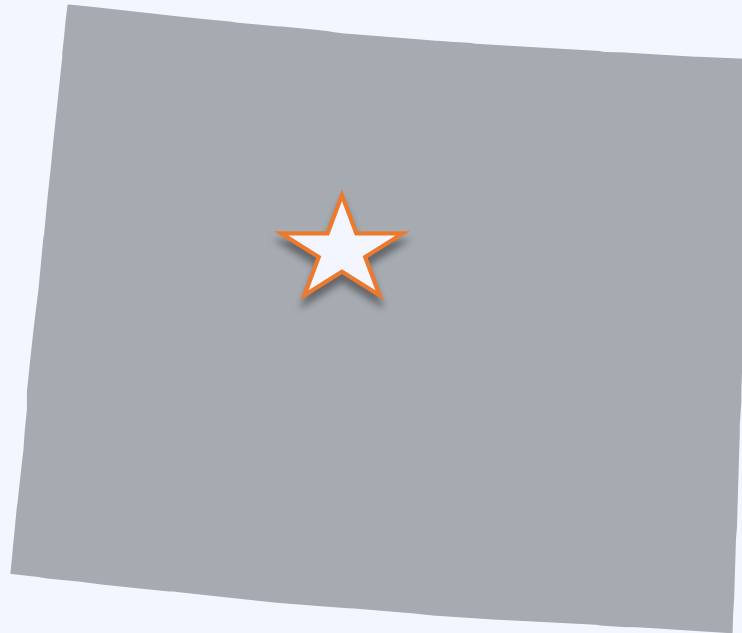
- ✓ Post Requirements Online
- ✓ Implement an Expedited Permit Process
- ✓ Enable Online Permit Processing
- ✓ Ensure a Fast Turn Around Time

Expedited Permitting

Solar Permitting Best Practices:

- ✓ Collect Reasonable Permitting Fees
- ✓ No Community-Specific Licenses
- ✓ Narrow Inspection Appointment Windows
- ✓ Eliminate Excessive Inspections
- ✓ Train Permitting Staff in Solar

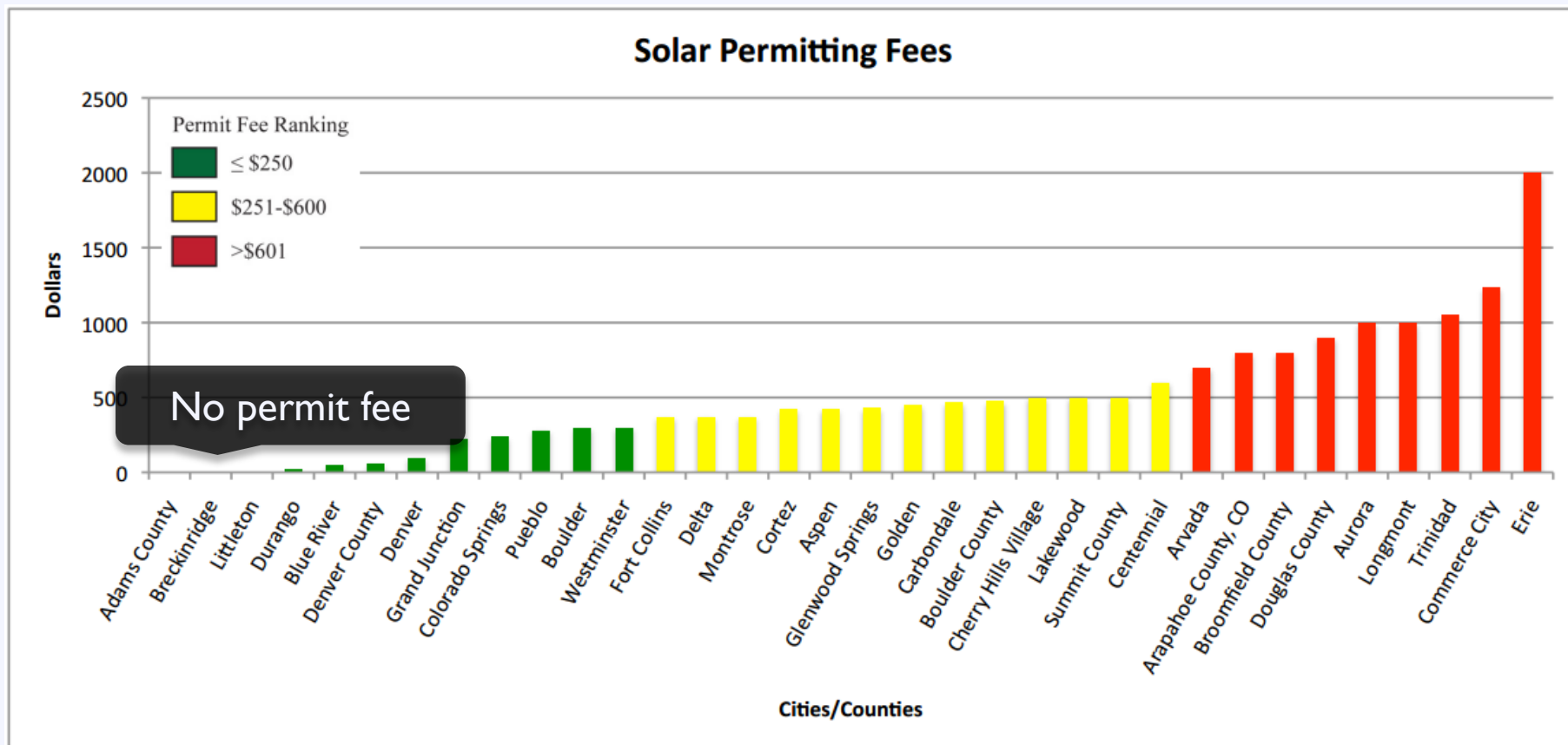
Expedited Permitting: Case Study



Breckenridge, Colorado
Population: 4,540

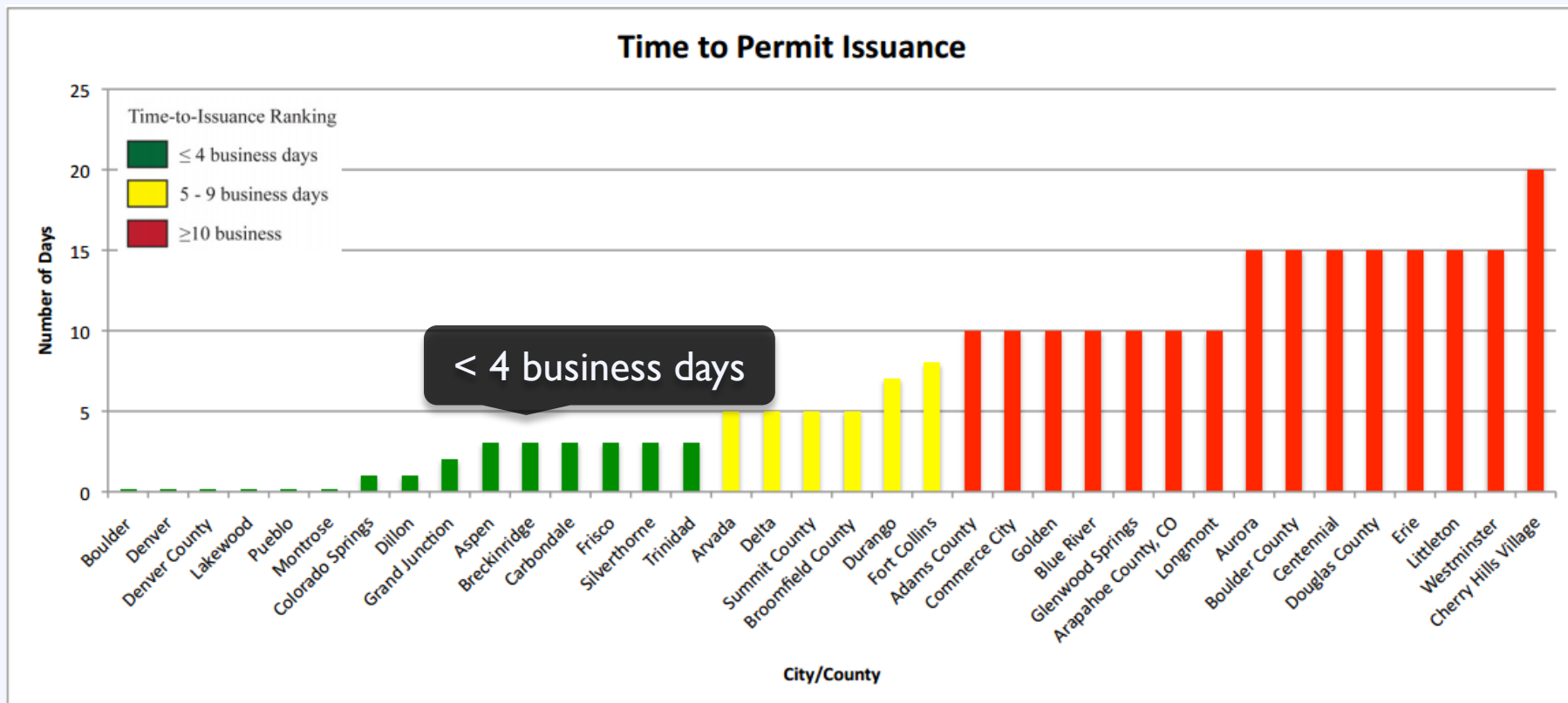
Expedited Permitting: Case Study

Breckenridge charges no fees to file for a solar permit



Expedited Permitting: Case Study

Breckenridge offers a short turn around time for solar permits



Expedited Permitting: Case Study

Jobs | FREE RIDE | Forms & Documents | Town Calendar | Contact Us | Water Bill Access | Text Size + -

TOWN OF BRECKENRIDGE

BRECKENRIDGE COLORADO

Quick Links Search... GO

HOME ABOUT BRECKENRIDGE GOVERNMENT DEPARTMENTS & SERVICES ARTS RECREATION WHAT'S NEW I WANT TO...

Electronic materials

▼ Building Department

- Adopted Building Codes and Amendments
- Climactic and Geographical Design Criteria 2006 IRC Table R301.2(1)
- Permits and Applications
- Inspections
- Electrical, Mechanical & Plumbing Applications
- Hot Tub Permits
- Solar Panel Permits
- Frequently Asked Questions
- Contractor's Licensing
- How Much Will My Permit

Solar Panel Permits

E-mail Print

BUILDING & PLANNING DEPARTMENT REQUIREMENTS FOR PHOTOVOLTAIC (SOLAR PANEL) INSTALLATIONS

The solar panel installer is responsible for insuring that all of the code requirements are met and permits issued.

Required permits are: Development, Building and Electrical Permits.

Planning Department / Development Permit Requirements:

- Outside of the Conservation District, [Class D Permit](#)
- Within the Conservation District, [Class C Minor Permit](#)
- Letter of approval from the Homeowners Association (strongly suggested)

Refer to the [Breckenridge Development Code](#), reference [Section 9-1-19, Policy 5 \(Absolute\)](#) regarding solar panel policies

Building Department Permits / Building & Electrical Permit Requirements:

- Meet with a Town of Breckenridge Planner (see above requirements)
- [Building Permit](#) (Submit a completed building permit application, along with two photovoltaic system electrical diagram drawings, stamped by a Colorado licensed engineer)
- [Electrical Permit](#)

Contractor Requirements

- Must be certified by North American Certified Energy Practitioners (www.nabcep.org)
- Must have a current Town of Breckenridge [Business License](#), available through the Town

Standardized permit requirements

Permitting: Best Practices

Resource Interstate Renewable Energy Council

Outlines leading best practices in residential solar permitting and provides examples of implementation.

Simplifying the Solar Permitting Process Residential Solar Permitting Best Practices Explained

To aid communities in designing effective and efficient solar permitting processes, the Interstate Renewable Energy Council, Inc. (IREC) and The Vote Solar Initiative have identified nine [Residential Solar Permitting Best Practices](#). This document provides additional context for these Best Practices and relevant resources to help communities implement them. For more detail on the examples of where the Best Practices listed below have been implemented as well as additional resources see [Sharing Success: Emerging Approaches to Efficient Rooftop Solar Permitting](#).

1. Post Requirements Online

What does this mean? The municipality should have a website that offers a one-stop location for residents, businesses and installers to get all necessary information on obtaining a solar permit in that municipality or region. In particular, the website should include a clear description of the requirements and process for getting a solar permit, including any necessary forms, and information on fees and inspections. The website could also contain checklists for the application and inspection requirements for solar.

Who is already doing it?

Solar One Stop (Pima County and City of Tucson, Arizona), solaronestopaz.org

San Jose, CA, www.sanjoseca.gov/index.aspx?nid=1505

Berkeley, CA, www.cityofberkeley.info/solarpypermitguide

Why do it? Making these resources easily accessible to solar installers can reduce the number of questions that municipal staff have to answer and can improve the efficiency of the permitting process for all involved. In addition, it can help to increase the quality of applications submitted, which in turn decreases the time required for review. It also decreases the frustrating back-and-forth that installers and municipal staff may otherwise experience. Providing these resources can be particularly helpful for new installers or those that are new to that specific municipality. If a municipality has unique or unusual requirements, or has recently modified their process or requirements, the website is a good way for the municipality to identify these differences clearly to installers and residents.

Additional Resources

IREC Solar Permitting Checklists and Guidance Documents, www.irecusa.org/wp-content/uploads/permitting-hand-out6-1.pdf

IREC Inspection Checklist (coming soon)

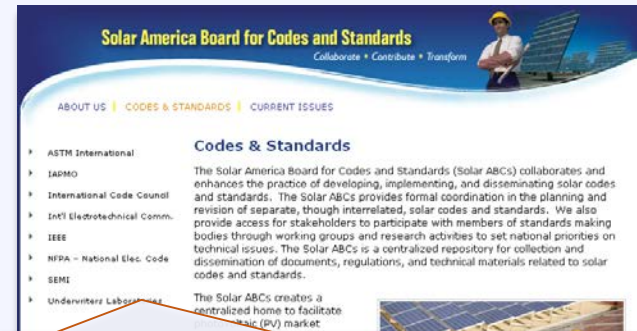


Model Permitting Process

Resource Solar America Board for Codes & Standards

Expedited Permitting:

- Simplifies requirements for PV applications
- Facilitates efficient review of content
- Minimize need for detailed studies and unnecessary delays



I-1. Example Design Criteria:

- Size < 10-15 kW
- Code compliant
- Weight < 5 lb / sqft
- 4 strings or less

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Effective Local Solar Policy

Local Solar Policy

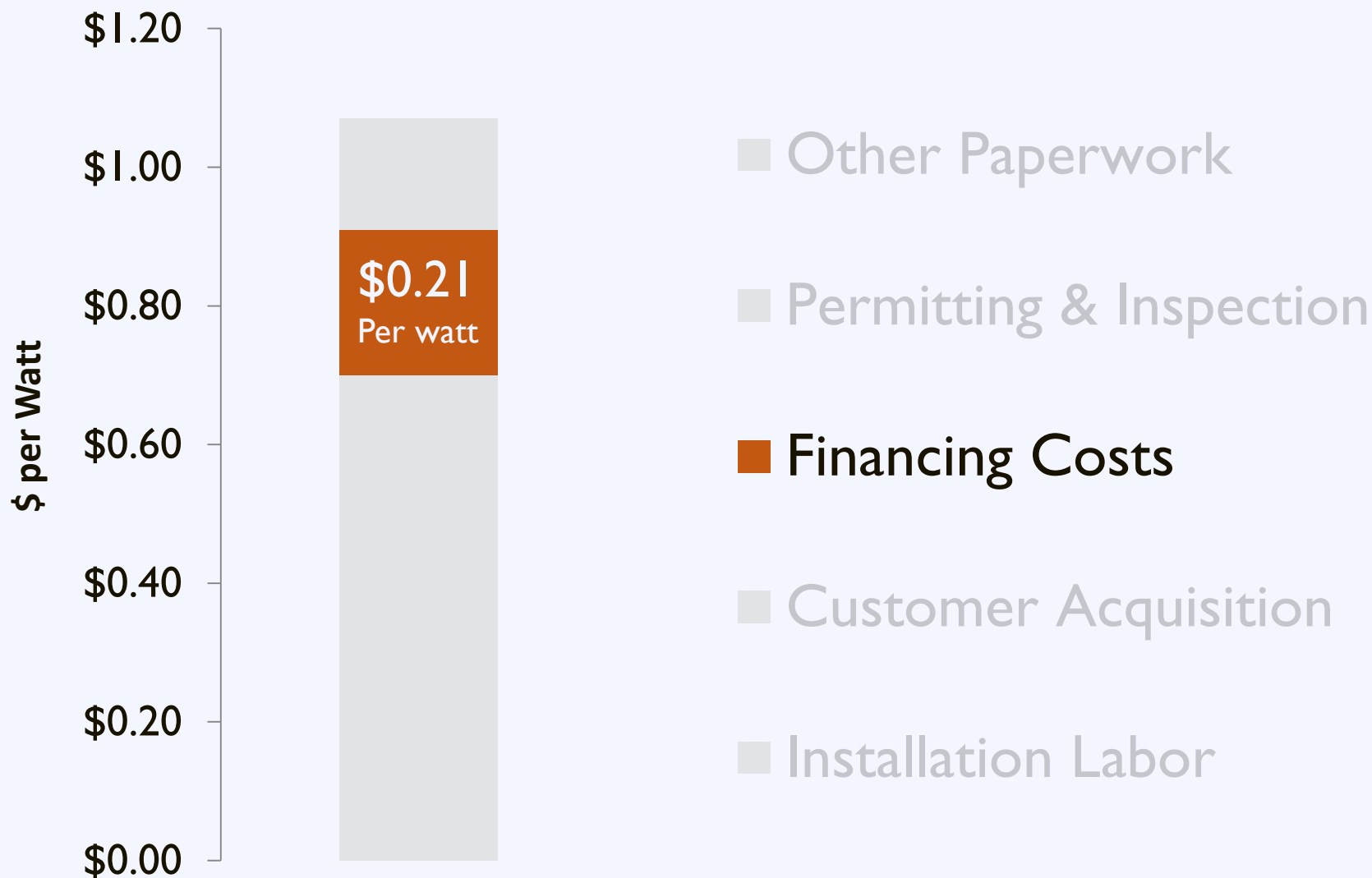
Planning
Solar

- Understanding solar financing
- Expanding financing options
- Addressing customer acquisition

Effective Solar
Permitting
Process

Solar Market
Development
Tools

Third Party Ownership



The Solar Equation

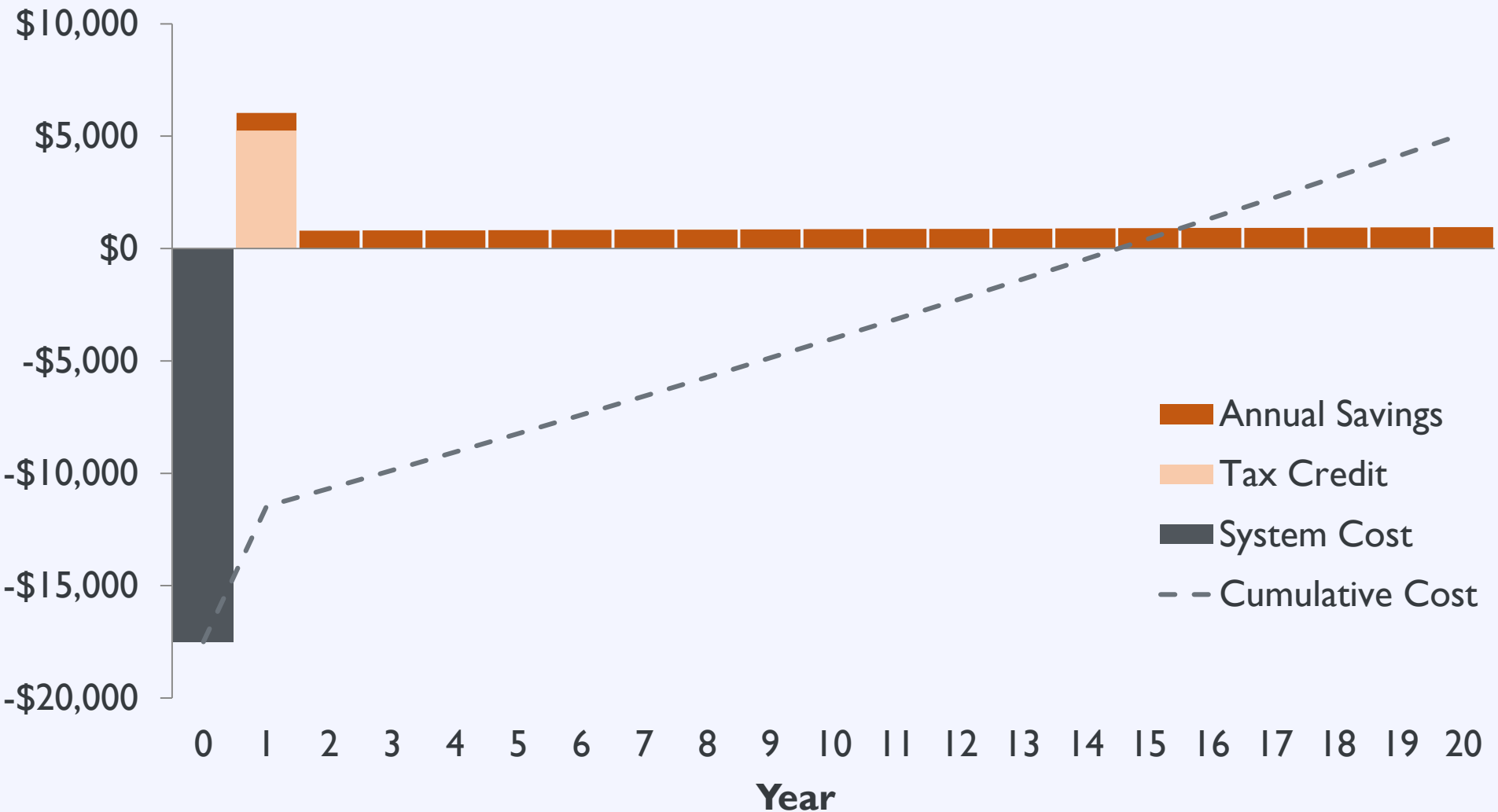
Cost

- + Installed Cost
- + Maintenance
- Direct Incentive

Benefit

- + Avoided Energy Cost
- + Excess Generation
- + Performance Incentive

The Solar Finance Problem



Solar Financing Options

Third Party
Ownership

Traditional
Lending

Utility-
Owned Solar

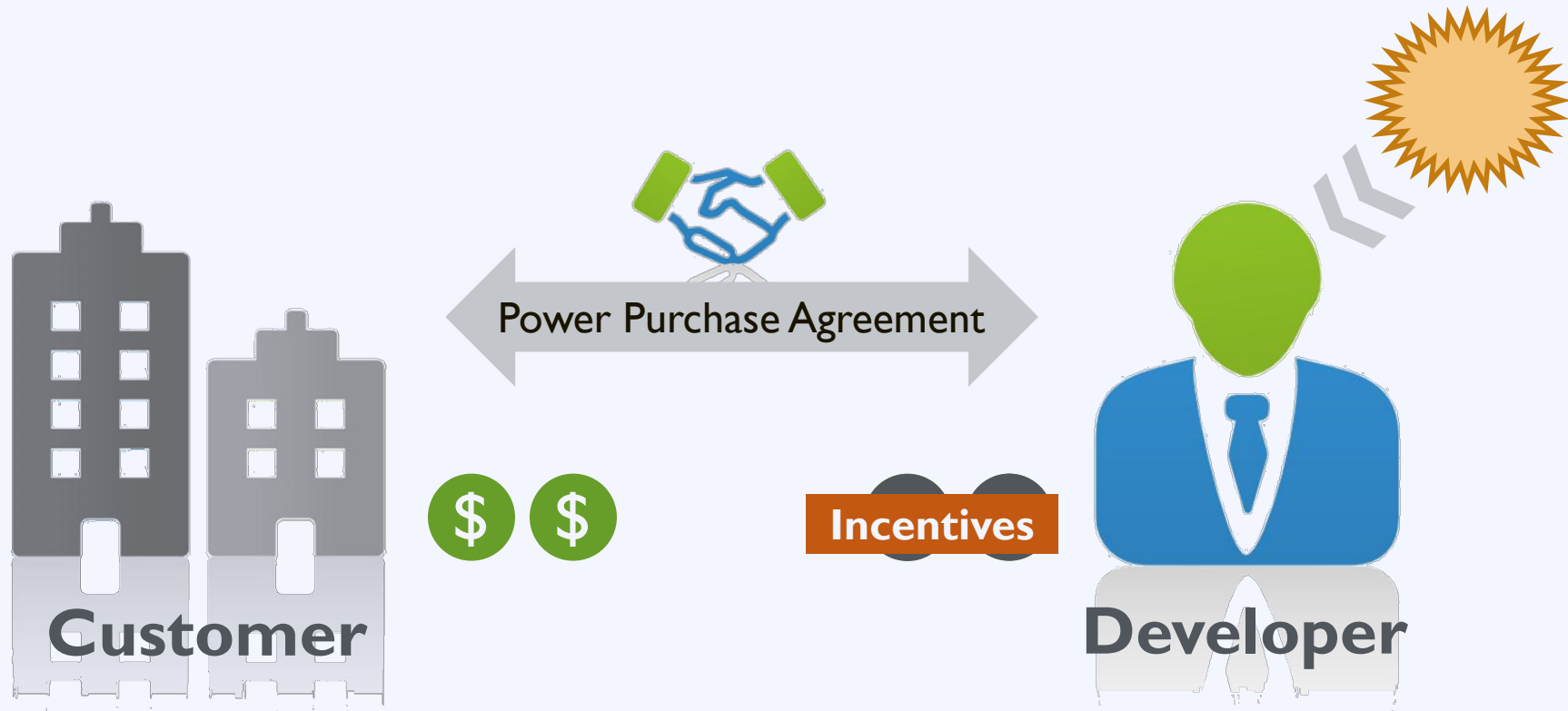
Solar Financing Options

Third Party
Ownership

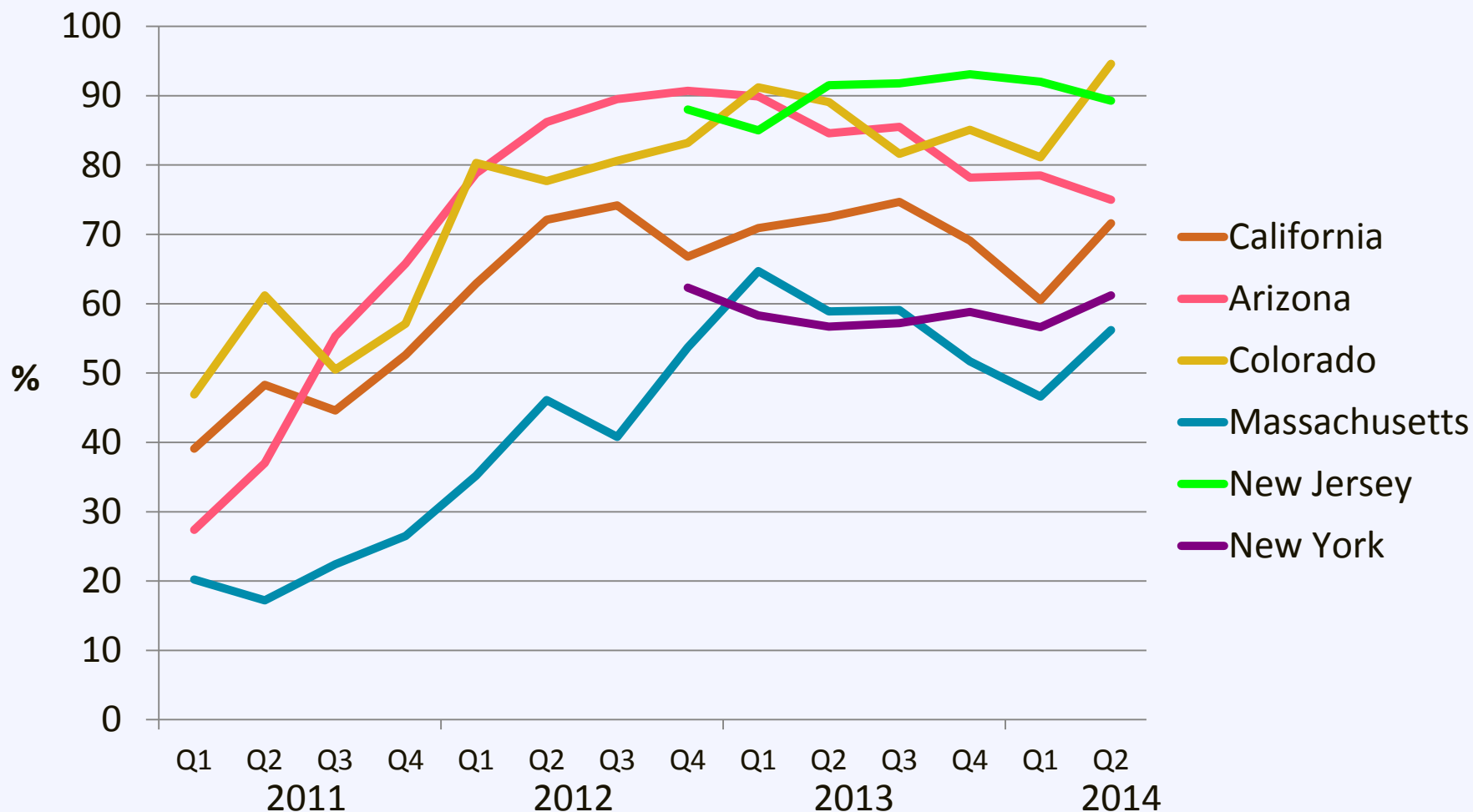
Traditional
Lending

Utility-
Owned Solar

Third Party Ownership

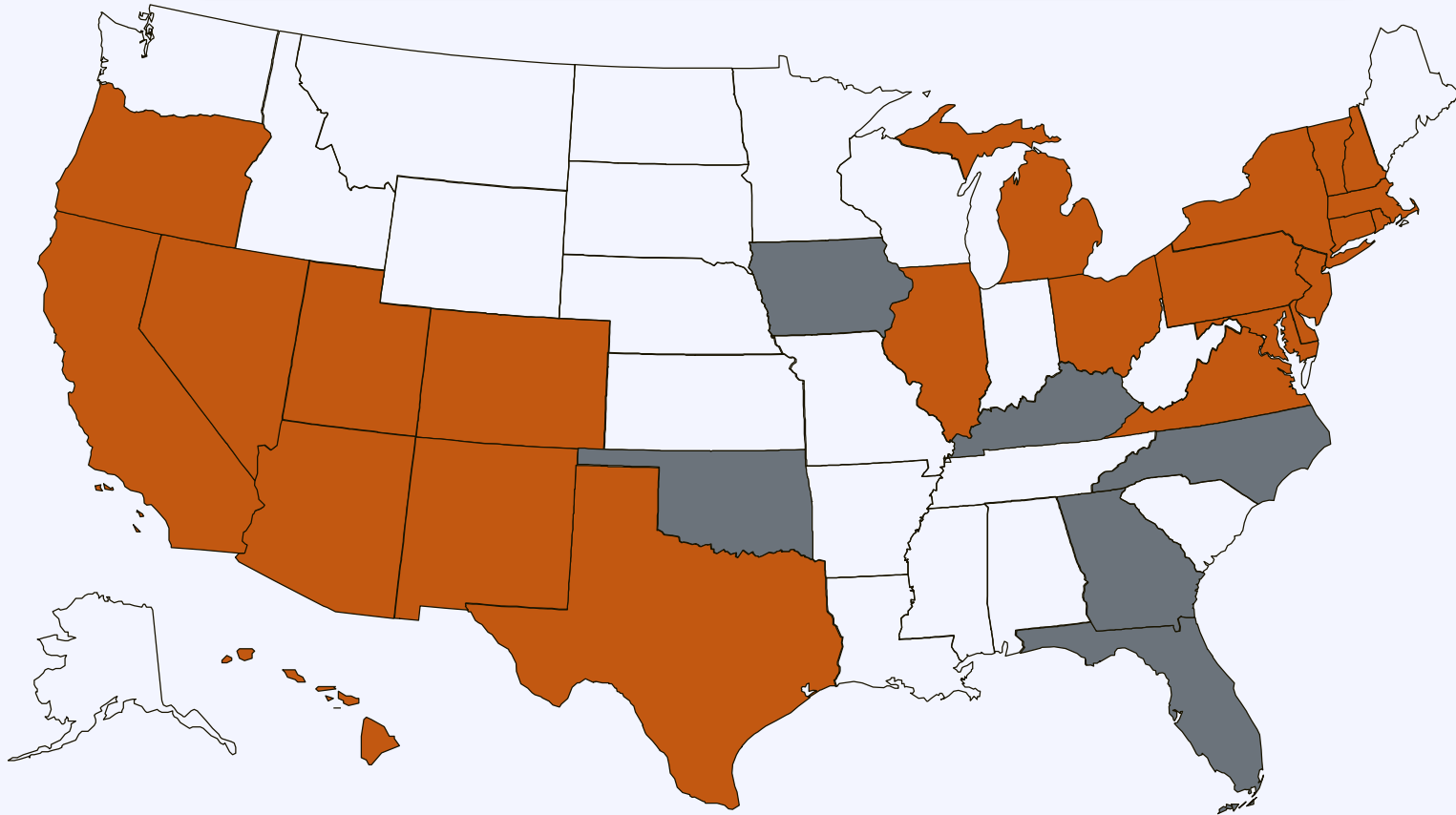


Third Party Ownership



Third Party Ownership: State Policy

Third Party Ownership is not always available



Authorized by state or otherwise currently in use, at least in certain jurisdictions within in the state

Apparently disallowed by state or otherwise restricted by legal barriers

Status unclear or unknown

 Puerto Rico

Solar Financing Options

Third Party
Ownership

Traditional
Lending

Utility-
Owned Solar

Engage Local Lenders

Fewer than **5%**

of the

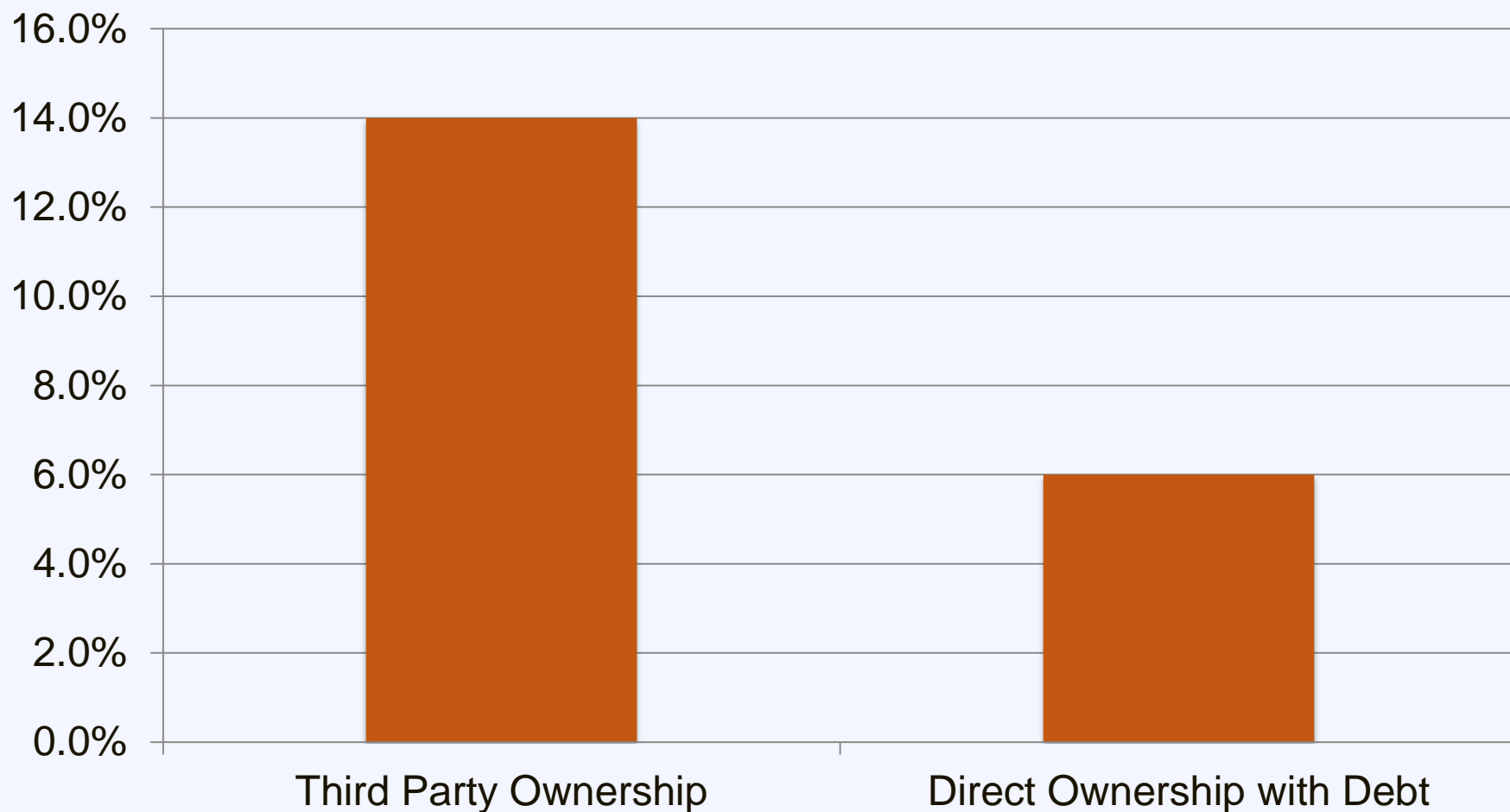
6,500 banks in the US

are

actively financing solar PV projects

Third Party Ownership: Cost

Weighted Average Cost of Capital



Financing Options

- Secured loan
 - Admirals Bank: 4.95% - 9.95%
- Unsecured loan
 - Admirals Bank: 9.99% - 11.99%
- Federal loan
 - HUD PowerSavers: 7.98%
- RUS loans



Municipal – Lender Partnership

Milwaukee SHINES

- Partnership with Summit Credit Union
- 4.5% (5-year) and 5.25% (15-year) options

Austin Energy Power Saver Loans

- Partnership with Velocity Credit Union
- Market-variable rate

Municipal partnerships can beat existing options

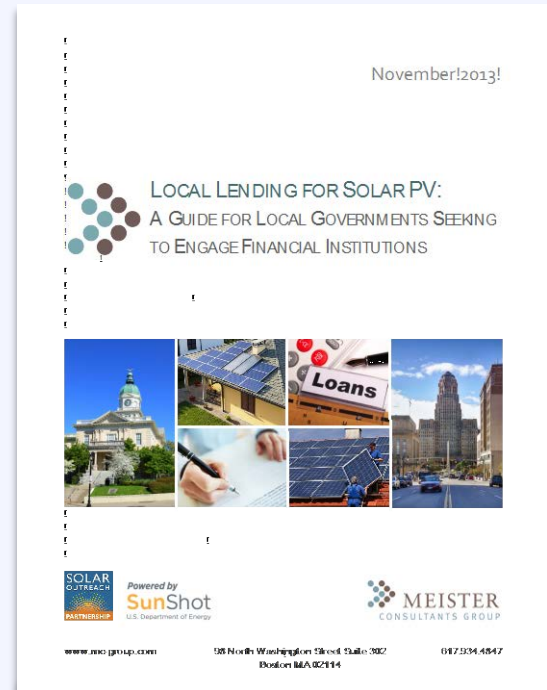
*Opportunities to improve lending options by offering
loan loss reserves or credit enhancements*

Engage Local Lenders: Resources

Resource Local Lending for Solar PV

A guide for local governments seeking to engage financial institutions

www.solaroutreach.org



Solar Financing Options

Third Party
Ownership

Traditional
Lending

Utility-
Owned Solar

Utility-Owned Solar

Utility Options for Distributed Solar

- Centrally owned solar
- Utility-owned rooftop solar
- Customer-owned with On-Bill Financing
- Community Solar

Utility-Owned Rooftop Solar

Utility pays for and owns rooftop system

Customer either:

1. Purchases energy from the system at a special rate
2. Purchases energy from the grid but receives a monthly payment for hosting

Examples:

- Arizona Public Service
- Tucson Electric Power
- CPS Energy (San Antonio)



Utility On-Bill Financing

Utility pays for customer-owned rooftop system

1. Customer repays cost of system through added charge on electric bill
2. Proven Concept for Electric Coops for energy efficiency program

Examples:

- Roanoke Electric Coop
(North Carolina)
- How\$martKY
(coalition of five Kentucky Cooperatives)

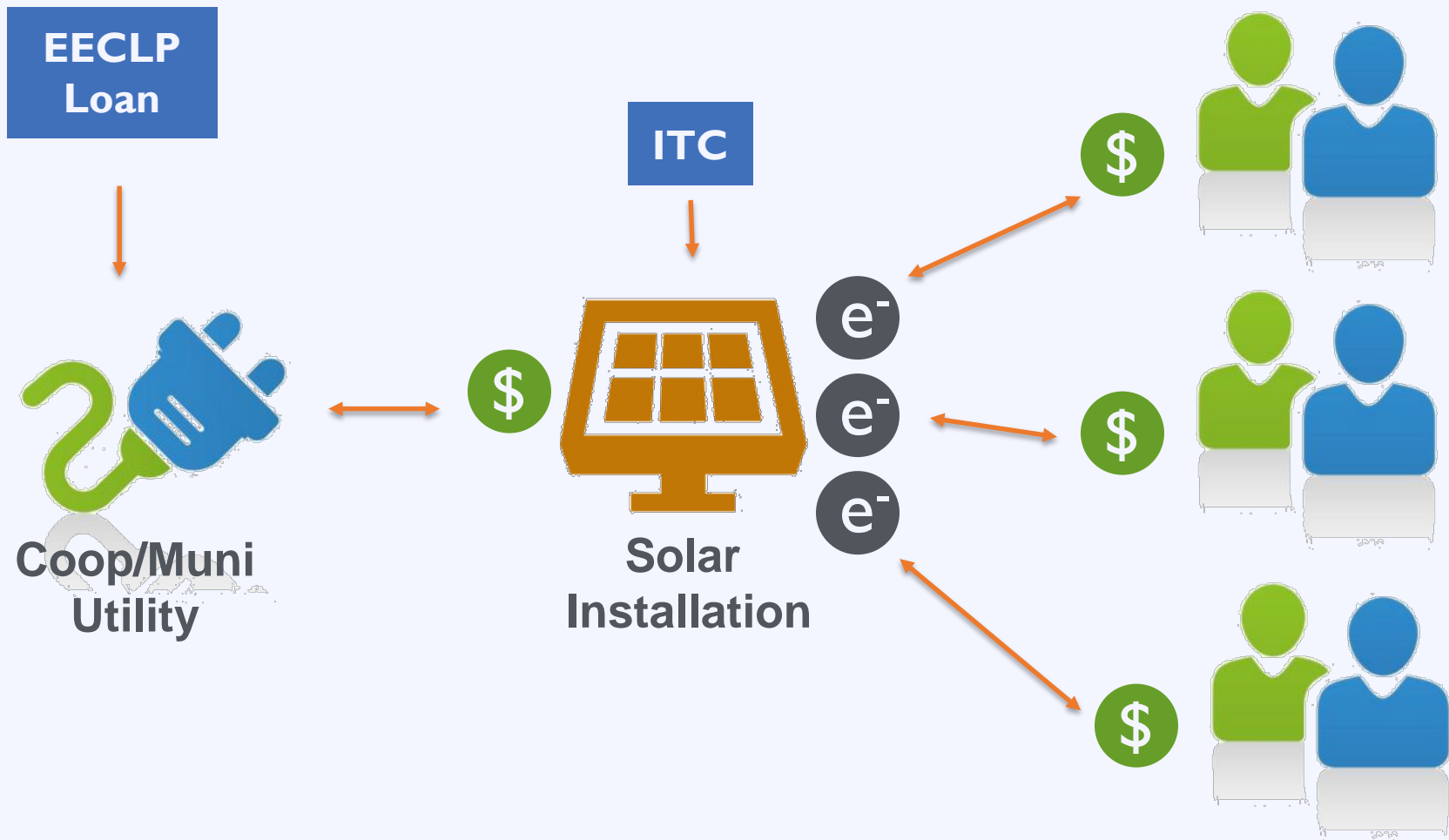


Utility-Run Community Solar

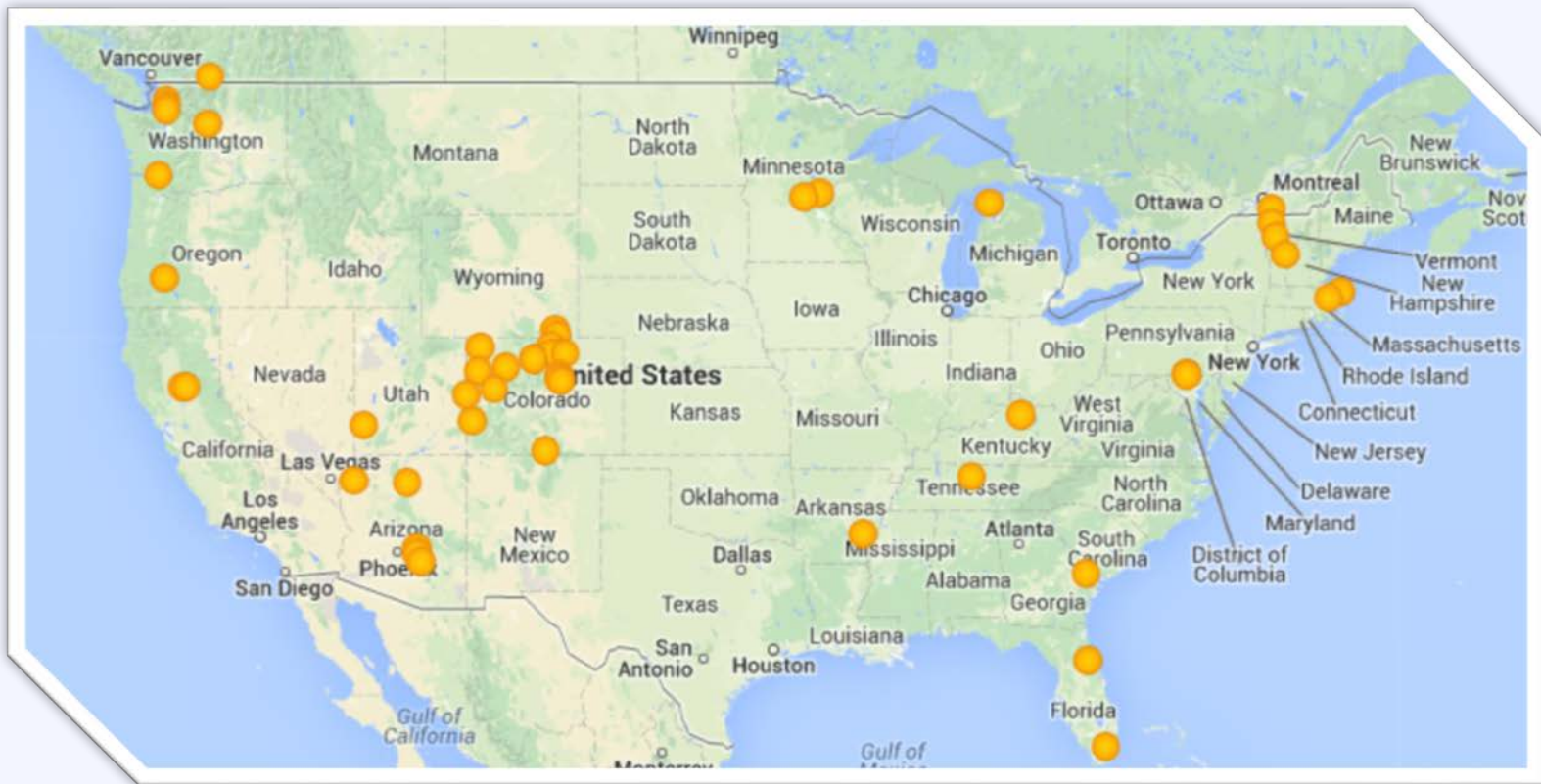
Utility lends money to solar developer

1. Developer constructs large system and claims tax credit
2. Utility allows customers to purchase portion of system
3. Utility credits customer bills for the solar they own
4. Upfront cost repaid by customer purchases

Community Solar: Utility Model

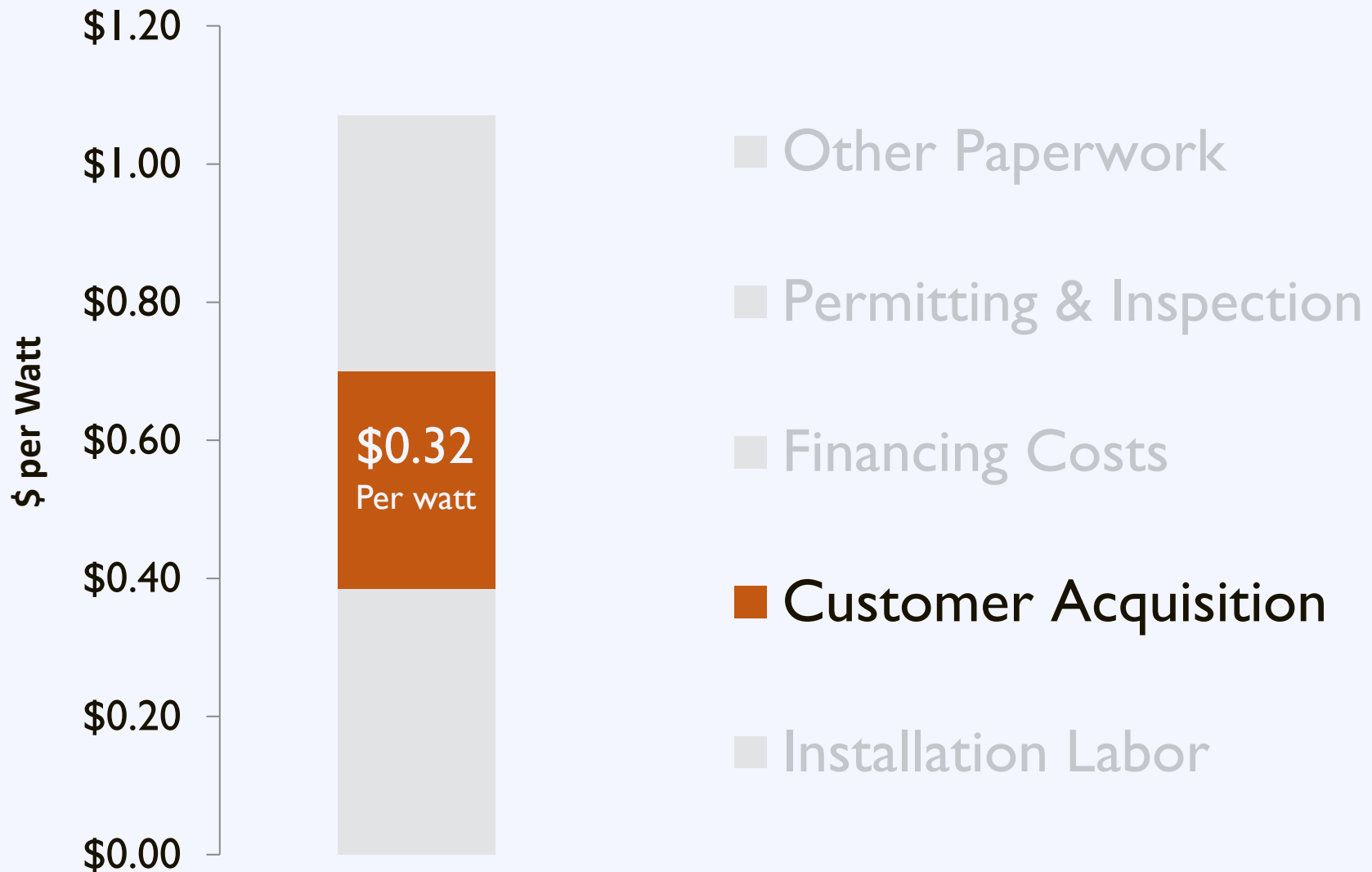


Community Solar in the U.S.



57 Community Solar programs to date, all but 5 are utility-led

Customer Acquisition



Customer Acquisition

5 % of homeowners that request a quote choose to install solar.

Customer Acquisition

Barriers

High upfront cost

Complexity

Customer inertia



The Solarize Program

Group purchasing for residential solar PV



The Solarize Program

Barriers

High upfront cost



Solutions

Group purchase

Complexity



Vetted offer

Customer inertia



Limited-time offer

Solarize: Partnership

**Program
Sponsor**

Community ties
Technical knowledge

**Solar
Contractor**

Solar installations
Volume discounts

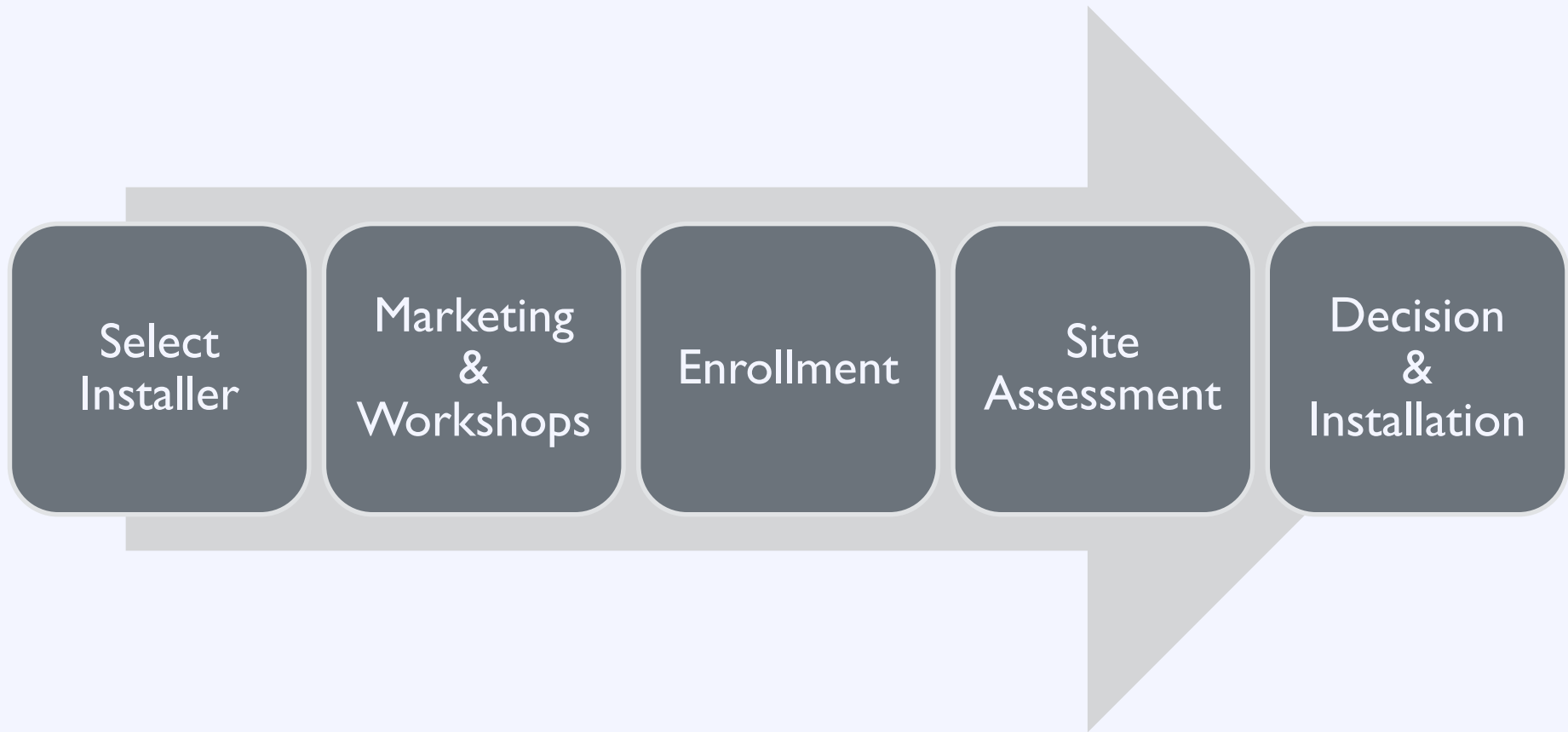
**Citizen
Volunteers**

Campaign support
Neighborhood outreach

**Community
Residents**

Program participation
Word of mouth

Solarize: Process



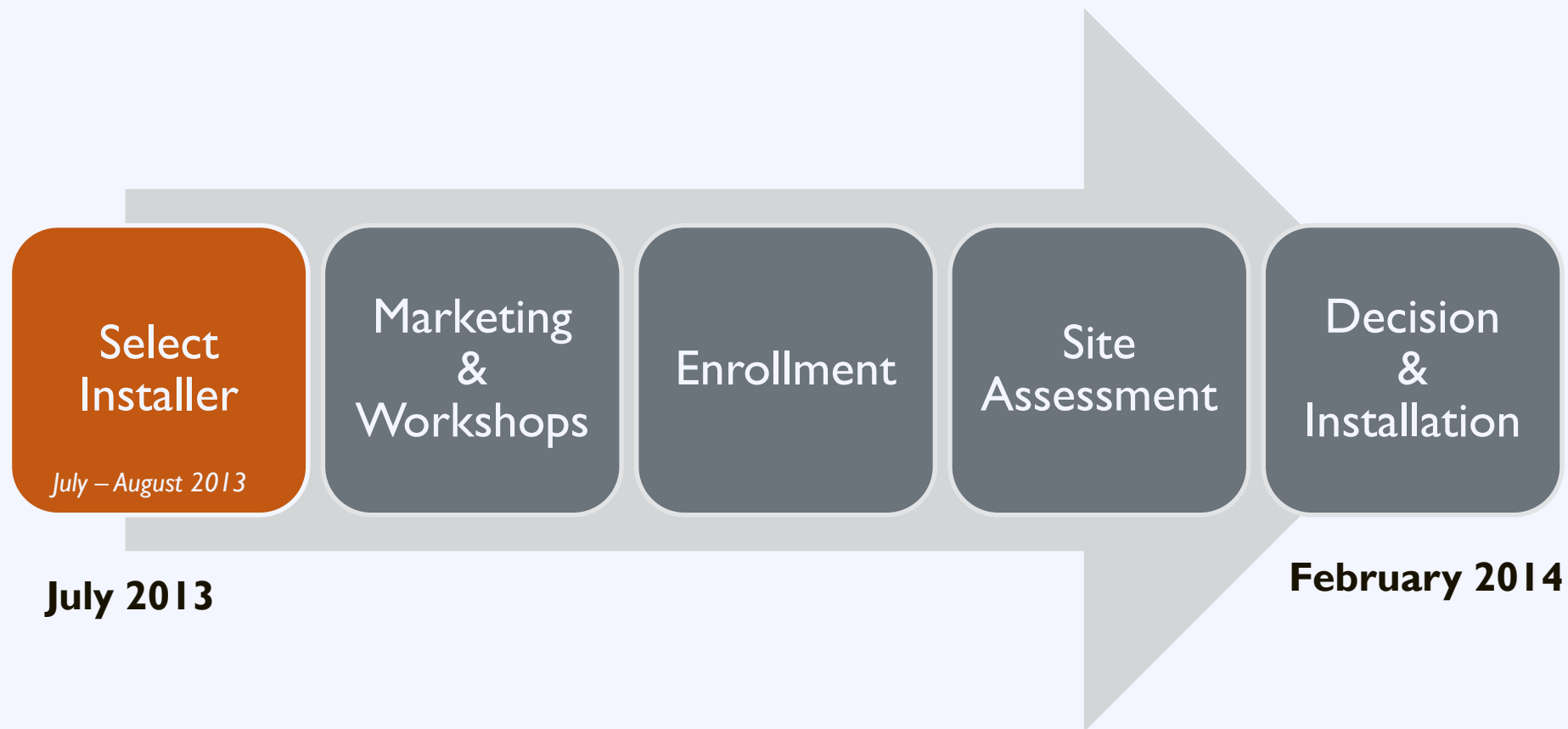
Solarize Plano: Case Study



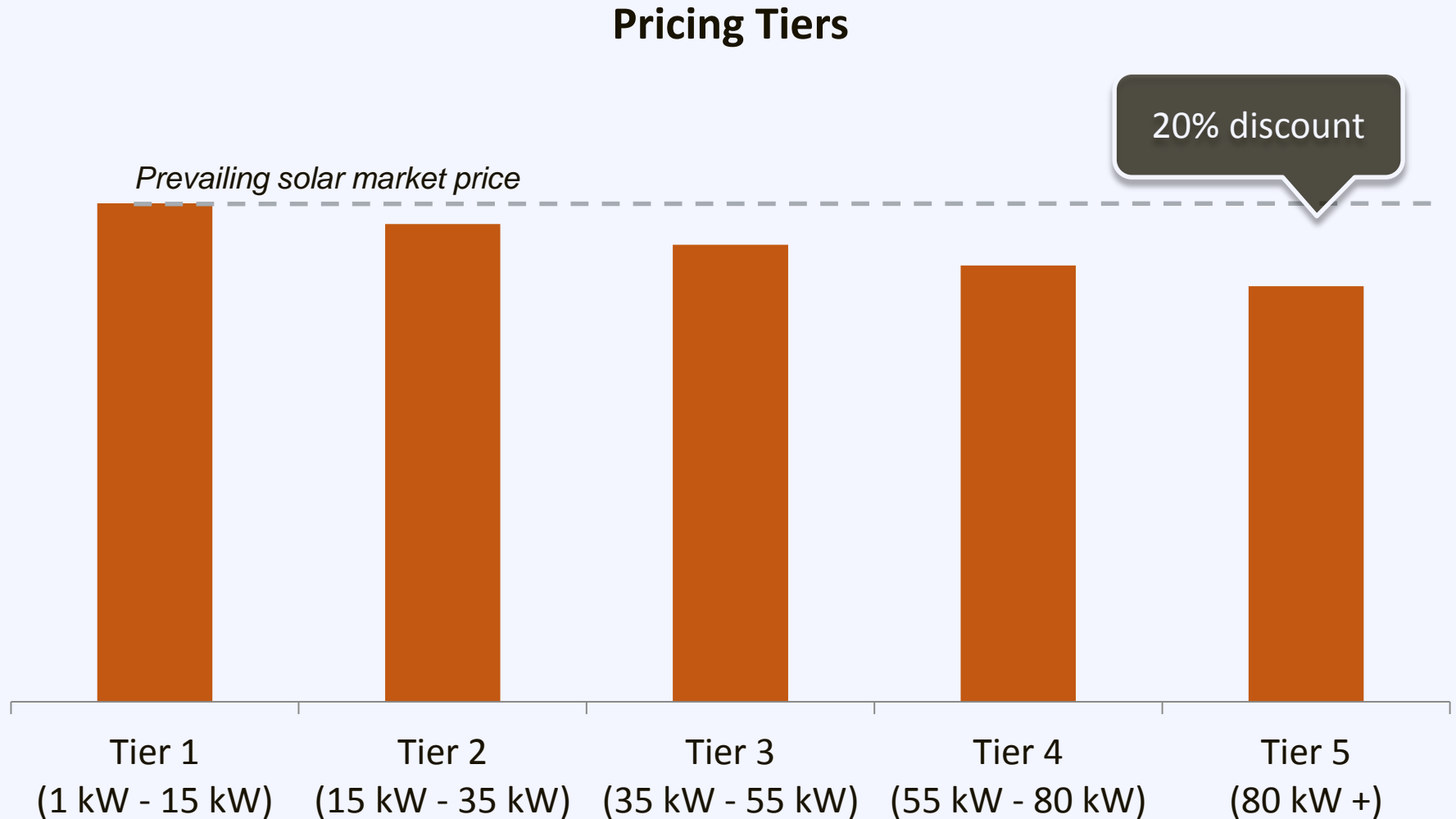
Plano, Texas

Population: 272,000

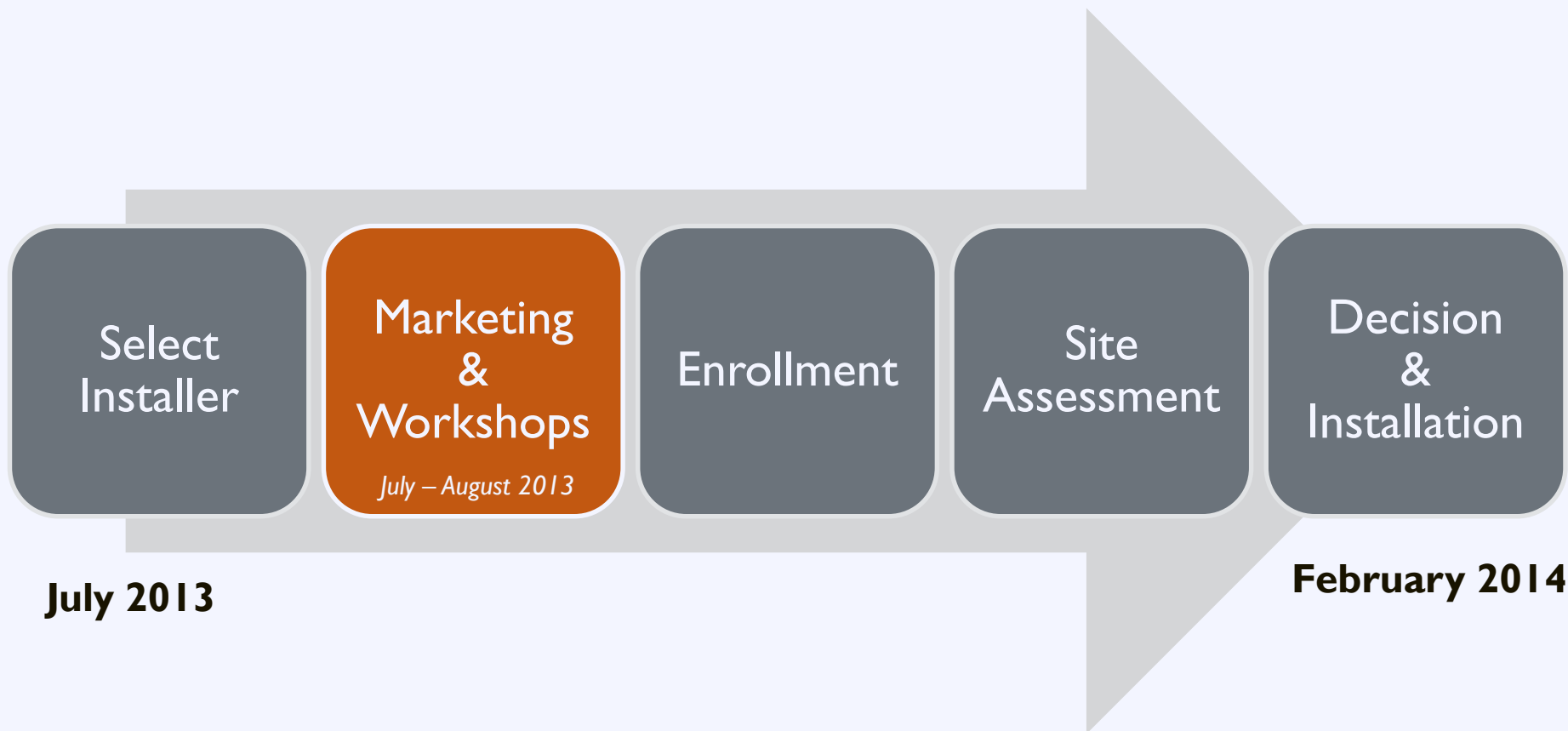
Solarize Plano: Case Study



Solarize Plano: Case Study



Solarize Plano: Case Study

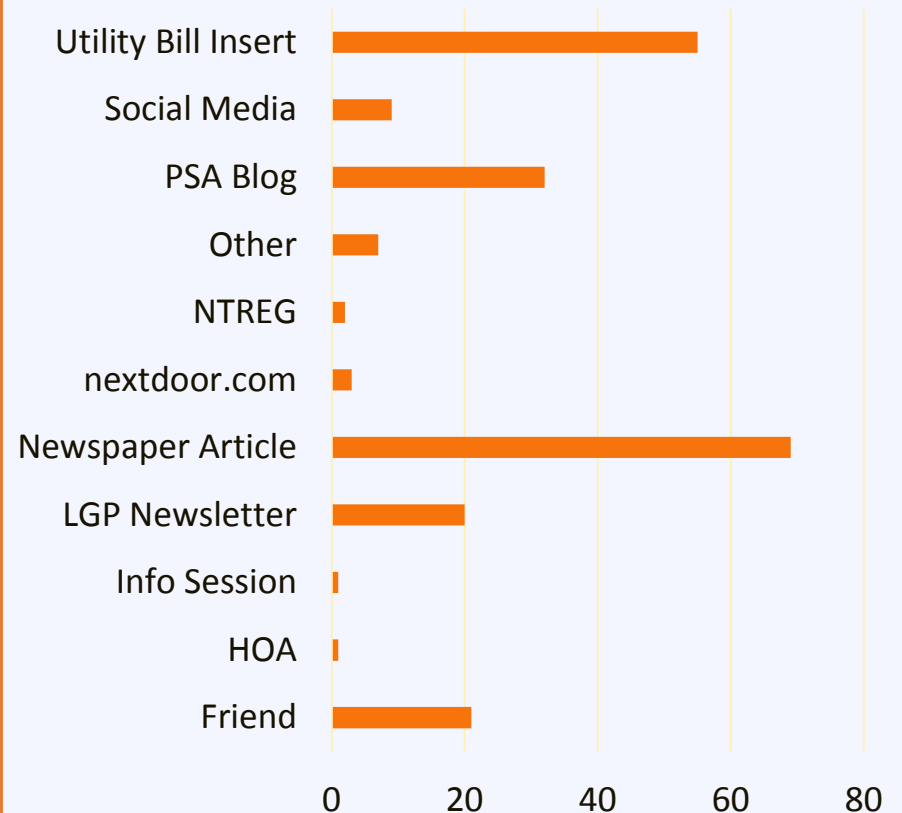


Solarize Plano: Case Study

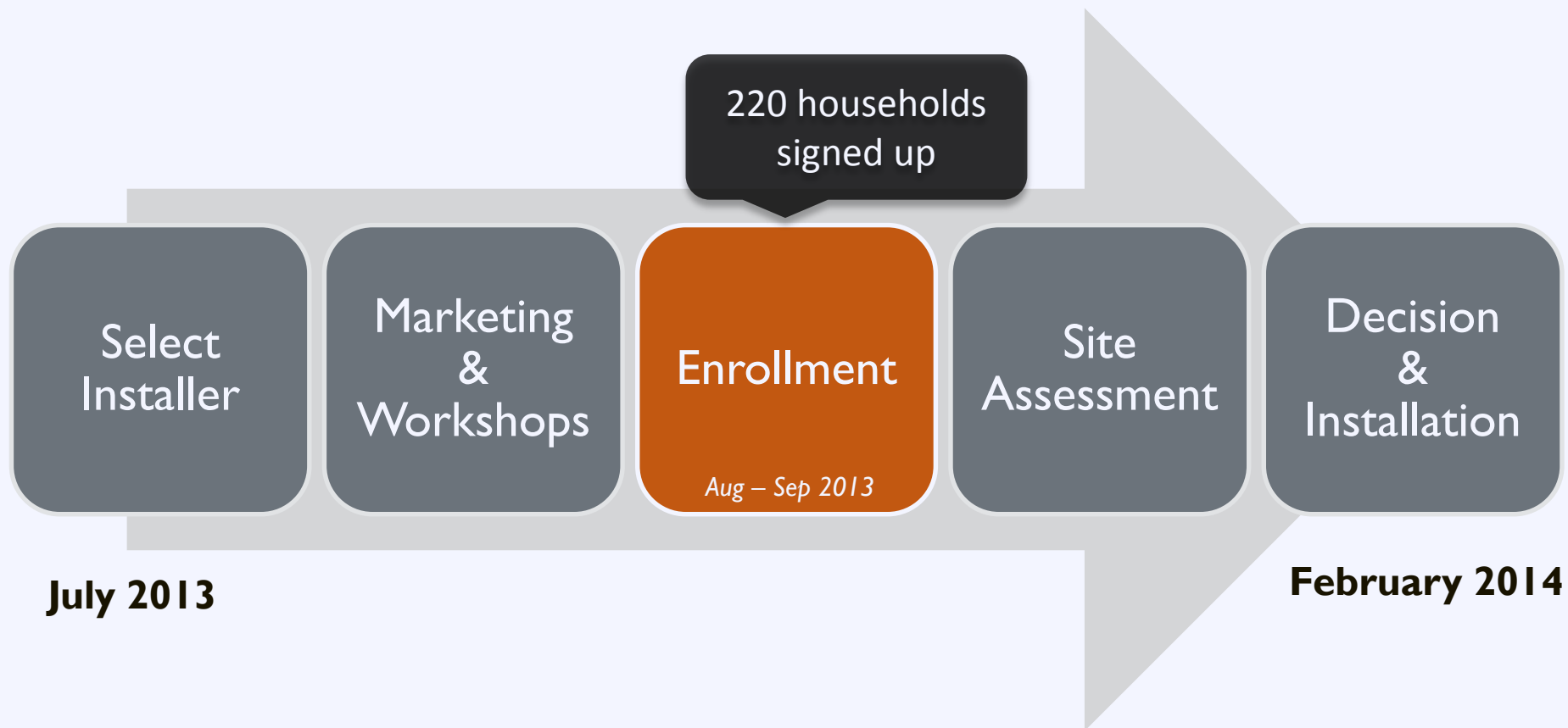
Marketing Strategy:

- Used Google for online communications
- Online Solar 101 presentations and videos
- Local newspaper and media
- Utility bill insert

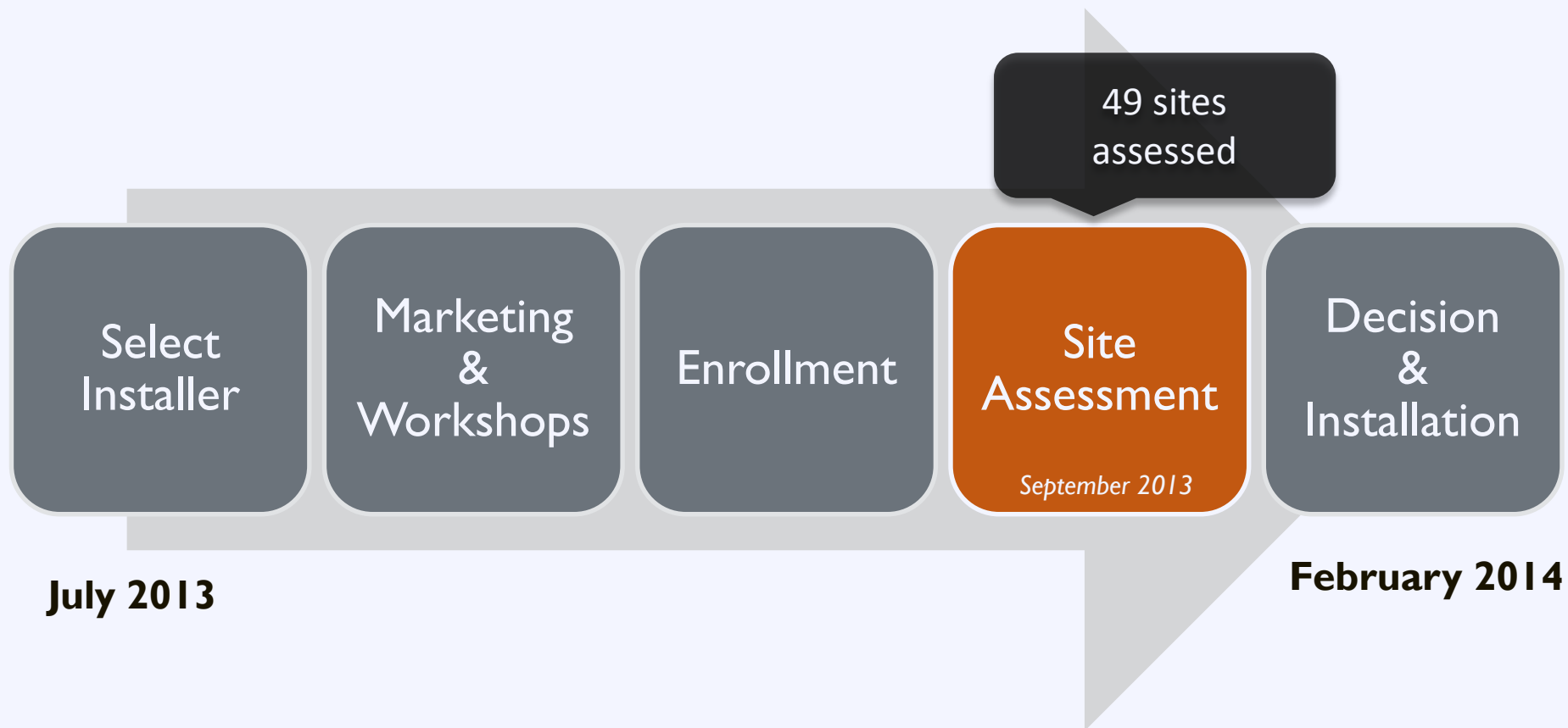
How did you learn about Solarize Plano?



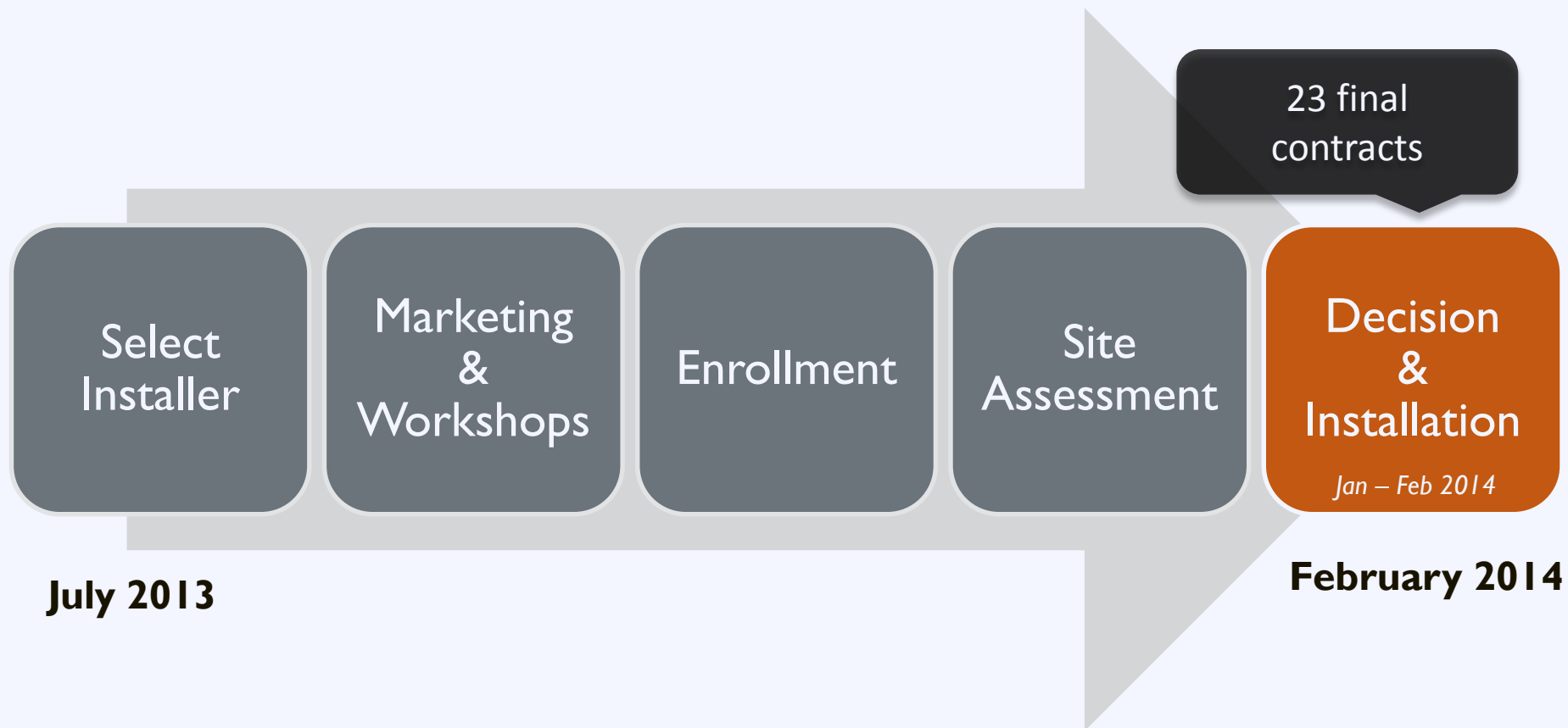
Solarize Plano: Case Study



Solarize Plano: Case Study



Solarize Plano: Case Study



Solarize Plano: Case Study

Results:

23 new installations totaling **112 kW**

45% of assessed sites signed contracts

20% reduction in solar price

Round 2 of Solarize Plano in 2014

5 new Solarize communities in Texas

Solarize: Lasting Impact

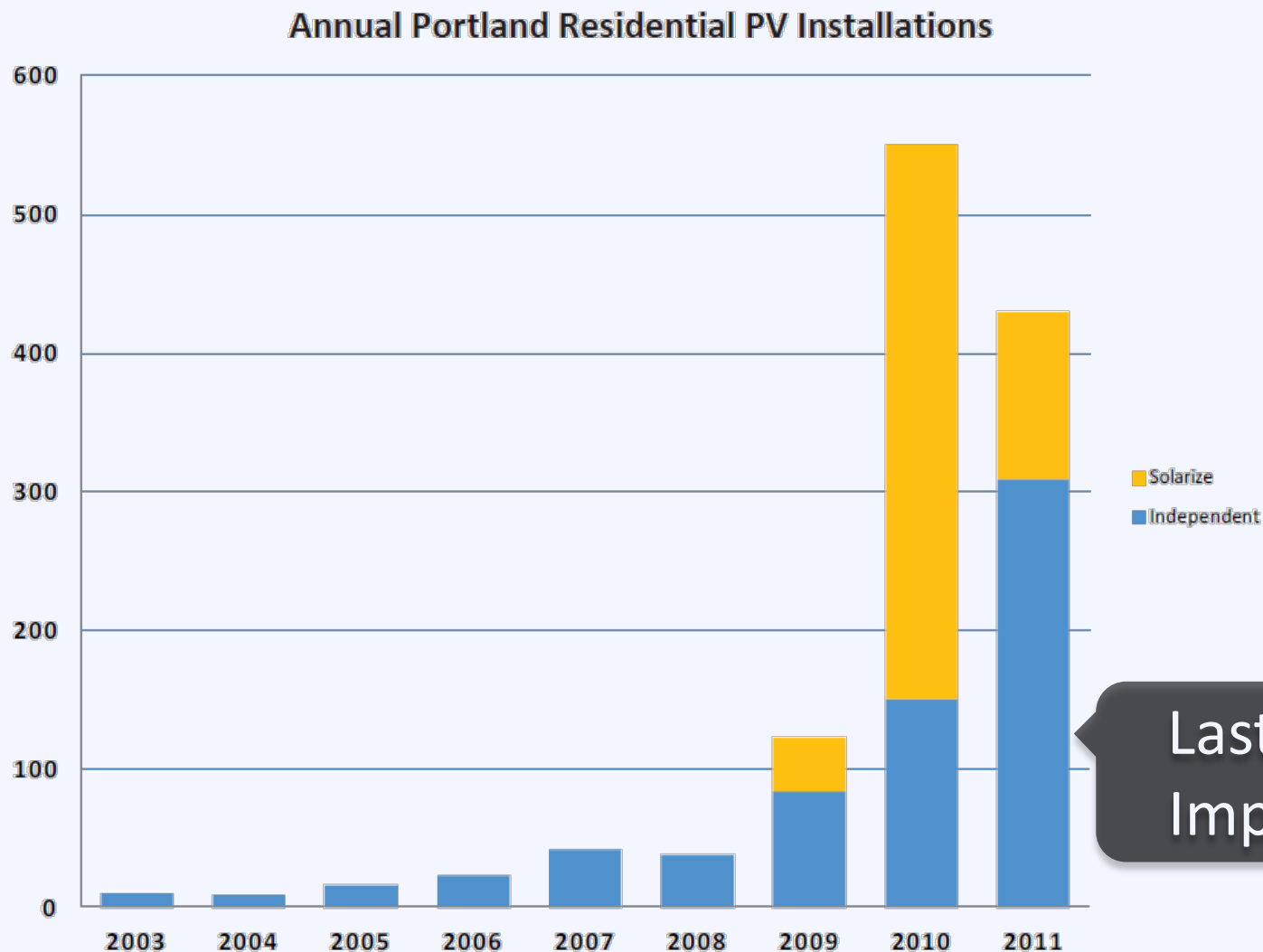
A household is

0.78% more likely to adopt solar

for

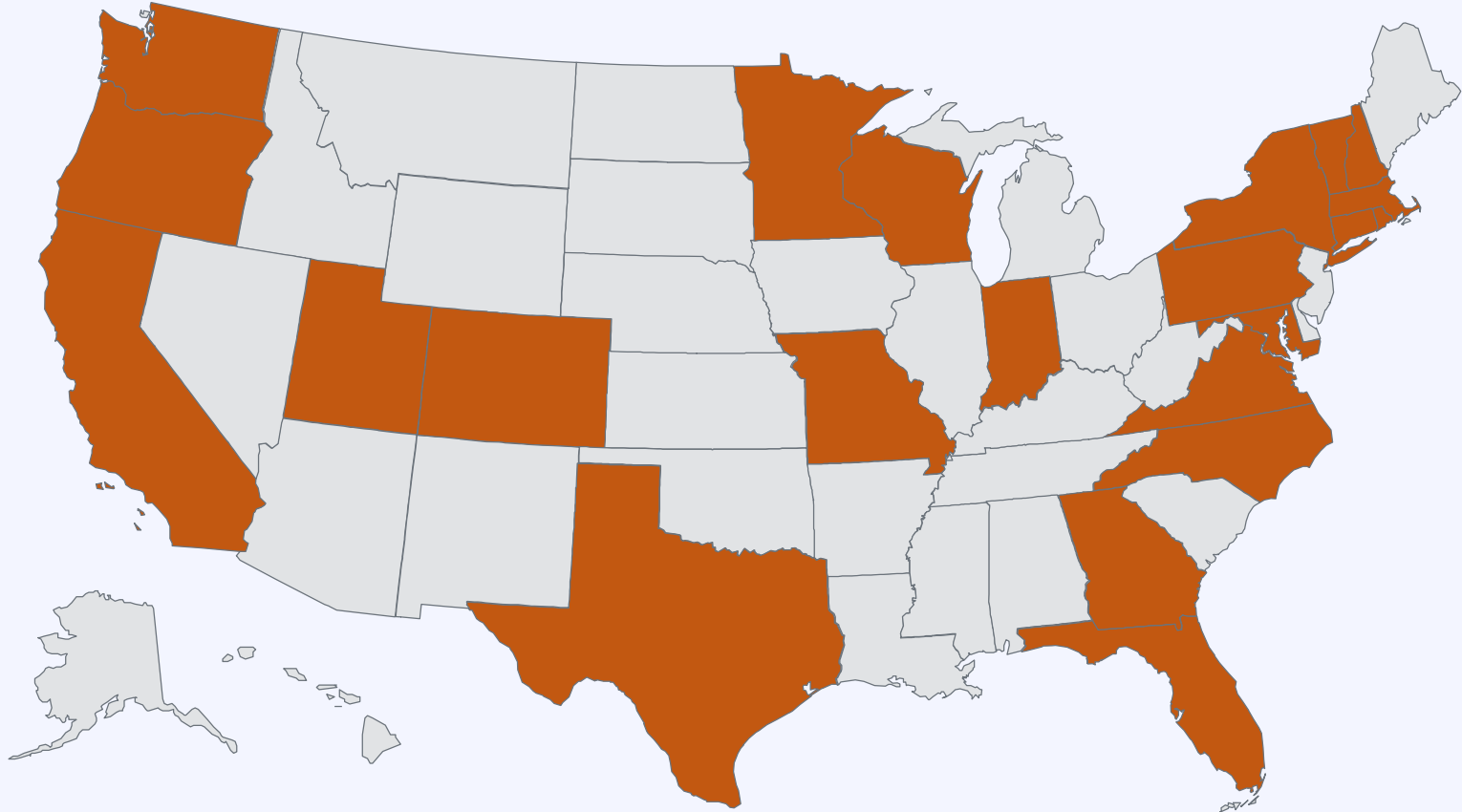
each additional installation in their zip code

Solarize: Lasting Impact



Solarize: National Growth

Over 200 Campaigns in 22 States



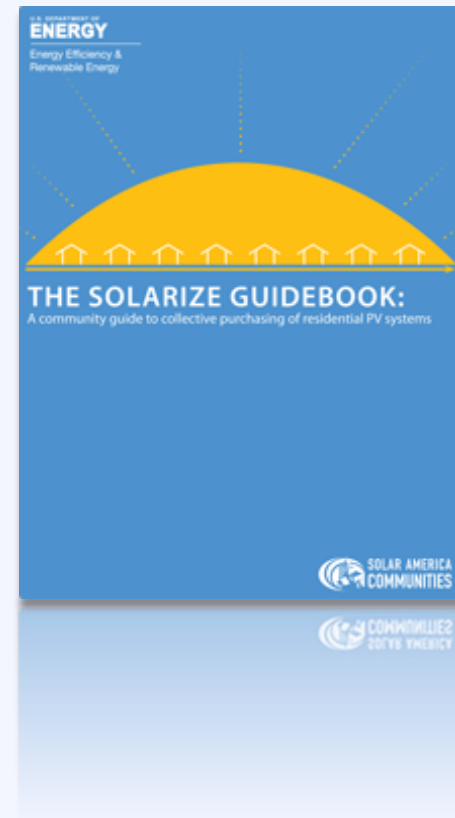
Thousands of homes Solarized!

Solarize: Resources

Resource The Solarize Guidebook

A roadmap for project planners and solar advocates who want to create their own successful Solarize campaigns.

www.nrel.gov



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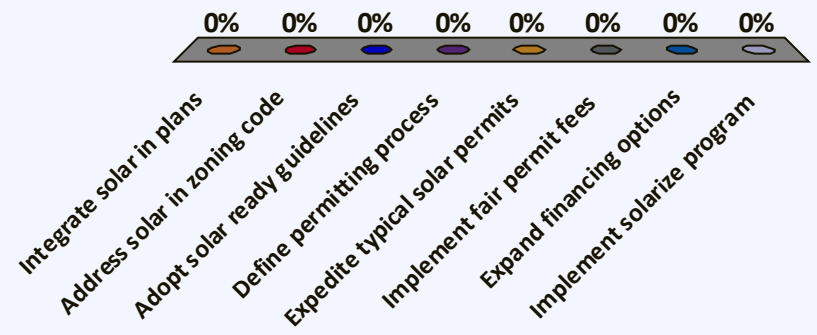
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Activity: Solar in Your Community

1. Understand the federal, state, & utility policy landscape
2. Think about your community's solar goals
3. Recognize local successes and review current local policies/procedures
4. Identify opportunities and barriers to implementation
5. Outline implementation plan

Where to begin?

- Integrate solar in plans
- Address solar in zoning code
- Adopt solar ready guidelines
- Define permitting process
- Expedite typical solar permits
- Implement fair permit fees
- Expand financing options
- Implement solarize program



Technical Assistance

- Available to local governments
 - Can request through a non-profit or regional organization (RPC)
 - Previously available through SolarOPs
 - Provided by RSC Teams
 - If not provided by RSC Team, then SolarOPs could help
 - **Now will be available through SPARC**

The Next Solution

Solar Powering America by Recognizing Communities (SPARC)

Community recognition program for 300
communities taking steps to reduce soft costs
and promote solar locally

SPARC Program Structure



Designation Program Development

- **Tiered designation program** with different levels of achievement
- **Ongoing competitions** to reward success in real-time
- **Annual awards** recognizing outstanding achievement in soft cost, market growth, community engagement, other categories

**FINAL CRITERIA AND
STRUCTURE AVAILABLE:
SPRING 2016**



No-Cost Technical Assistance

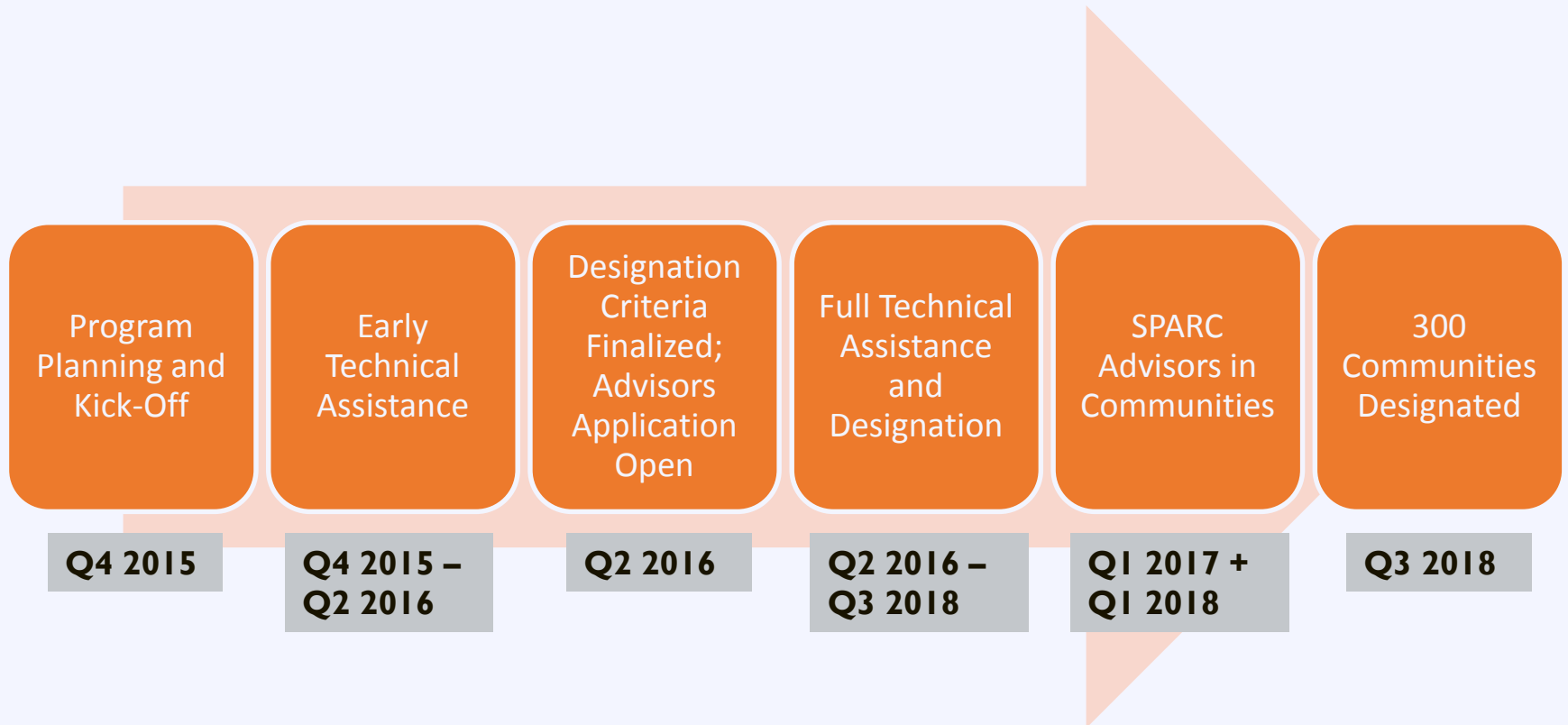
- Communities pursuing SPARC designation will be **eligible for up to 100 hours (on average) of no-cost technical assistance** from national solar experts.
- Technical assistance will be designed to **help a community achieve the basic requirements for designation**. Depending on demand, some TA may also be available to help more advanced communities achieve higher levels of designation.
- **Possible topic areas** for TA include: streamlining permitting and inspection processes for solar, planning and zoning for solar, solar financing options, codes and standards, community and utility engagement, market development programs, and others.

SPARC Advisors

- **Funded temporary staff** to help communities achieve designation. Communities must apply to participate in SPARC to host an Advisor.
- Advisors will **evaluate existing local government policies/processes** and **apply industry leading best practices** that will move a community toward designation.
- SPARC Advisors will assist communities through **engagements lasting up to six months.**
- There will be **two opportunities** for a community to be chosen as a SPARC Advisor host, and these will occur through a highly competitive process.

**FIRST ROUND OF COMMUNITY SELECTION
BEGINS: April 2016**

SPARC Timeline



What do municipalities ask for?

- Review solar zoning ordinance, or HOA language – is it solar friendly?
- Review permitting processes
- Help with solarize program
- Review RFP
- Review responses to RFP
- Feasibility analysis for solar PV
- Myth busting

Application Process

- Apply for SPARC assistance & sign up for updates through gosparc.org
- Contact Philip Haddix at phaddix@solarfound.org



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