Solar Powering Your Community

Addressing Soft Costs and Barriers

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About the SunShot Solar Outreach Partnership

ICMA
Leaders at the Core of Better Communities

APA
American Planning Association
Making Great Communities Happen

NARC
Building Regional Communities
National Association of Regional Councils

ICLEI
Local Governments for Sustainability USA

IREC
Interstate Renewable Energy Council

MEISTER
CONSULTANTS GROUP

NC CLEAN ENERGY TECHNOLOGY CENTER
Formerly the NC Solar Center

The SOLAR FOUNDATION

SEPA
solar electric power association

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

Complimentary Services

Technical Resources

Regional Workshops

One to One Assistance

Strategy Session

Complimentary Services

Technical Resources

Helping Policymakers Understand Best Practices:

- Case Studies
- Fact Sheets
- How-to Guides
- Toolkits

www.solaroutreach.org

One to One Assistance

Regional Workshops

Strategy Session

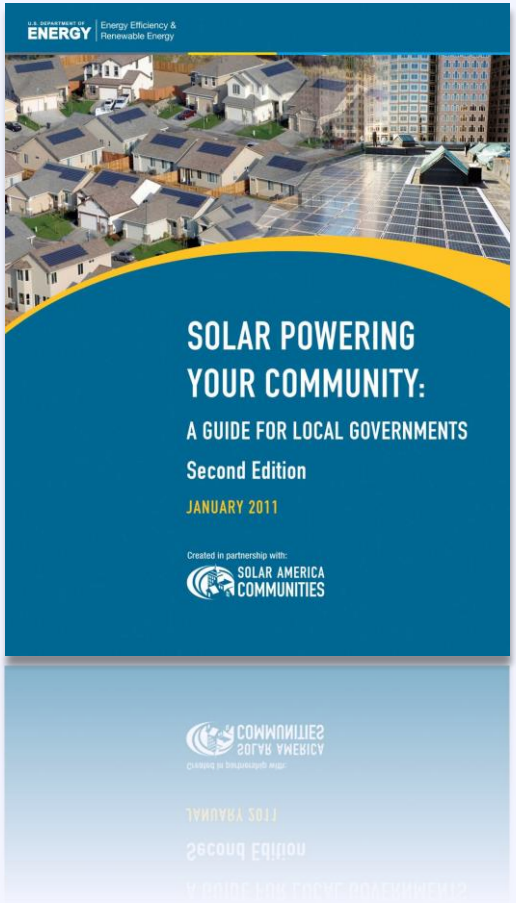
Email solar-usa@iclei.org to request a 20 minute consultation

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



Complimentary Services

Quickly get up to speed on key solar policy issues:

- Solar 101
- Planning for Solar
- Implementing an Ordinance
- Streamlining Solar Permits
- Growing your Market

Regional Workshops

Strategy Session

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Email solar-usa@iclei.org to request a 20 minute consultation

Complimentary Services

Technical Resources

Regional Workshops

Develop an implementation strategy for smart solar policy

Strategy Session

Email solar-usa@iclei.org to request a 20 minute consultation

Complimentary Services

Technical Resources

Regional Workshops

One to One Assistance

Receive customized technical support on implementation of smart solar policy

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Email solar-usa@iclei.org to request a 20 minute consultation

After This Session

Talk to Us!

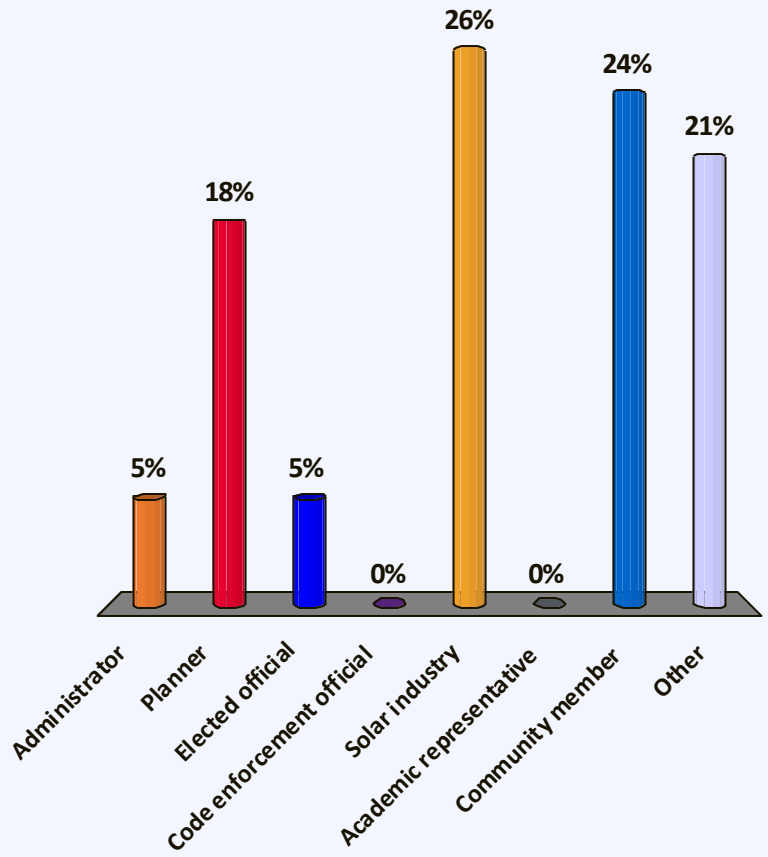
Sign up for a 20 minute consultation to learn more about our free services

See Riana Ackley to sign up.

We want to get to know you better

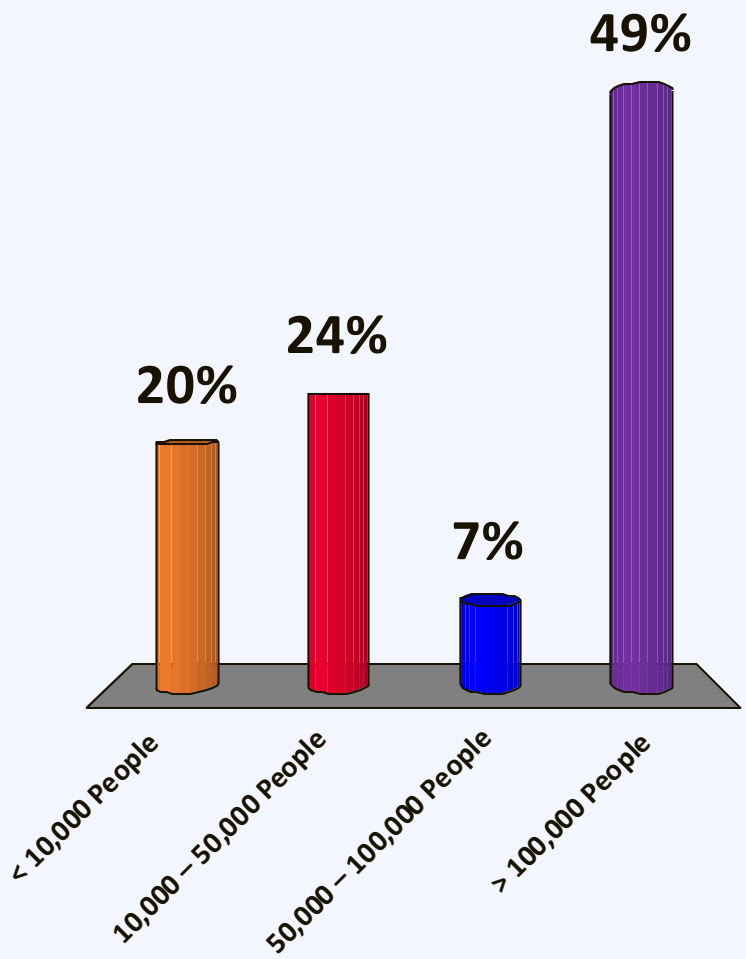
Who are you?

A. Administrator
B. Planner
C. Elected official
D. Code enforcement official
E. Solar industry
F. Academic representative
G. Community member
H. Other



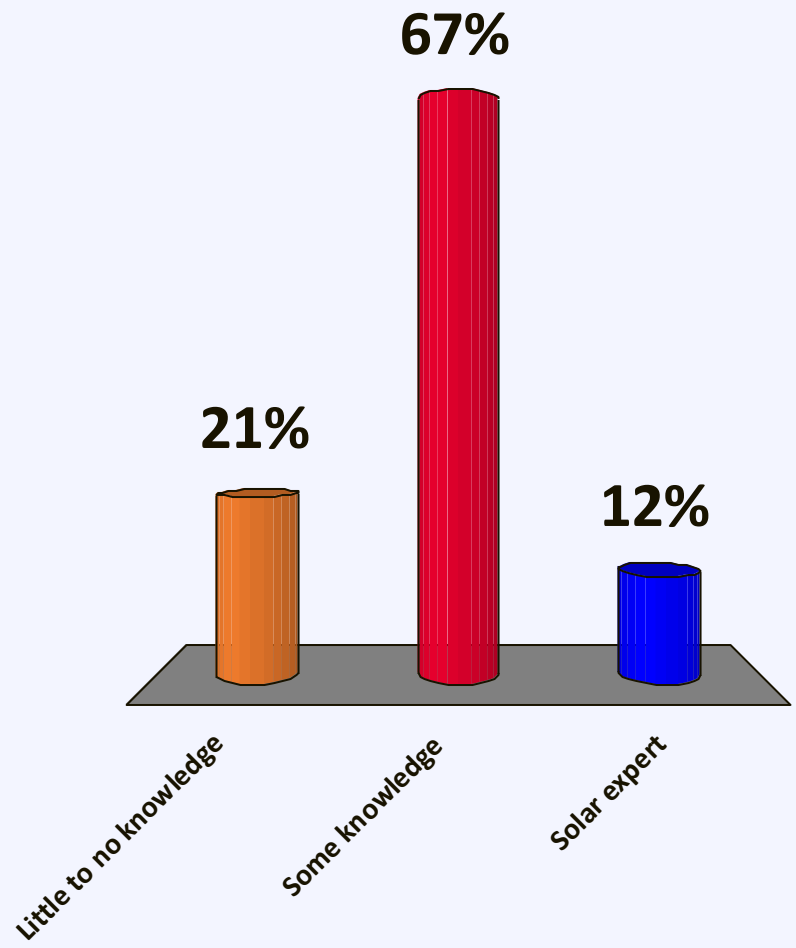
What size is your community?

A. < 10,000 People
B. 10,000 – 50,000 People
C. 50,000 – 100,000 People
D. > 100,000 People



How familiar are you with solar?

A. Little to no knowledge
B. Some knowledge
C. Solar expert

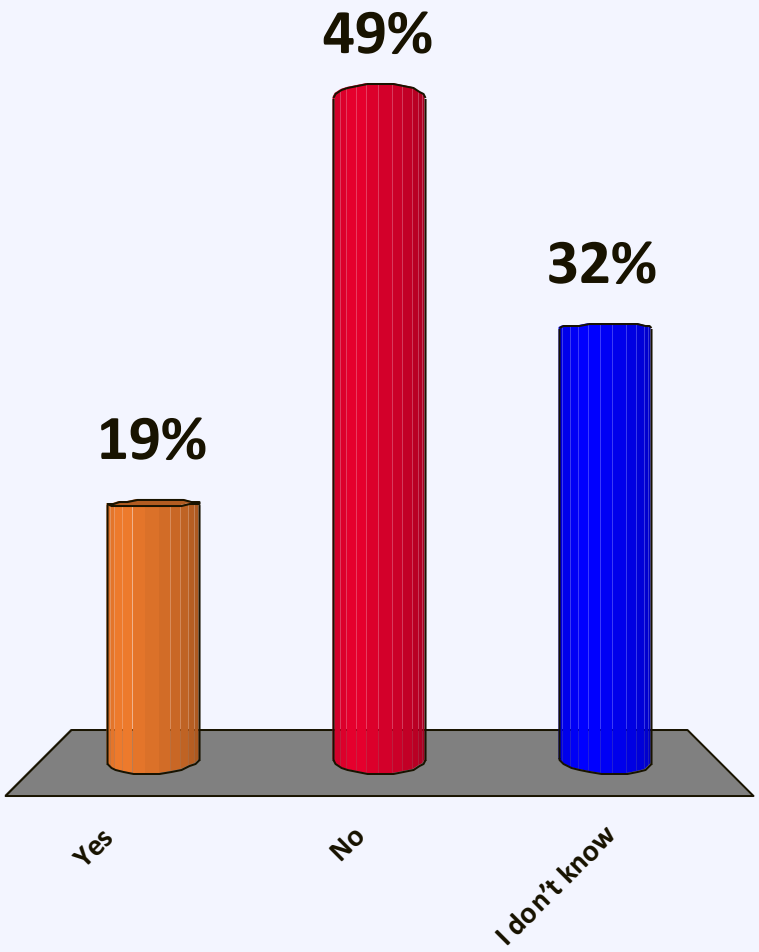


Does your local government have solar on public properties?

A. Yes

B. No

C. I don't know



Solar Development in the US

In 2014, the US solar industry installed

195,000 new solar installations

averaging

1 installation every 2.5 minutes

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Agenda

10:20 – 10:50	Putting Solar Energy on the Local Policy Agenda
10:50 – 11:20	State of the Mississippi Solar Market
11:20 – 11:50	Federal, State, and Utility Policy Drivers
11:50 – 12:10	*Lunch Break*
12:10 – 1:30	Solar in Mississippi: A Local Perspective
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2:45 – 3:00	Next Steps

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Solar Technologies

Solar Photovoltaic (PV)

Solar Hot Water

Concentrated Solar Power

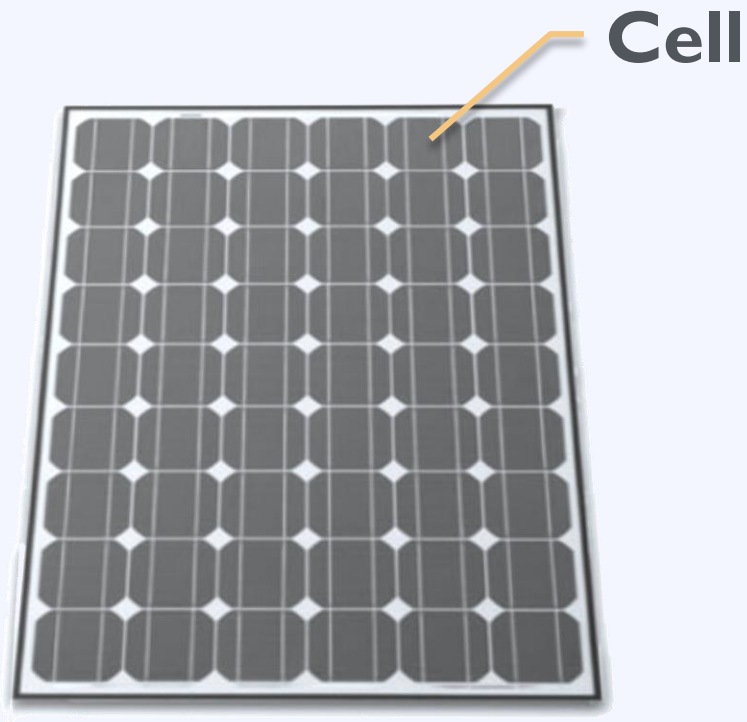
Solar Technologies

Solar Photovoltaic (PV)

Solar Hot Water

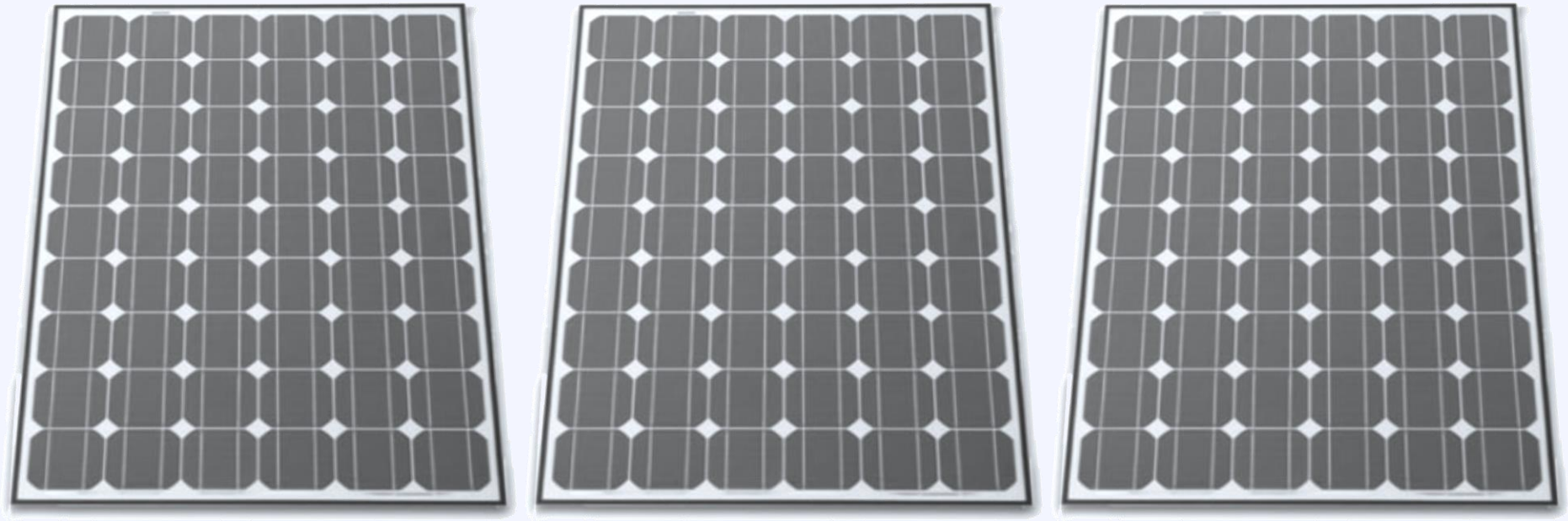
Concentrated Solar Power

Some Basic Terminology



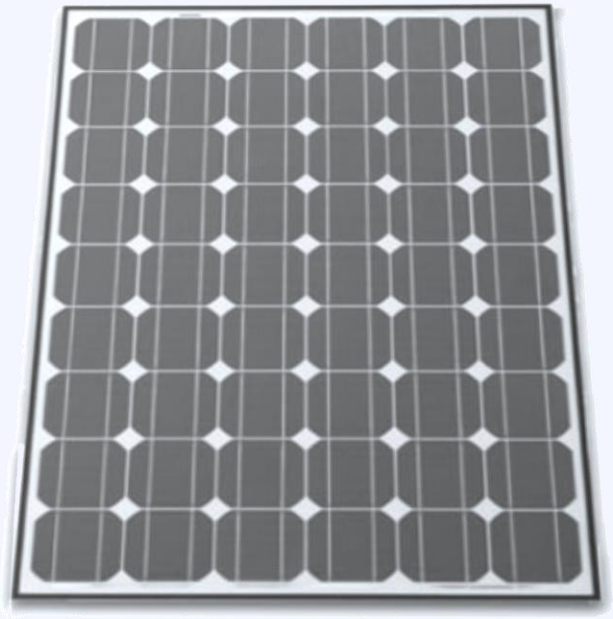
Panel / Module

Some Basic Terminology



Array

Some Basic Terminology



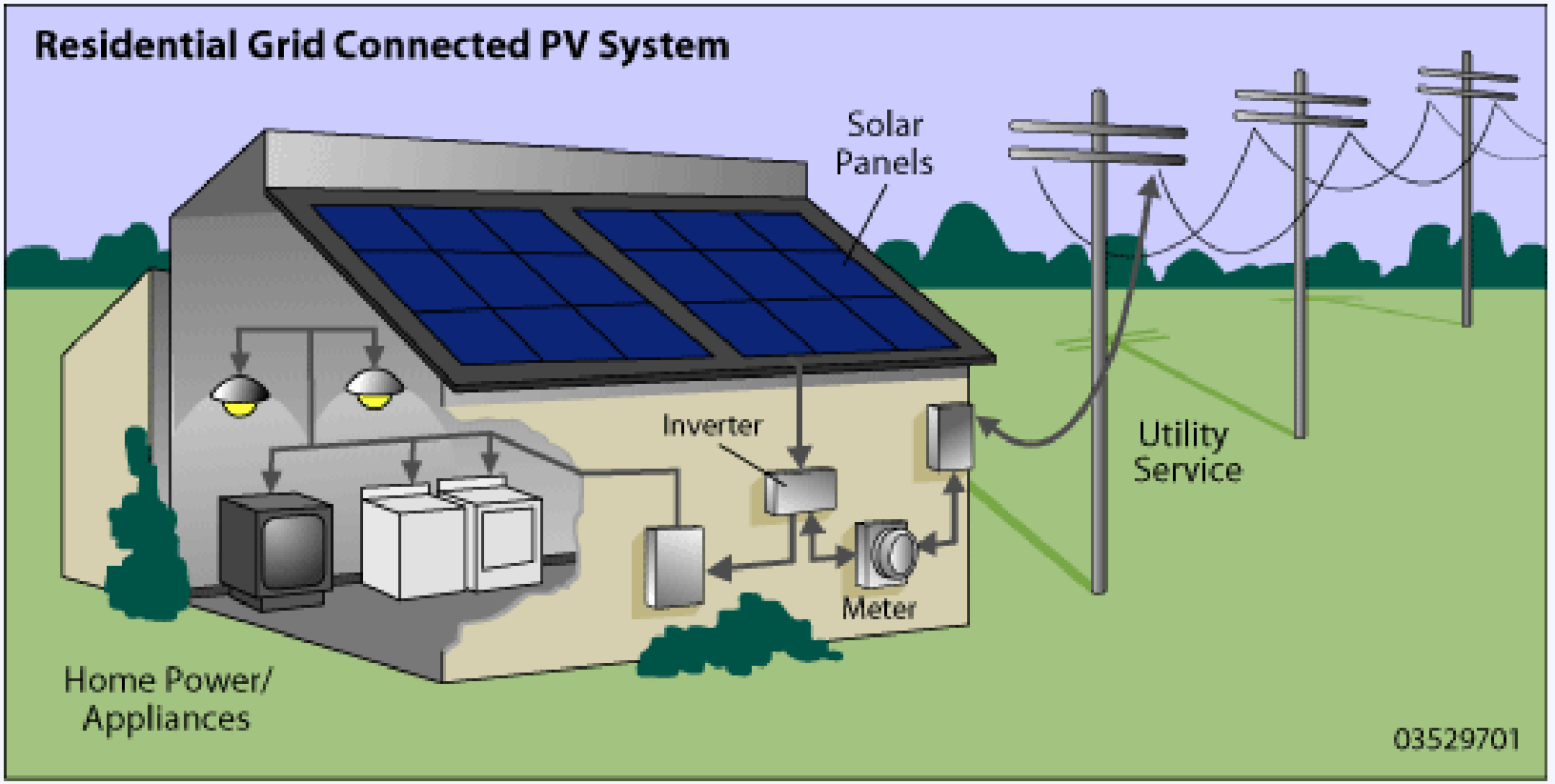
Capacity / Power

kilowatt (kW)

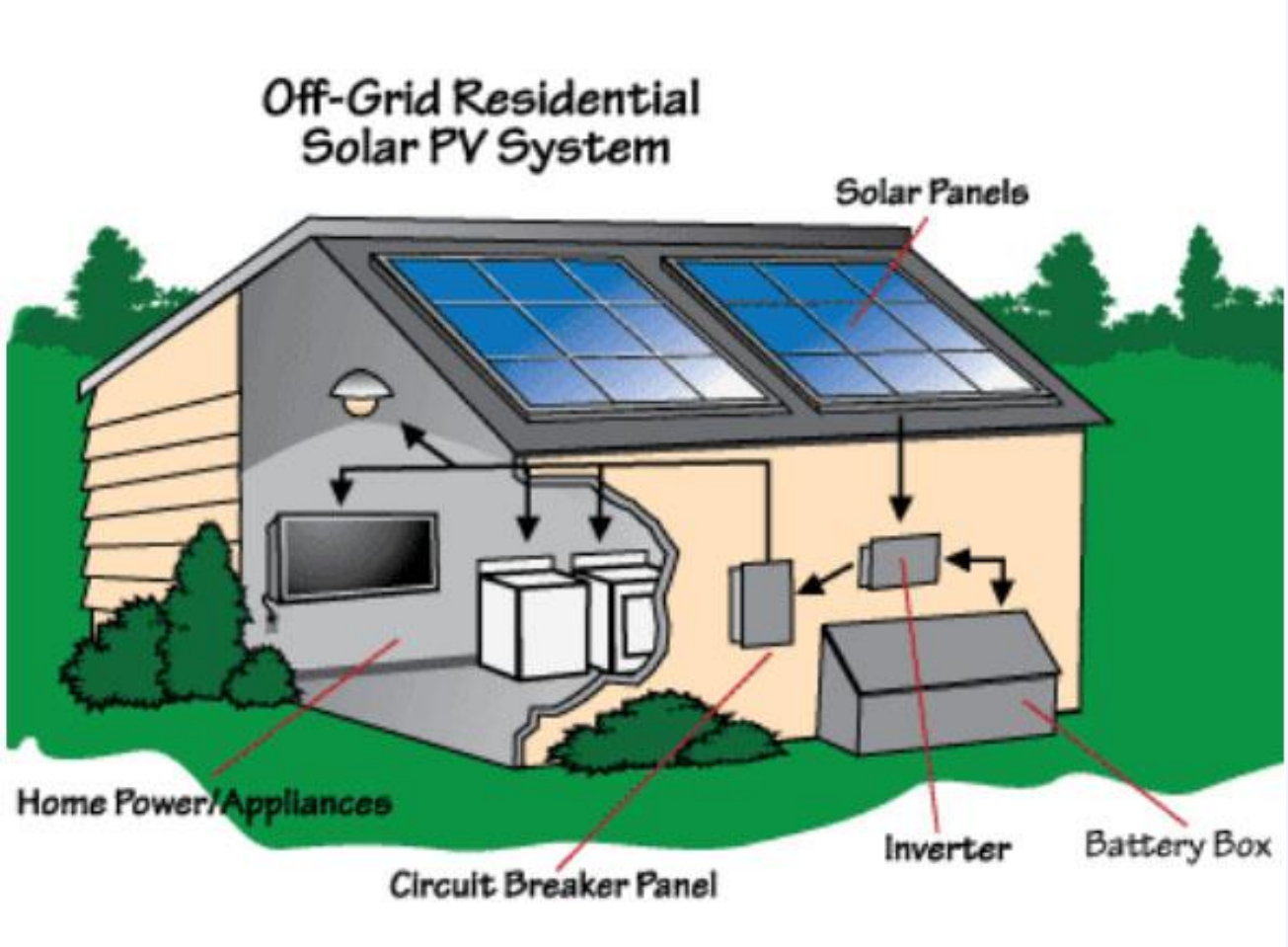
Production

Kilowatt-hour (kWh)

System Components – On-Grid



System Components – Off-Grid



Some Basic Terminology

Residence
5 kW

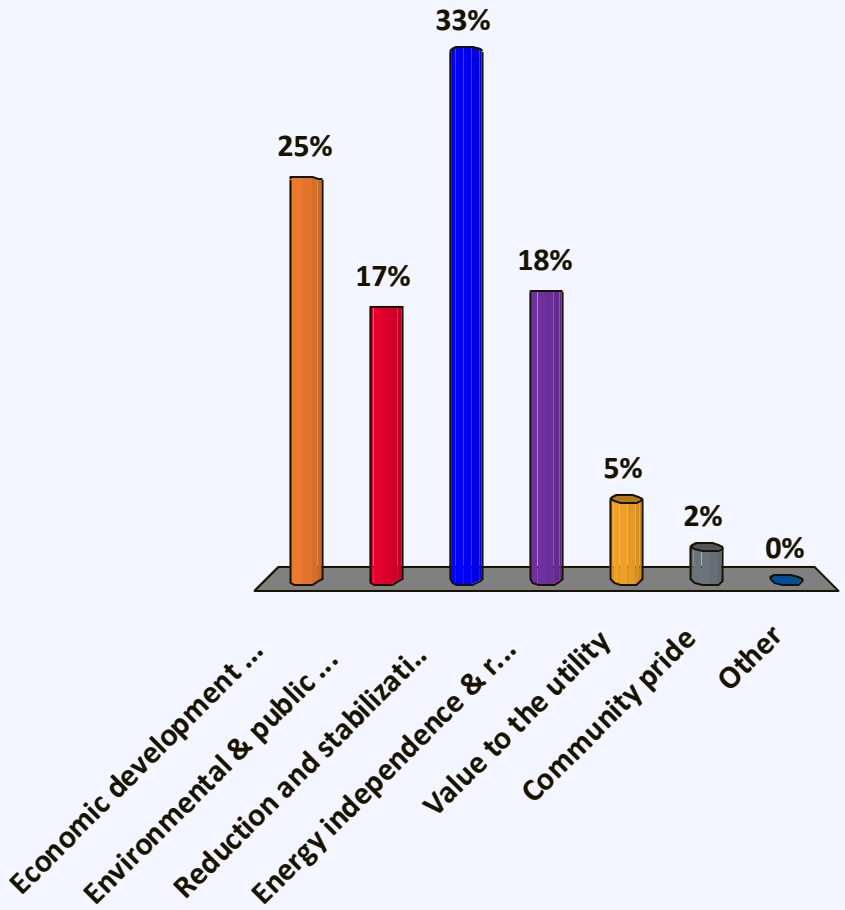
Factory
1 MW+

Office
50 – 500 kW

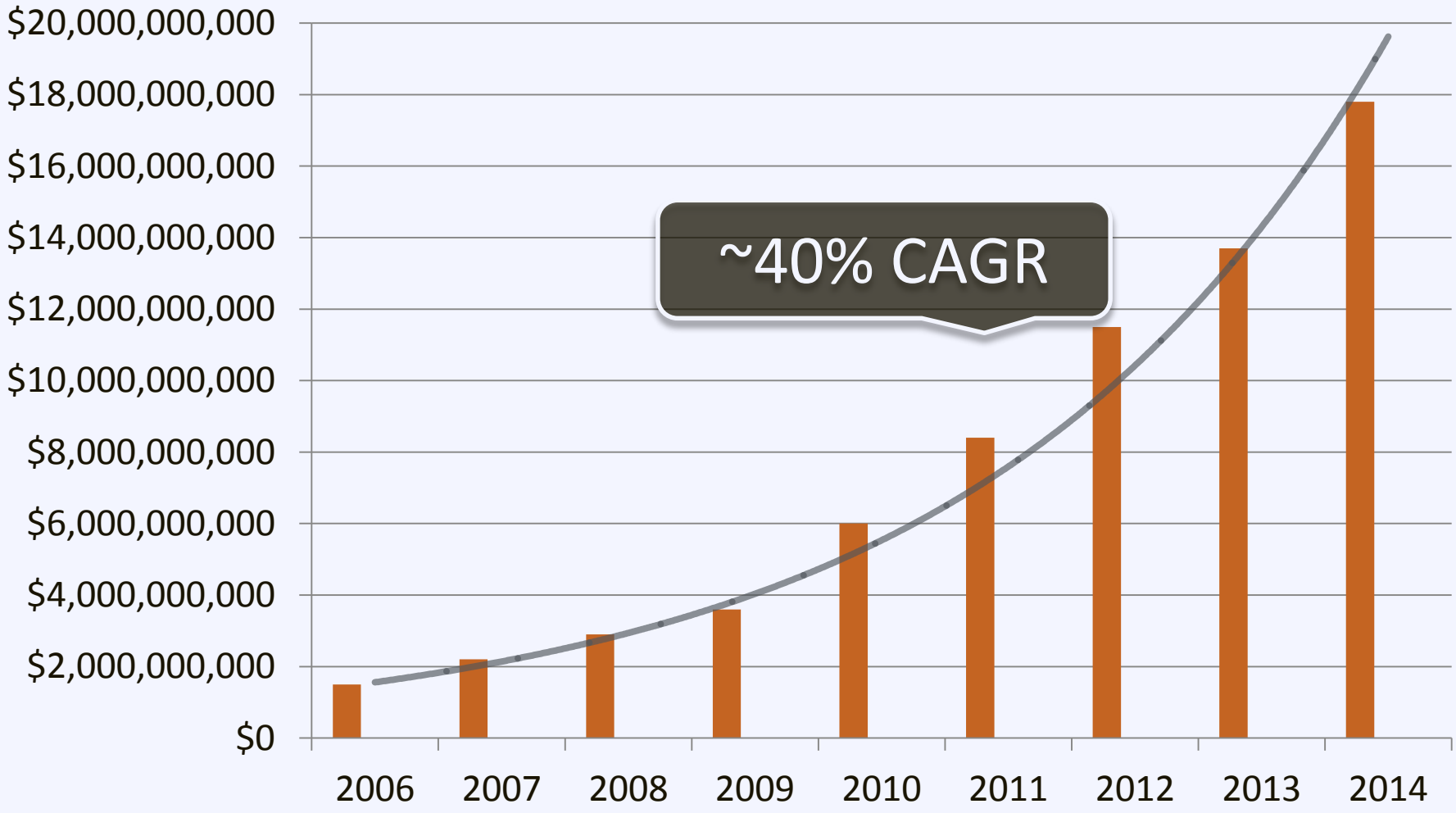
Utility
2 MW+

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



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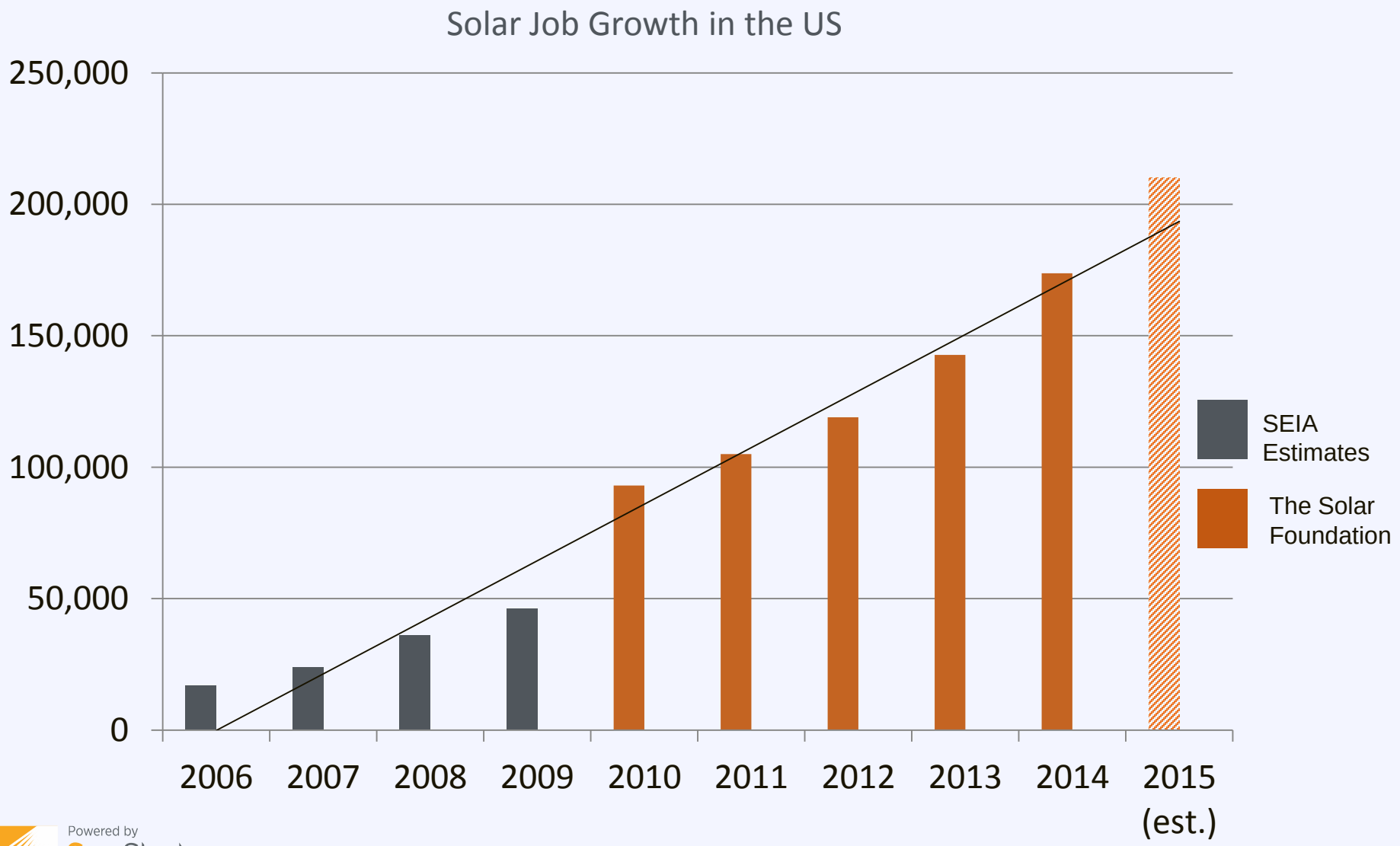
Source: SEIA/GTM Research – 2009/2010/2011/2012 Year in Review Report
http://www.seia.org/research-resources/us-solar-market-insight

Benefits: Solar Job Growth



Source: SEIA Estimates (2006-2009), The Solar Foundation's *National Solar Jobs Census* report series

The Local Economic Opportunity

1 Megawatt of Residential & Commercial Solar Development in Mississippi:

38 Jobs *and* **$4.5 Million**

In economic output

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Source: JEDI Model, NREL

Economic Development in Mississippi

There are currently

13 solar companies

that employ

400 people

Economic Development in Mississippi

Key: Manufacturer Installer Other

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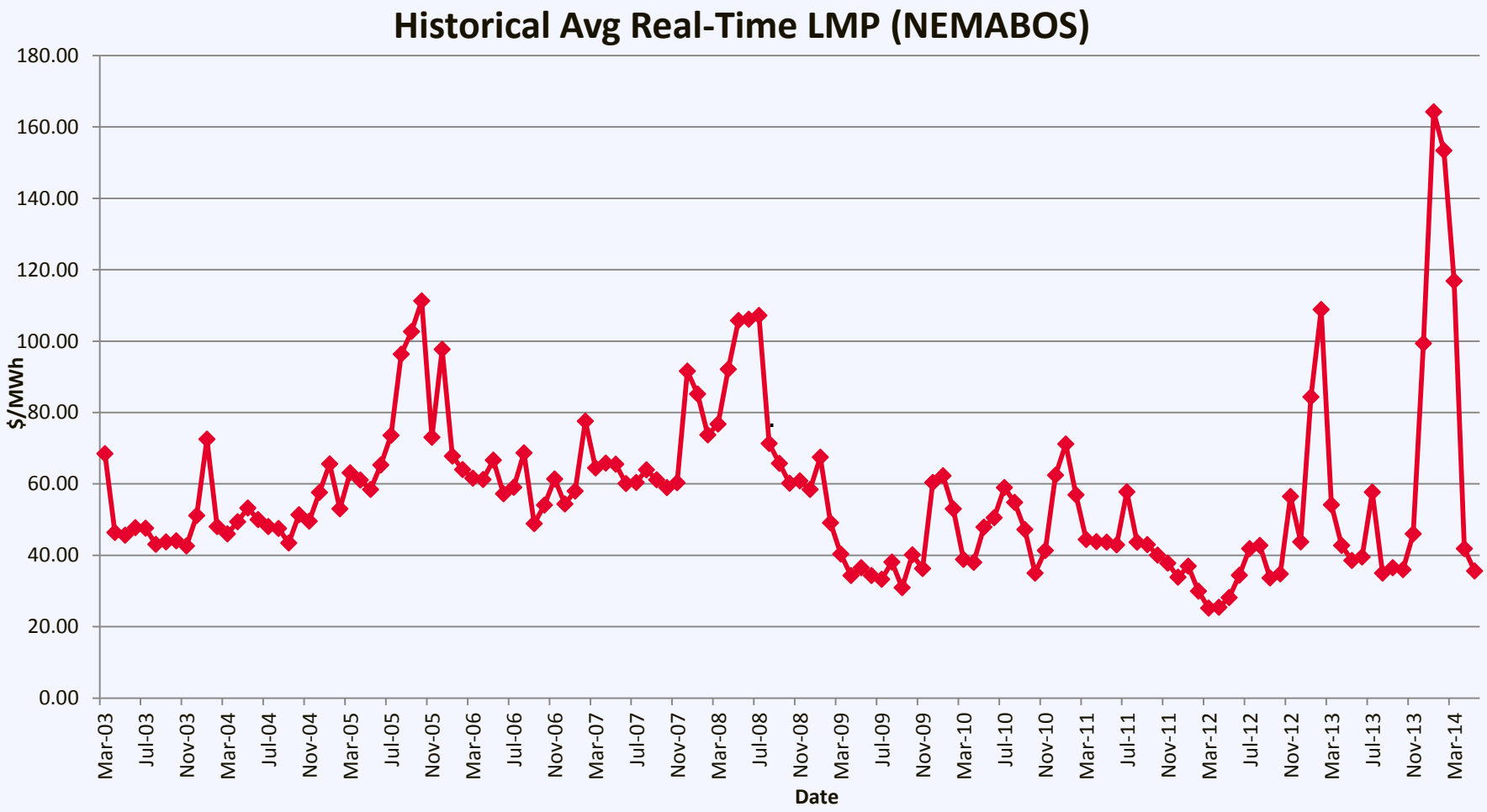
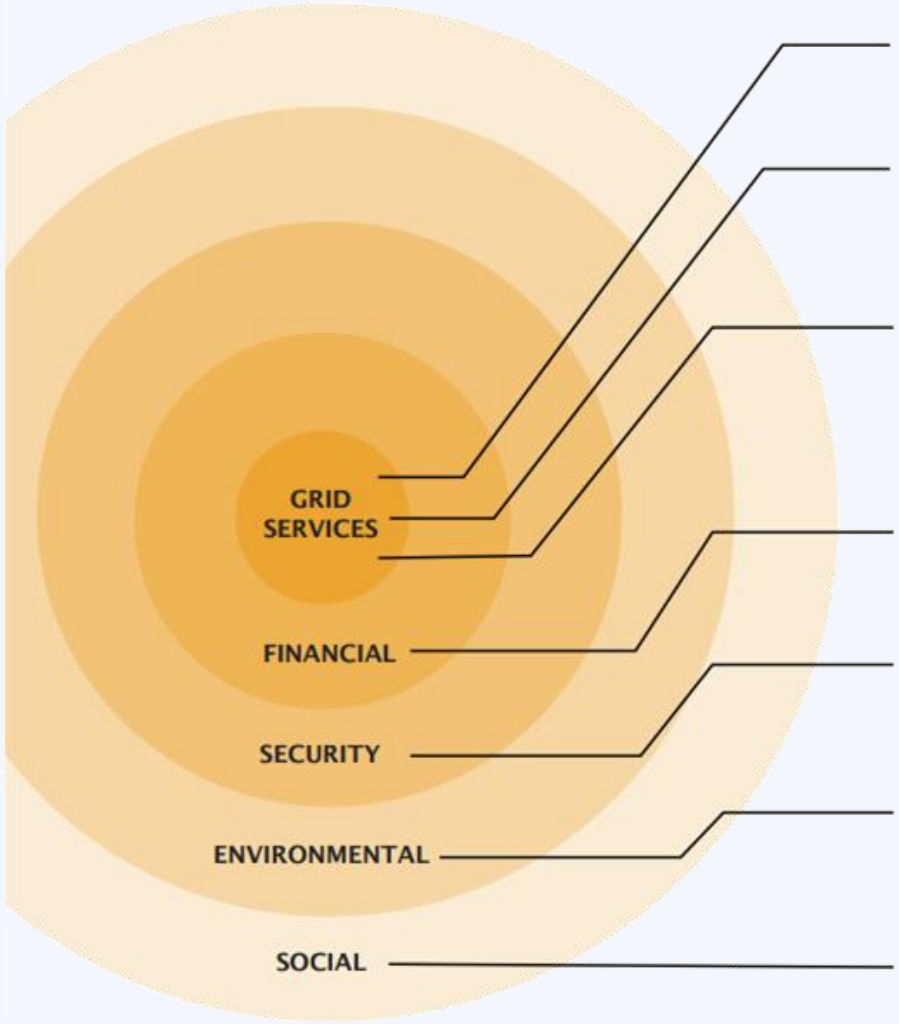
Source: SEIA

Benefit: Stabilize Energy Prices



Source: NEPOOL

Valuable to Community & Utilities



ENERGY
- energy
- energy losses

CAPACITY
- generation capacity
- transmission & distribution capacity
- DPV installed capacity

GRID SUPPORT SERVICES
- reactive supply & voltage control
- regulation & frequency response
- energy & generator imbalance
- synchronized & supplemental operating reserves
- scheduling, forecasting, and system control & dispatch

FINANCIAL RISK
- fuel price hedge
- market price response

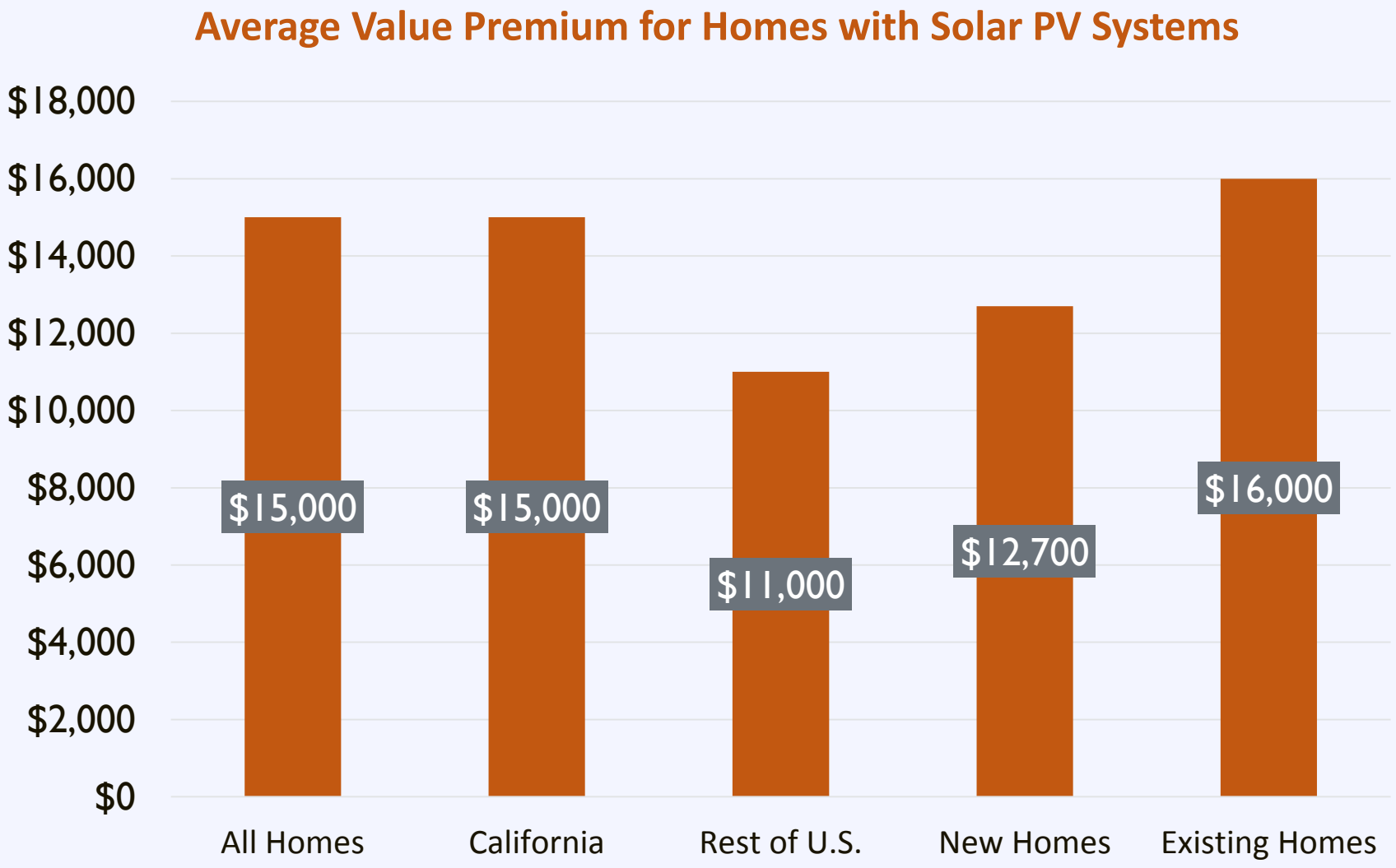
SECURITY RISK
- reliability & resilience

ENVIRONMENTAL
- carbon emissions
- criteria air pollutants (SOx, NOx, PM10)
- water
- land

SOCIAL
- Economic development (jobs and tax revenues)

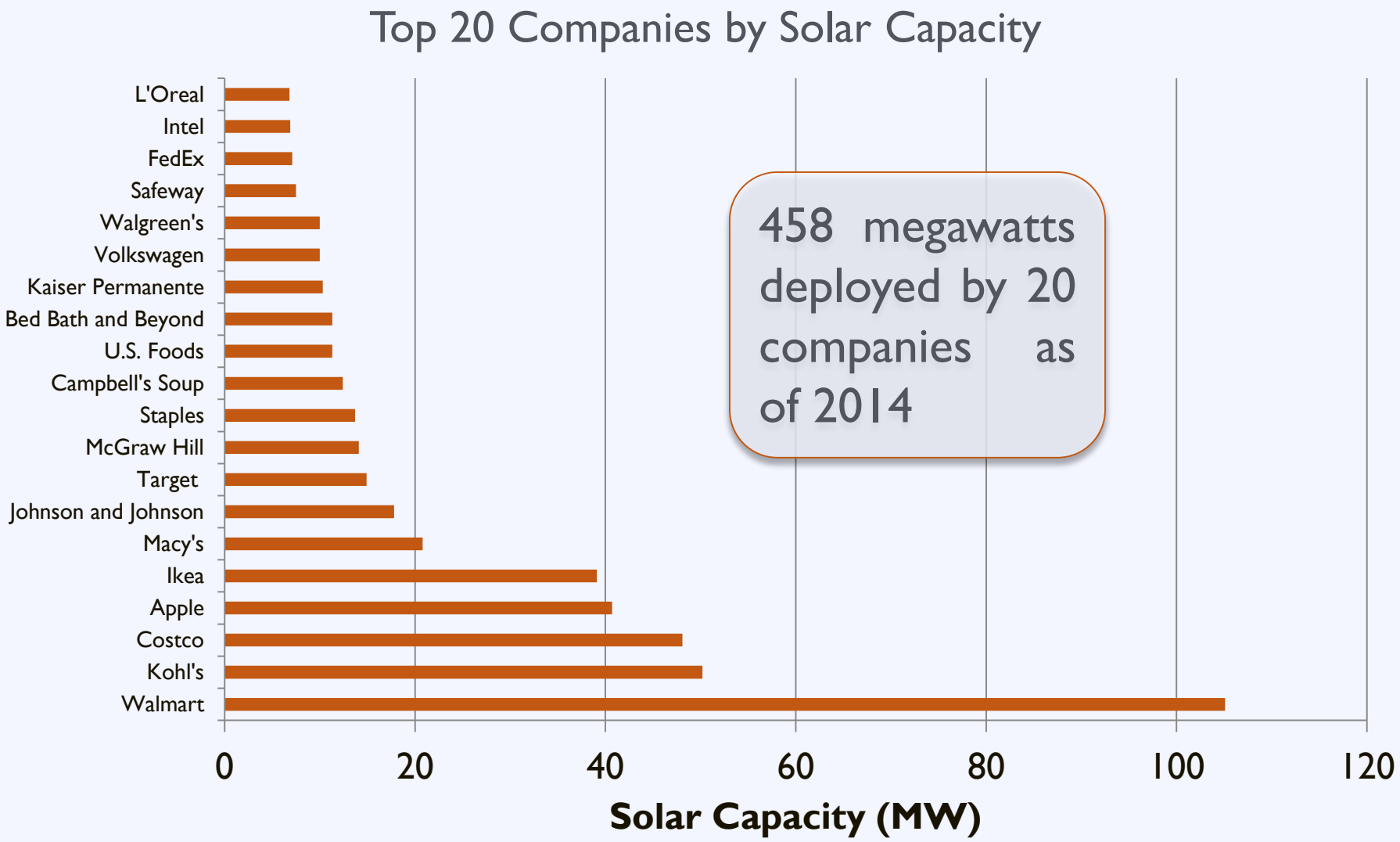
Source: Rocky Mountain Institute
(http://www.rmi.org/Content/Files/eLab-DER_cost_value_Deck_130722.pdf)

Smart Investment for Homeowners



Source: LBNL, *Selling Into the Sun* (2015)

Smart Investment for Businesses



Source: Solar Energy Industries Association

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Smart Investment for Governments

Source: Borrego Solar

Smart Investment for Schools

Current:

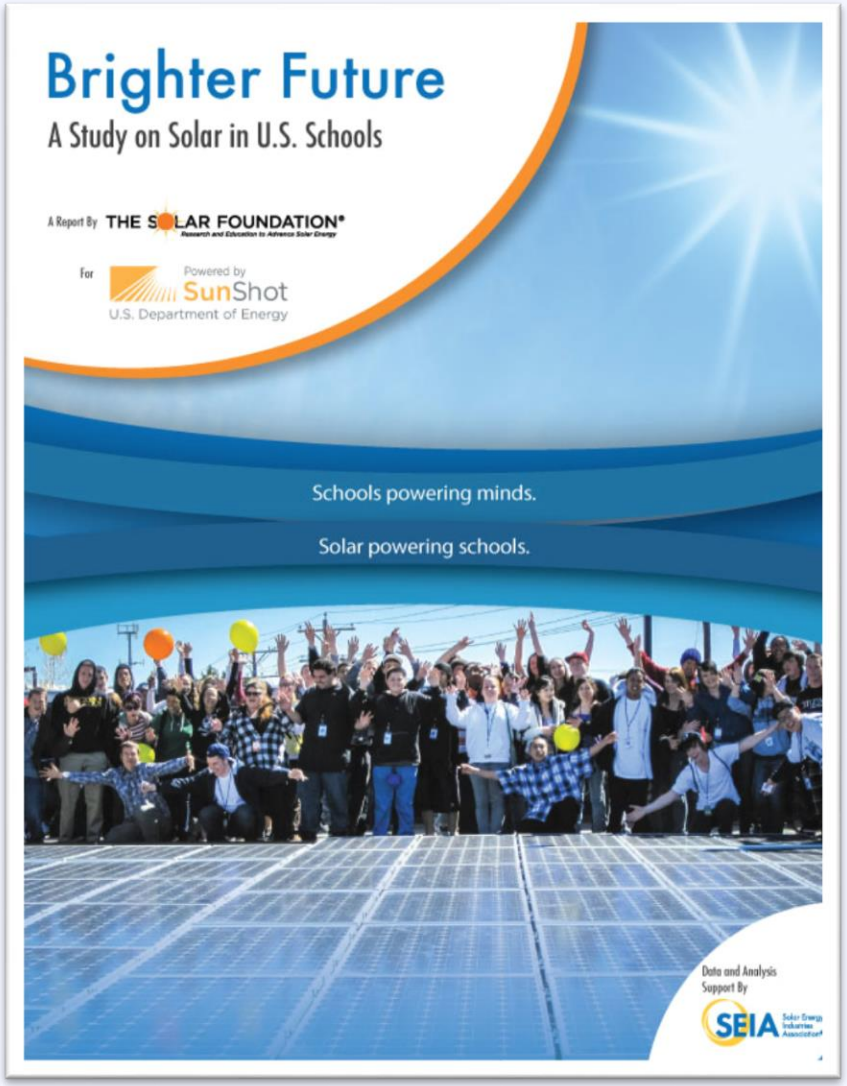
× 3,752

$ = $77.8m

Potential:

× 40,000 – 72,000

$ = $800m



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Source: The Solar Foundation (http://schools.tsfcensus.org)

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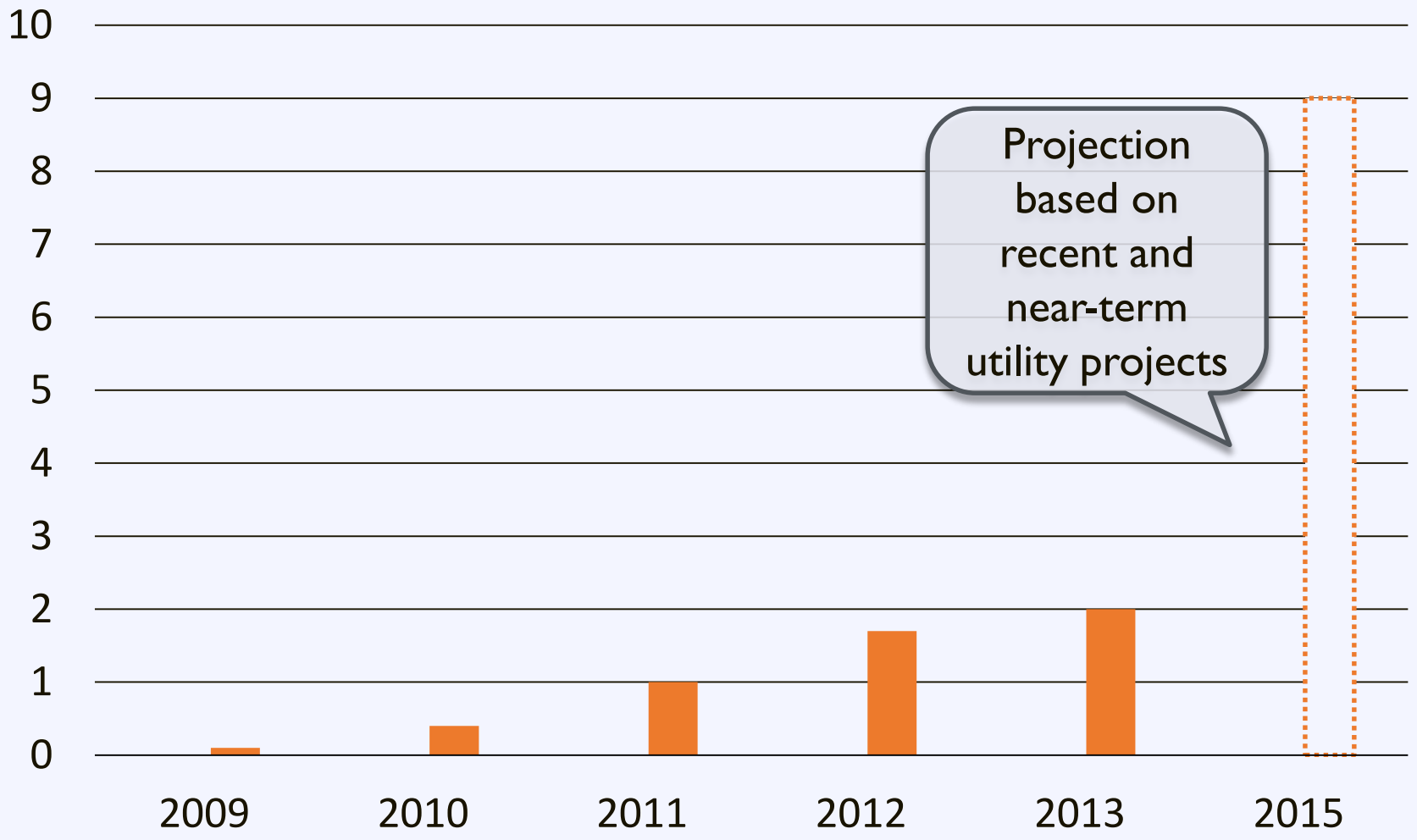
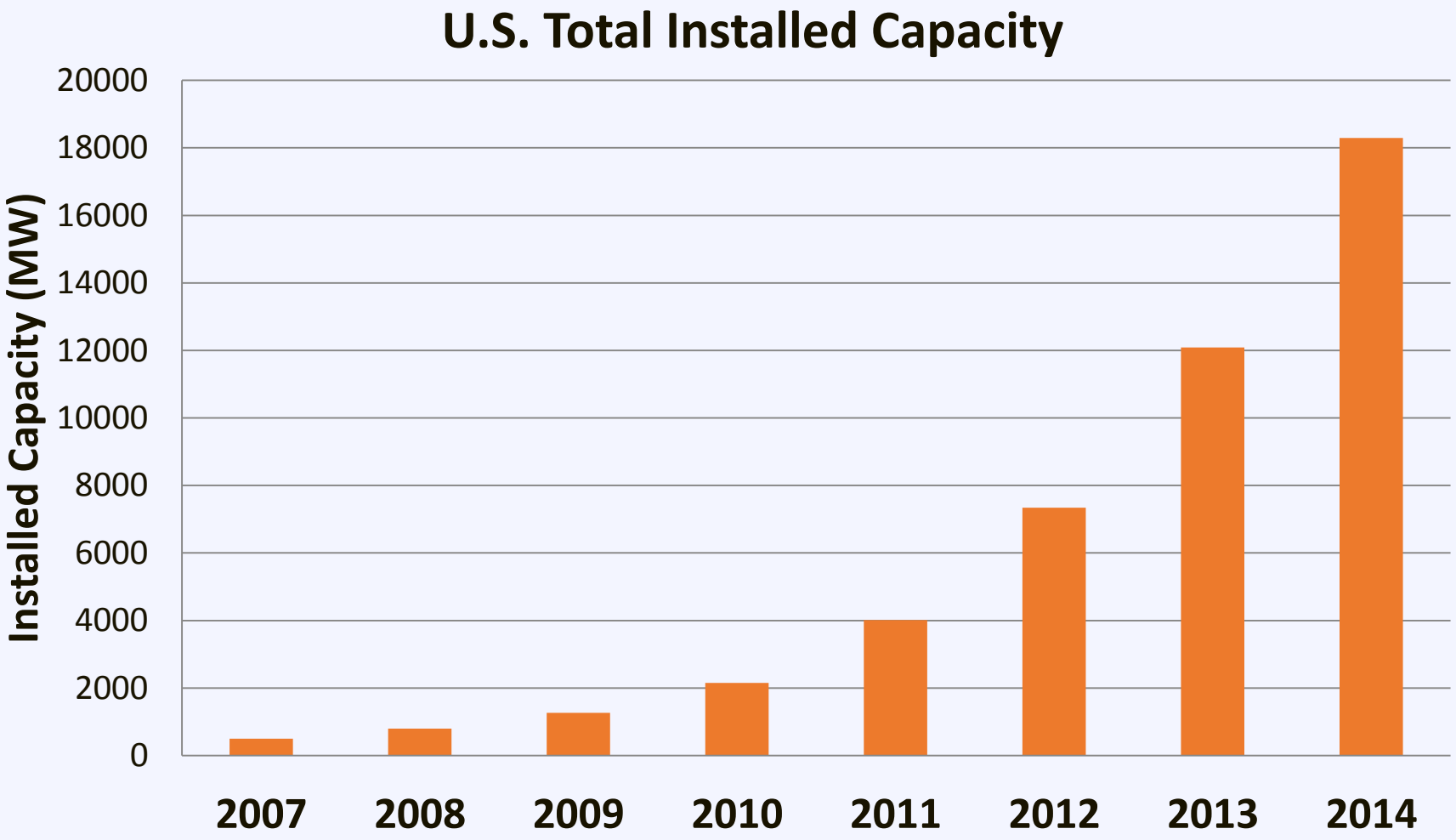
Mississippi Solar Market



Source: IREC: US Solar Market Trends

US Solar Market



Source: IREC: US Solar Market Trends and SEIA

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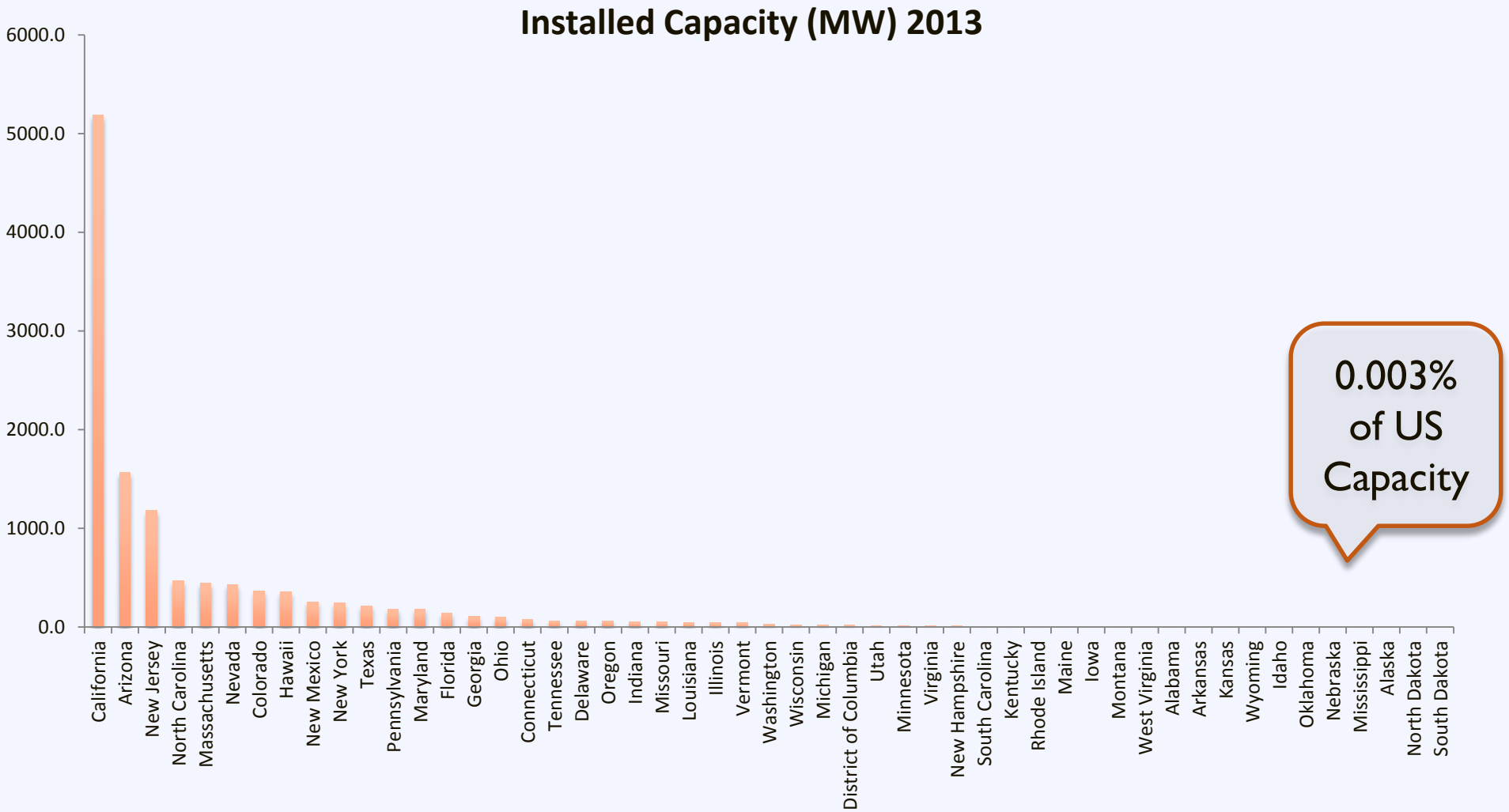
US Solar Market



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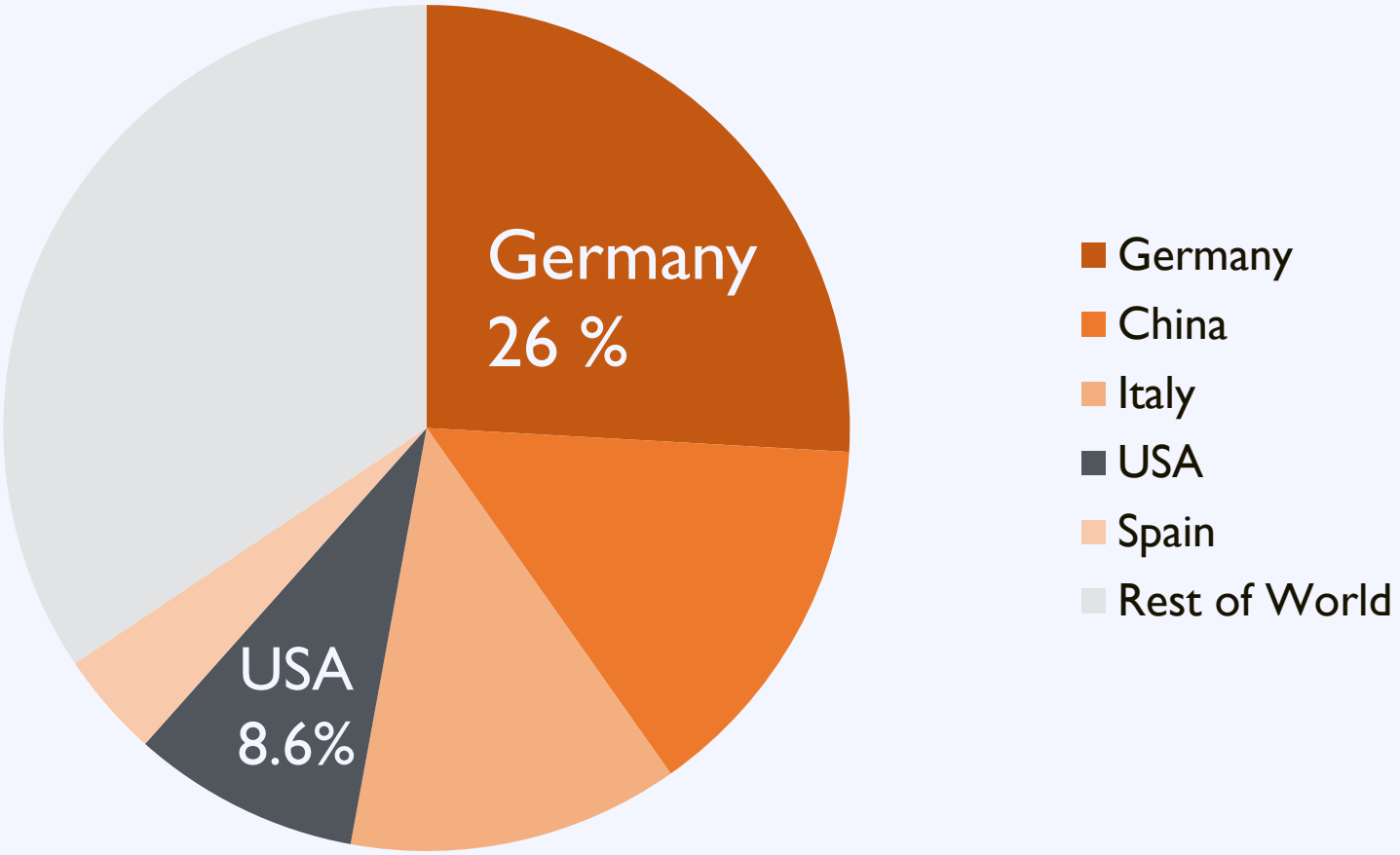
Mississippi Solar Market

Mississippi	US
0.7	**39**
watts per person	*watts per person*

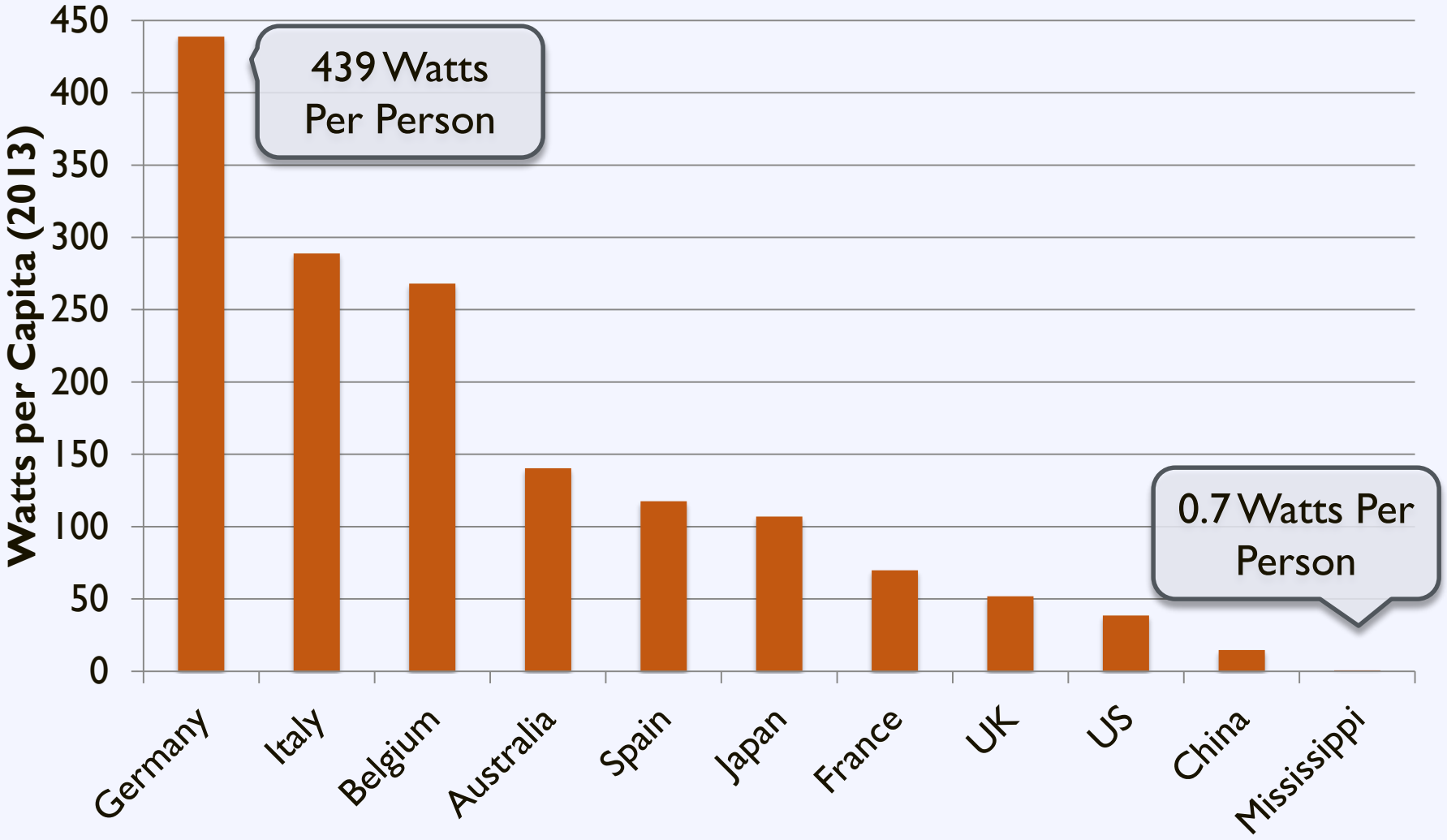
World Solar Market

Top 5 Countries Solar Operating Capacity (2013)



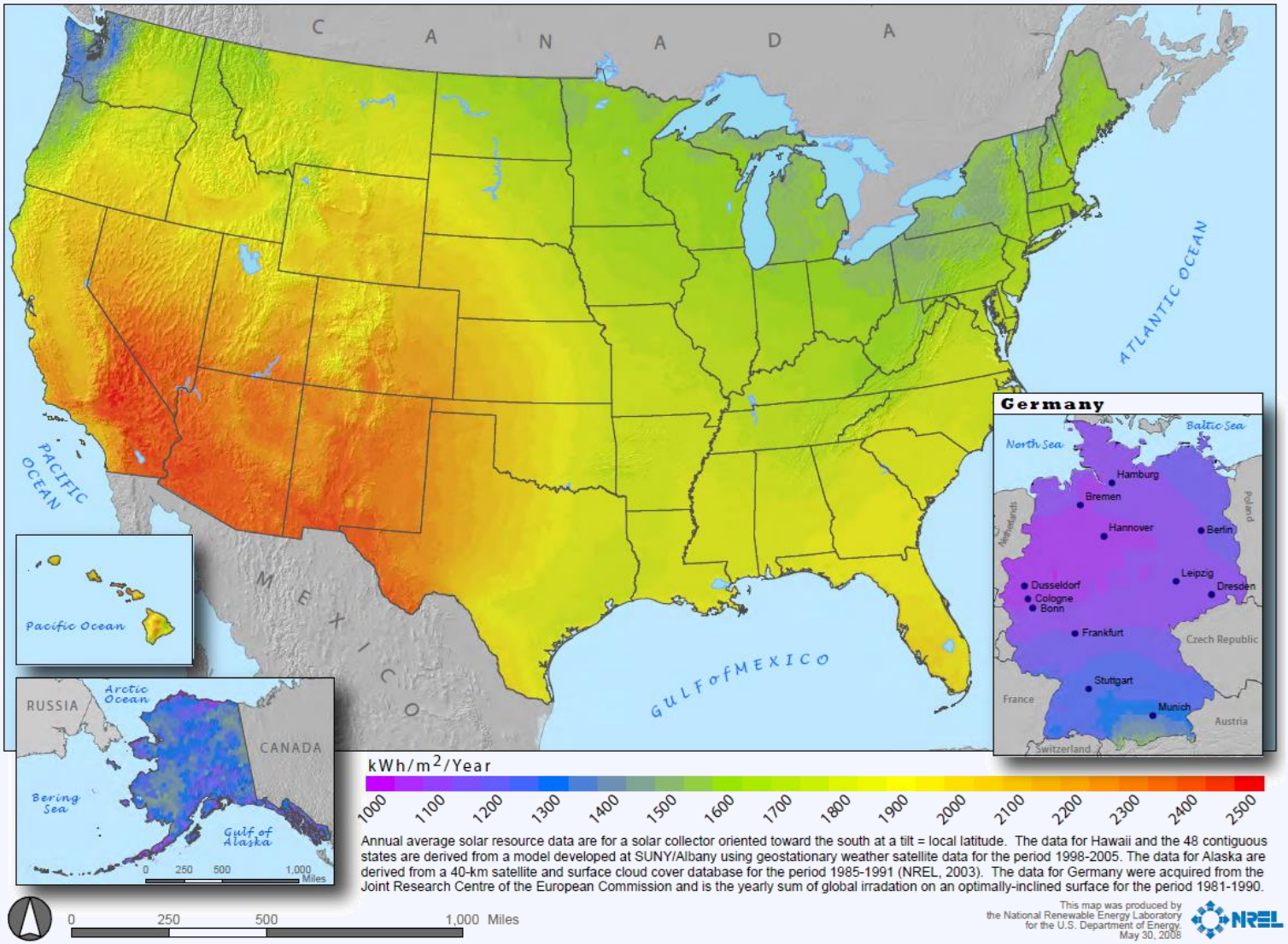
Source: REN 21

Installed Capacity per Capita



Source: REN 21, World Bank

US Solar Resource



Annual average solar resource data are for a solar collector oriented toward the south at a tilt = local latitude. The data for Hawaii and the 48 contiguous states are derived from a model developed at SUNY/Albany using geostationary weather satellite data for the period 1998-2005. The data for Alaska are derived from a 40-km satellite and surface cloud cover database for the period 1985-1991 (NREL, 2003). The data for Germany were acquired from the Joint Research Centre of the European Commission and is the yearly sum of global irradiation on an optimally-inclined surface for the period 1981-1990.

This map was produced by the National Renewable Energy Laboratory for the U.S. Department of Energy. May 30, 2008

NREL

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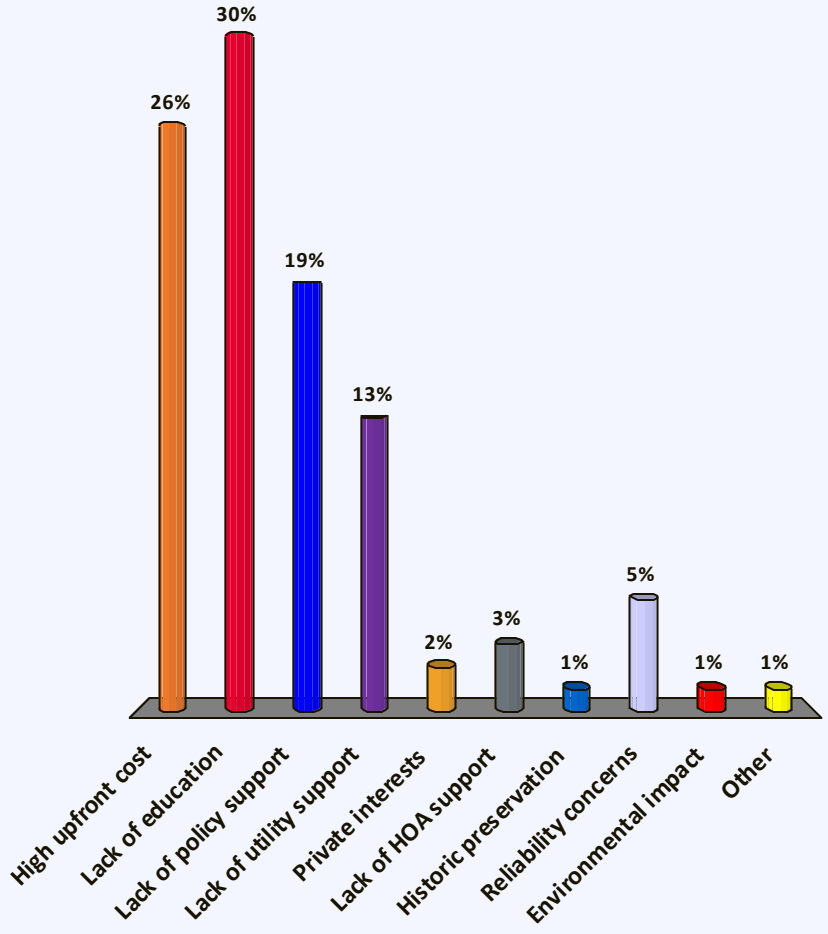
U.S. Department of Energy

Source: National Renewable Energy Laboratory

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

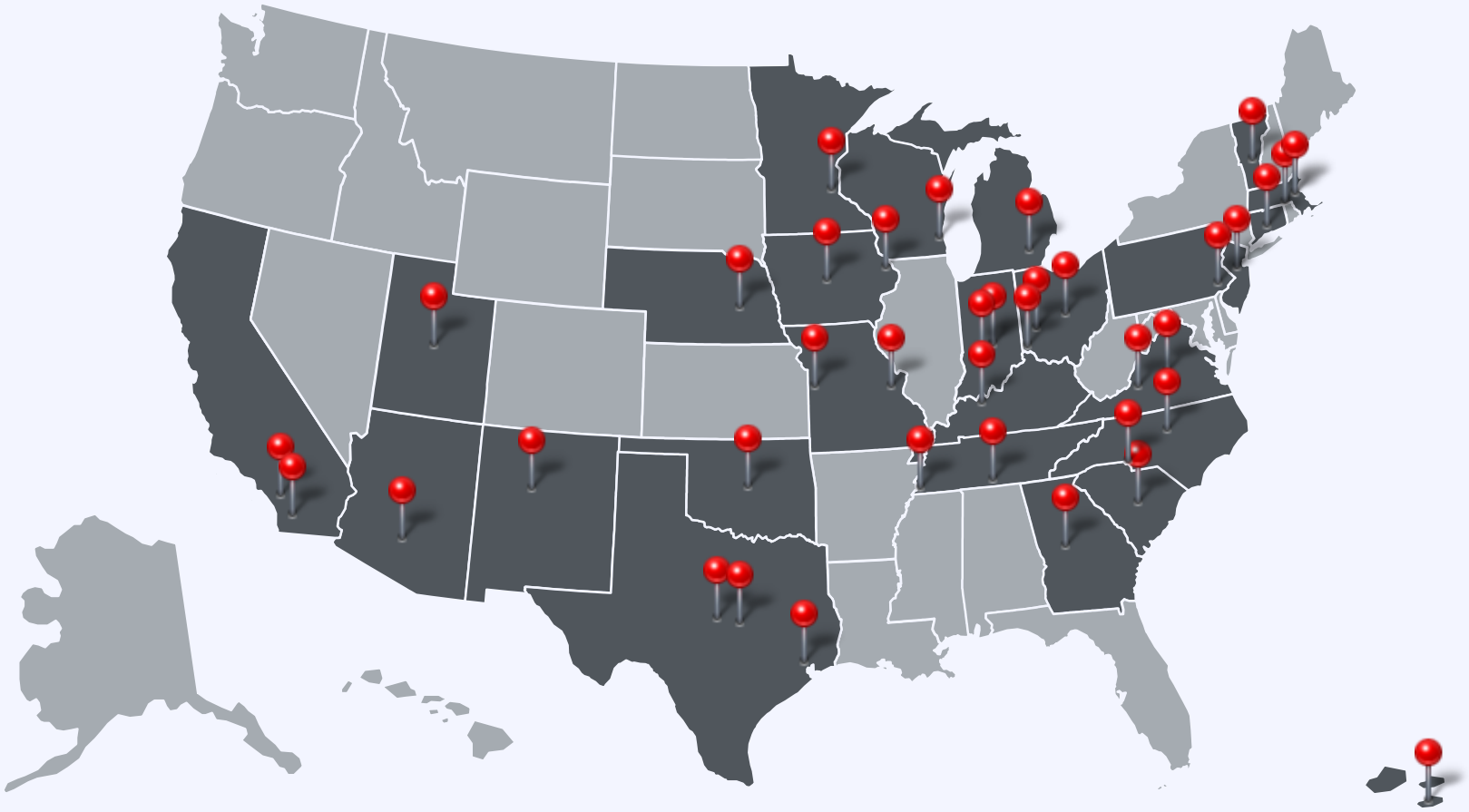
What are the top 3 barriers to solar adoption in your community?

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

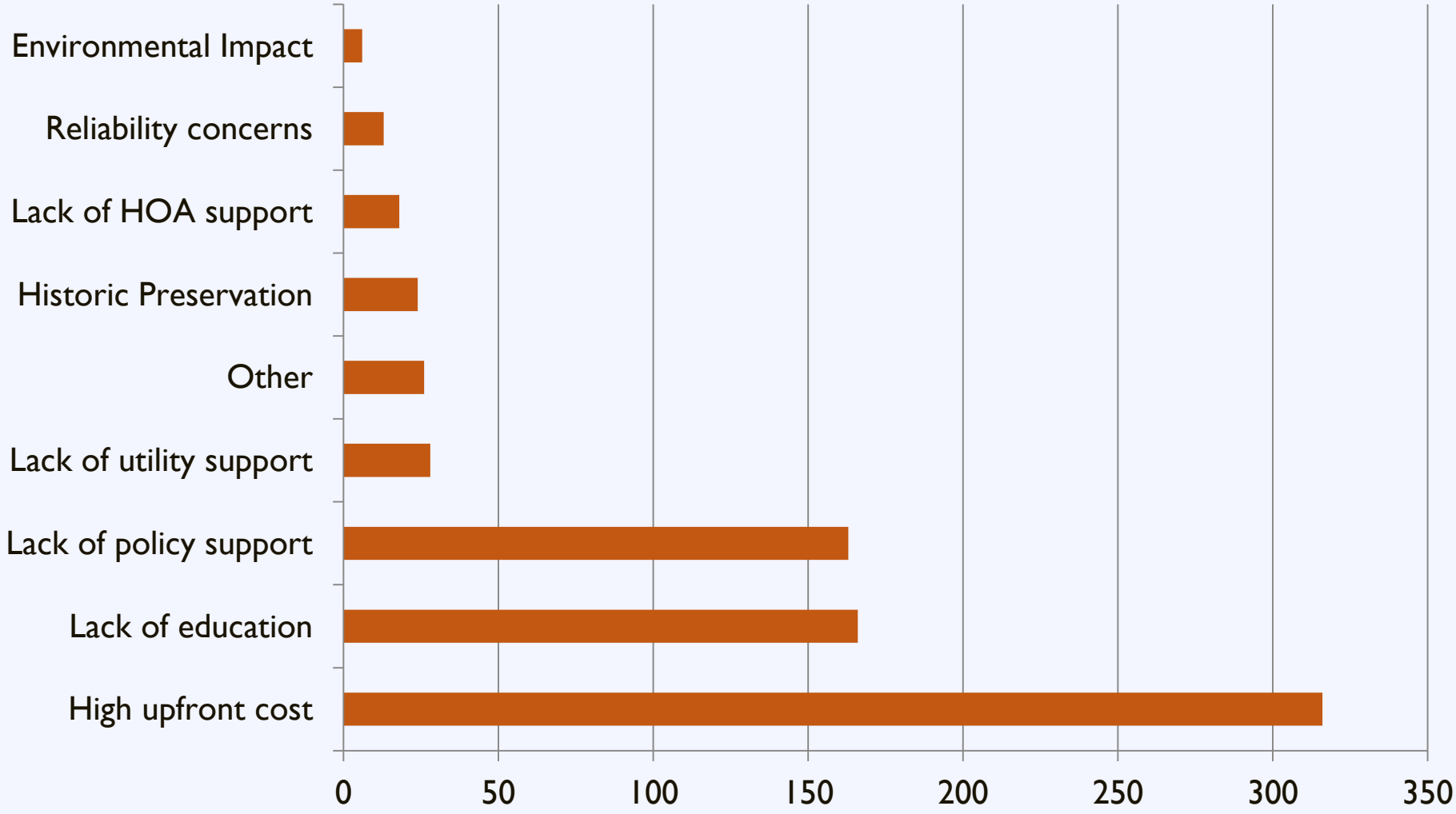


Regional Workshop Surveys

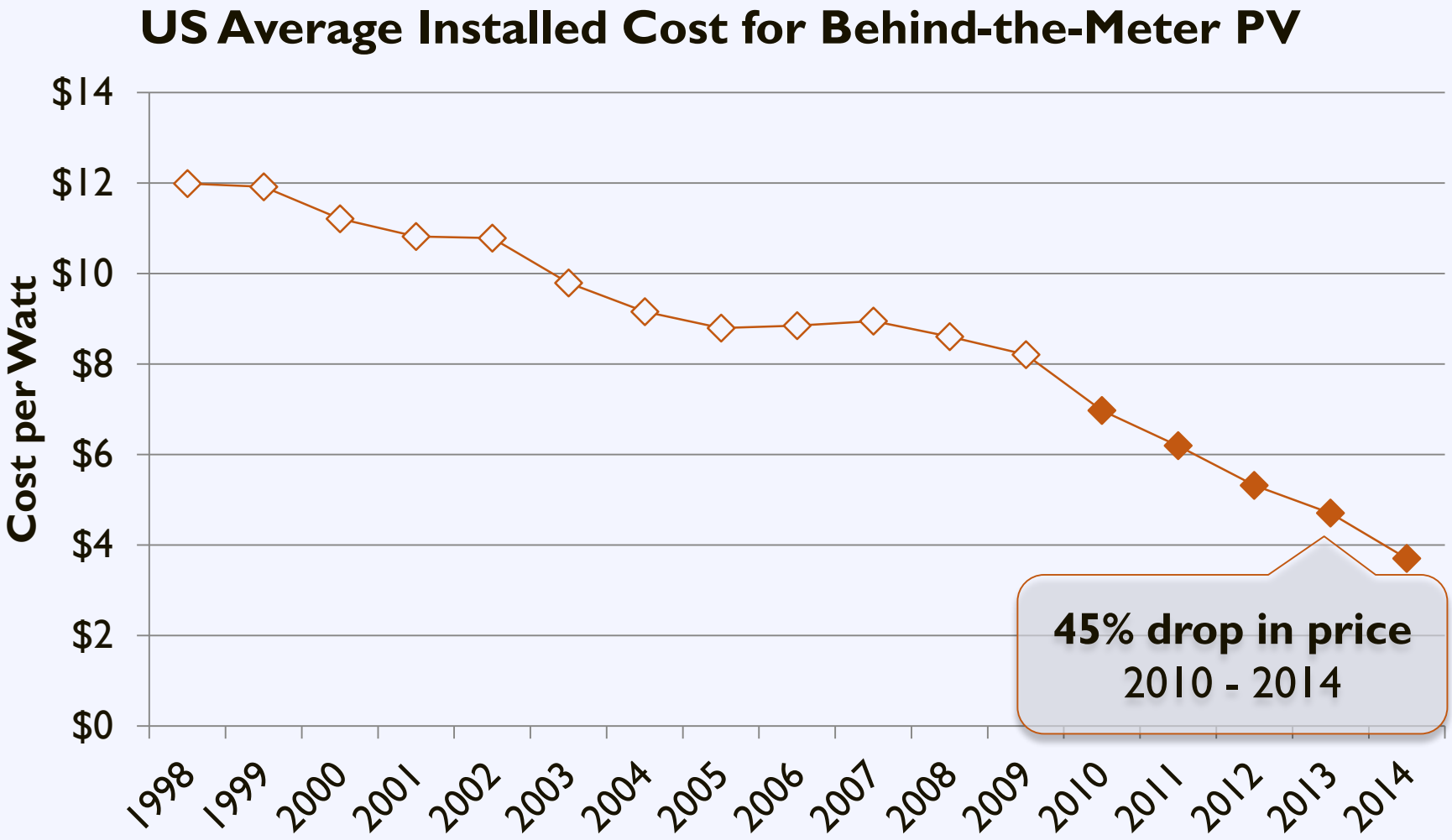
Q: What is the greatest barrier to solar adoption in your community?



Activity: Addressing Barriers



The Cost of Solar PV



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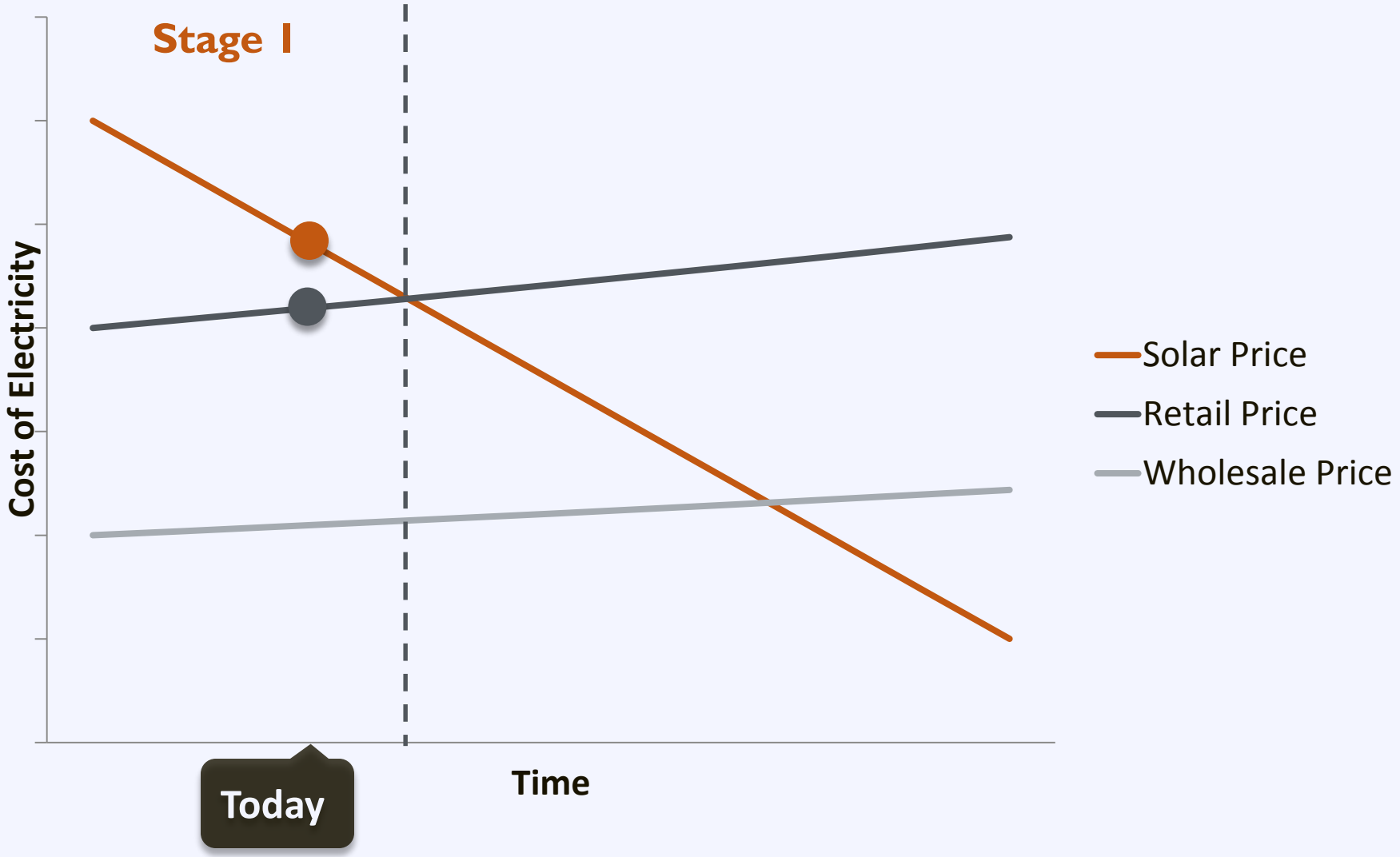
Tracking the Sun VII: The Installed Cost of Photovoltaics in the US from 1998-2013 (LBNL), and SEIA Solar Market Insights

The Cost of Solar PV



Source: Solar Electric Power Association

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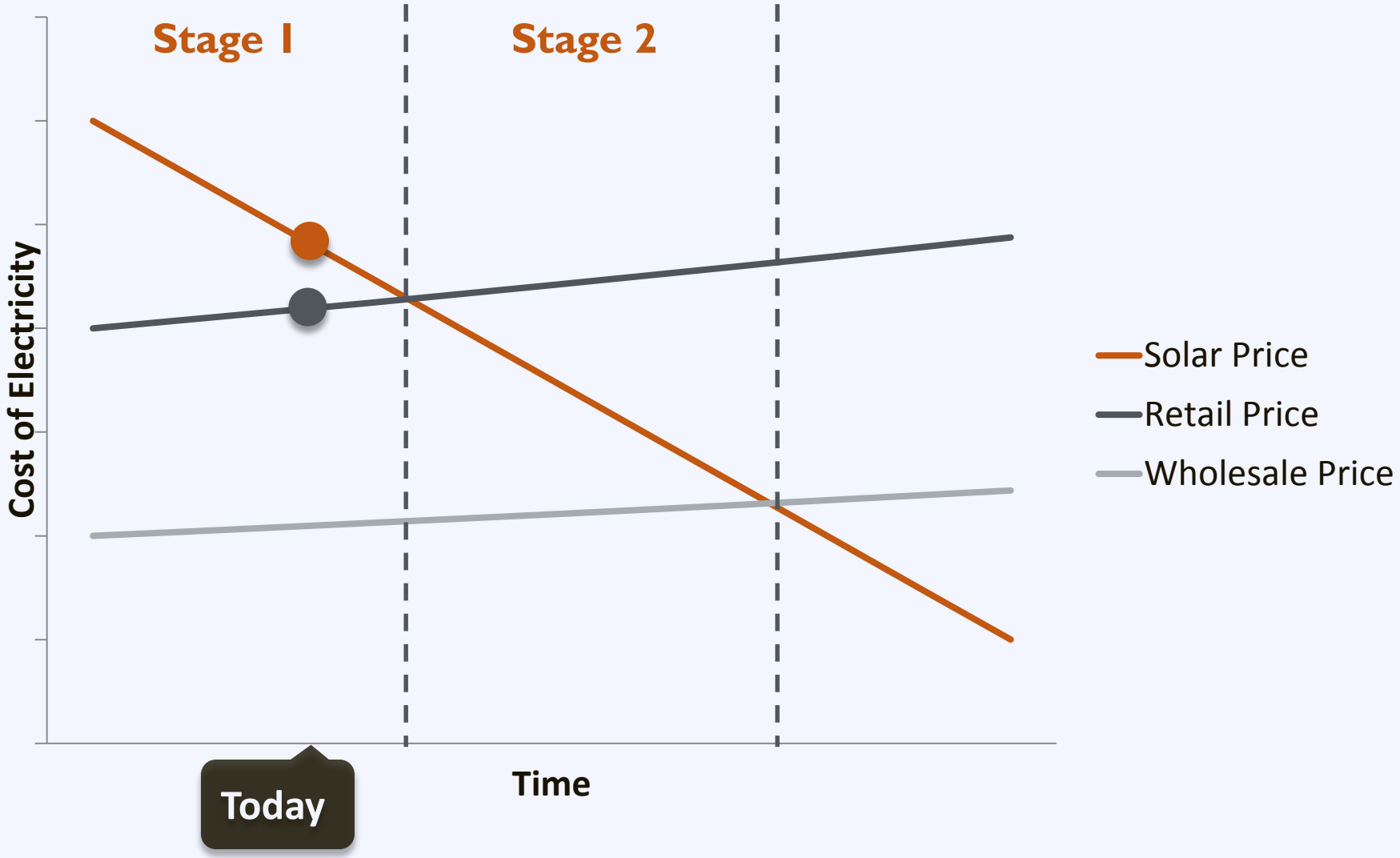

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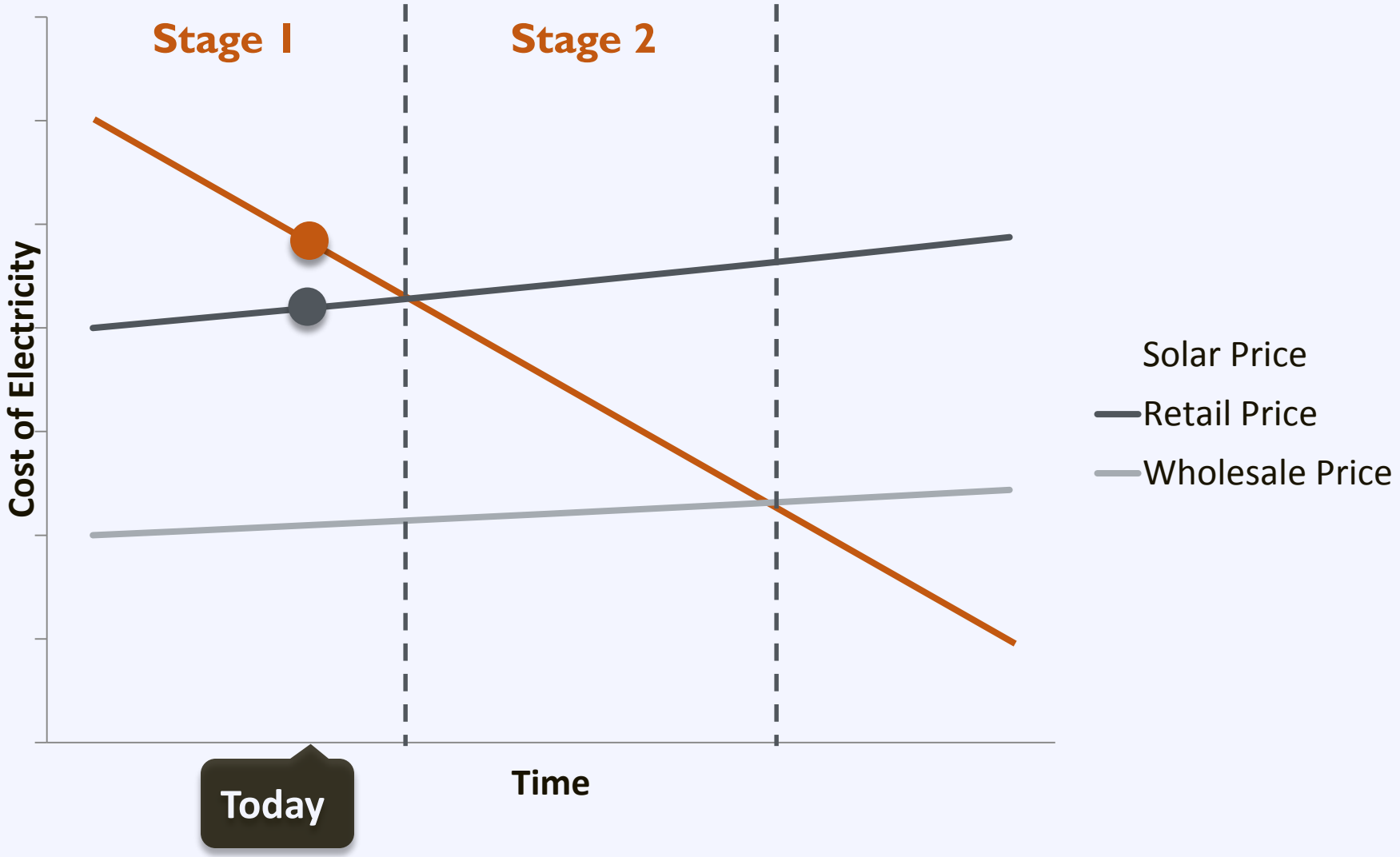
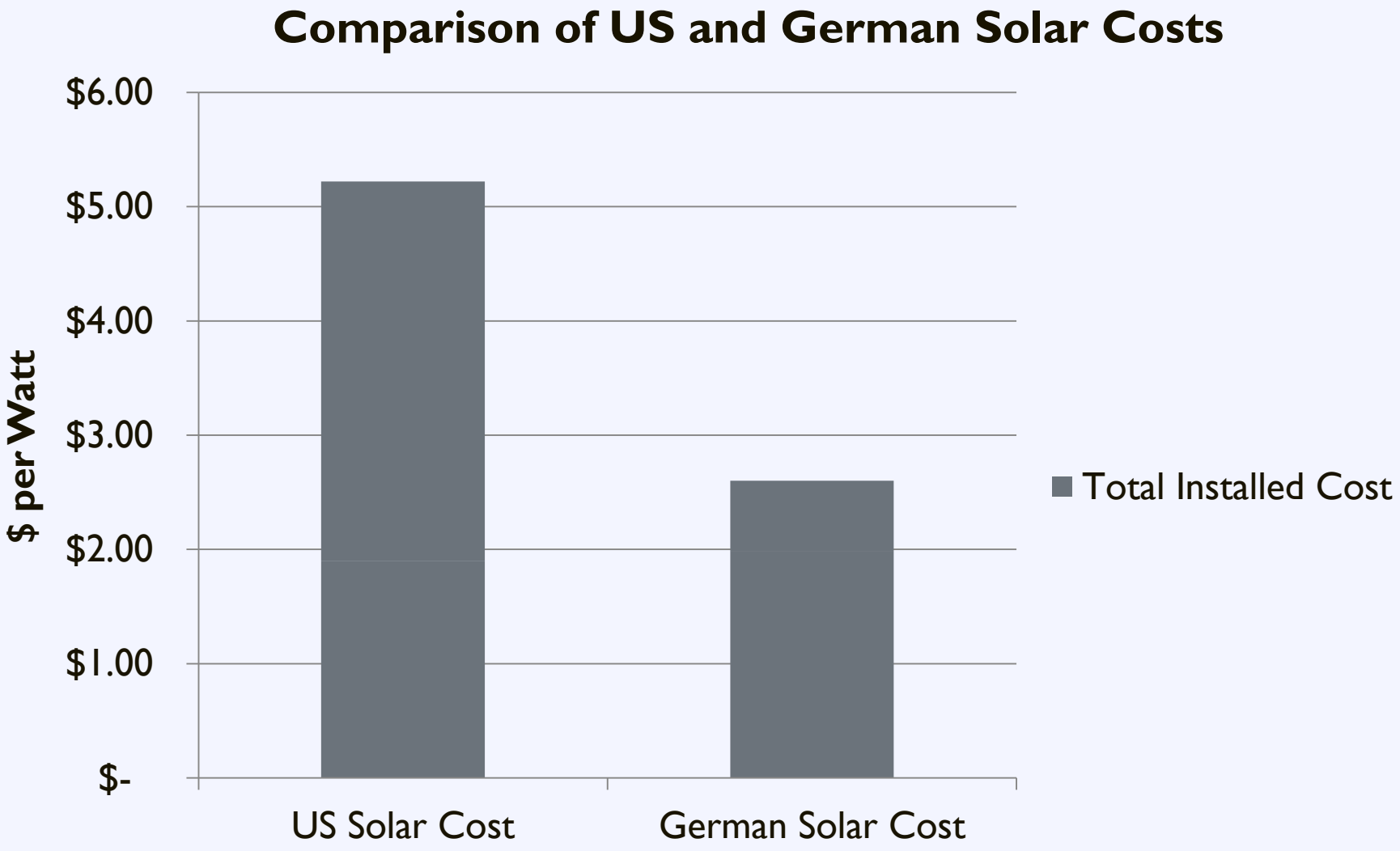


Source: Solar Electric Power Association

The Cost of Solar in the US



Source: NREL (http://www.nrel.gov/docs/fy14osti/60412.pdf)
LBNL (http://emp.lbl.gov/sites/all/files/lbnl-6350e.pdf)(http://www1.eere.energy.gov/solar/pdfs/sunshot_webinar_20130226.pdf)

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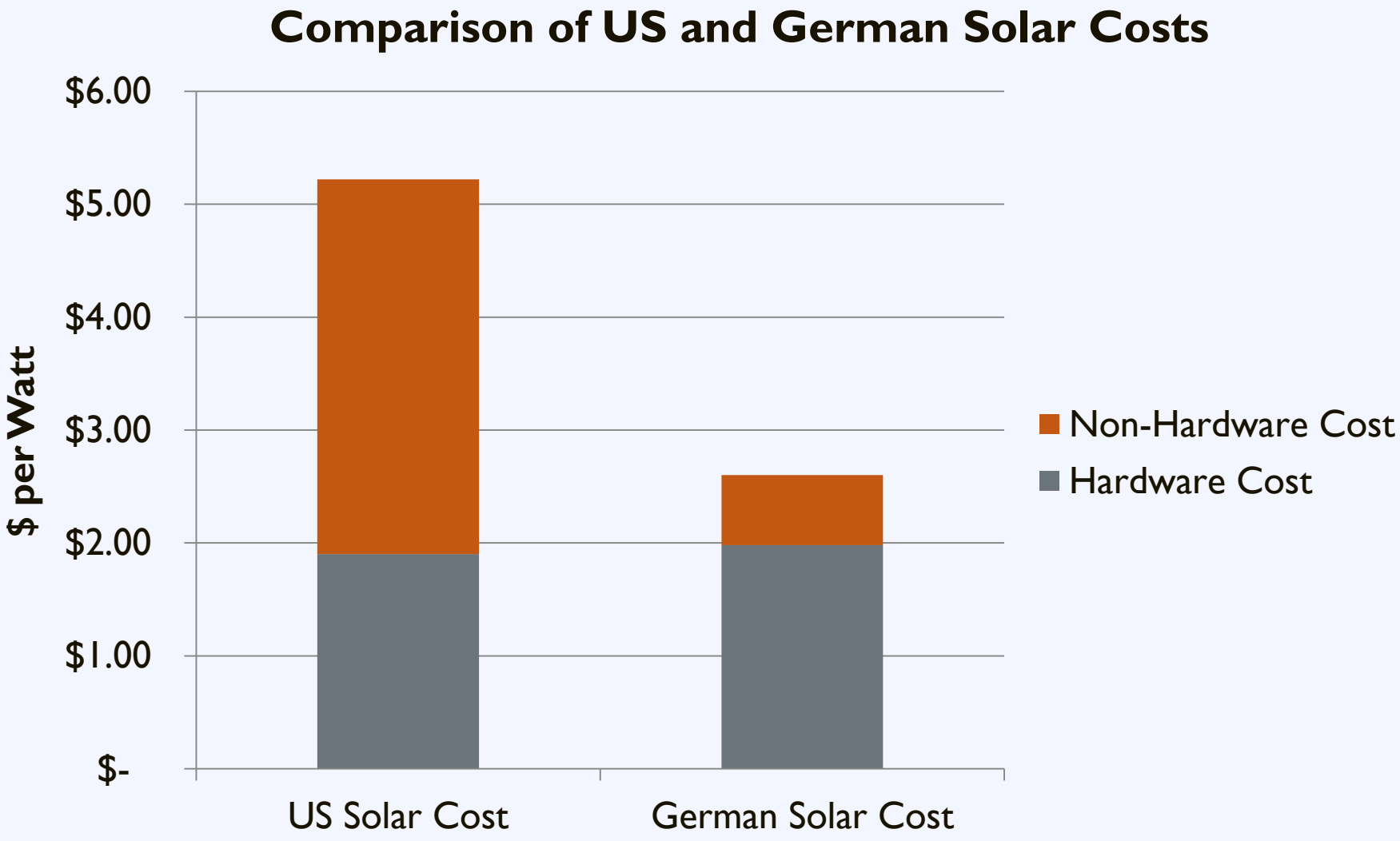

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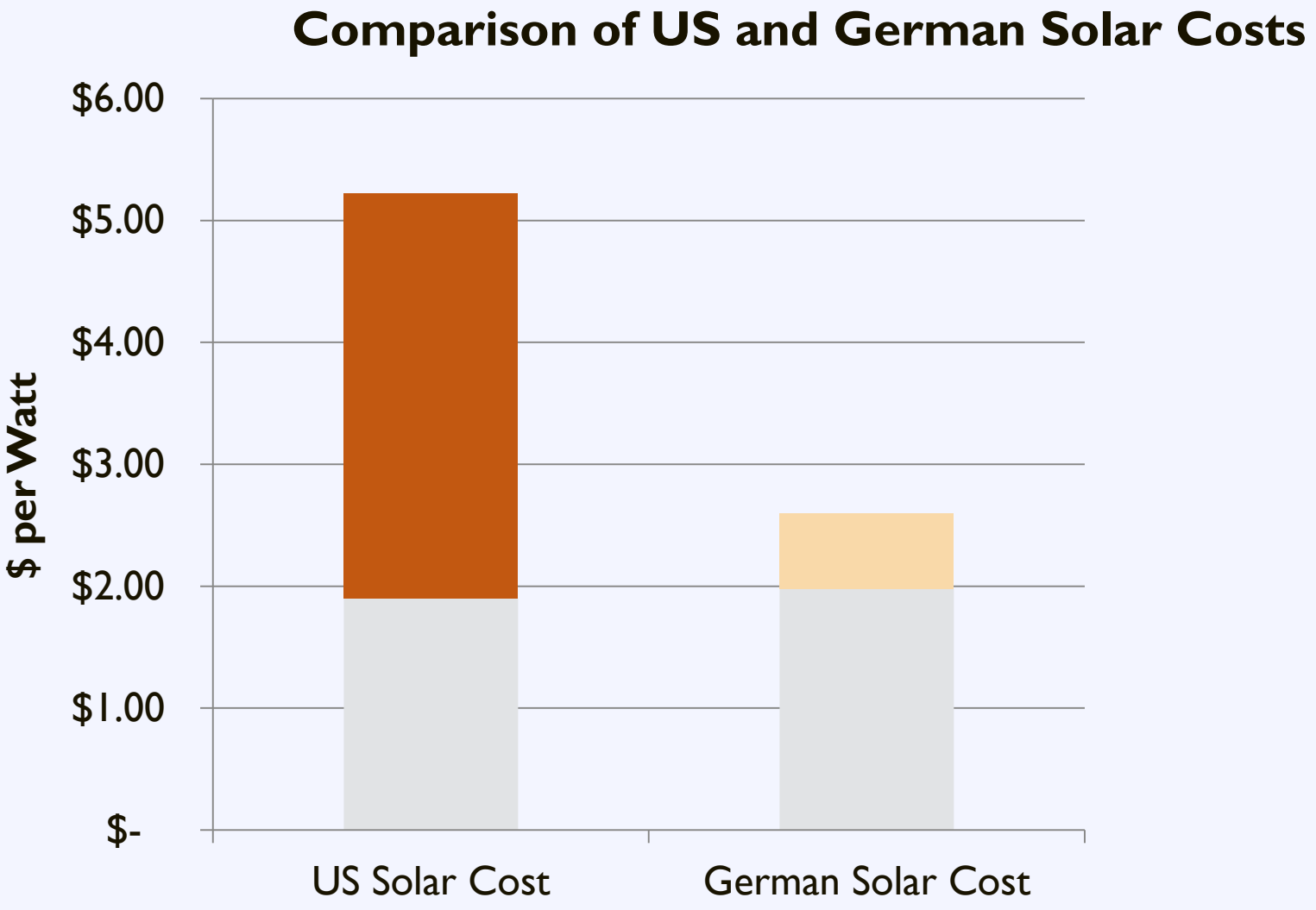

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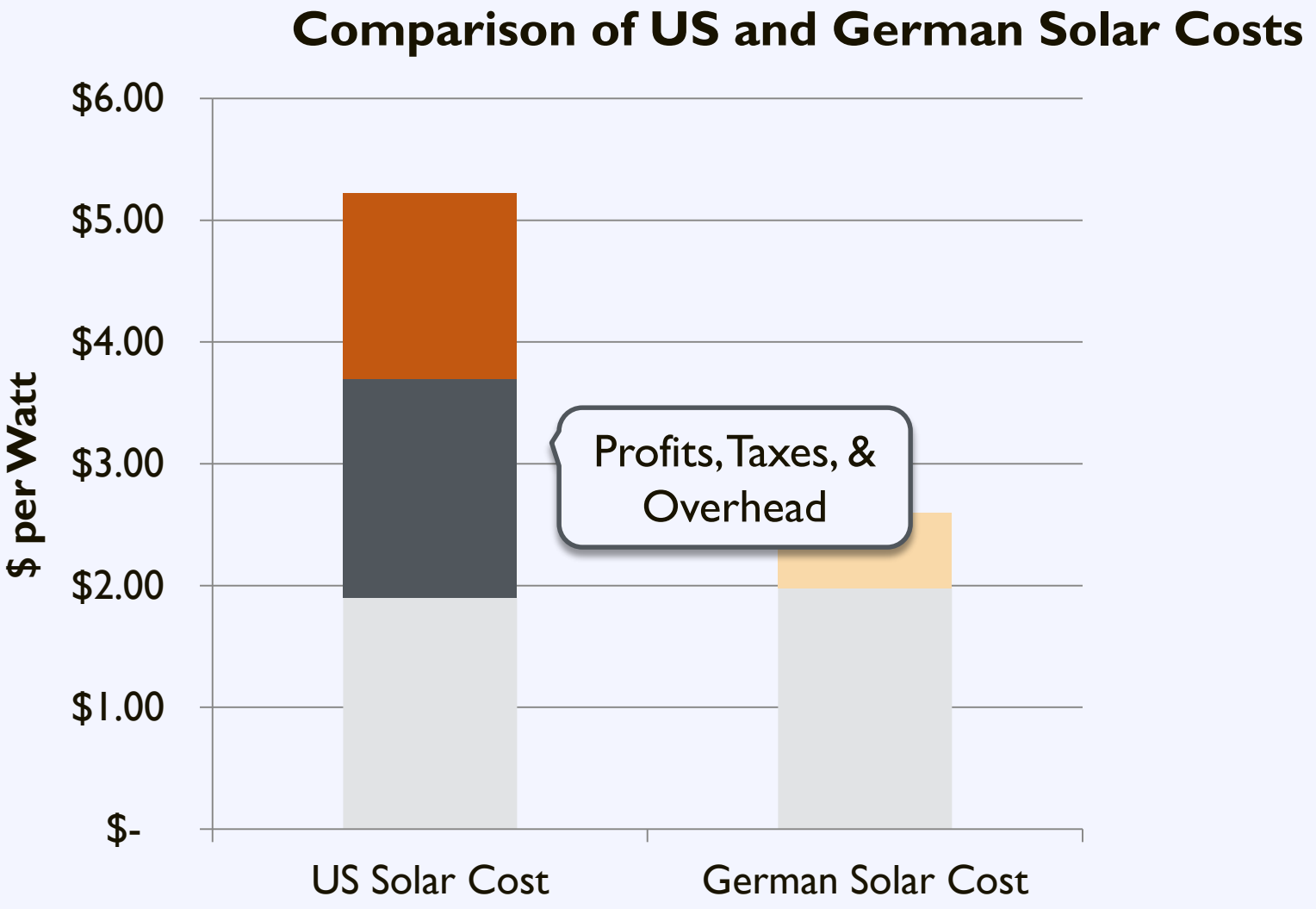

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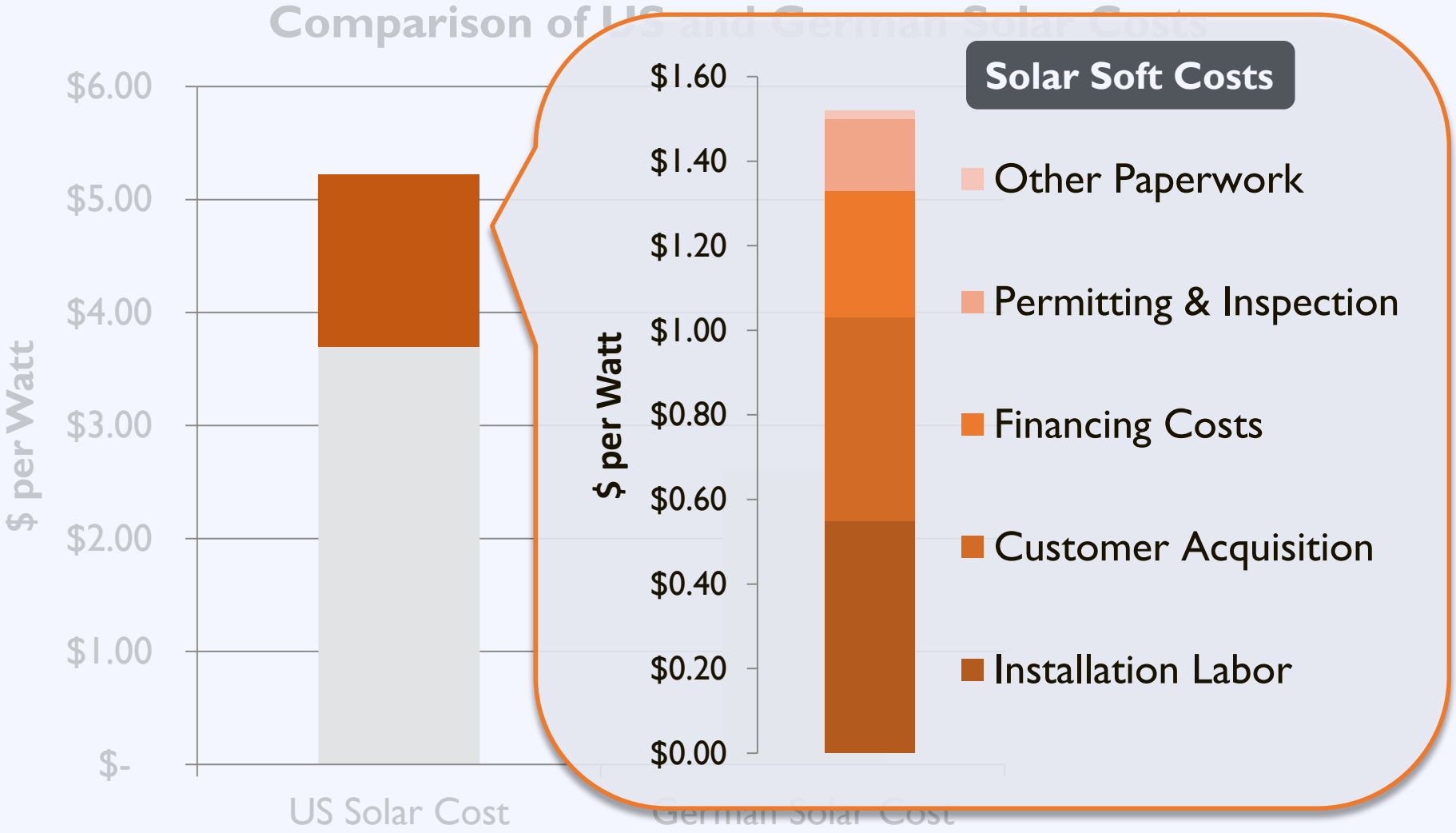

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LBNL (http://emp.lbl.gov/sites/all/files/lbnl-6350e.pdf)(http://www1.eere.energy.gov/solar/pdfs/sunshot_webinar_20130226.pdf)

Challenge: Installation Time

New York City's Goal

100 days

from inception to completion

Germany Today

8 days

from inception to completion

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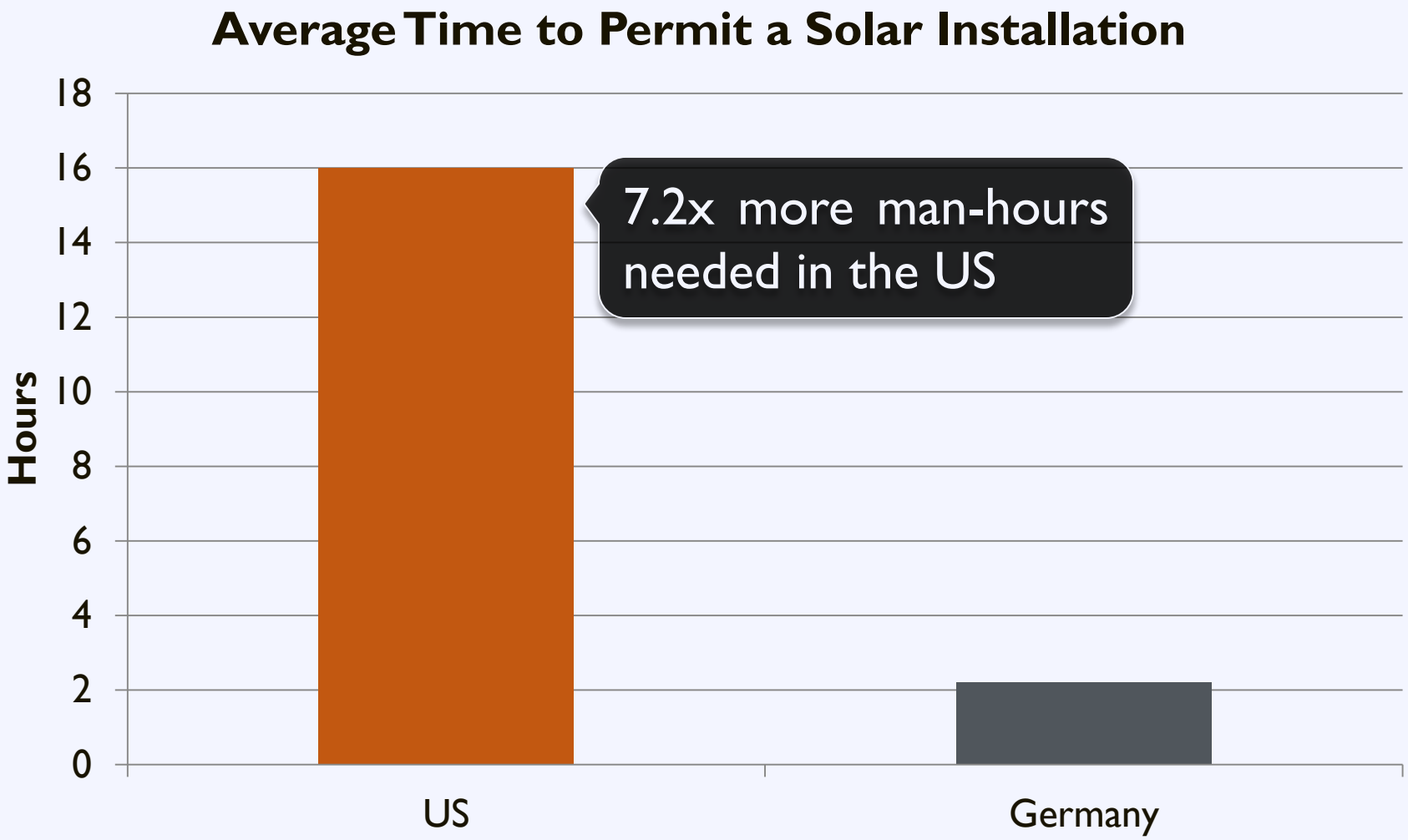
U.S. Department of Energy

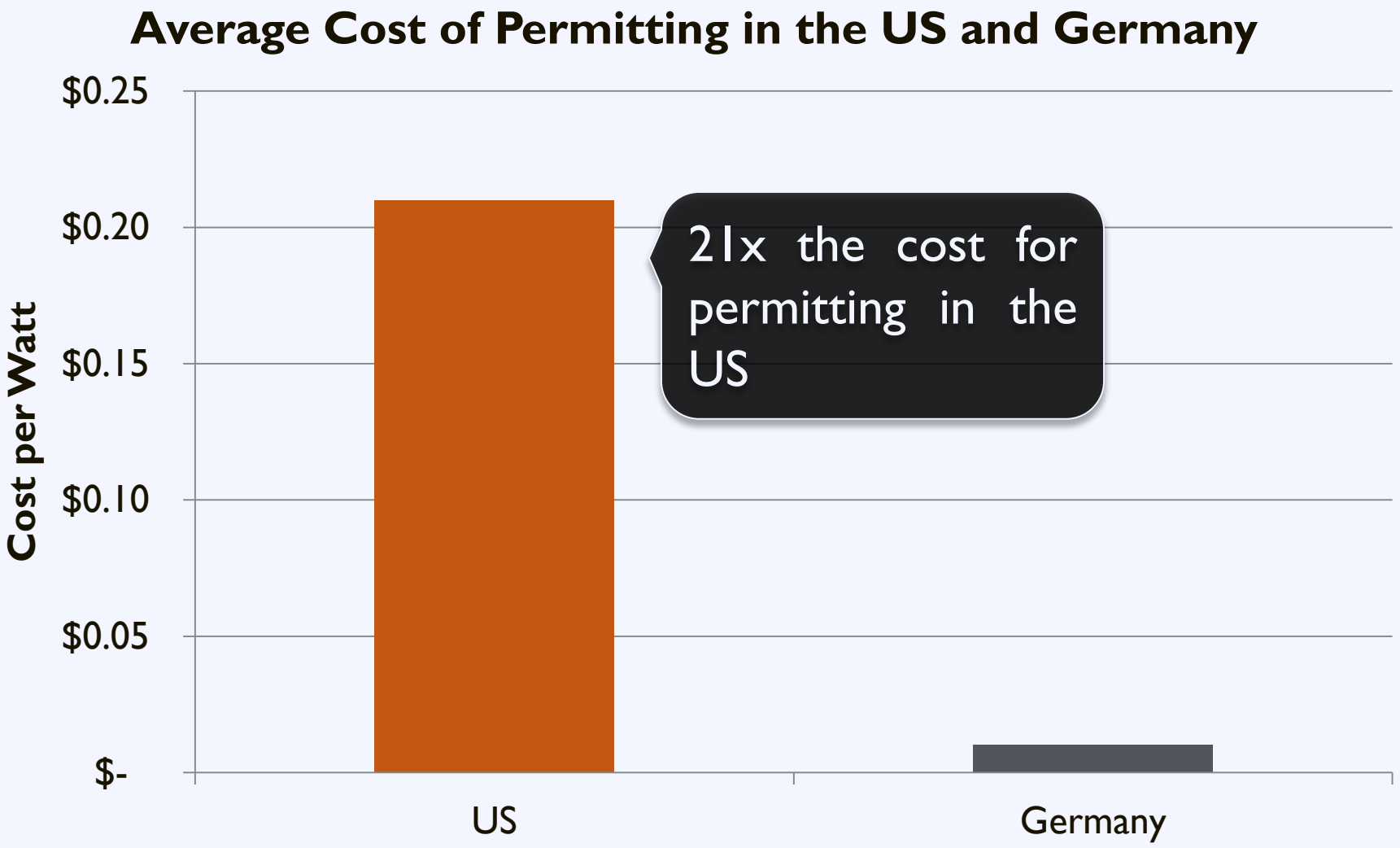
Photon Magazine

Time to Installation



Source: NREL, LBNL

Permitting Costs



Source: NREL, LBNL

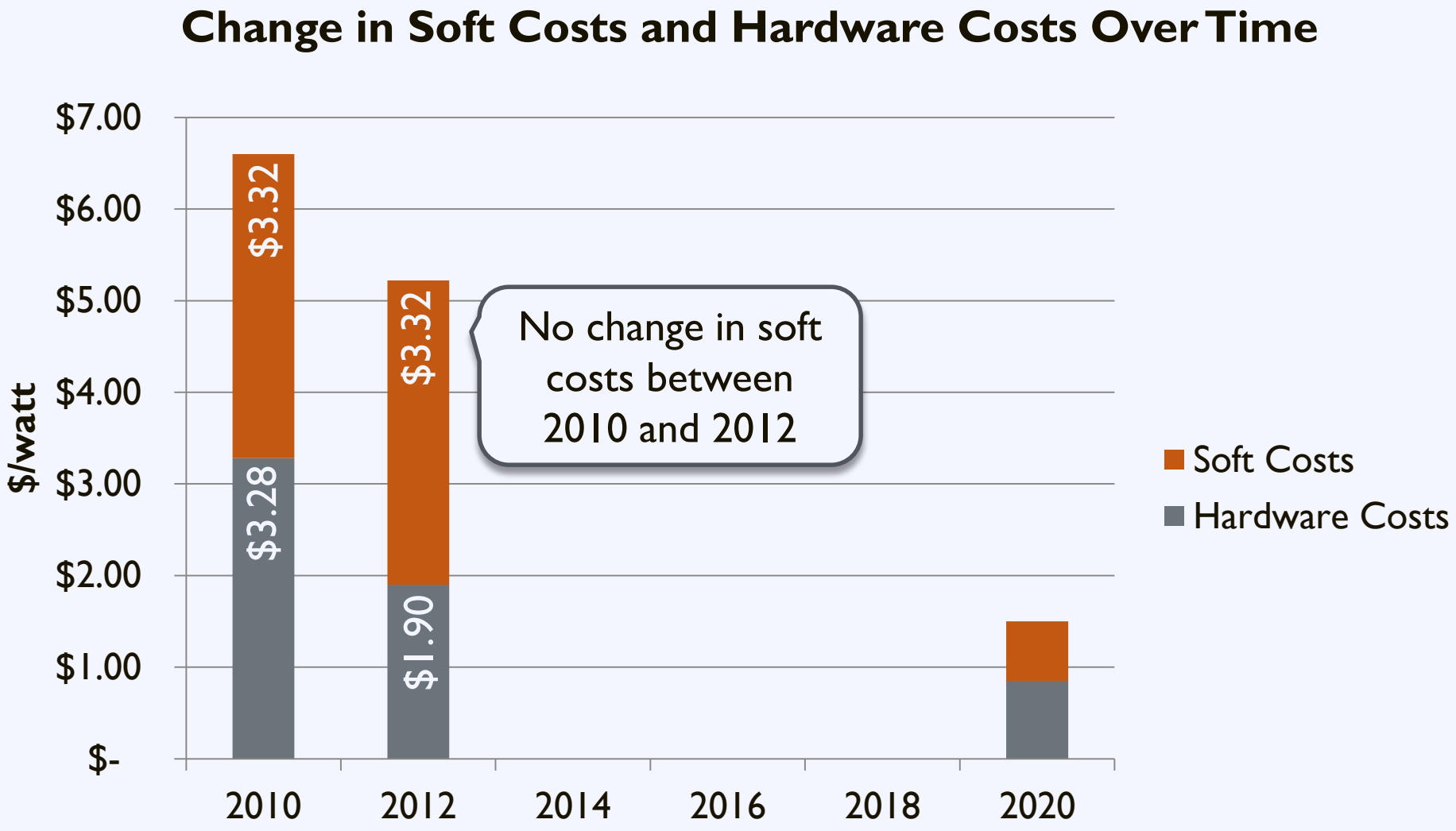
Germany's Success

Consistency and Transparency

through

Standardized Processes

The Cost of Solar in the US



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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

Agenda

10:20 – 10:50	Putting Solar Energy on the Local Policy Agenda
10:50 – 11:20	State of the Mississippi Solar Market
11:20 – 11:50	Federal, State, and Utility Policy Drivers
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1:30 – 2:00	Planning for Solar: Getting Solar Ready
2:00 – 2:10	*Break*
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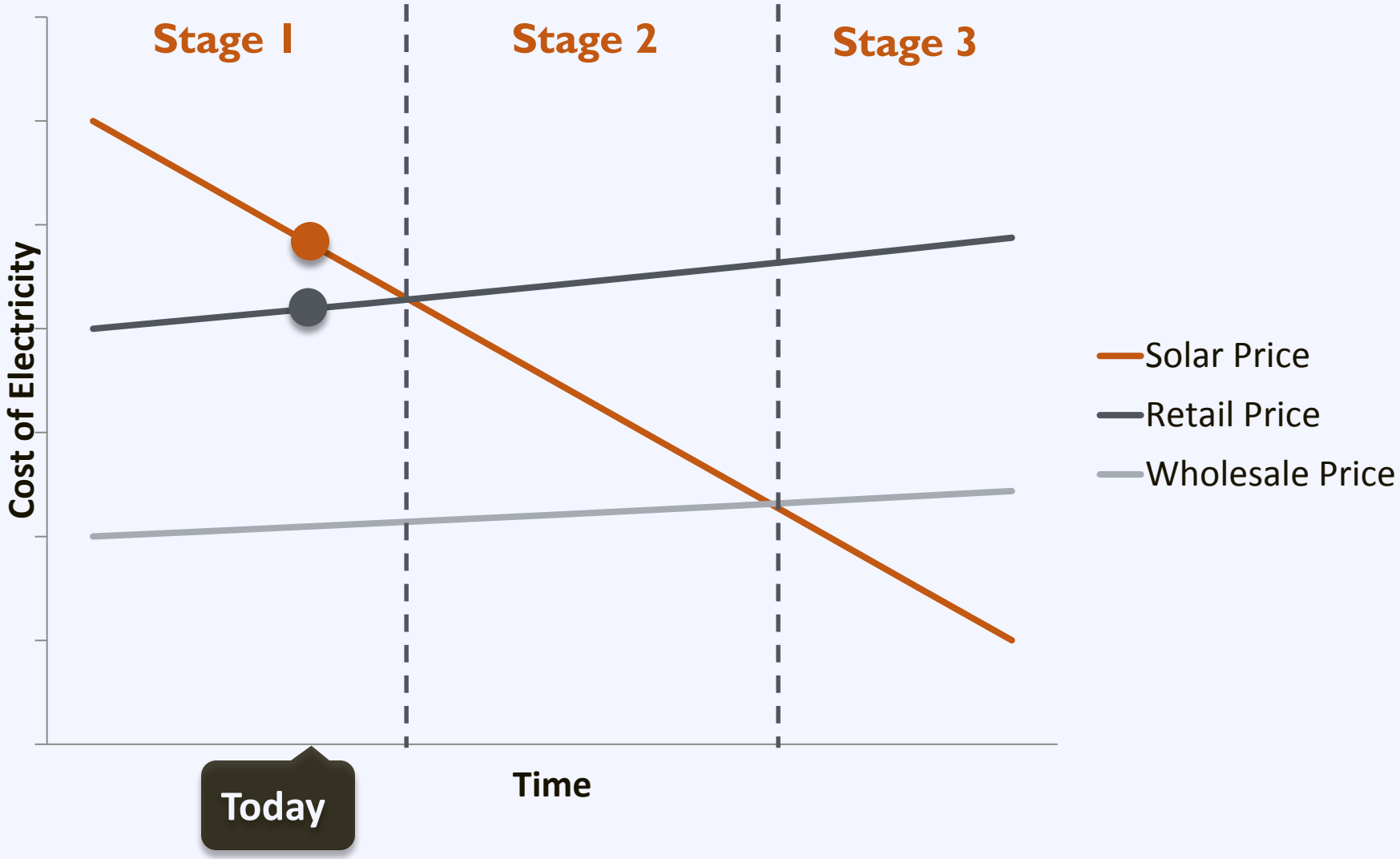
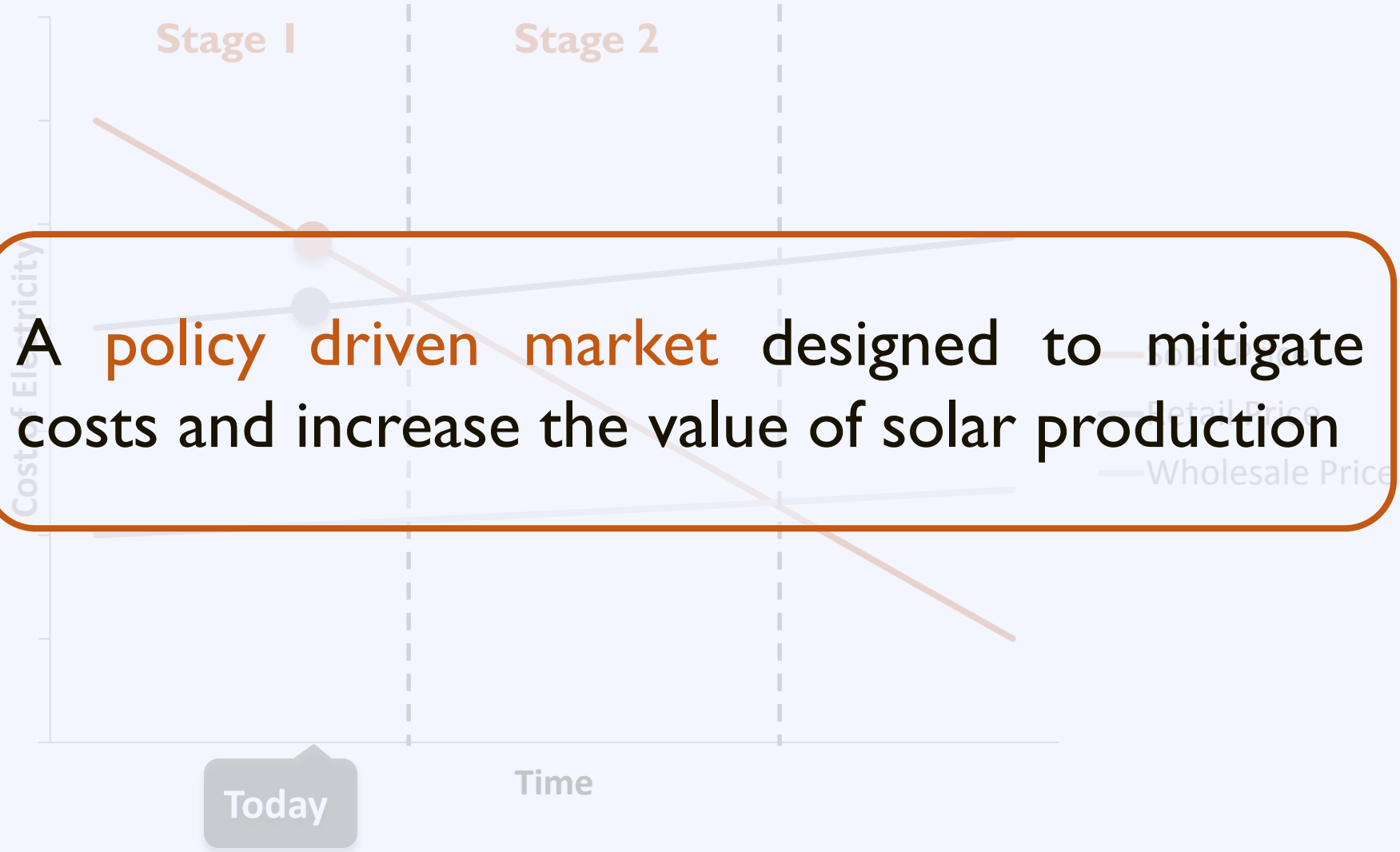
2:45 – 3:00	Next Steps

Solar Market: Trends



Source: Solar Electric Power Association

Solar Market: Trends



A policy driven market designed to mitigate costs and increase the value of solar production

Source: Solar Electric Power Association

A Policy Driven Market

Federal	Investment Tax Credit	Accelerated Depreciation	Qualified Energy Conservation Bond
State & Utility	Renewable Portfolio Standard	Net Metering	Interconnection
	Solar Access	Utility Incentives	

A Policy Driven Market

Federal	Investment Tax Credit	Accelerated Depreciation	Qualified Energy Conservation Bond
State & Utility	Renewable Portfolio Standard	Net Metering	Interconnection
	Solar Access	Property Tax Exemption	

Investment Tax Credit

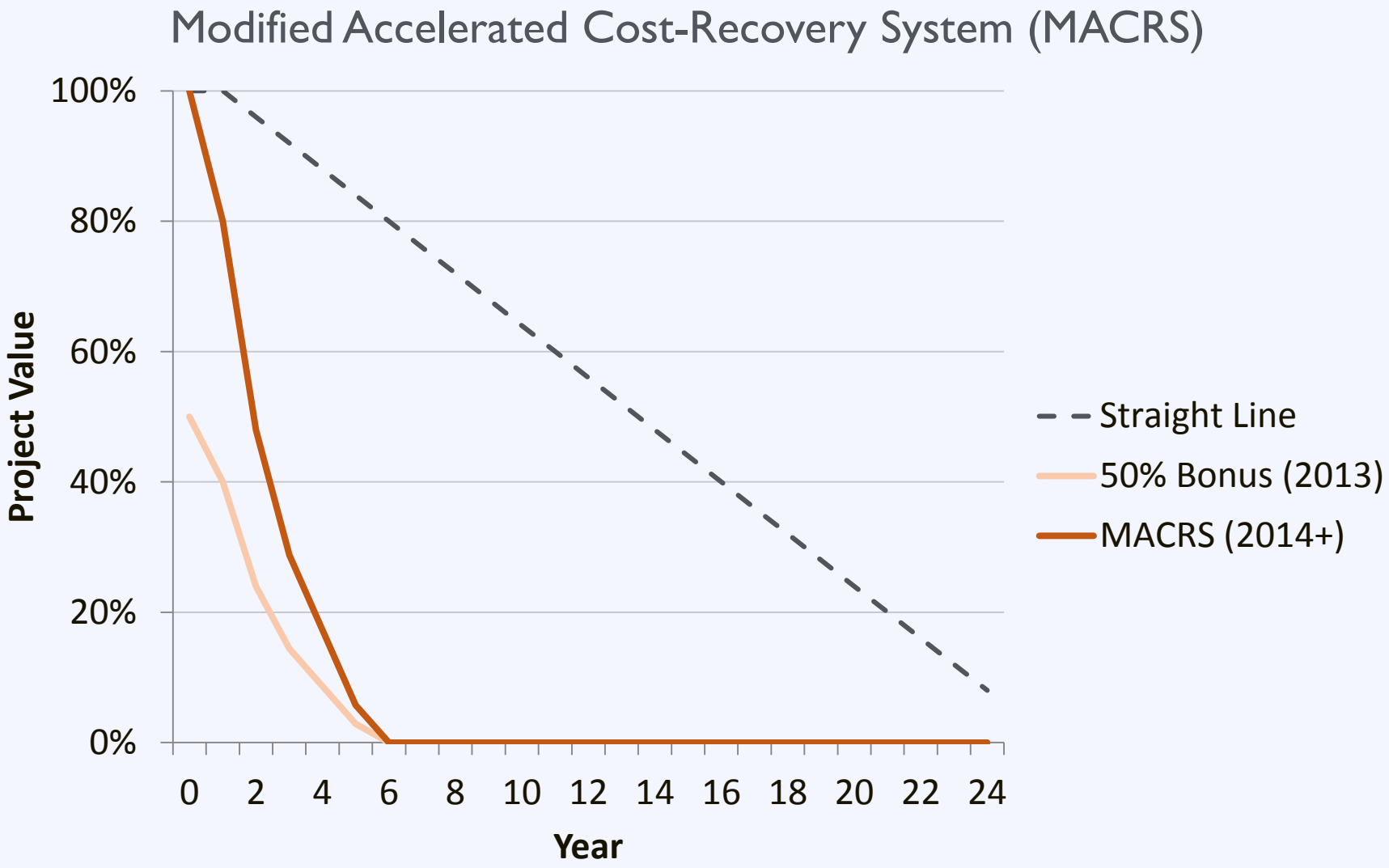
Type: Tax Credit

Eligibility: For-Profit Organization

Value: 30% of the installation cost

Availability: Through 2016

Accelerated Depreciation



Qualified Energy Conservation Bond

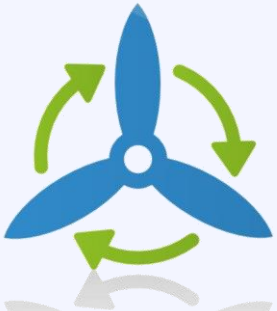
+ 3.7%

US Treasury

+ 2.3%

QECB

Local Gov



Project

Taxable Investor

USDA REAP Grant/Loan Program

Rural Energy for America Program (REAP)

- Financial assistance to agricultural producers, local govts, land-grant schools, electric co-ops, or small businesses to develop renewable energy and energy efficiency improvements
  - Must be deemed "rural" by USDA
  - Grants up to 25% of project cost
  - Loan guarantees between $3,500-$25 million
- Open solicitation for 2016 funding likely at the end of the year

A Policy Driven Market

Federal	Investment Tax Credit	Accelerated Depreciation	Qualified Energy Conservation Bond
State & Utility	Renewable Portfolio Standard	Net Metering	Interconnection
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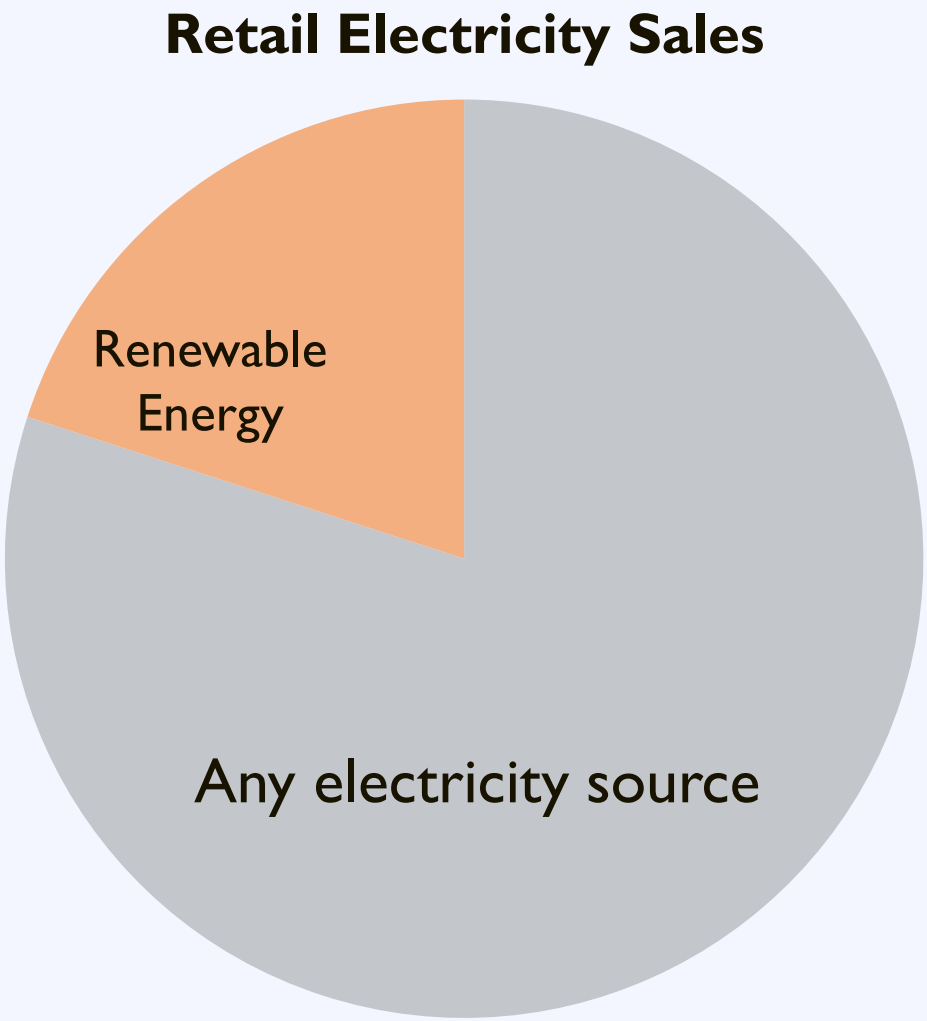
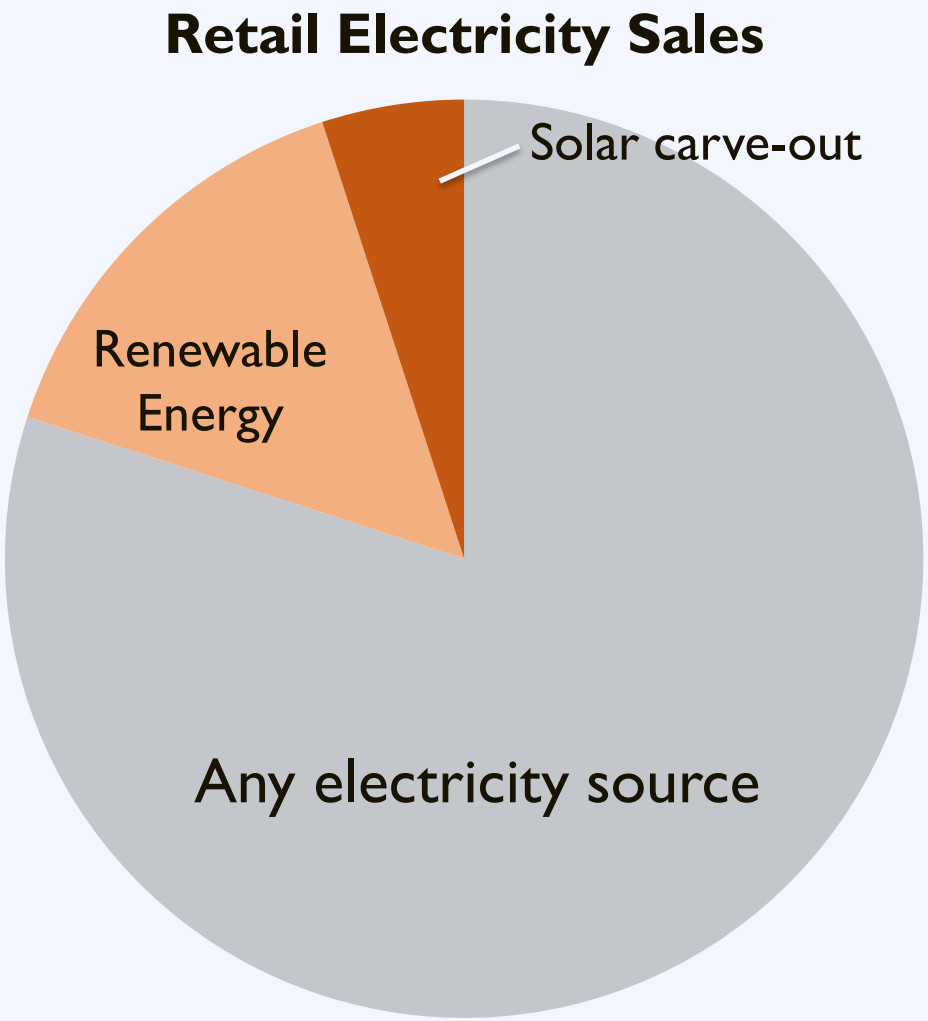
Renewable Portfolio Standard

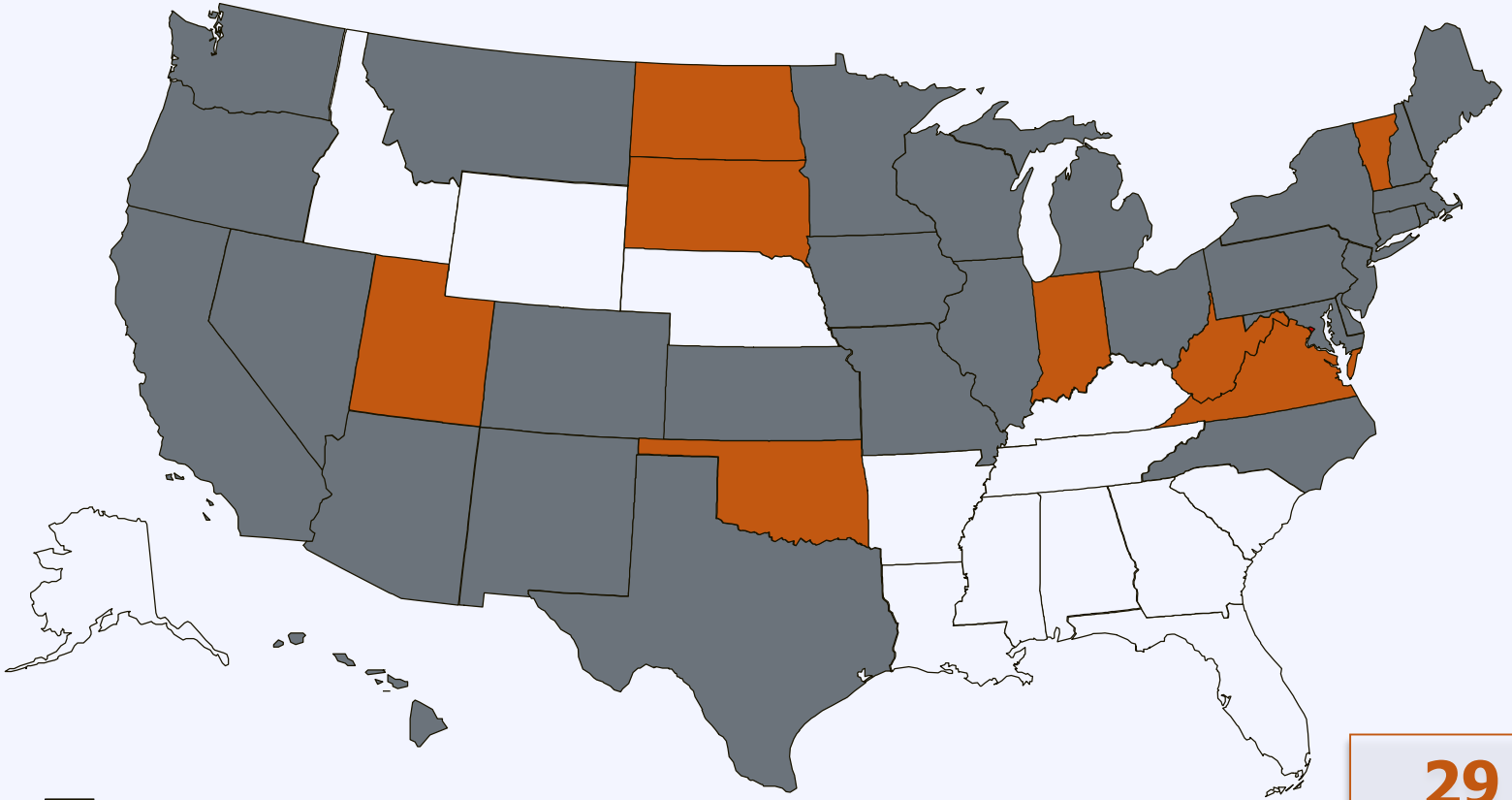


Renewable Portfolio Standard



Renewable Portfolio Standard

www.dsireusa.org / August 2012



29 states, +
Washington DC and 2 territories have Renewable Portfolio Standards
(8 states and 2 territories have renewable portfolio goals)

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U.S. Department of Energy

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

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Source: DSIRE Solar (http://dsireusa.org/documents/summarymaps/Solar_DG_RPS_map.pdf); Solar Energy Industries Association/ GTM Research *Solar Market Insight 2013 Year-in-Review*

A Policy Driven Market

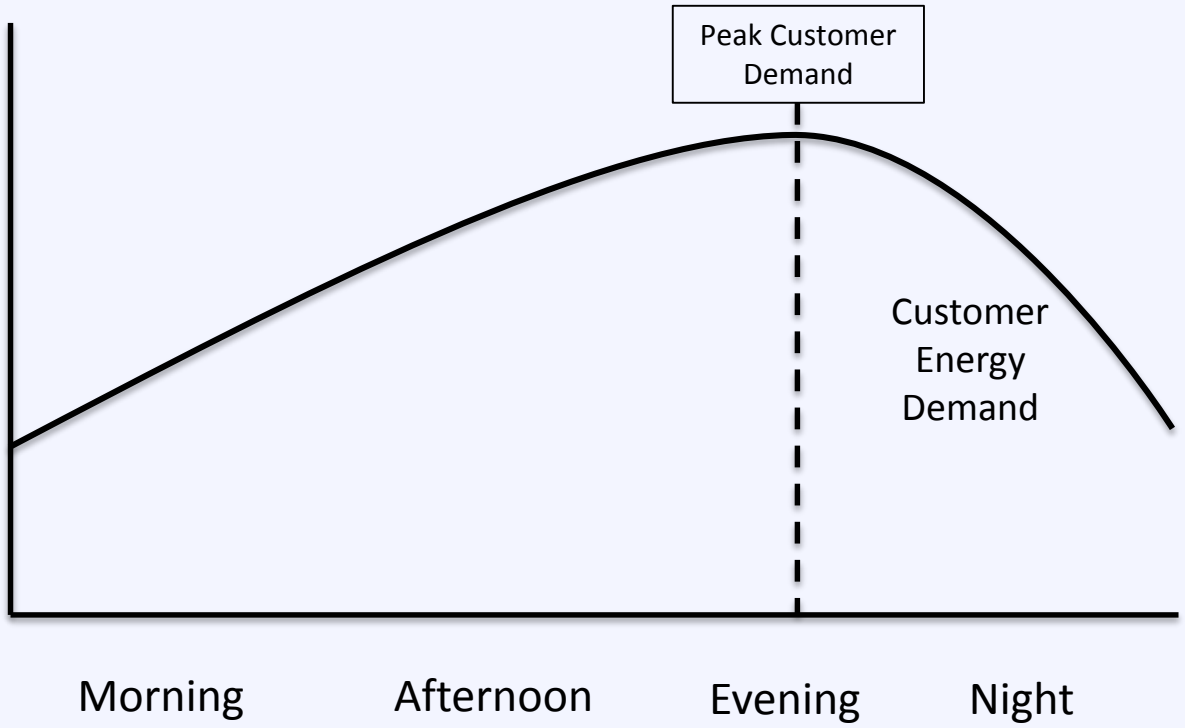
Federal	Investment Tax Credit	Accelerated Depreciation	Qualified Energy Conservation Bond
State & Utility	Renewable Portfolio Standard	Net Metering	Interconnection
	Solar Access	Utility Incentives	

Net Metering

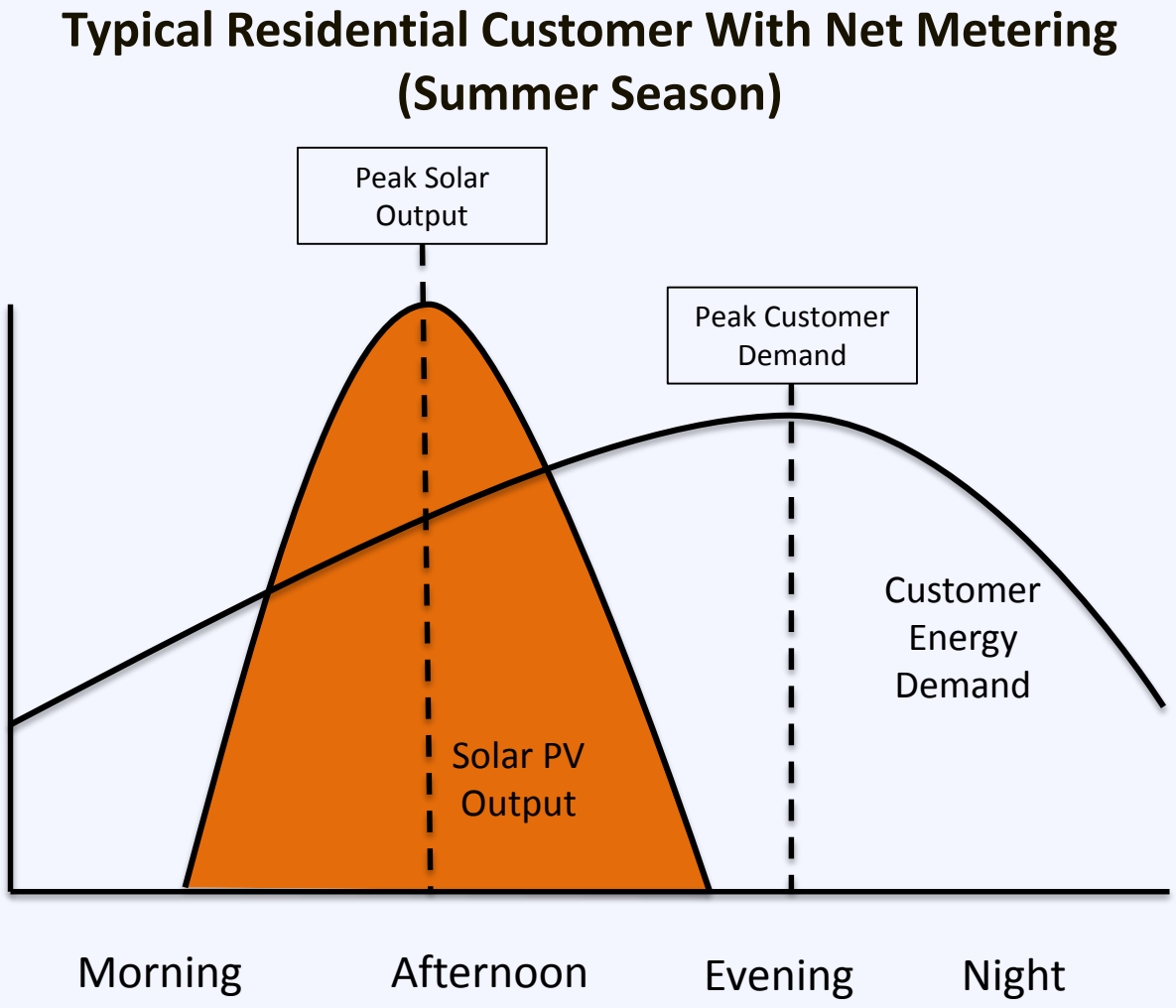
Net metering allows customers to export power to the grid during times of excess generation, and receive credits that can be applied to later electricity usage.

Net Metering

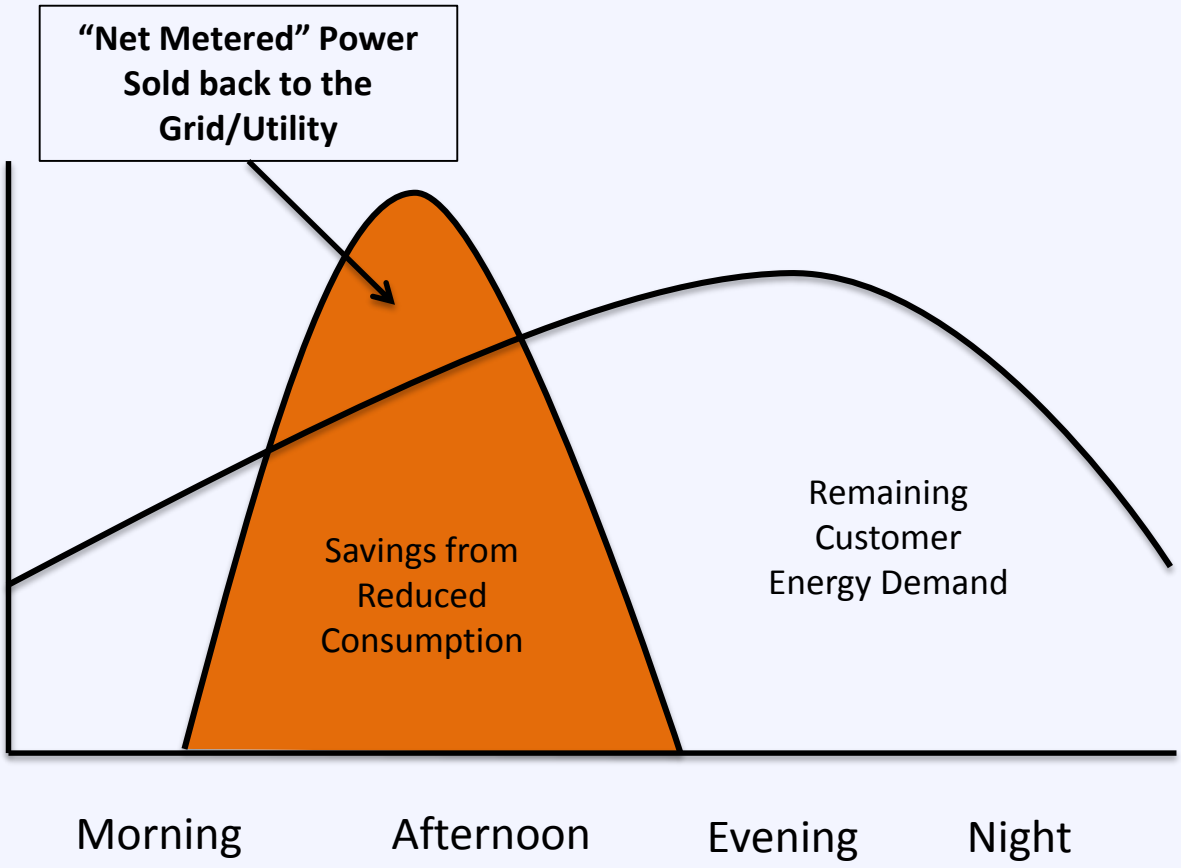
Typical Residential Customer With Net Metering (Summer Season)



Net Metering



Net Metering



The Result: Solar covers most (or all) of a customer's bill, even at night!

Net Metering: Market Share

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

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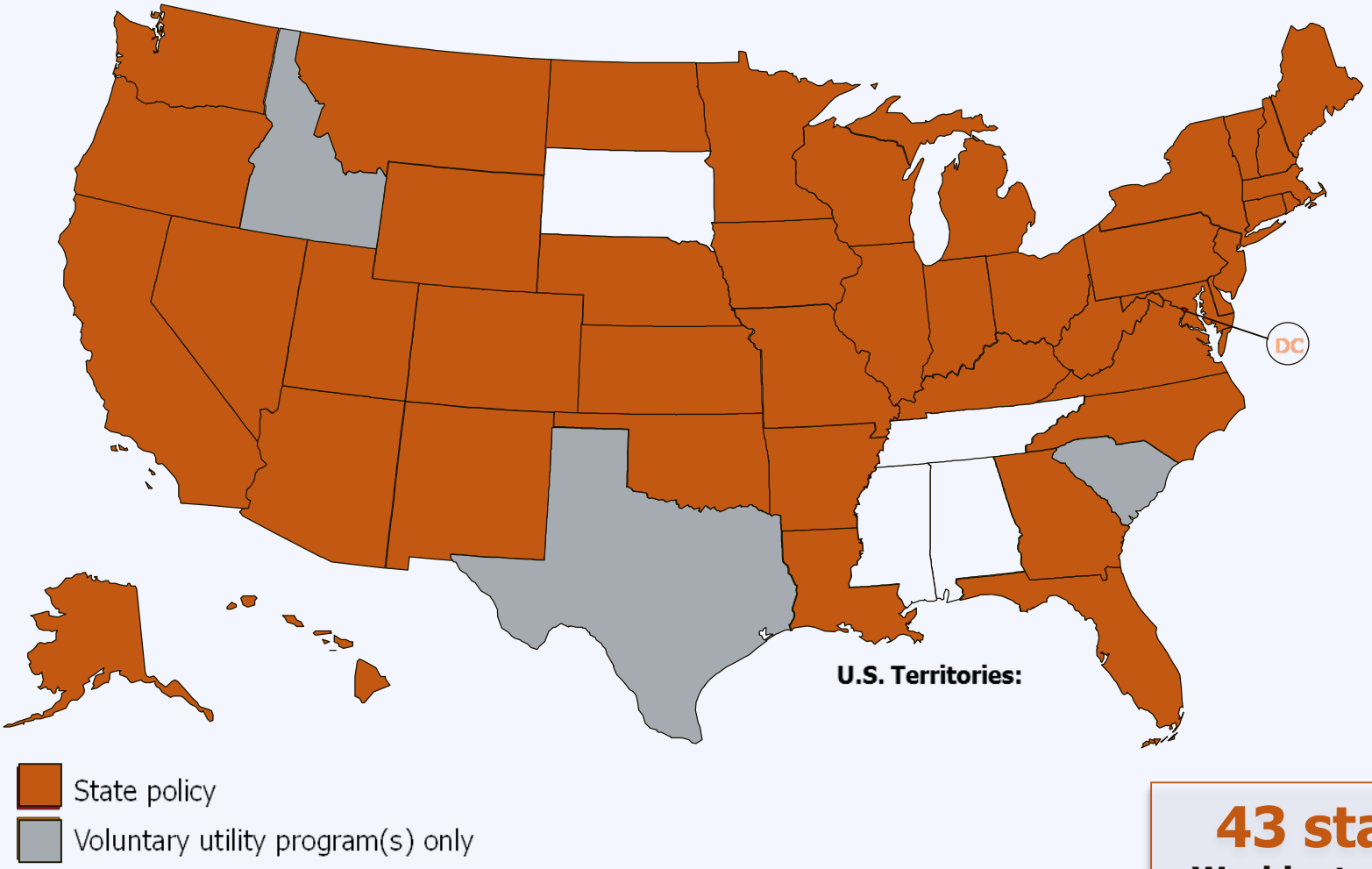
Source: IREC (http://www.irecusa.org/wp-content/uploads/IRECSolarMarketTrends-2012-web.pdf)

Net Metering



43 states, +
Washington DC and 4 territories have Net Metering Policies

Source: DSIRE (July 2013)

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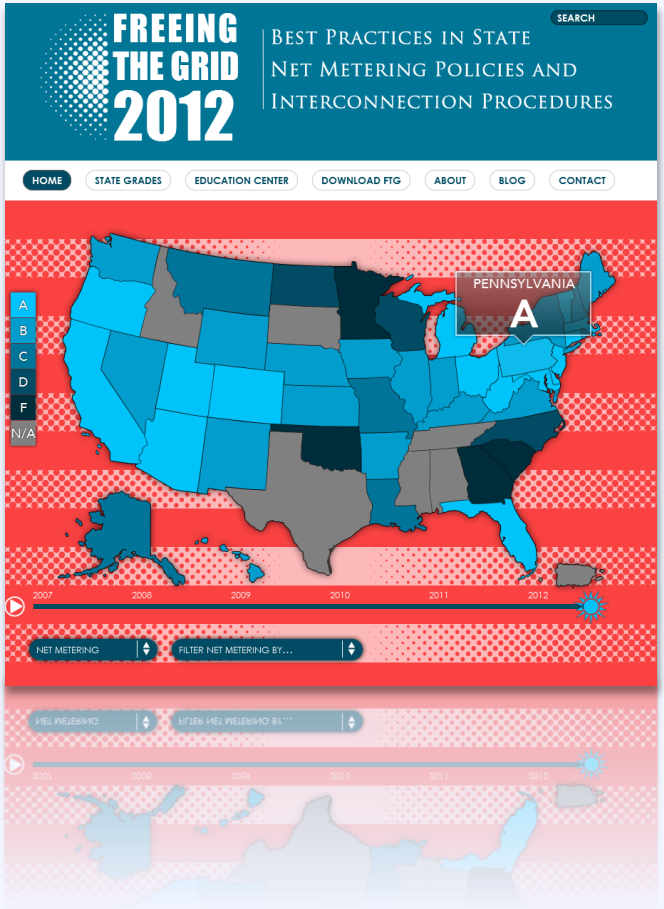
U.S. Department of Energy

Net Metering: Resources

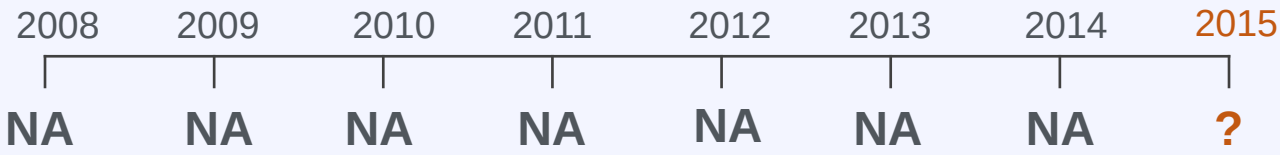
Resource **Freeing the Grid**

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

http://freeingthegrid.org/



Net Metering: Mississippi



Net Excess Credit Value
Retail Rate

Credit Rollover
Yes, with restrictions

System Capacity Limit
10 kW- Residential
2 MW- Non-residential

Penetration Cap
3% of Peak Demand

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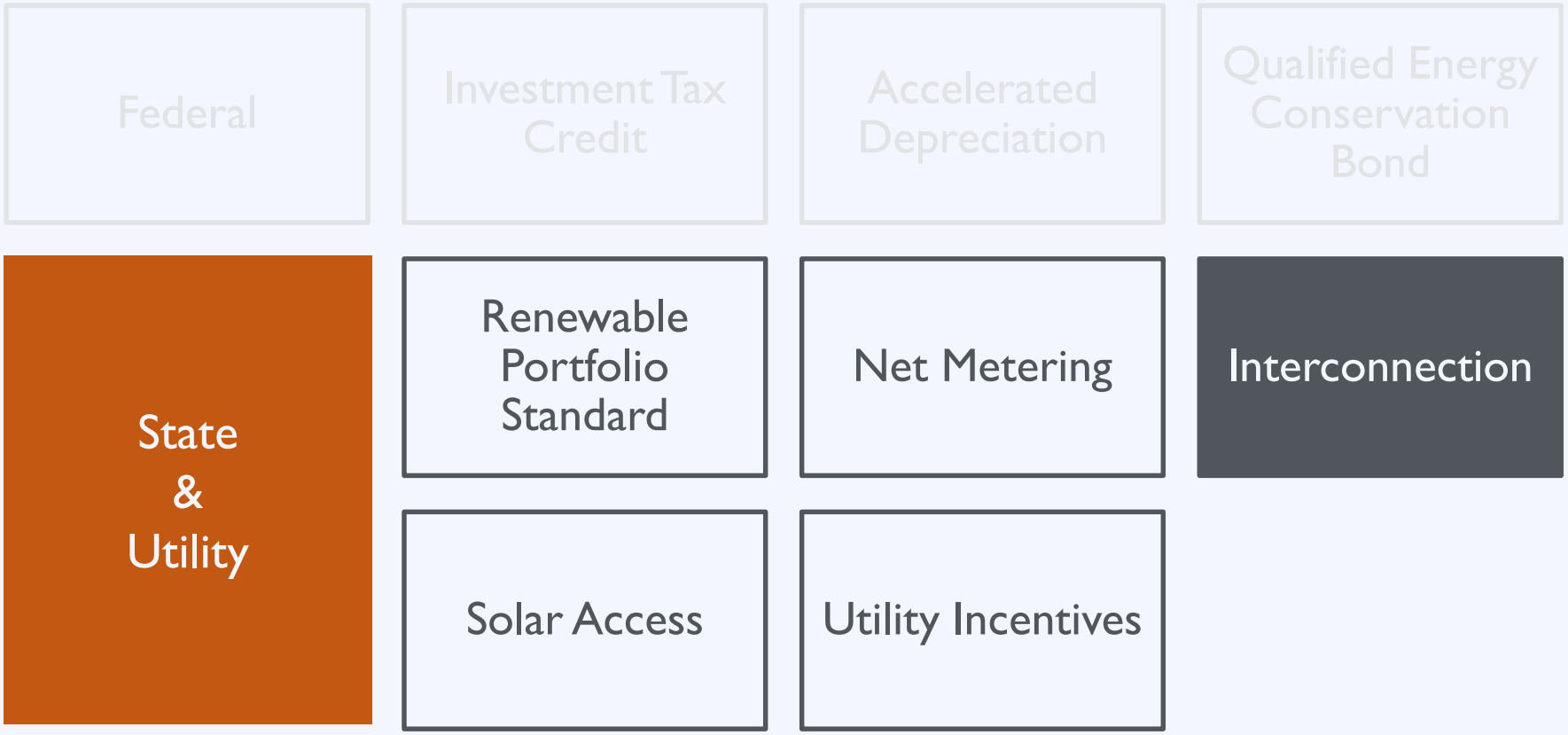
U.S. Department of Energy

Source: MS PSC Docket: 2011-AD-002

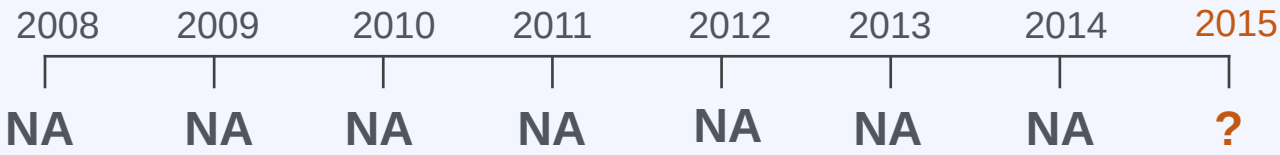
A Policy Driven Market



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: Mississippi



Applicable Technologies
Includes solar PV, wind, geothermal, among others

Review Capacity Limits
Level 1: 10 kW
Level 2: 10 MW

Applicable Utilities
All utilities

Bonus
Dispute resolution process & standardized interconnection agreement

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Source: Freeing the Grid

A Policy Driven Market

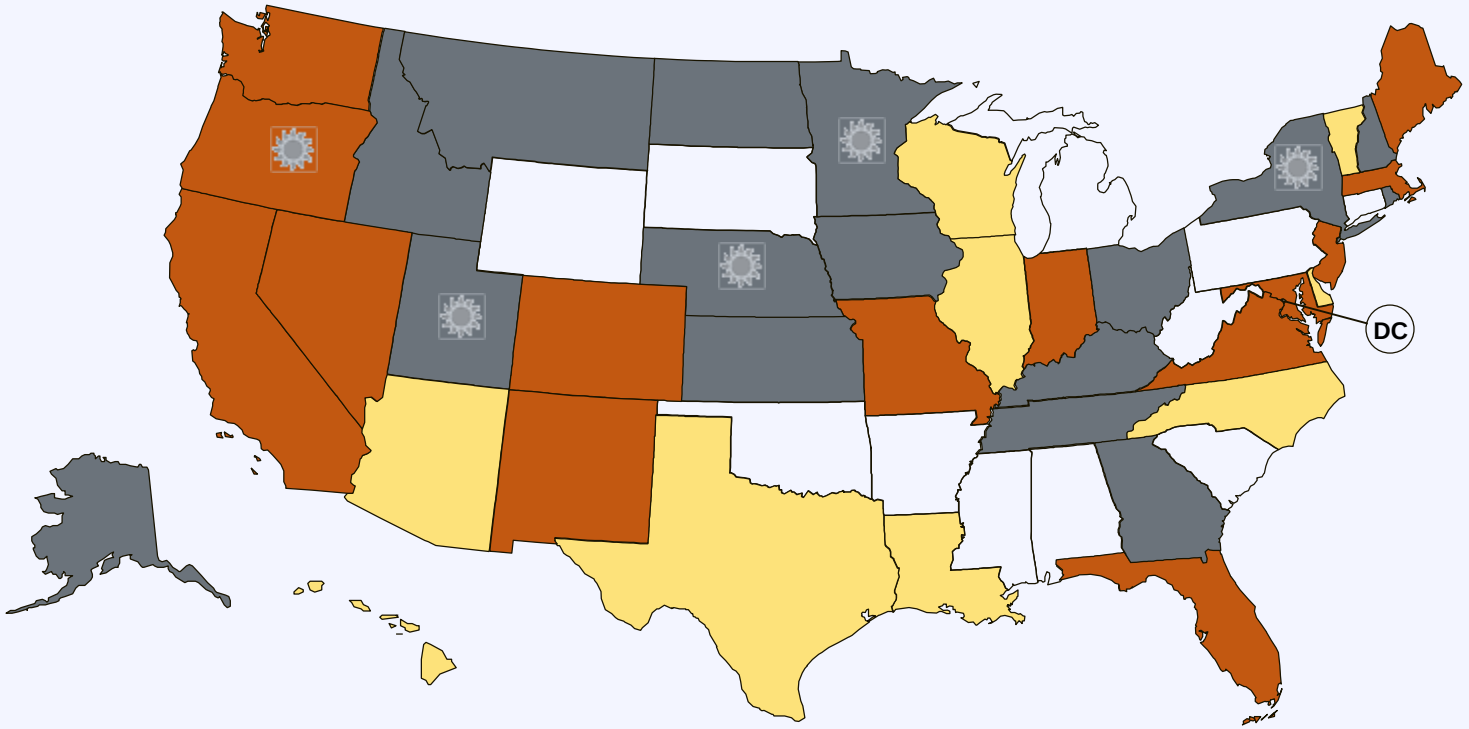
Federal	Investment Tax Credit	Accelerated Depreciation	Qualified Energy Conservation Bond
State & Utility	Renewable Portfolio Standard	Net Metering	Interconnection
	Solar Access	Utility Incentives	

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 Easements Provision

Solar Rights Provision

Solar Easements and Solar Rights Provisions

U.S. Virgin Islands

Local option to create solar rights provision

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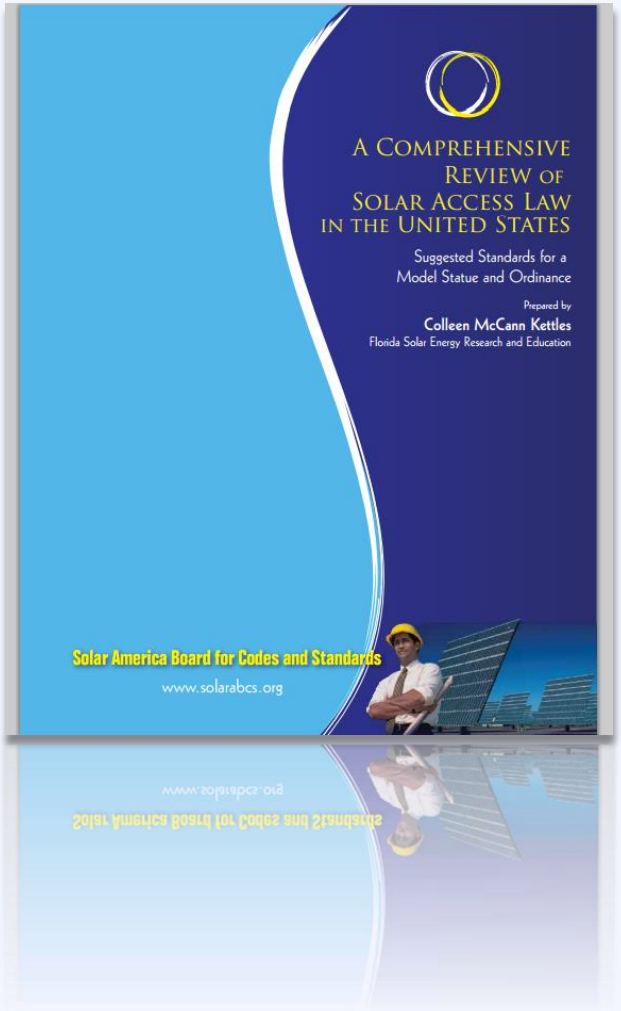
Source: Database of State Incentives for Renewables & Efficiency (www.dsireusa.org)

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



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A Policy Driven Market

Federal	Investment Tax Credit	Accelerated Depreciation	Qualified Energy Conservation Bond
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	Solar Access	Property Tax Exemption	

Utility Incentives

TVA – Green Power Providers

- Performance-based incentive to homeowners and businesses providing $0.02/kWh premium above retail rate for 10 years

TVA – Mid-Sized Renewable Standard Offer

- Fixed contract to mid-sized generators (50kW-20MW) of $0.029/kWh-$0.051/kWh, increasing 5%/year
- Limited "Solar Solutions Initiative" pilot offers $0.04/kWh for 10 years in addition to Standard Offer program

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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

Planning for Solar Development

Communitywide Comprehensive Plan

Neighborhood Plans

Corridor Plans

Special District Plans

Green Infrastructure Plans

Energy Plan

Climate Action Plan

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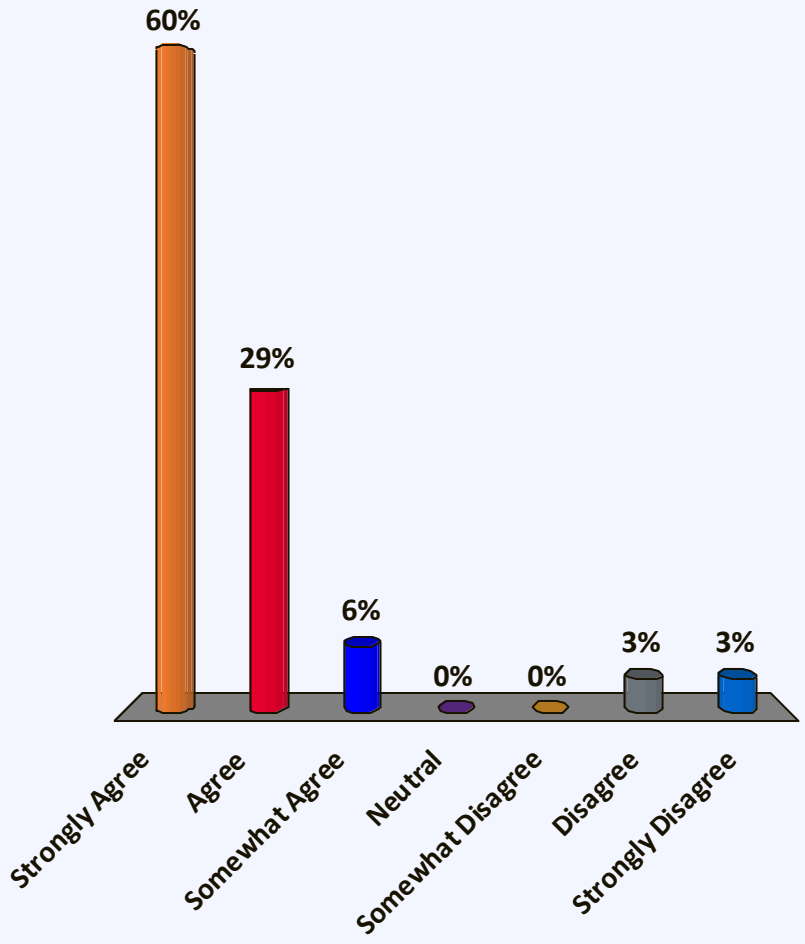
Source: American Planning Association

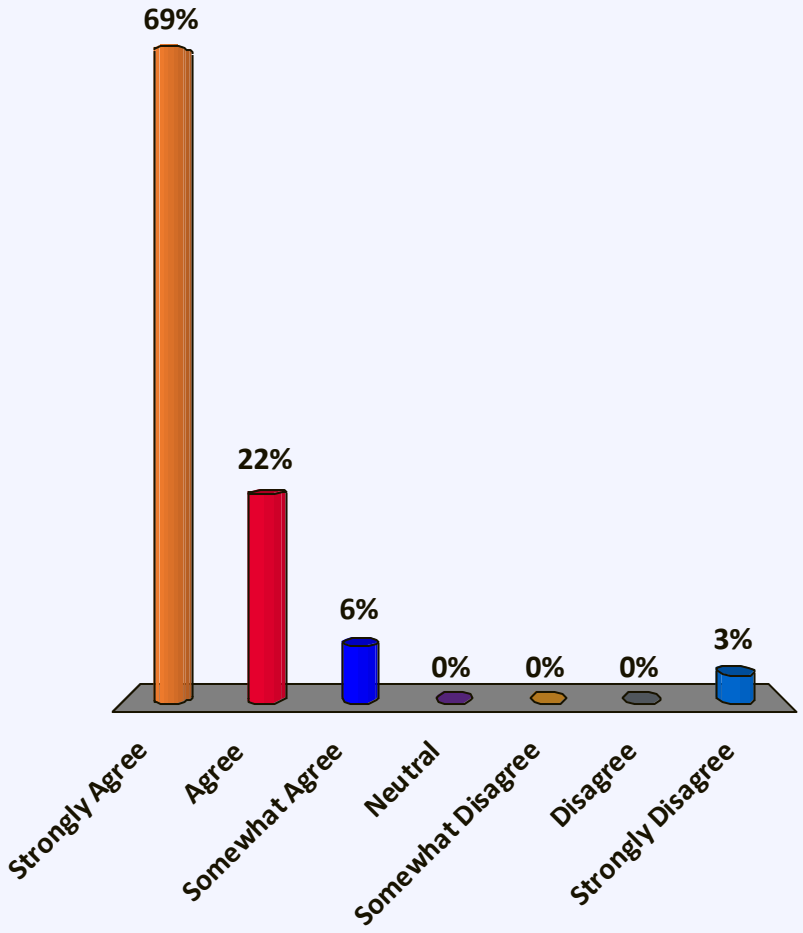
Solar advances your energy goals

A. Strongly Agree
B. Agree
C. Somewhat Agree
D. Neutral
E. Somewhat Disagree
F. Disagree
G. Strongly Disagree



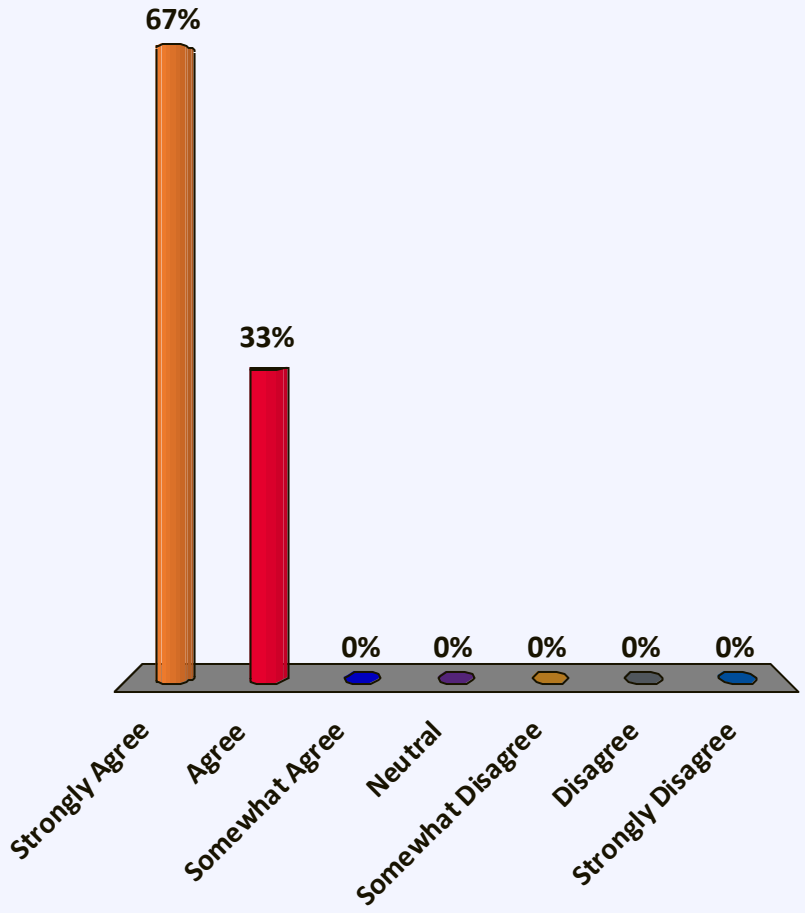
Solar advances your economic development goals

A. Strongly Agree
B. Agree
C. Somewhat Agree
D. Neutral
E. Somewhat Disagree
F. Disagree
G. Strongly Disagree



Solar advances your environmental & health goals

A. Strongly Agree
B. Agree
C. Somewhat Agree
D. Neutral
E. Somewhat Disagree
F. Disagree
G. Strongly Disagree



Visioning: Scales & Contexts

Poll

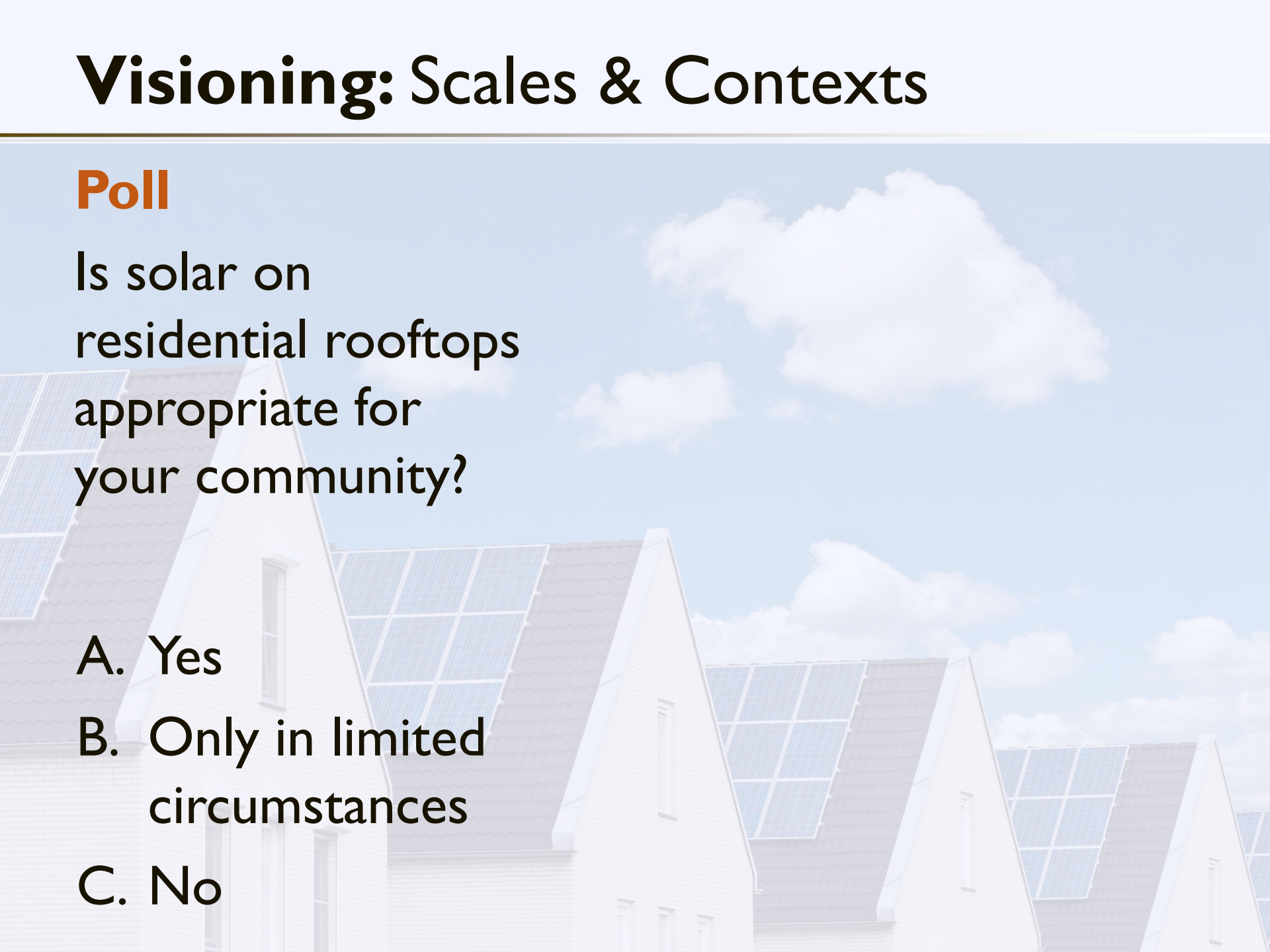
Is solar on residential rooftops appropriate for your community?

Visioning: Scales & Contexts

Poll

Is solar on residential rooftops appropriate for your community?

A. Yes
B. Only in limited circumstances
C. No



Visioning: Scales & Contexts

Poll

Is solar on commercial rooftops appropriate for your community?

Visioning: Scales & Contexts

Poll

Is solar on commercial rooftops appropriate for your community?

A. Yes

B. Only in limited circumstances

C. No

Visioning: Scales & Contexts

Poll

Is solar on historic structures appropriate for your community?

Visioning: Scales & Contexts

Poll

Is solar on historic structures appropriate for your community?

A. Yes
B. Only in limited circumstances
C. No

Visioning: Scales & Contexts

Poll

Is solar on brownfields appropriate for your community?

Visioning: Scales & Contexts

Poll

Is solar on brownfields appropriate for your community?

A. Yes
B. Only in limited circumstances
C. No

Visioning: Scales & Contexts

Poll

Is solar on greenfields appropriate for your community?

Visioning: Scales & Contexts

Poll

Is solar on greenfields appropriate for your community?

A. Yes
B. Only in limited circumstances
C. No

Visioning: Scales & Contexts

Poll

Is solar on parking lots appropriate for your community?

Visioning: Scales & Contexts

Poll

Is solar on parking lots appropriate for your community?

A. Yes
B. Only in limited circumstances
C. No

Visioning: Scales & Contexts

Poll

Is building-integrated solar appropriate for your community?

Visioning: Scales & Contexts

Poll

Is building-integrated solar appropriate for your community?

A. Yes
B. Only in limited circumstances
C. No

Further Considerations

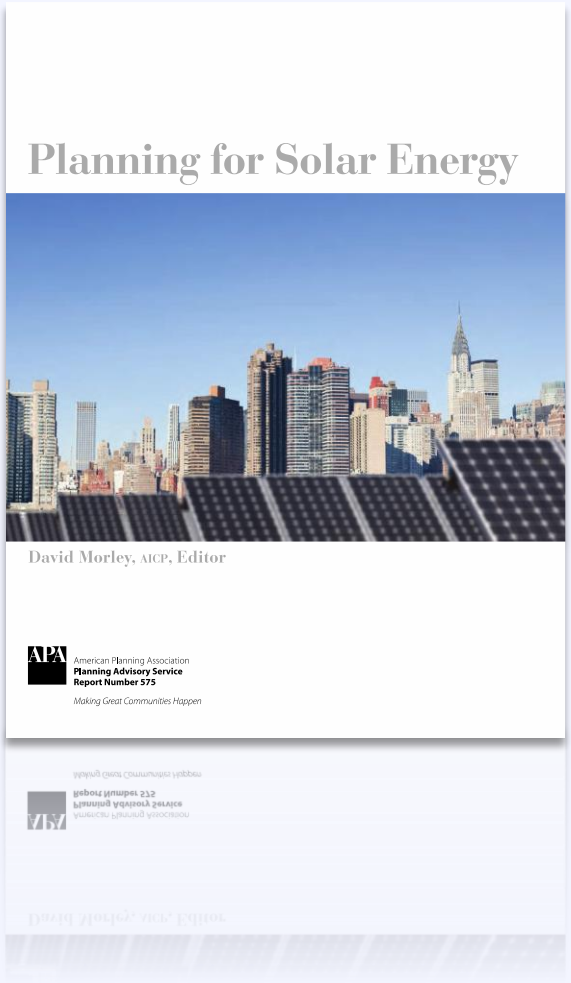
A. Tree Preservation
B. Historic Preservation
C. Urban Redevelopment
D. First Responder Safety

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



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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

Zoning Standards

Section	Topics to Address
Definitions	Define technologies & terms
Applicability	Primary vs. accessory use
Dimensional Standards	• Height • Size • Setbacks • Lot coverage
Design Standards	• Signage • Disconnect • Screening • Fencing

Source: American Planning Association

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: 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

Source: SolarCentury

Update Building Code

Solar Ready Construction:

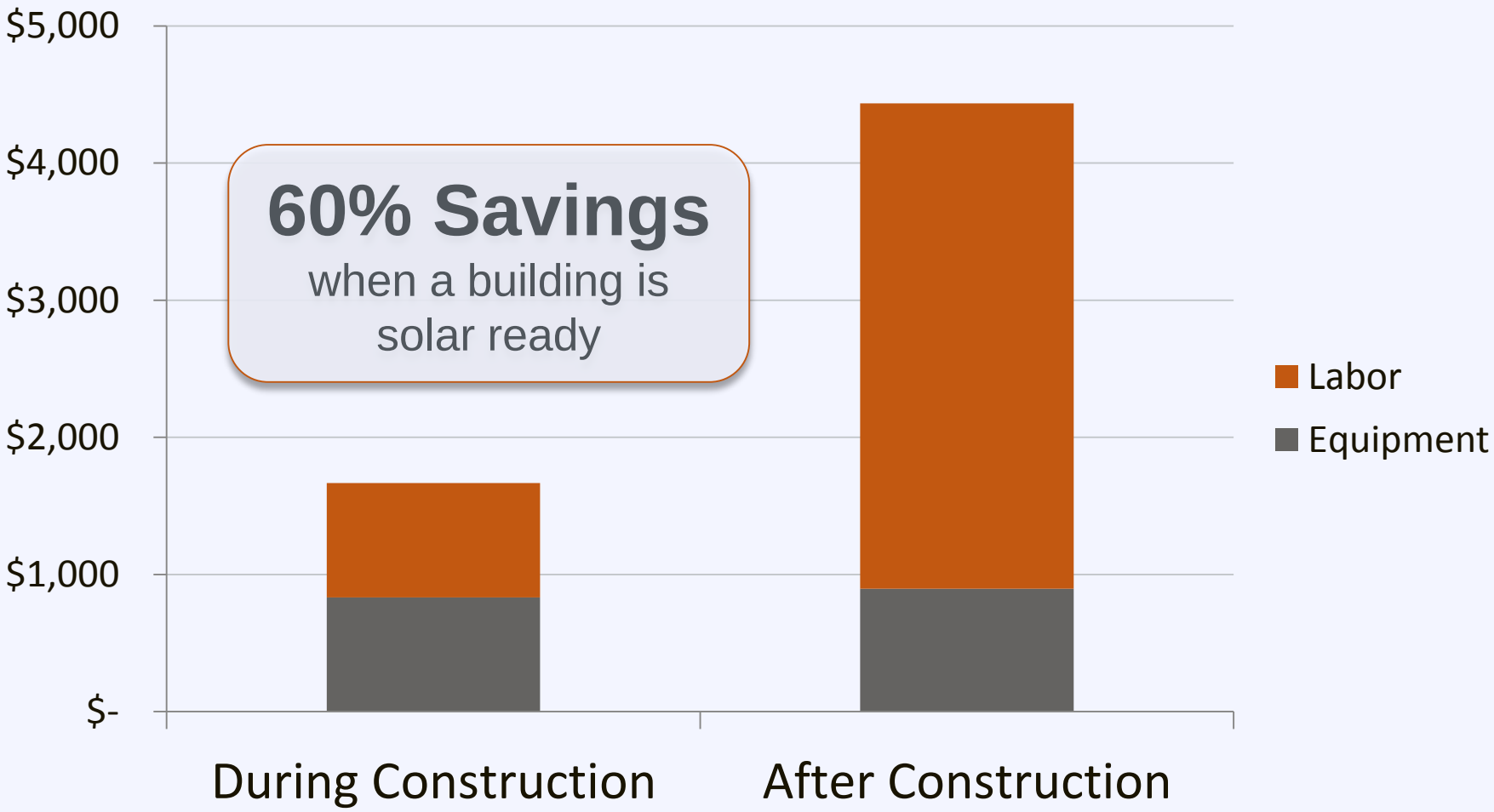
Preparing a building for solar at the outset can help make future solar installations easier and more cost effective.

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



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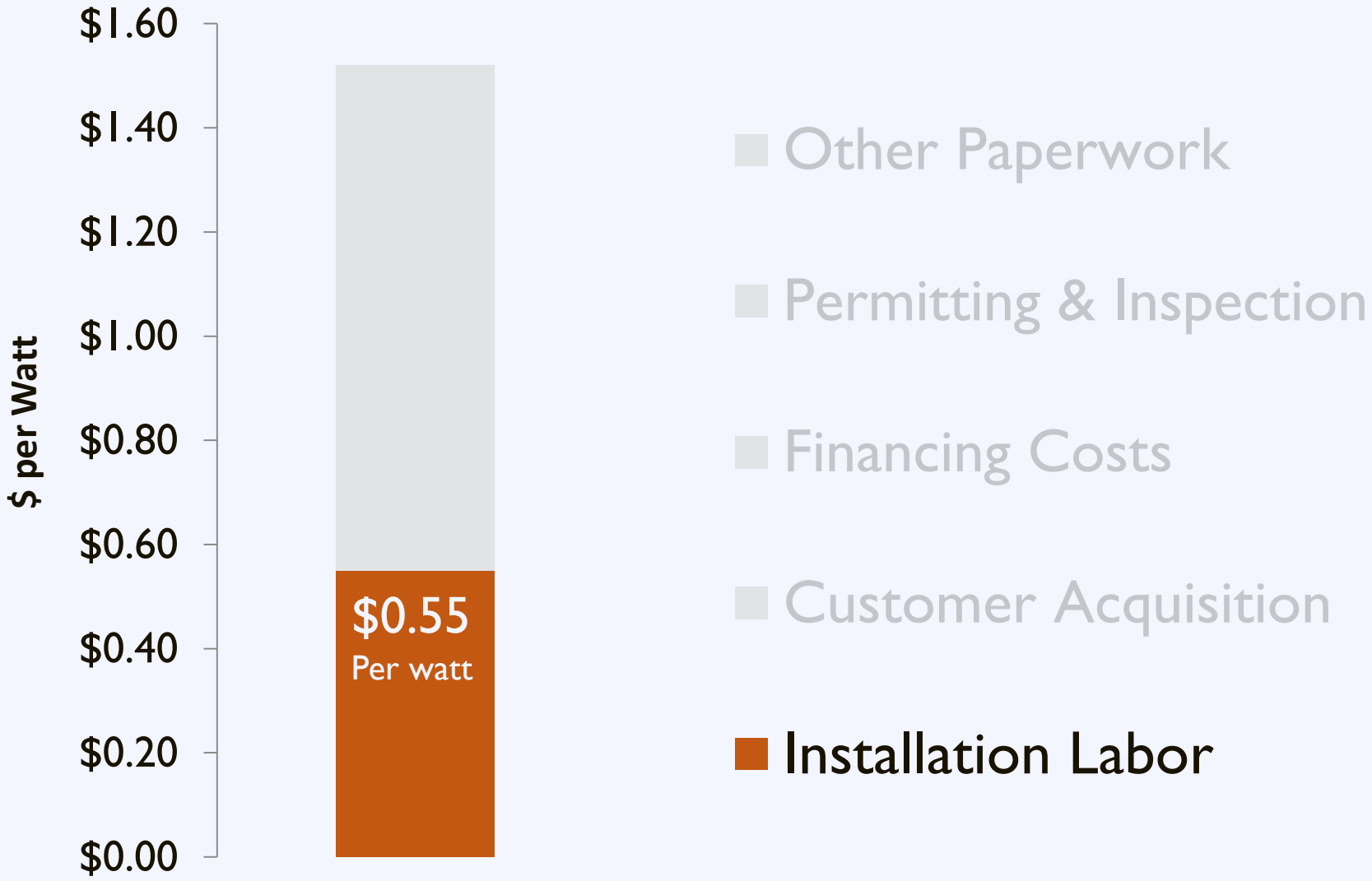
Source: Solar Ready: An Overview of Implementation Practices [Draft]. NREL, Feb. 18, 2011.

Installation Soft Costs



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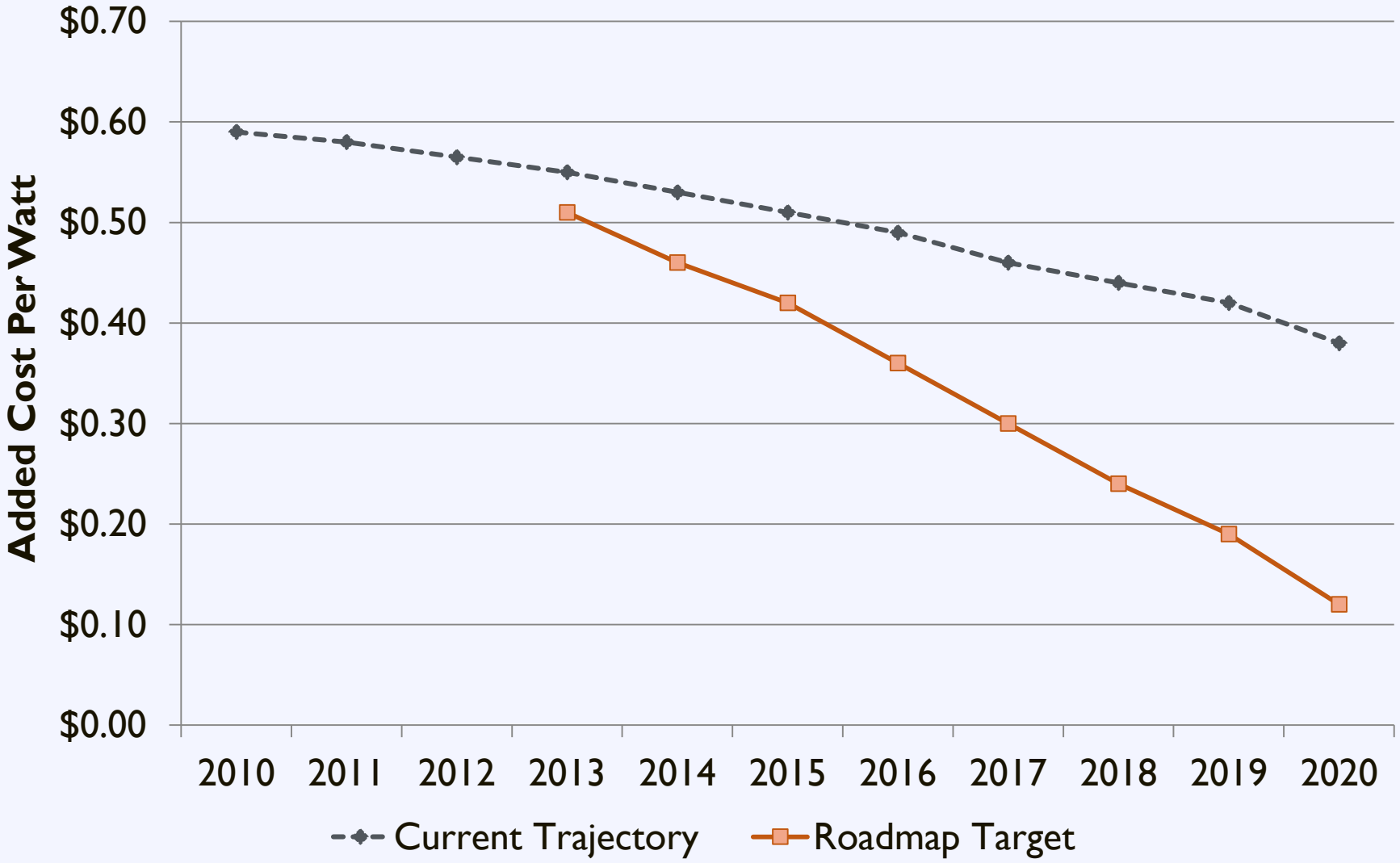
Installation Labor Roadmap



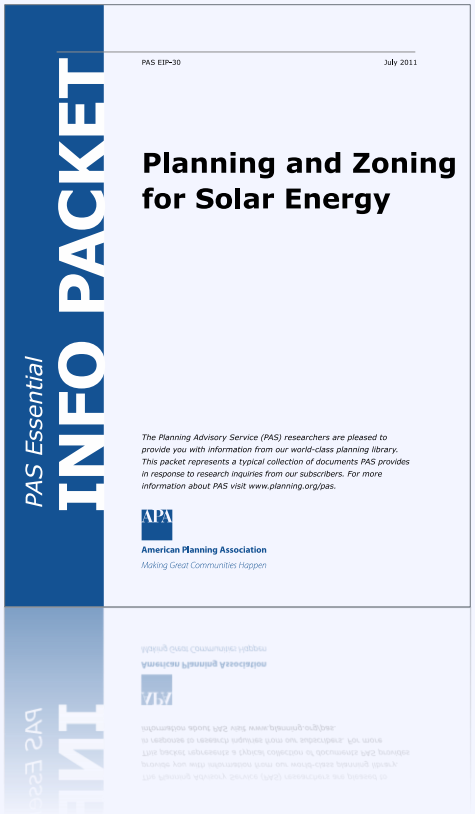
Source: NREL (http://www.nrel.gov/docs/fy13osti/59155.pdf)

Development Regulations

Resource **Planning and Zoning for Solar Energy**

This Essential Info Packet provides example development regulations for solar

planning.org/research/solar



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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

Challenge: Inconsistency

18,000+ local jurisdictions

with unique zoning and permitting requirements

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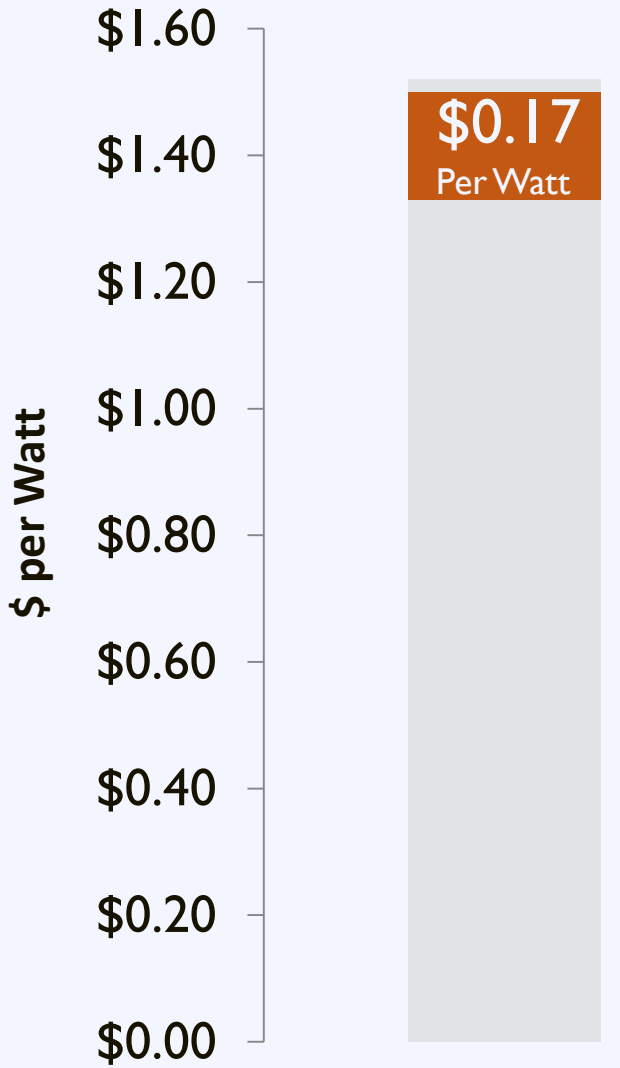
Source: http://www.nrel.gov/docs/fy12osti/54689.pdf

Consumer Challenges

Source: Forbes

Regulatory Barriers



- Other Paperwork
- **Permitting & Inspection**
- Financing Costs
- Customer Acquisition
- Installation Labor

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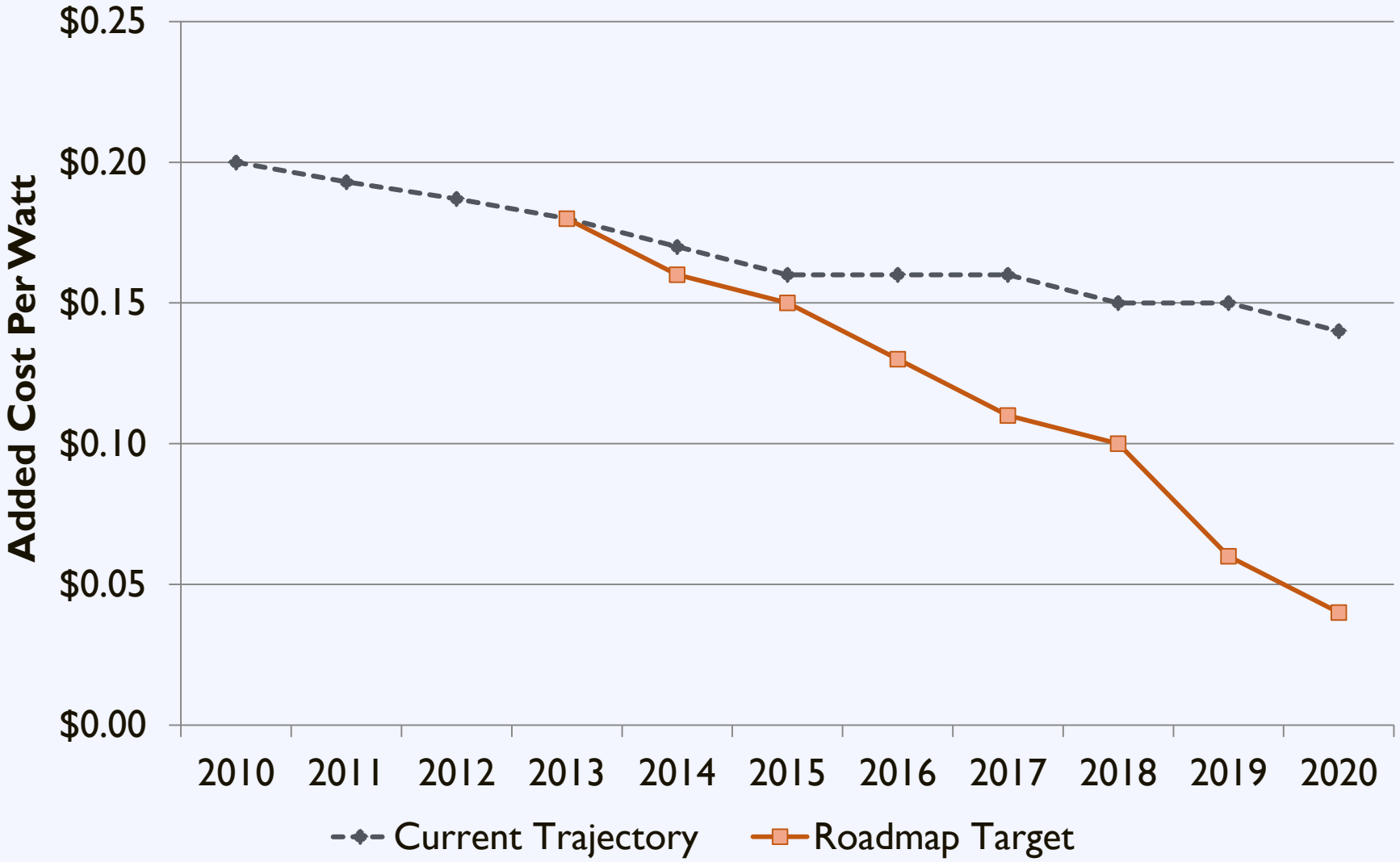
Planning & Permitting Roadmap



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Expedited Review

Expedited Review

Depth of Review

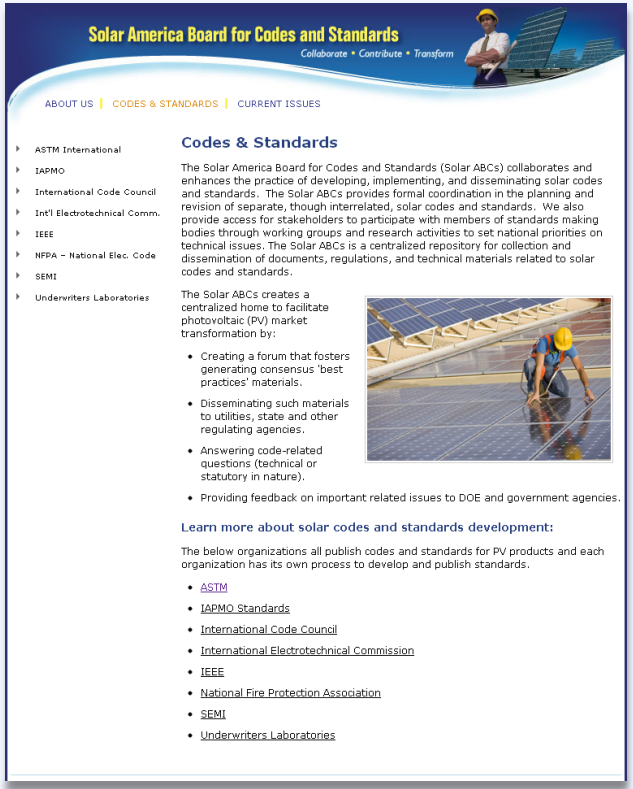
Expedient	**Expedient**	**Standard**
Within established design parameters		Outside of established design parameters
Impacts are well understood		Review necessary to understand impacts
Quick, Easy, Cheap		Flexible

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



Expedited Review

Depth of Review

Expedient | **Expedient** | **Standard**

Within established design parameters

Outside of established design parameters

1-1. Example Design Criteria:

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

Review necessary to understand impacts

Flexible

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Expedited Review

No Permit Required

Only interconnection agreement required

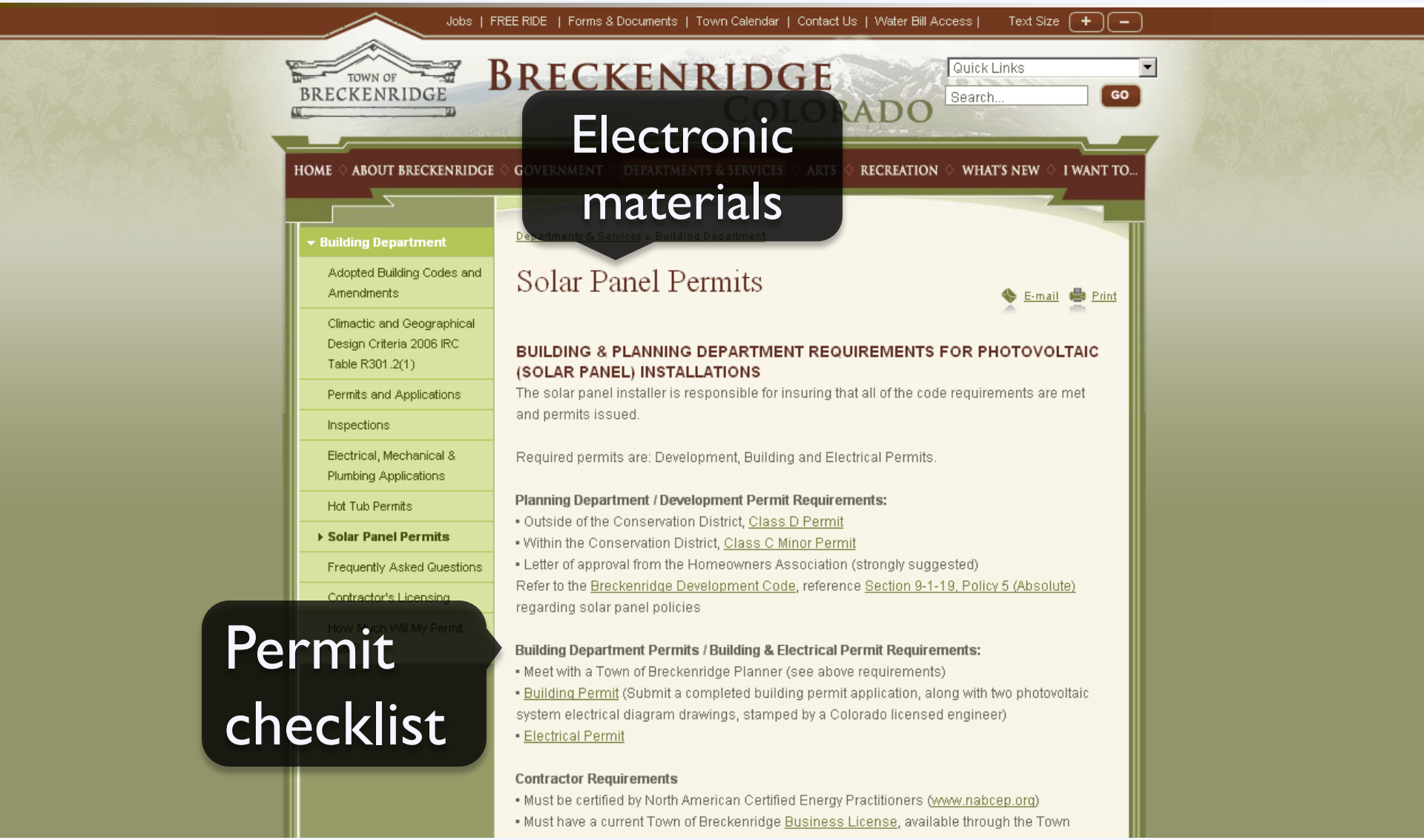
Cost-Based Recovery Fees

Residential
Flat Fees

Commercial
Fee Calculator

Fee = (Est. Staff Time x Rate) + Additional Review

Transparent process



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Source: Breckenridge, CO (http://www.townofbreckenridge.com/index.aspx?page=694)

Activity: Solar in Your Community

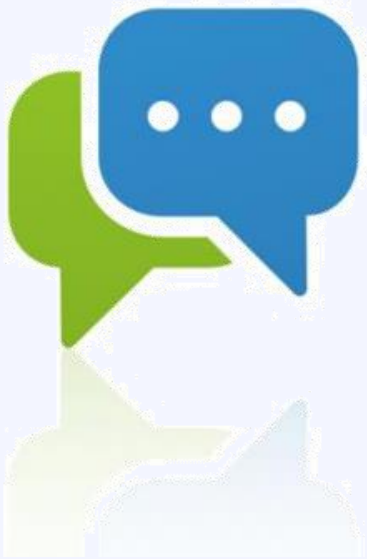
1. Recognize successes
2. Identify opportunities
3. Select strategies & best practices
4. Outline implementation plan
5. Discuss barriers to implementation

Activity: Solar in Your Community

Part 1: Take 5 minutes to complete the questions in the *Developing Effective Solar Policies in Your Community* handout.

Activity: Solar in Your Community

Part 2: Spend the next 10 minutes discussing your responses to Questions 8 – 12 with the others at your table. Discuss strategies for overcoming potential obstacles to implementation.



Discussion

Which "best practice" did you select to pursue first?

How difficult will it be to implement this policy/program?

Discussion

What obstacles stand in the way of implementation?

Discussion

What are possible strategies to overcome those obstacles?

Agenda

10:20 – 10:50	Putting Solar Energy on the Local Policy Agenda
10:50 – 11:20	State of the Mississippi Solar Market
11:20 – 11:50	Federal, State, and Utility Policy Drivers
11:50 – 12:10	*Lunch Break*
12:10 – 1:30	Solar in Mississippi: A Local Perspective
1:30 – 2:00	Planning for Solar: Getting Solar Ready
2:00 – 2:10	*Break*
2:10 – 2:45	Solar Market Development Tools
2:45 – 3:00	Next Steps

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Effective Local Solar Policy

Local Solar Policy

Understanding solar financing

Expanding financing options

Addressing customer acquisition

Solar Market Development Tools

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Ownership

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The Solar Equation

Cost

+ Installed Cost

+ Maintenance

- Direct Incentive

Benefit

+ Avoided Energy Cost

+ Excess Generation

+ Performance Incentive

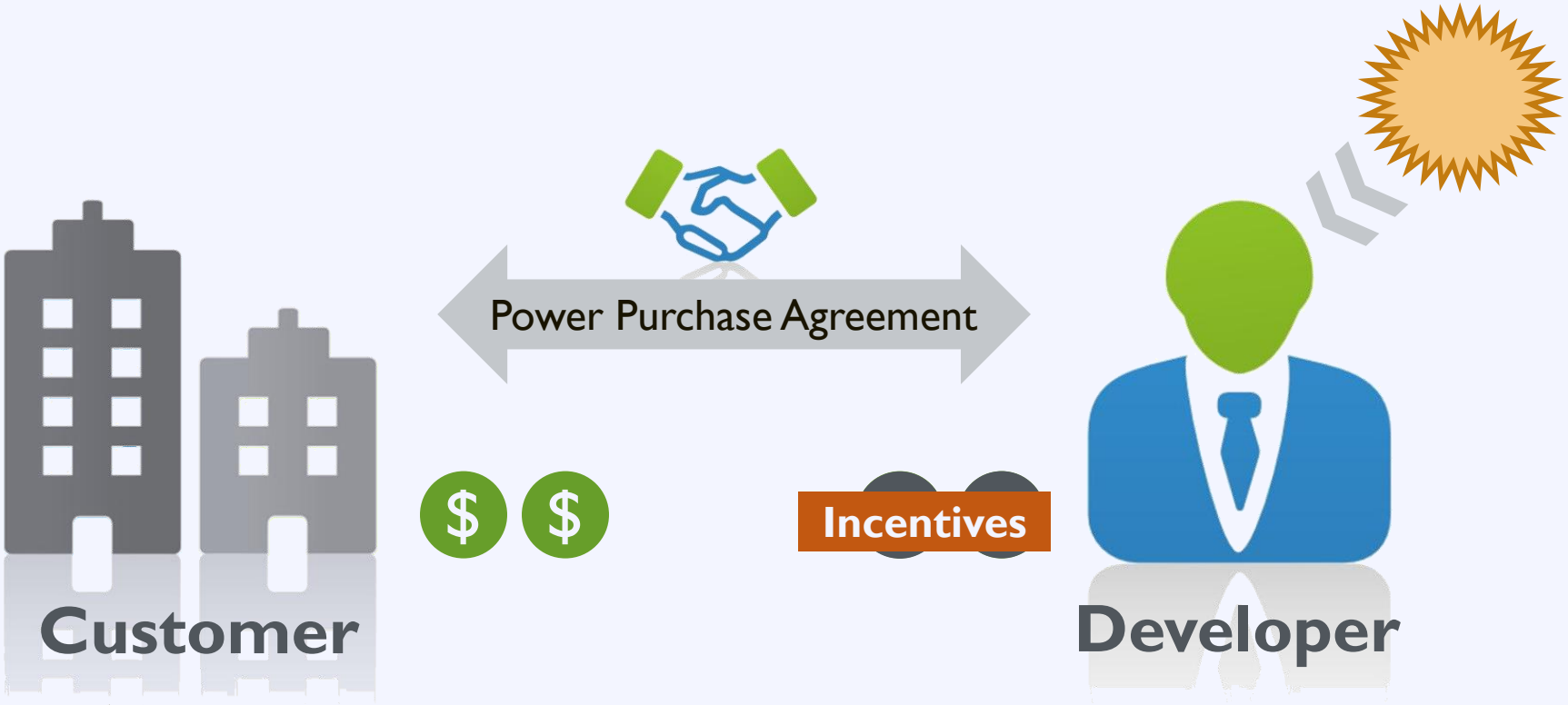
Ownership Options for Solar

Direct Ownership

Third-Party Ownership

Direct Ownership

Third Party Ownership



Power Purchase Agreements

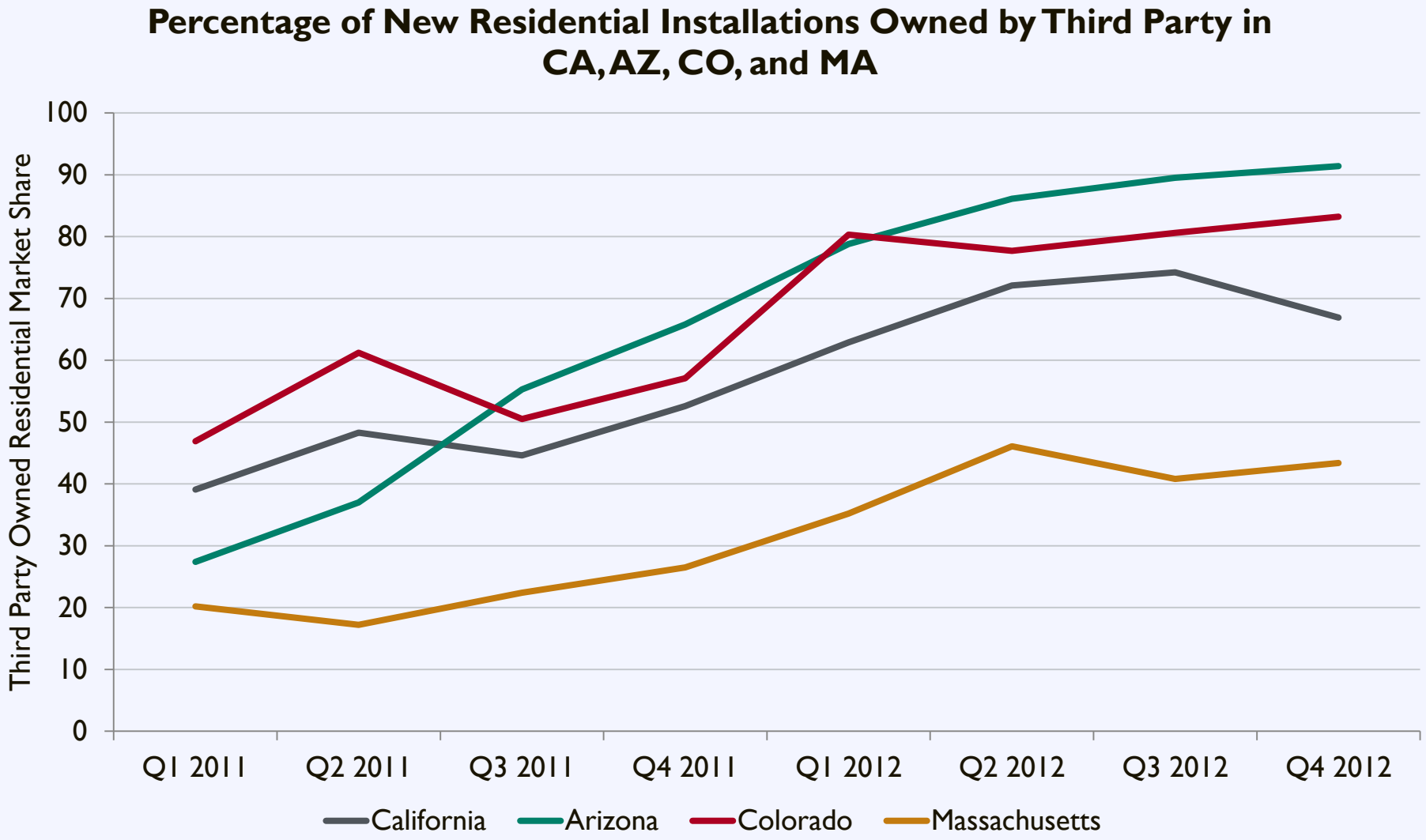
Eagle Point Solar Supreme Court Ruling

Eagle Point Solar **was not** acting as an illegal utility by installing a solar system on a Dubuque city building.

Effectively, this ruling **opens the door to PPAs in Iowa.**

Source: Eagle Point Solar

Third Party Ownership



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Source: GTM Research/ Solar Energy Industries Association, *U.S. Solar Market Insight 2012 Year-in-Review*

Third Party Ownership

Benefits

- No upfront cost
- No O&M costs
- Low risk
- Predictable payments

Drawbacks

- Not available in all states
- Investor needs higher ROI

Ownership Options for Solar

Direct Ownership

Third-Party Ownership

Solar lending products to enable direct ownership

Engage Local Lenders

Fewer than **5%**

of the

6,500 banks in the US

are

actively financing solar PV projects

Ownership Options for Solar

Direct Ownership

Third-Party Ownership

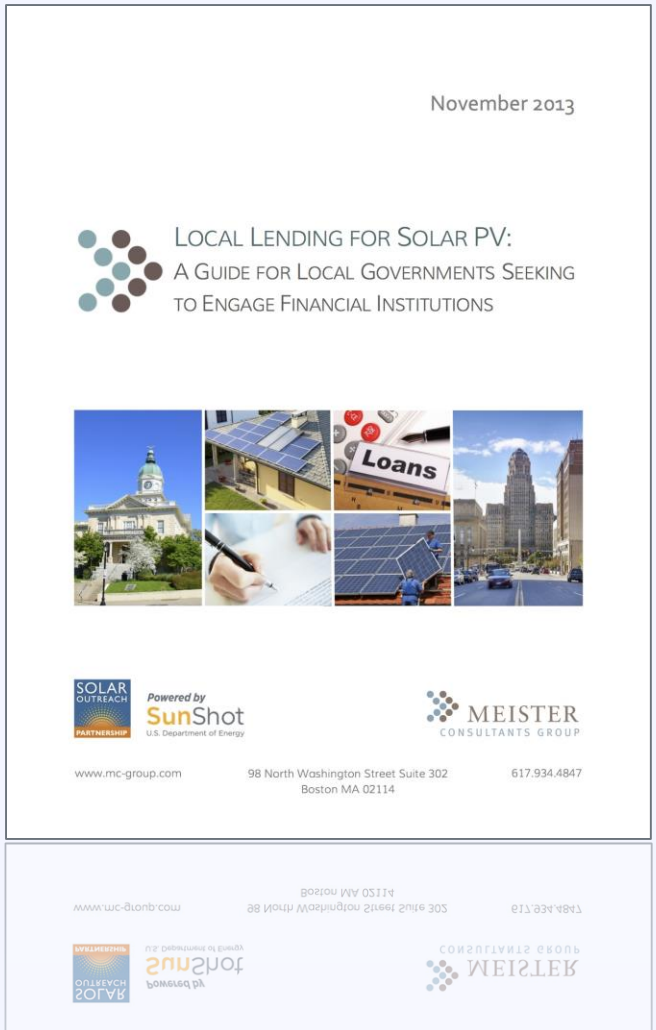
Expand direct ownership options by engaging local lenders

Solarize: Resources

Resource **Local Lending for Solar PV**

A guide for local governments seeking to engage financial institutions

www.solaroutreach.org



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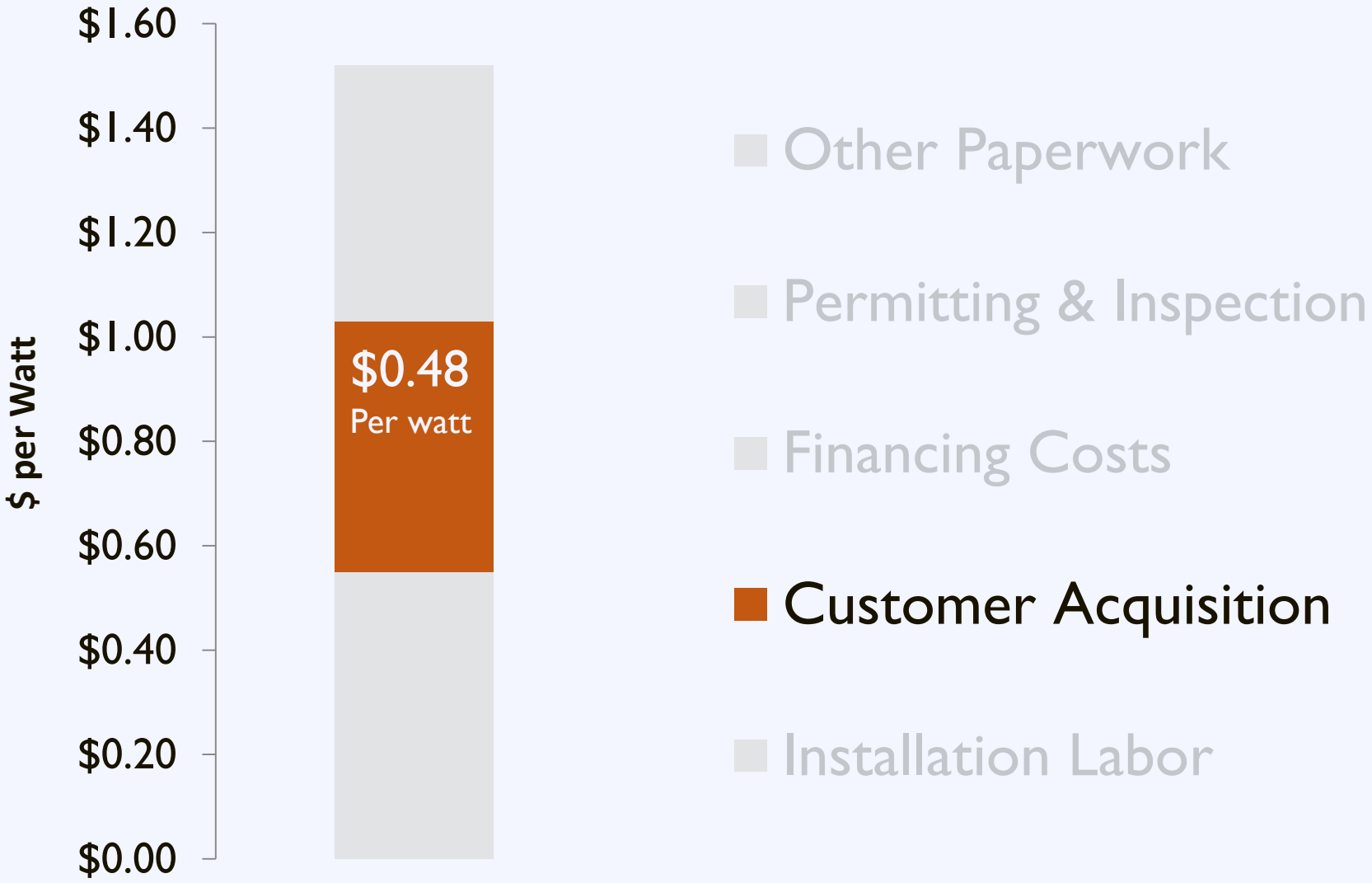
Customer Acquisition



Source: National Renewable Energy Laboratory

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

SOLARIZE MASS

Solarize CONNECTICUT

solarize ASHEVILLE

solarize washington
a program of northwest seed

solarize portland

I helped solarize pendleton oregon

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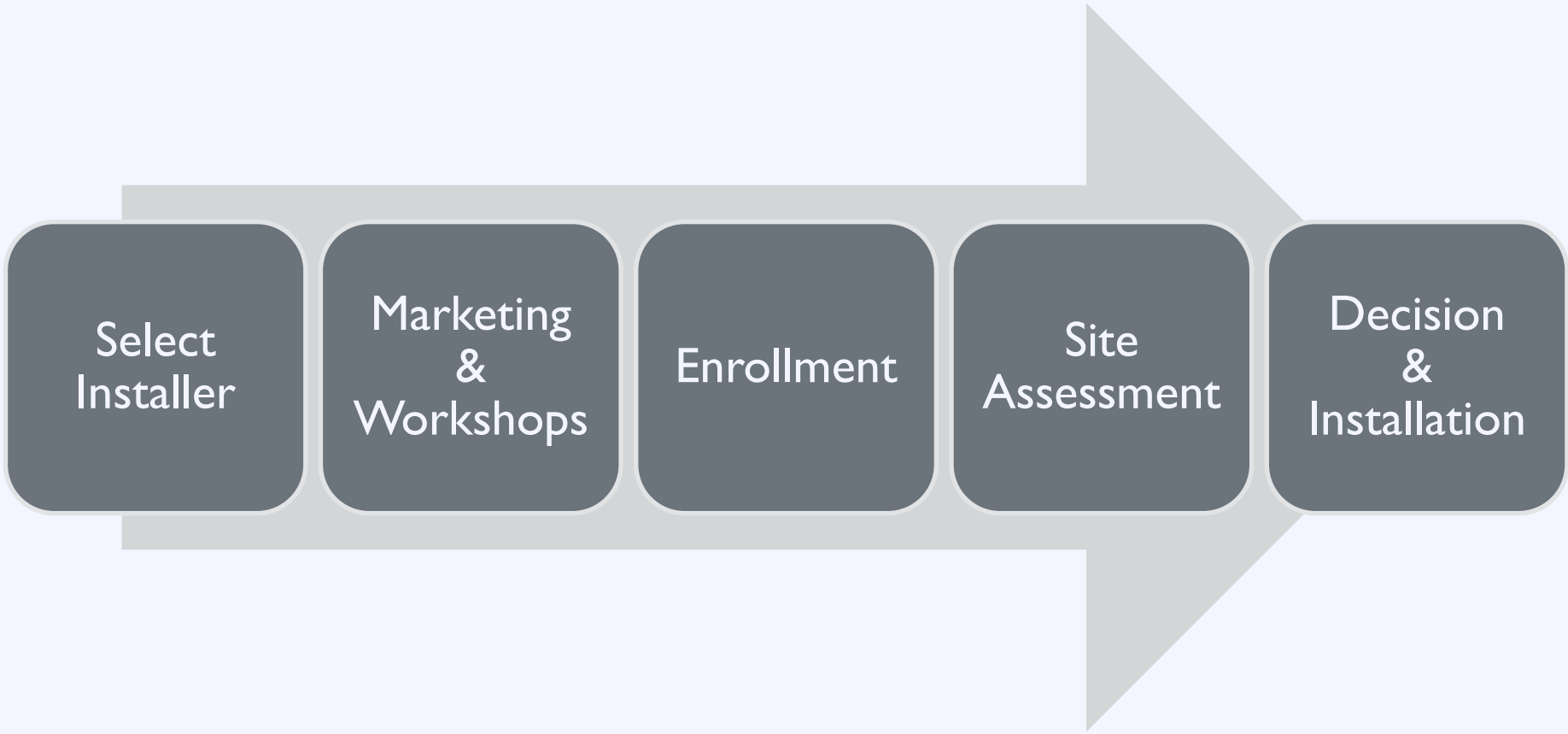
The Solarize Program

Barriers		Solutions
High upfront cost	→	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

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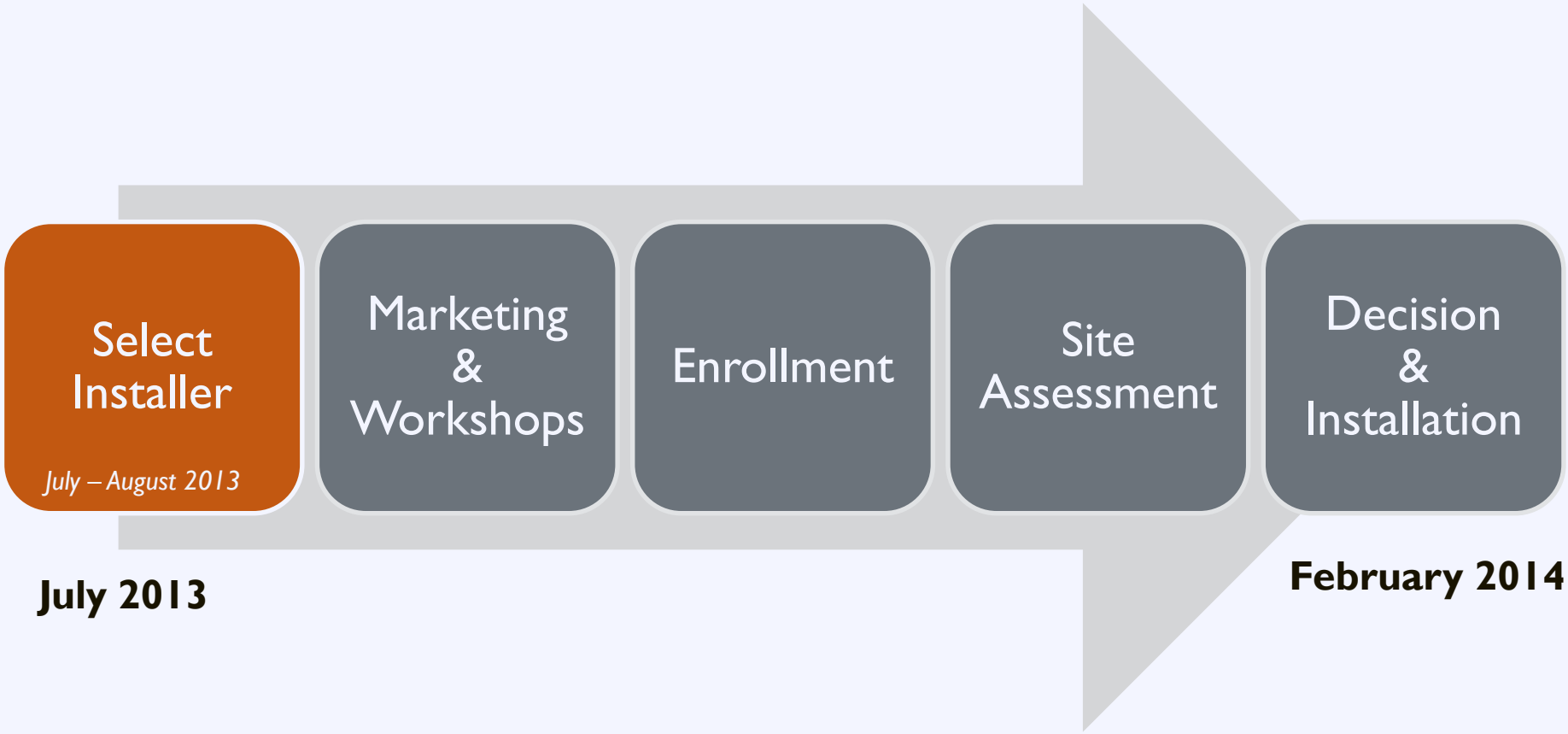
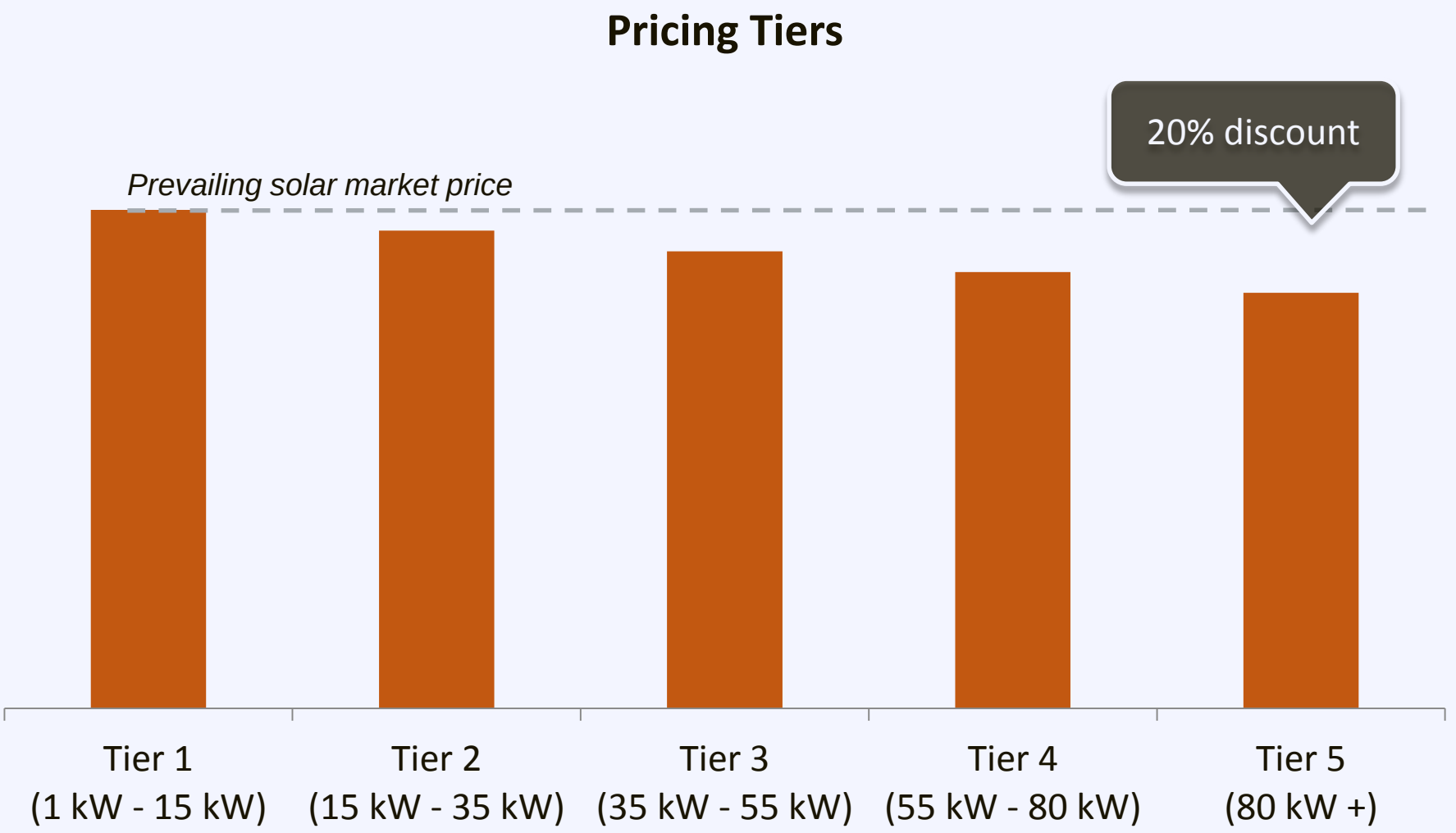
Solarize Plano: Case Study



Solarize Plano: Case Study



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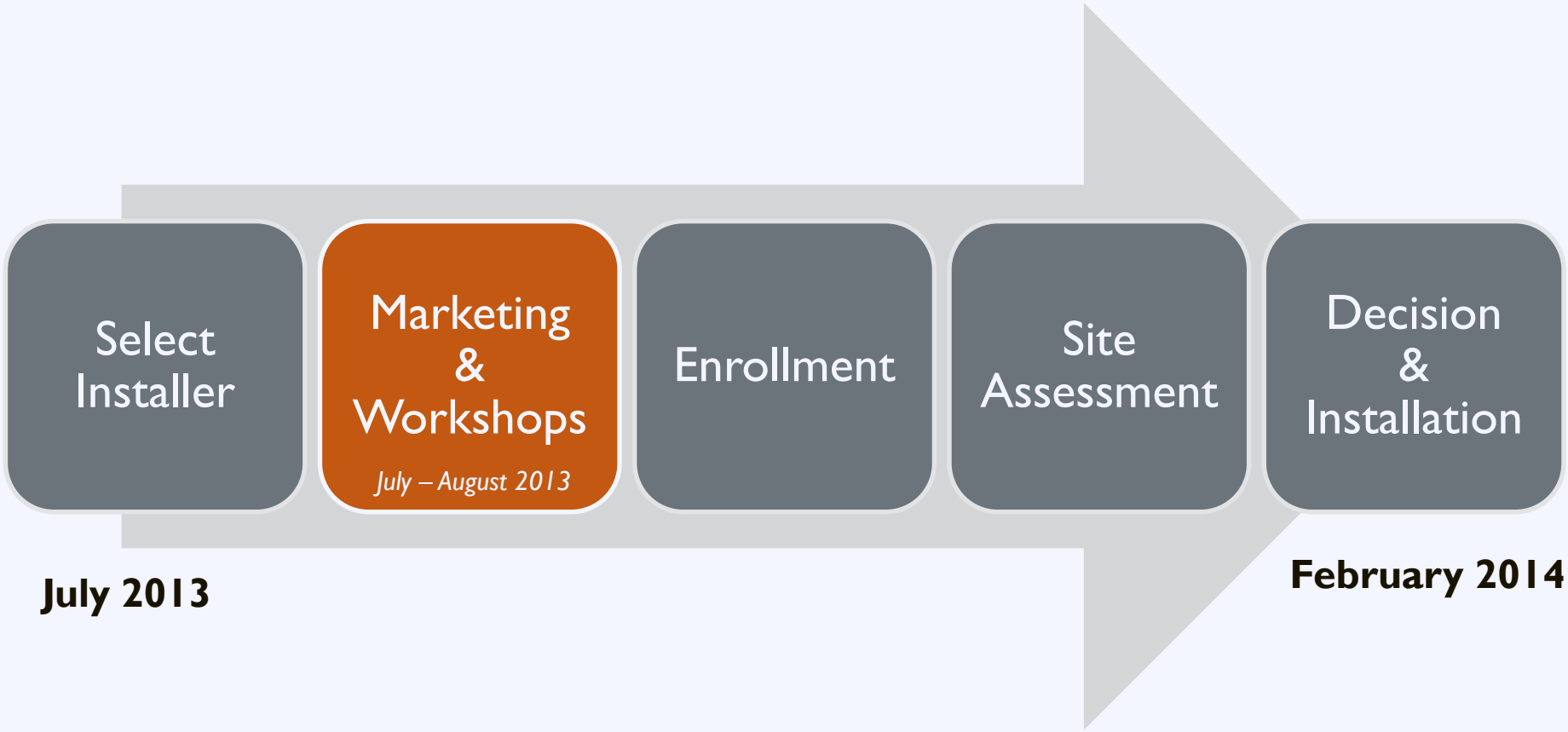
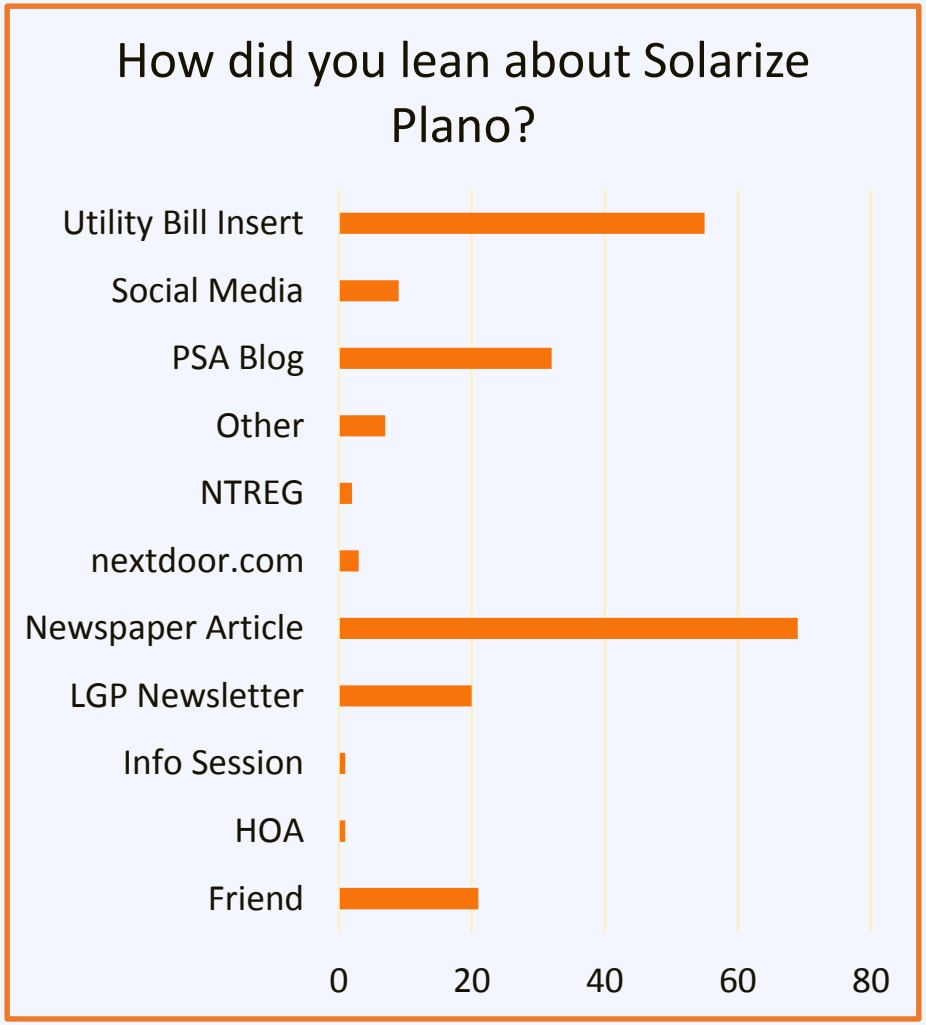
Solarize Plano: Case Study



Solarize Plano: Case Study

Marketing Strategy:

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



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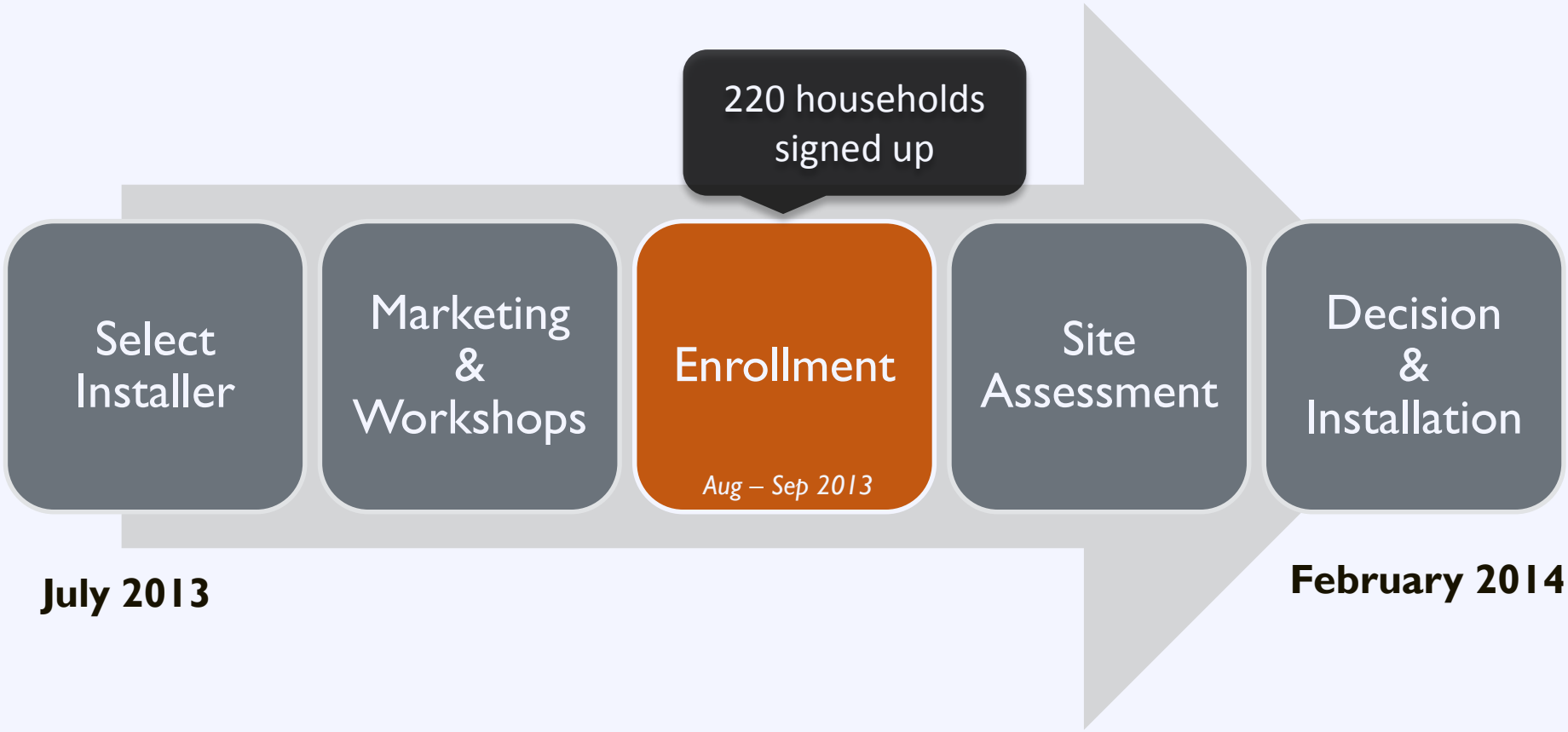
Source: Solarize Plano & NCTCOG

Solarize Plano: Case Study



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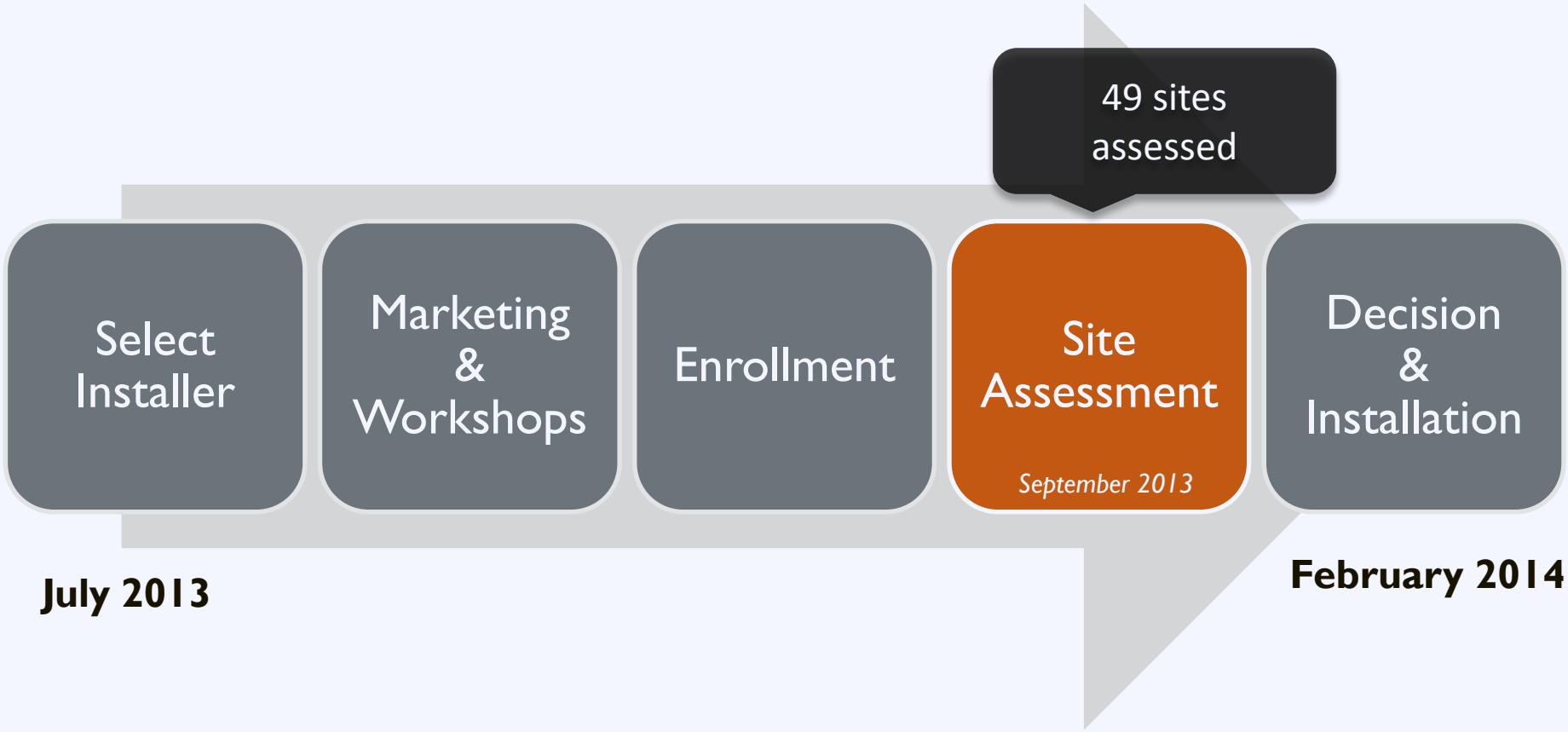

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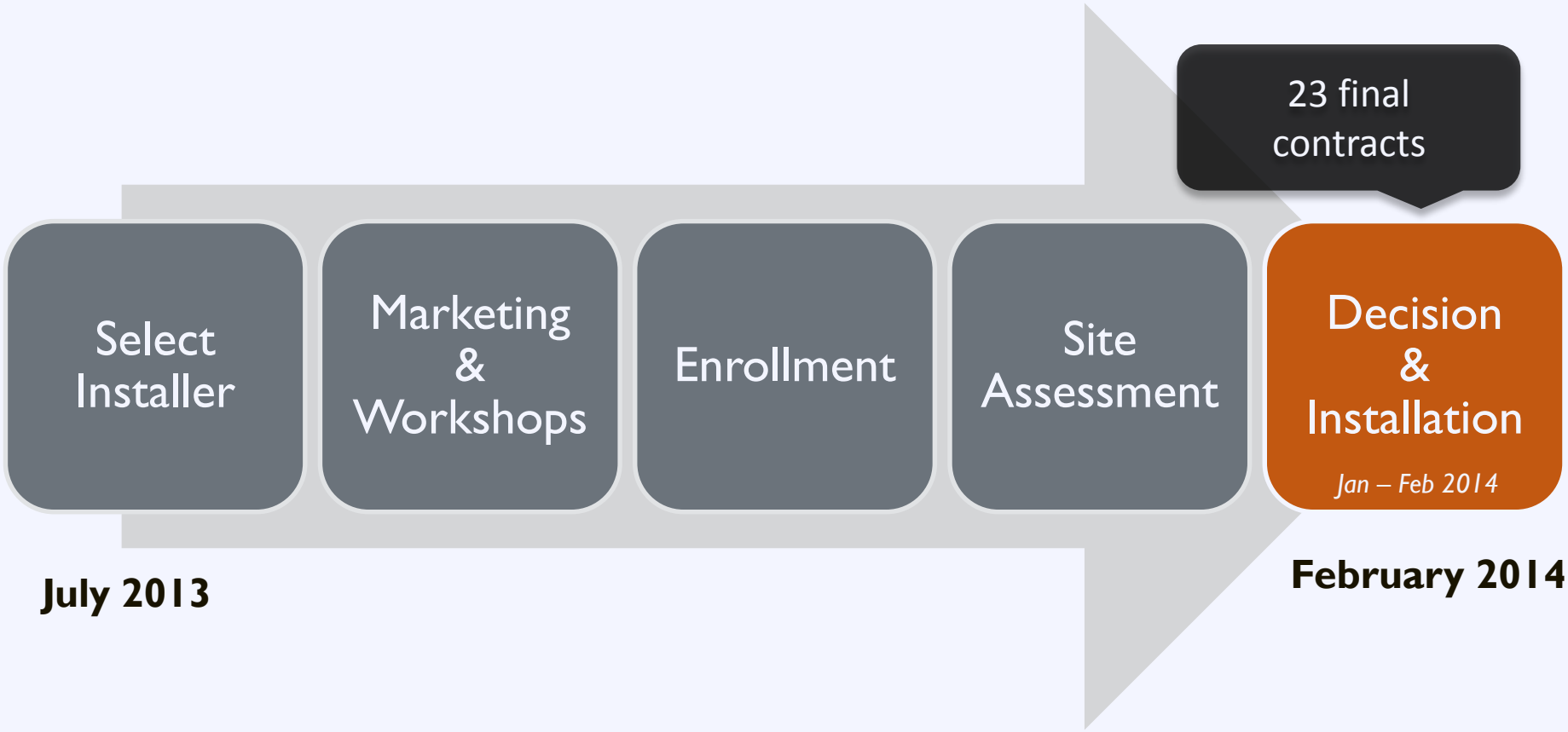


Solarize Plano: Case Study

Results:

23 new installations totaling **112 kW**

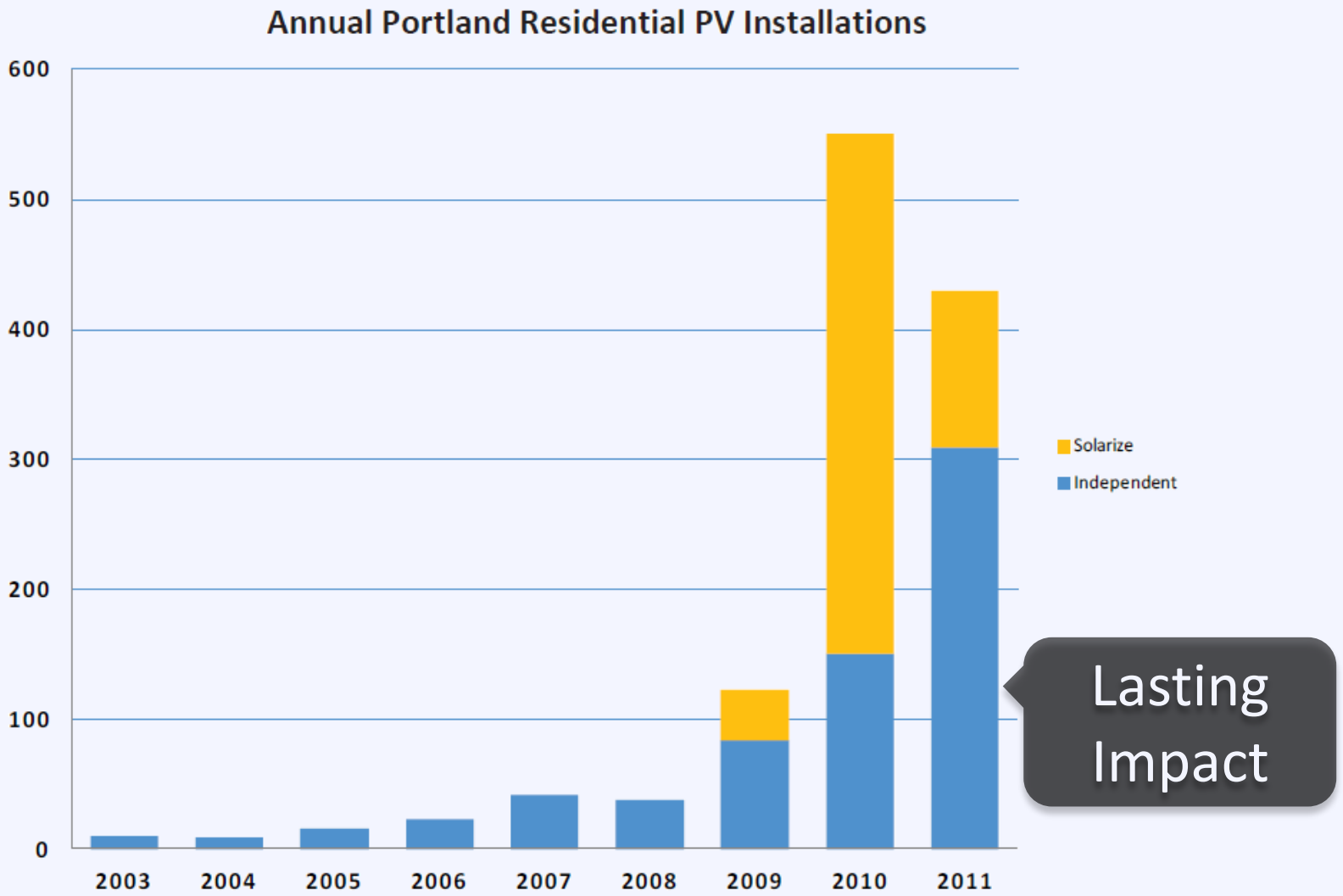
45% of assessed sites signed contracts

20% reduction in solar price

Round 2 of Solarize Plano taking place soon

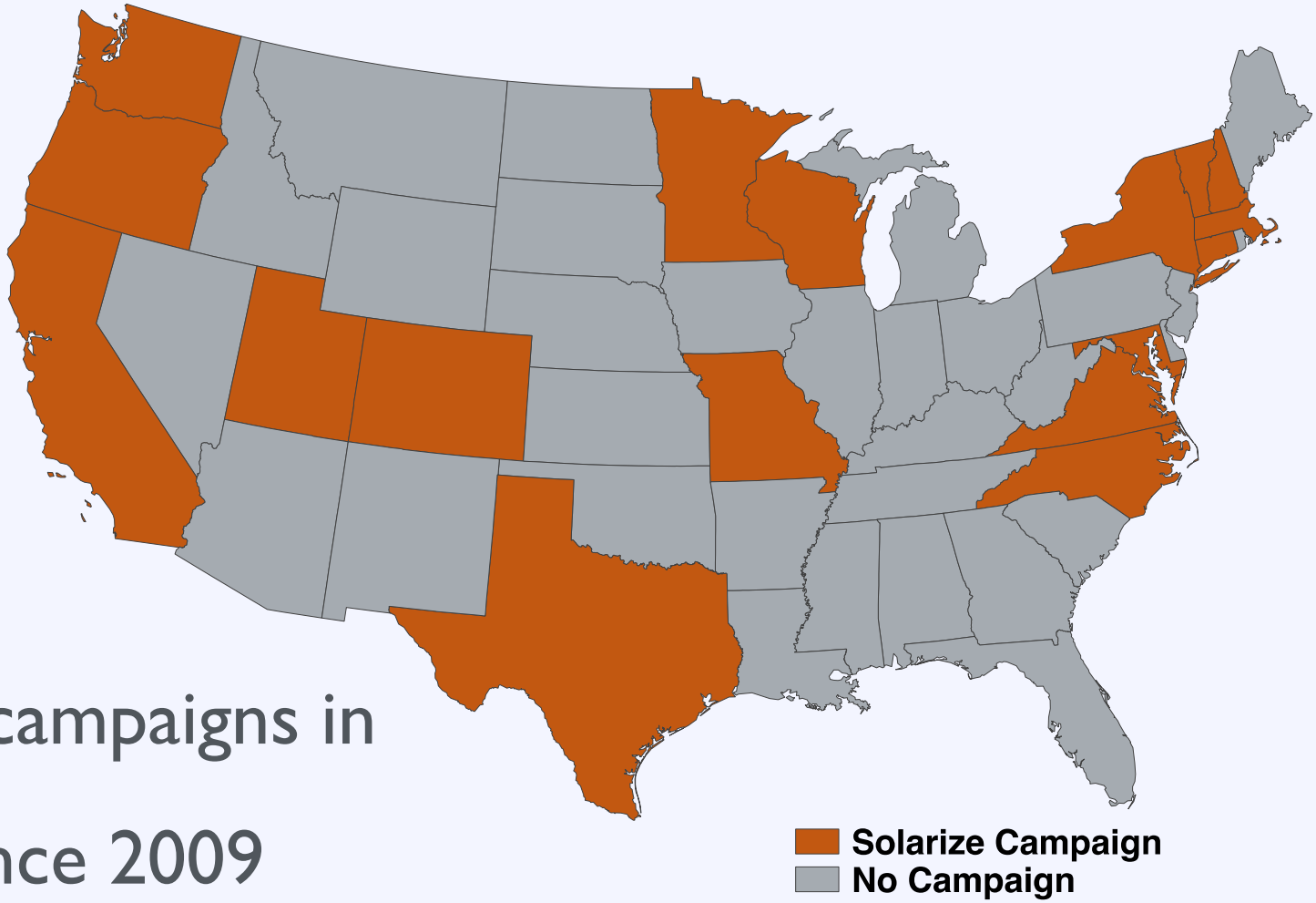
5 new Solarize communities in Texas

Solarize: Lasting Impact



Source: NREL

Solarize: National Growth



Over **150** campaigns in

17 states since 2009

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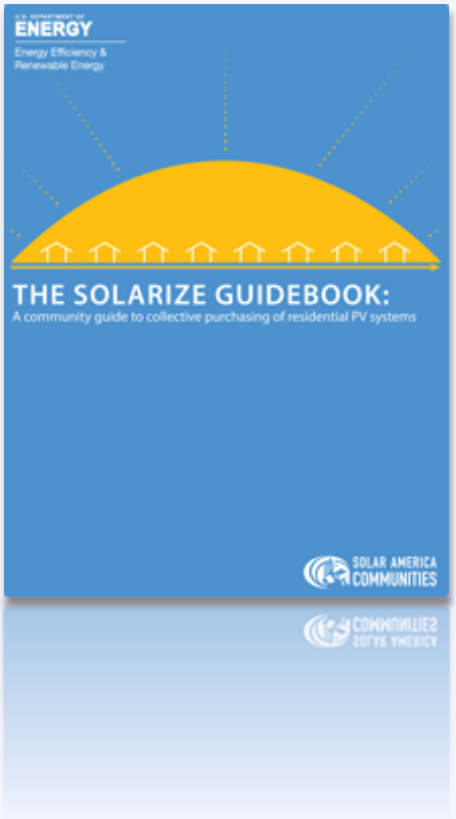
Solarize: Resources

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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Activity: Next Steps

What do you pledge to do when you leave today's workshop? [Colored Index Card]

Next Steps

1. Meet with us for 20 minutes
2. Apply for free Technical Assistance
3. Complete a DOE solar policy audit
4. Host a in-person strategy session
5. Implement policy changes & programs

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