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

NORTH CAROLINA
Solar Center

THE SOLAR FOUNDATION
Research and Education to Advance Solar Energy

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

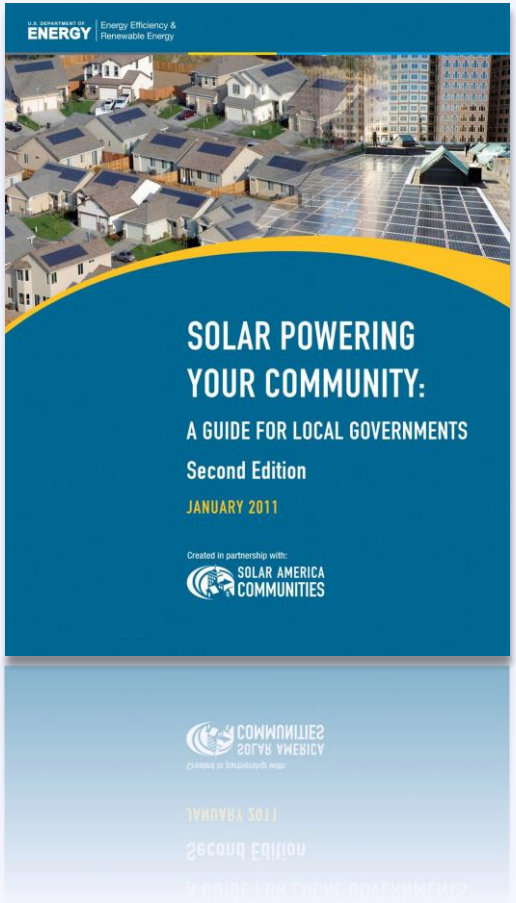
Email solar-usa@iclei.org to request a 20 minute consultation

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

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!

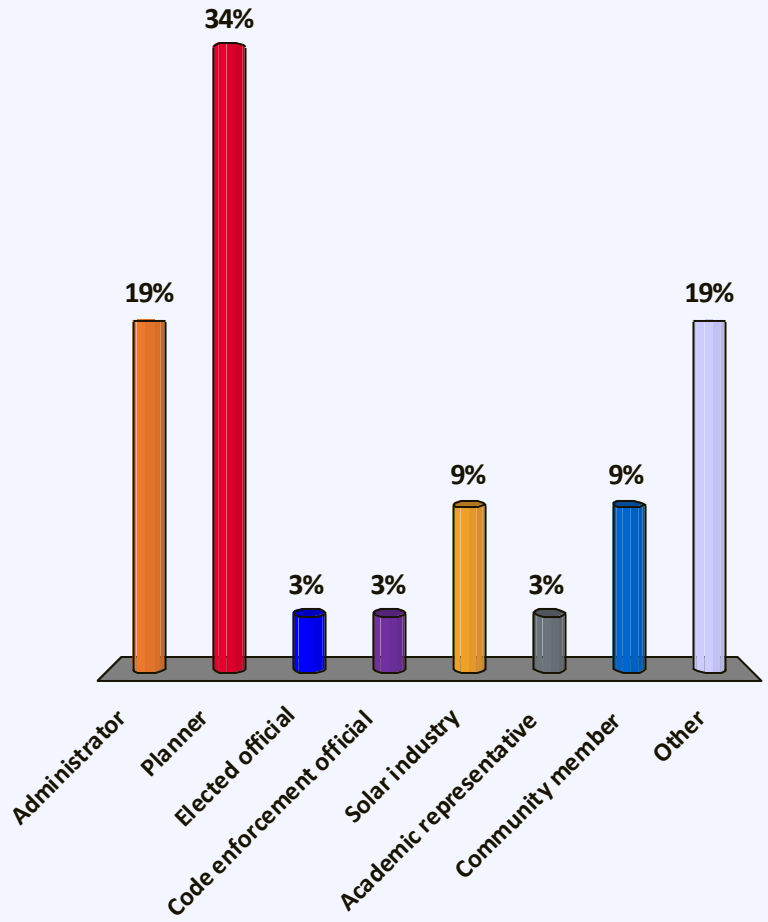
Sign up for a 20 minute consultation to learn more about our free services

See Riana Ackley to sign up.

We want to get to know you better

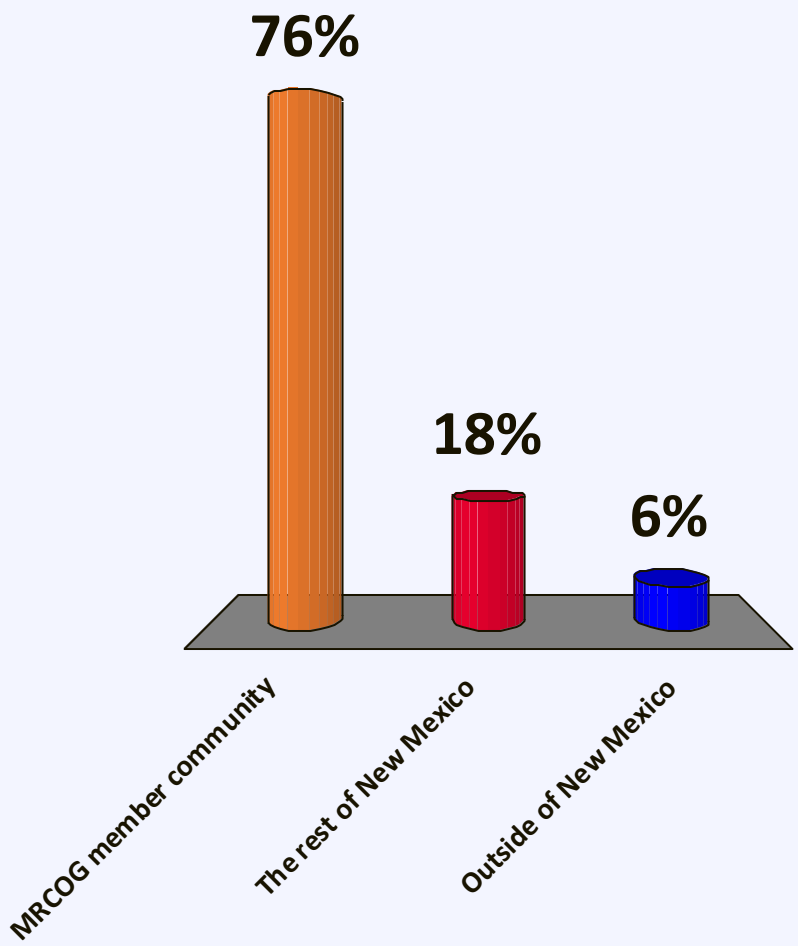
Who are you?

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



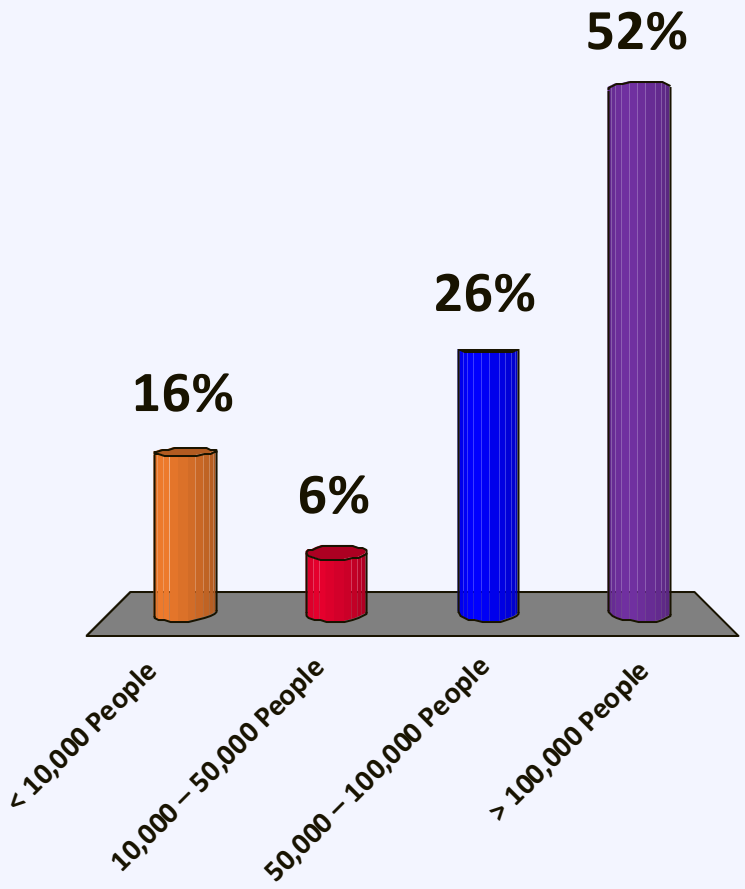
Where are you coming from?

A. MRCOG member community
B. The rest of New Mexico
C. Outside of New Mexico



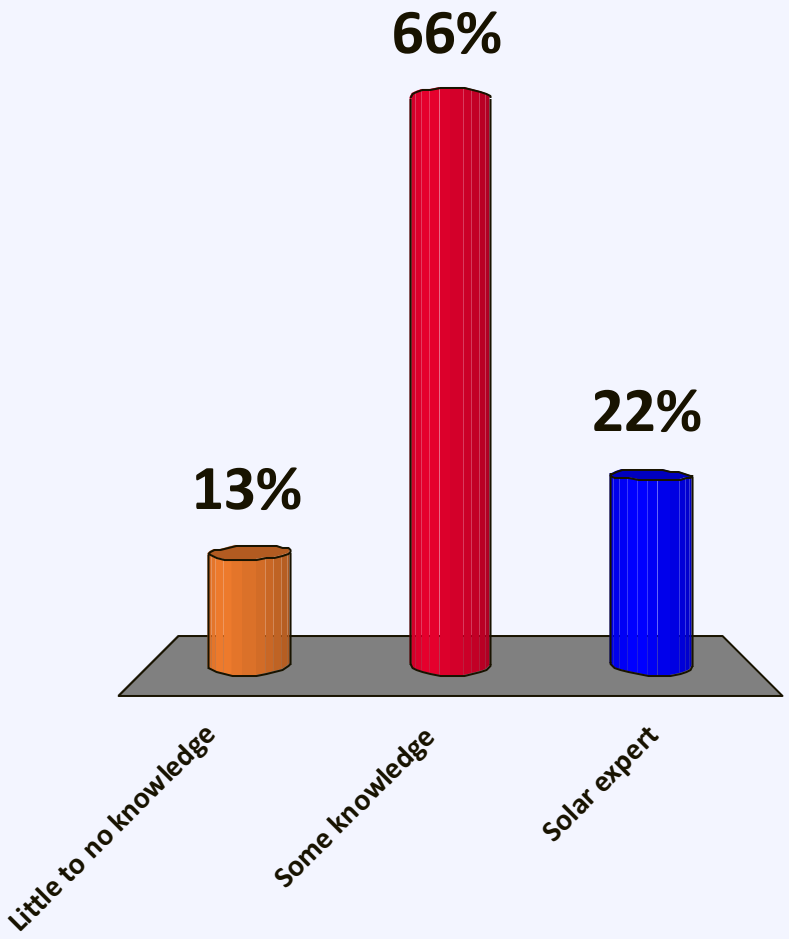
What size is your community?

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?

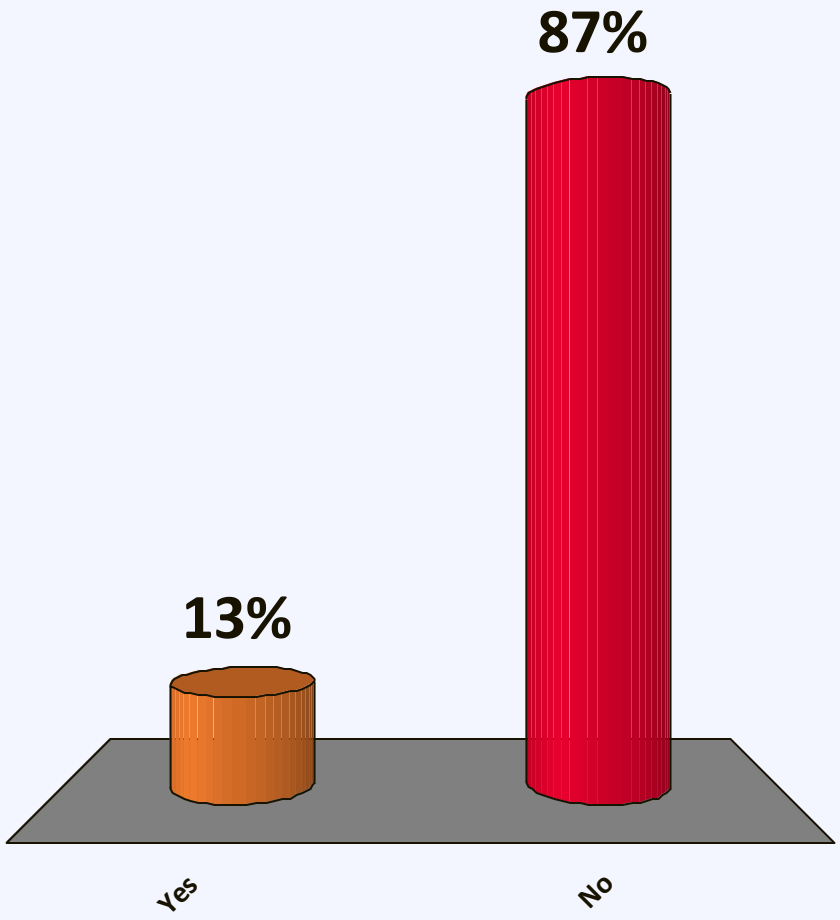
A. Little to no knowledge
B. Some knowledge
C. Solar expert



Do you have solar on your home?

A. Yes

B. No



Solar Development in the US

In 2013, the US solar industry installed

131,000 new solar installations

of which

94% were residential projects

If you do have solar on your home:

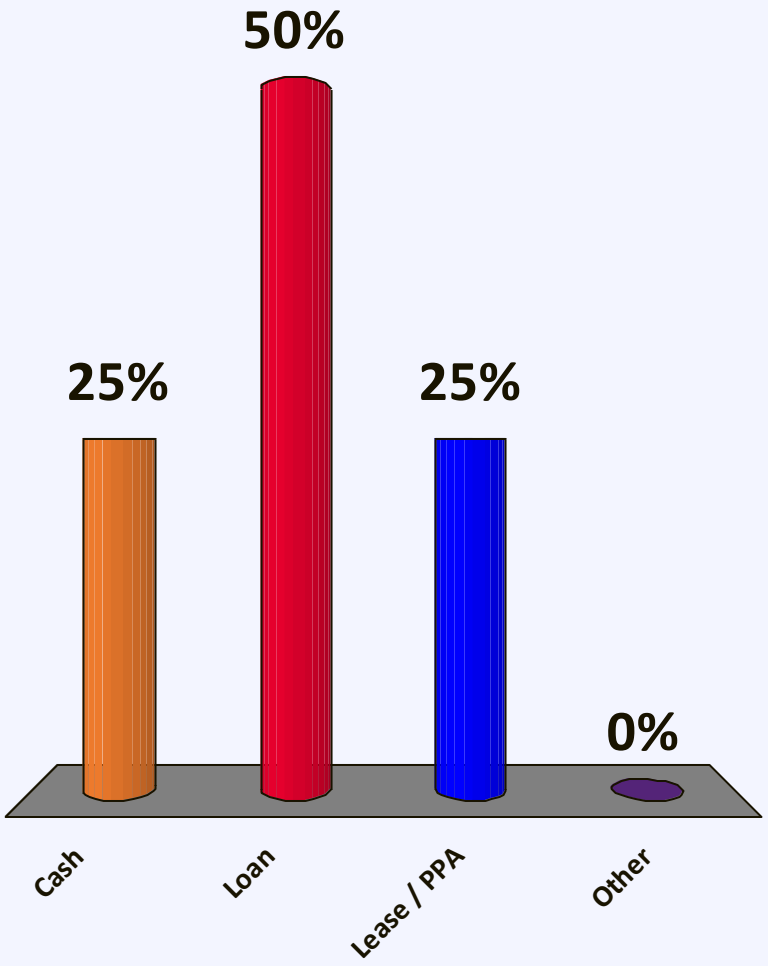
How did you finance it?

A. Cash

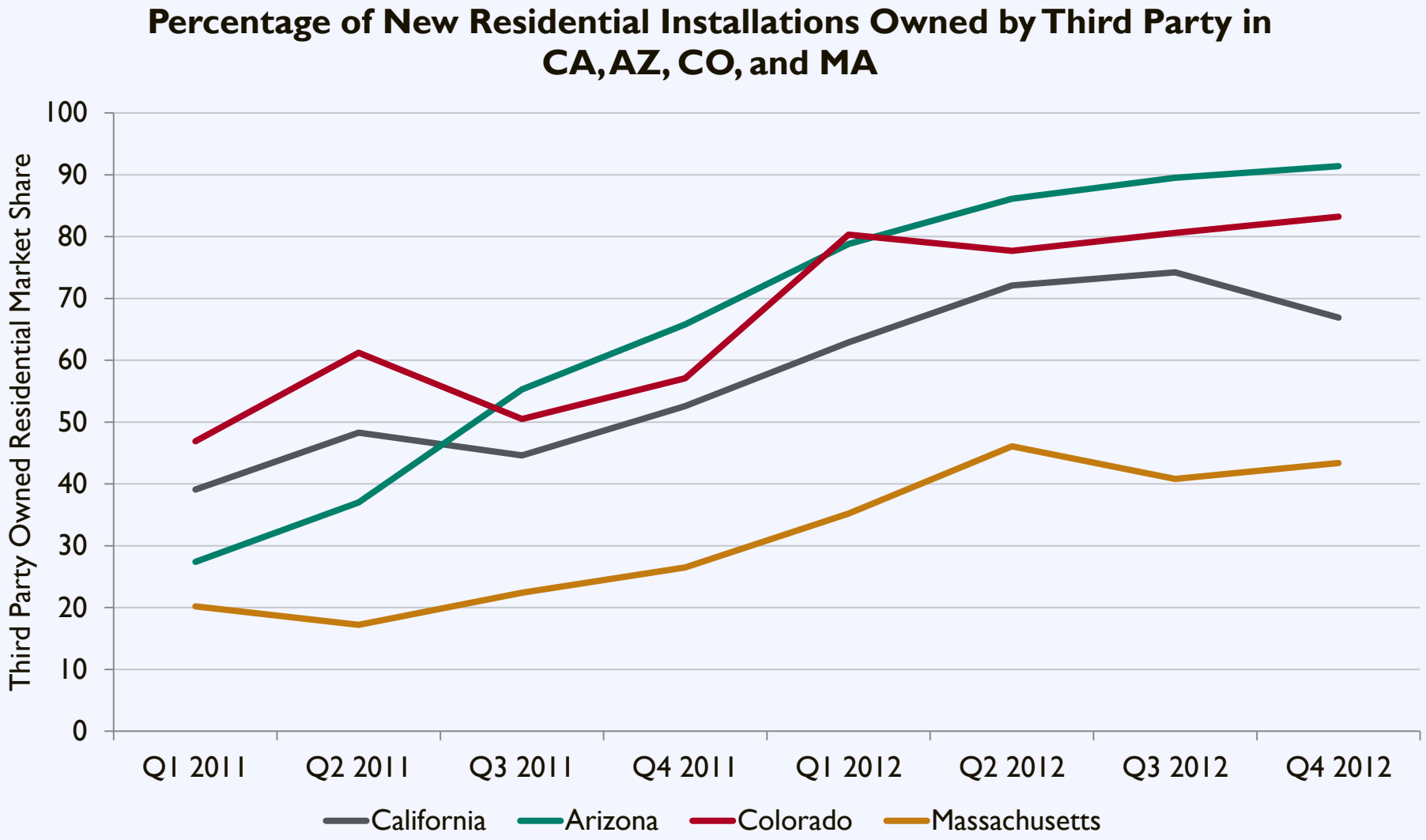
B. Loan

C. Lease / PPA

D. Other



Third Party Ownership



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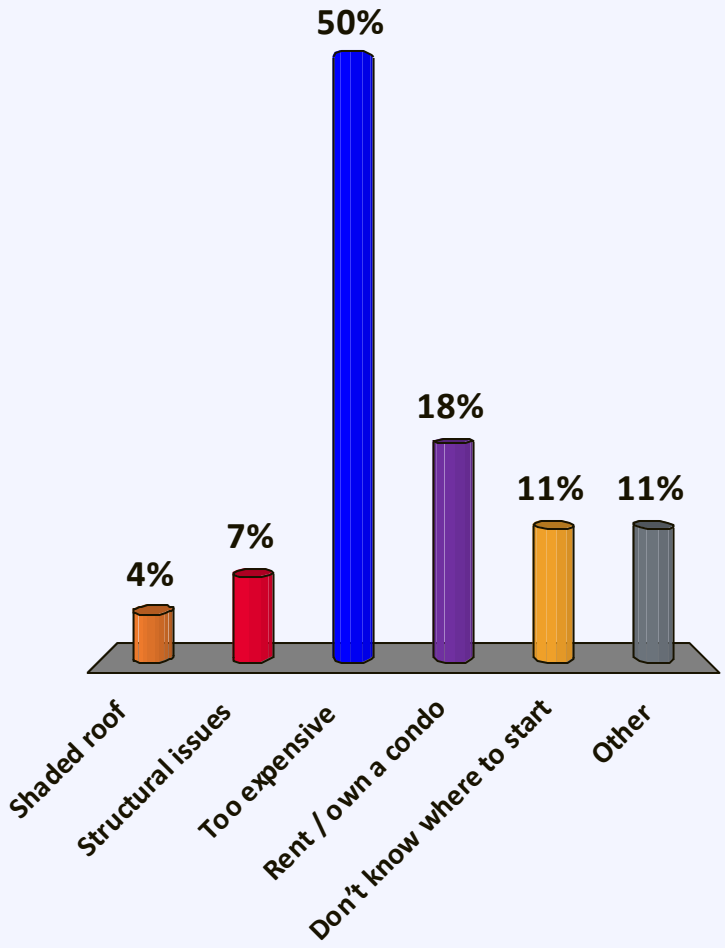
Source: GTM Research/ Solar Energy Industries Association, *U.S. Solar Market Insight 2012 Year-in-Review*

If you don't have solar on your home: **Why not?**

A. Shaded roof
B. Structural issues
C. Too expensive
D. Rent / own a condo
E. Don't know where to start
F. Other

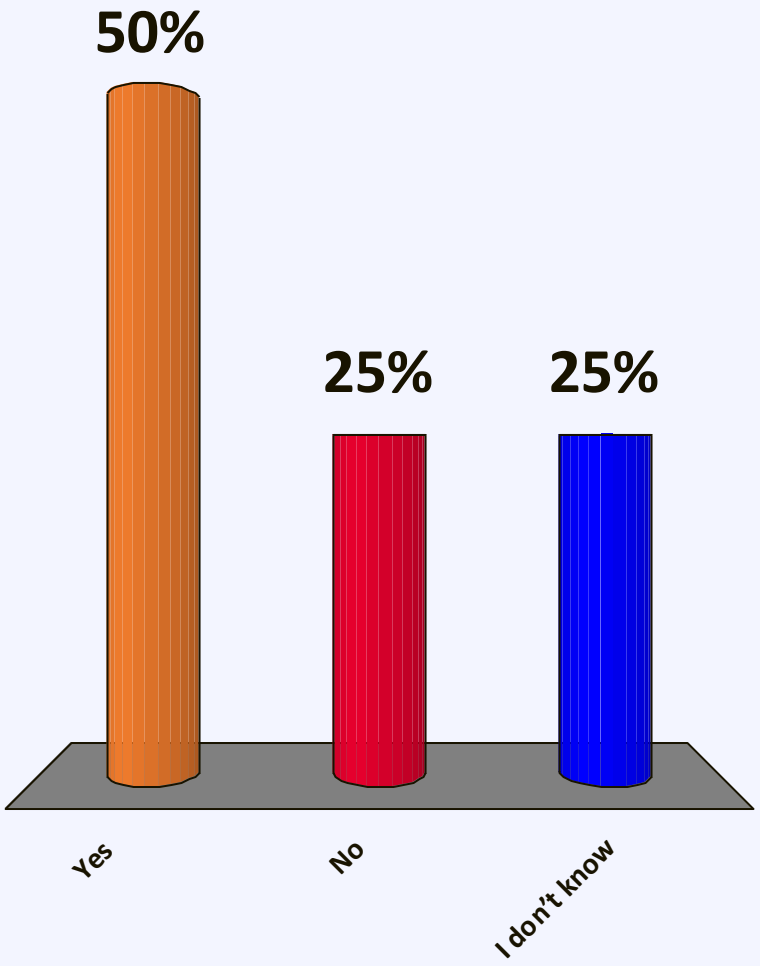


Does your local government have solar on public properties?

A. Yes

B. No

C. I don't know



Agenda

08:50 – 09:10	Putting Solar Energy on the Local Policy Agenda
09:10 – 09:30	State of the Local Solar Market
09:30 – 09:55	Federal, State, and Utility Policy Drivers
09:55 – 10:05	*Break*
10:05 – 11:05	Effective Solar Policies and Programs
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Solar Technologies

Solar Photovoltaic (PV)

Solar Hot Water

Concentrated Solar Power

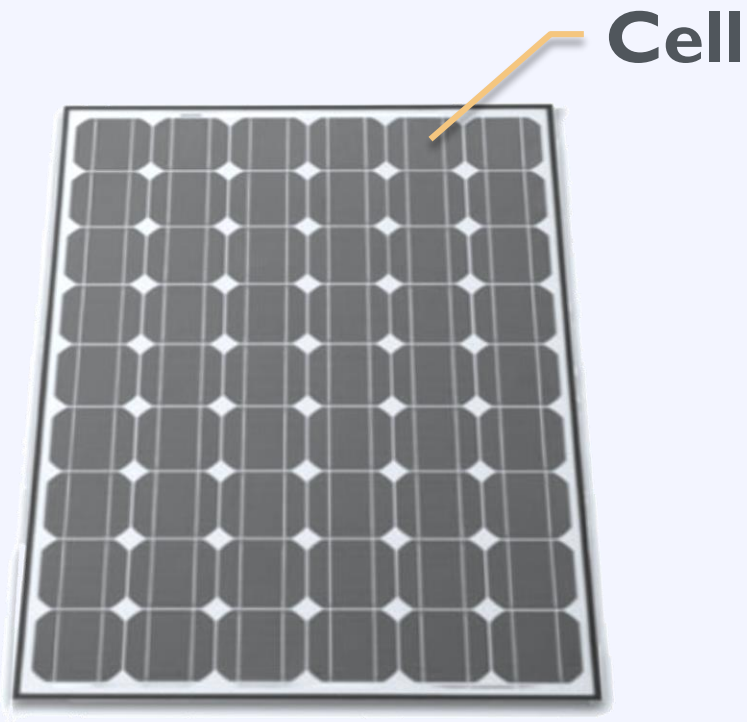
Solar Technologies

Solar Photovoltaic (PV)

Solar Hot Water

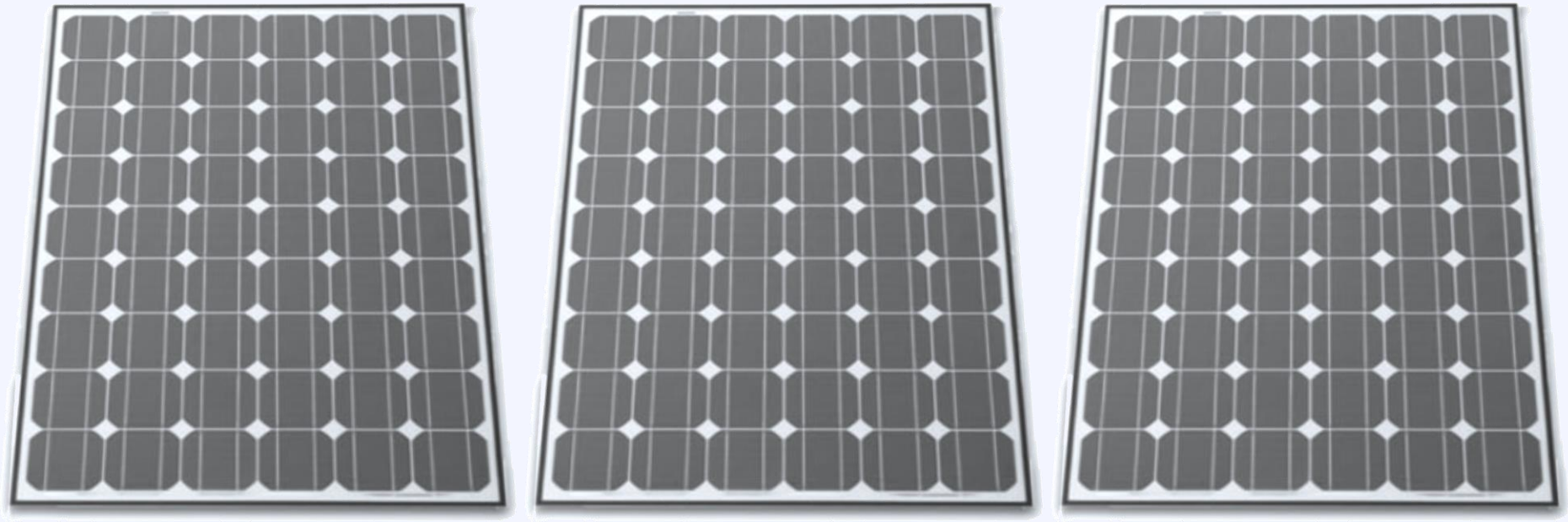
Concentrated Solar Power

Some Basic Terminology



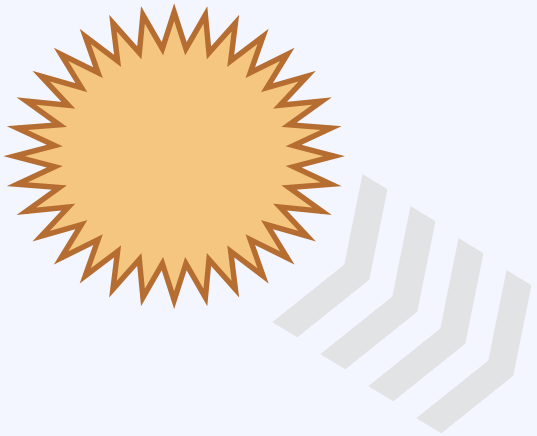
Panel / Module

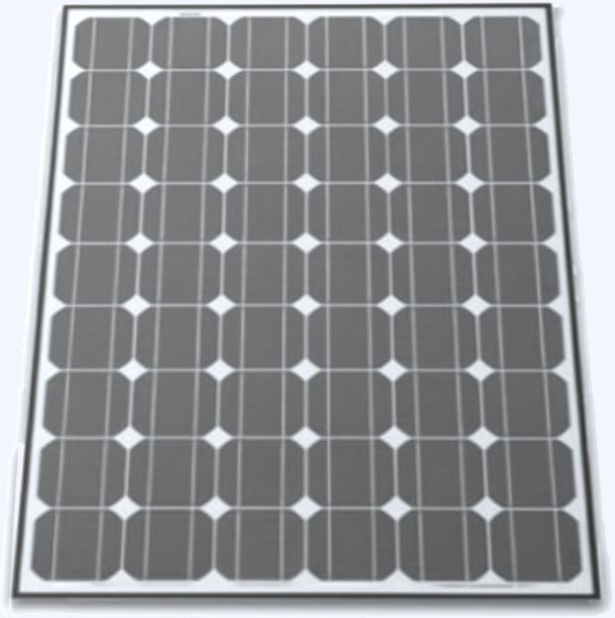
Some Basic Terminology



Array

Some Basic Terminology





Capacity / Power

kilowatt (kW)

Production

Kilowatt-hour (kWh)

Some Basic Terminology

Residence
5 kW

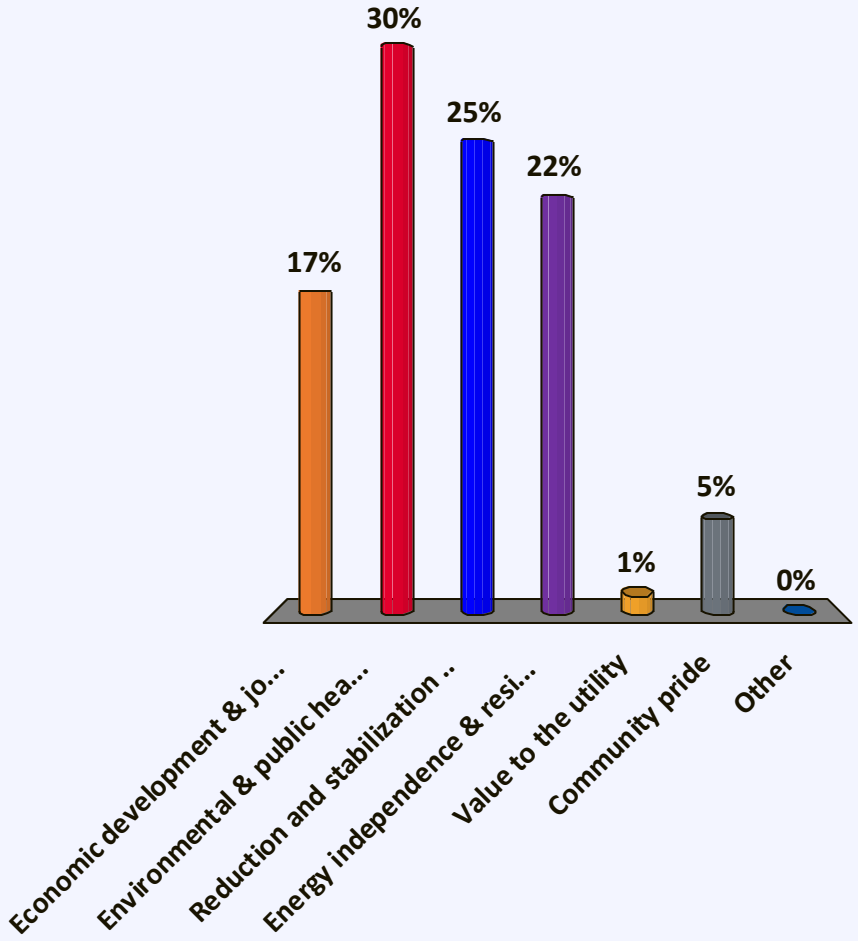
Factory
1 MW+

Office
50 – 500 kW

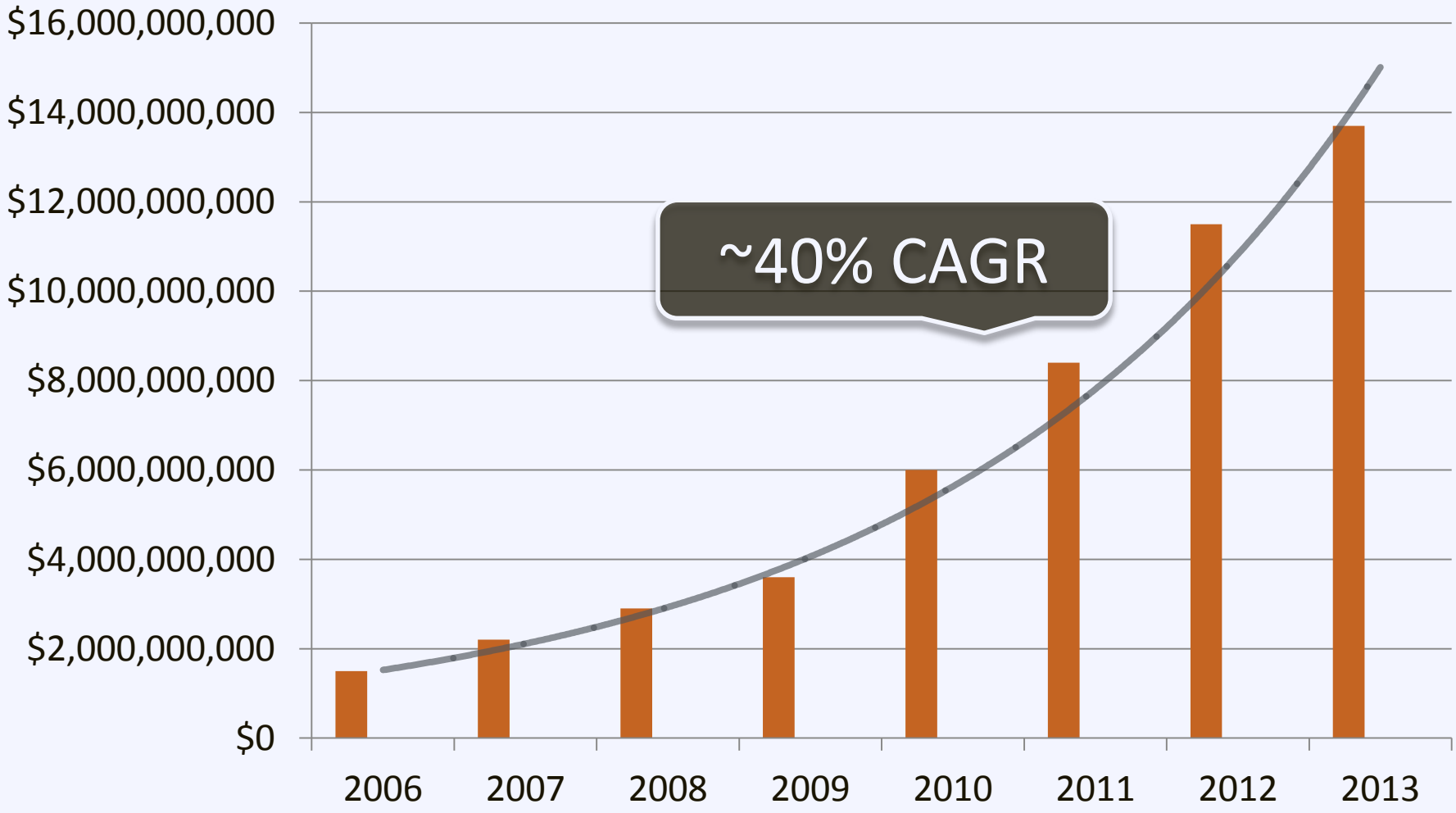
Utility
2 MW+

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

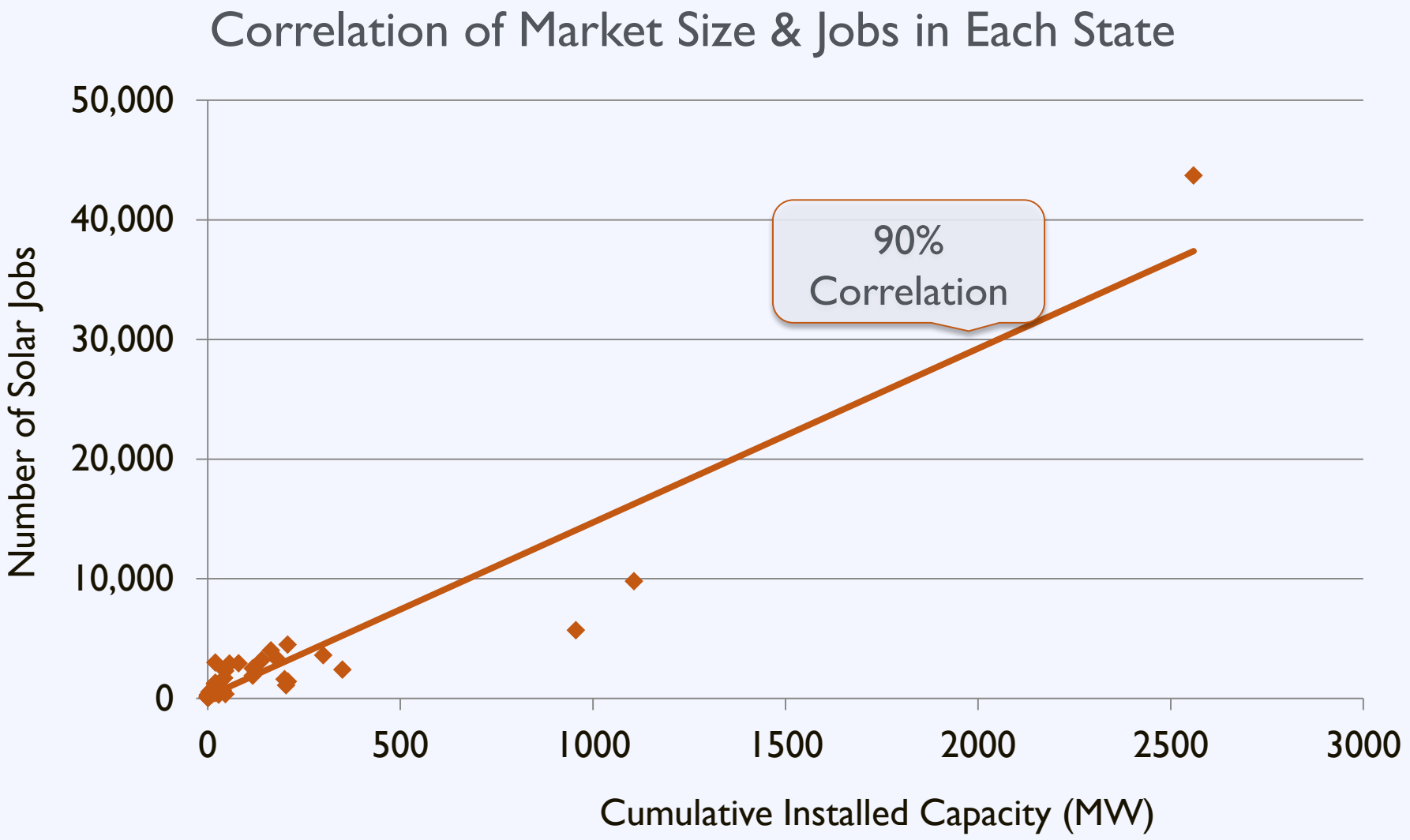


Solar Economic Growth



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

Job Creation



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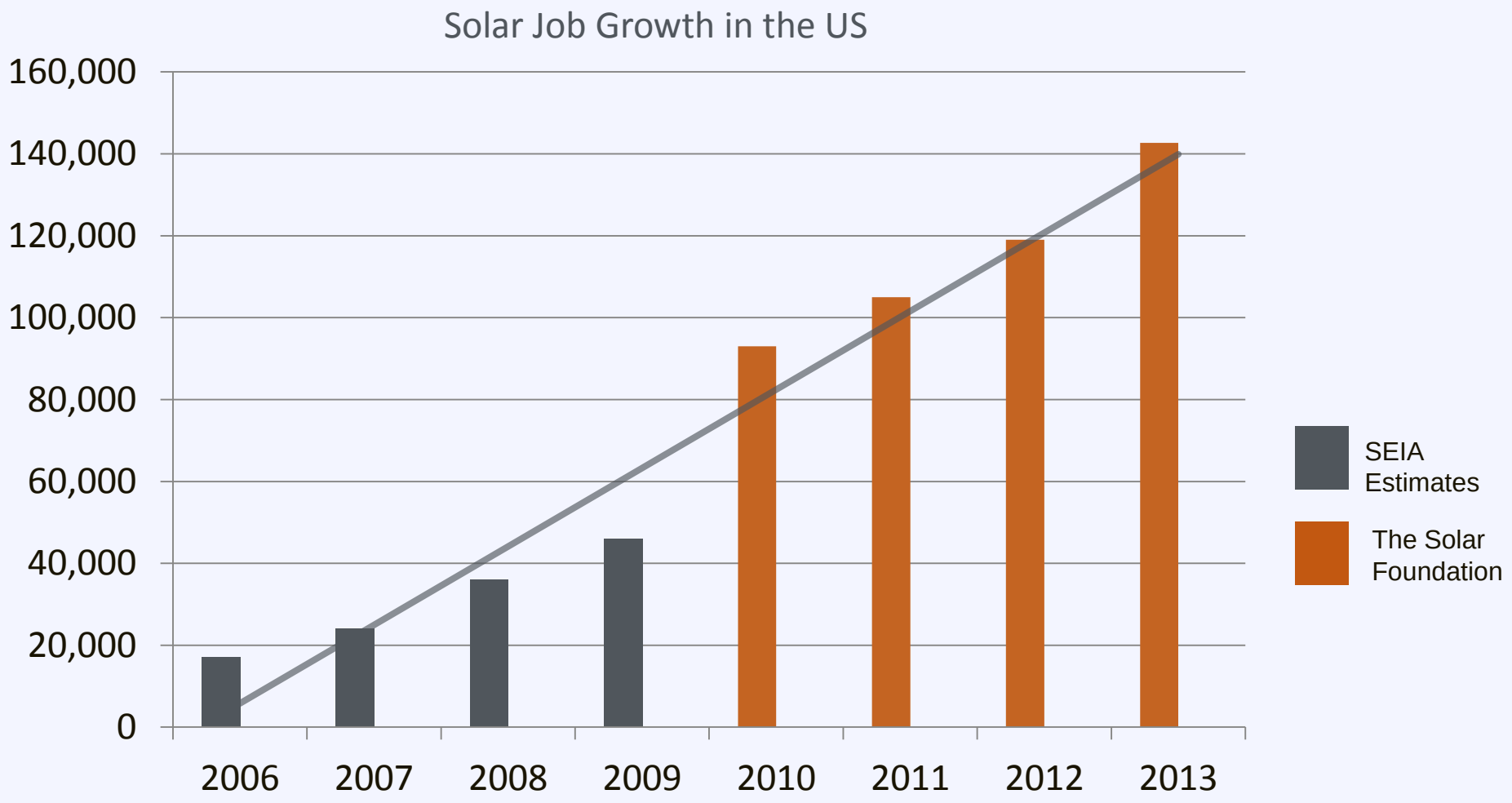
Sources: Interstate Renewable Energy Council, The Solar Foundation, Meister Consultants Group

Solar Job Growth



Source: SEIA Estimates (2006-2009), The Solar Foundation's National Solar Jobs Census 2010 (2010), The Solar Foundation's National Solar Jobs Census 2012 (2011-2012).

Economic Development in NM

In 2013 the industry invested

$131 million

in solar development in New Mexico

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Source: JEDI Model, NREL

Economic Development in NM

There are currently

87 solar companies

that employ

1,900 people

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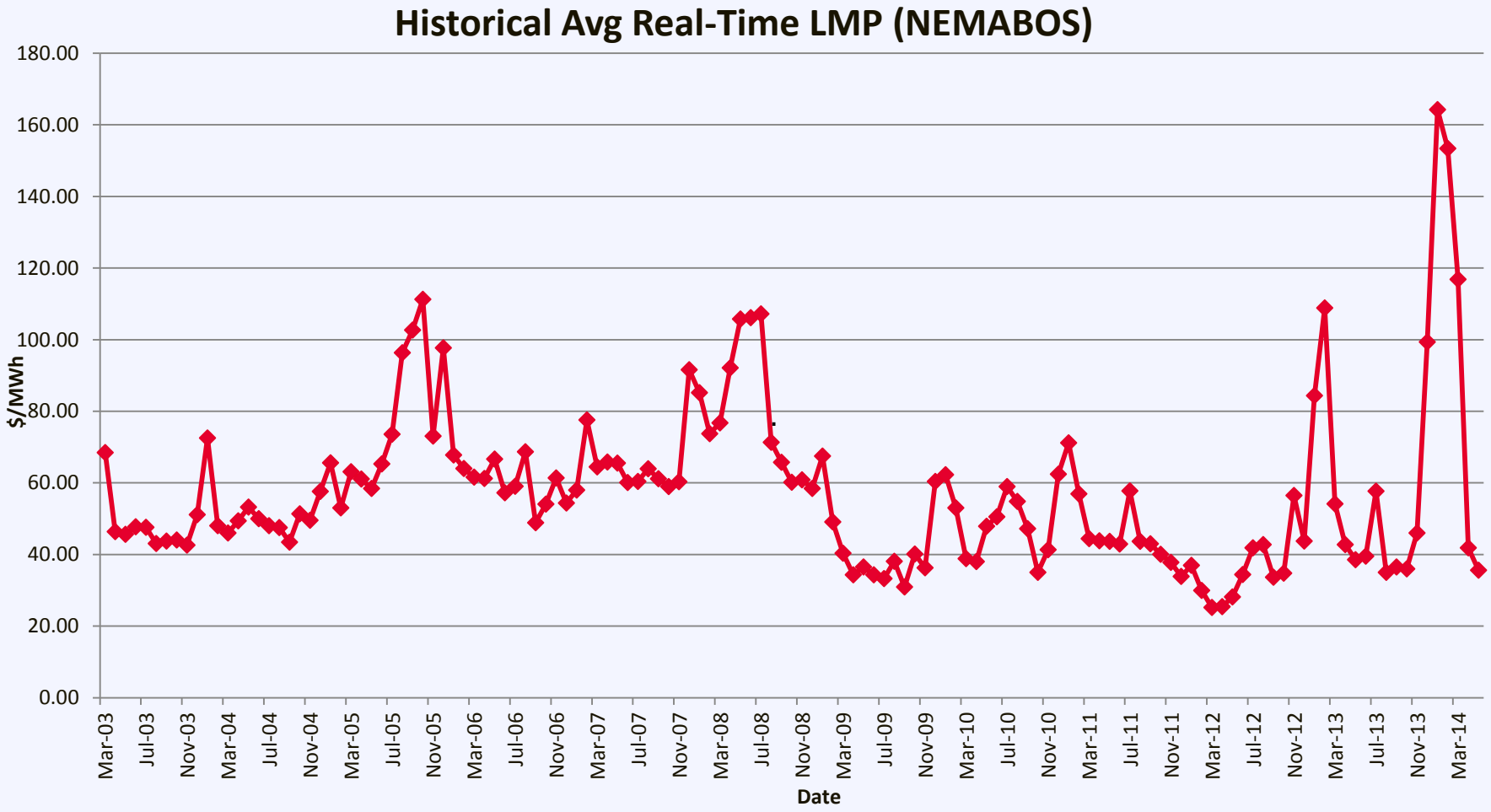
Source: JEDI Model, NREL

Benefit: Stabilize Energy Prices

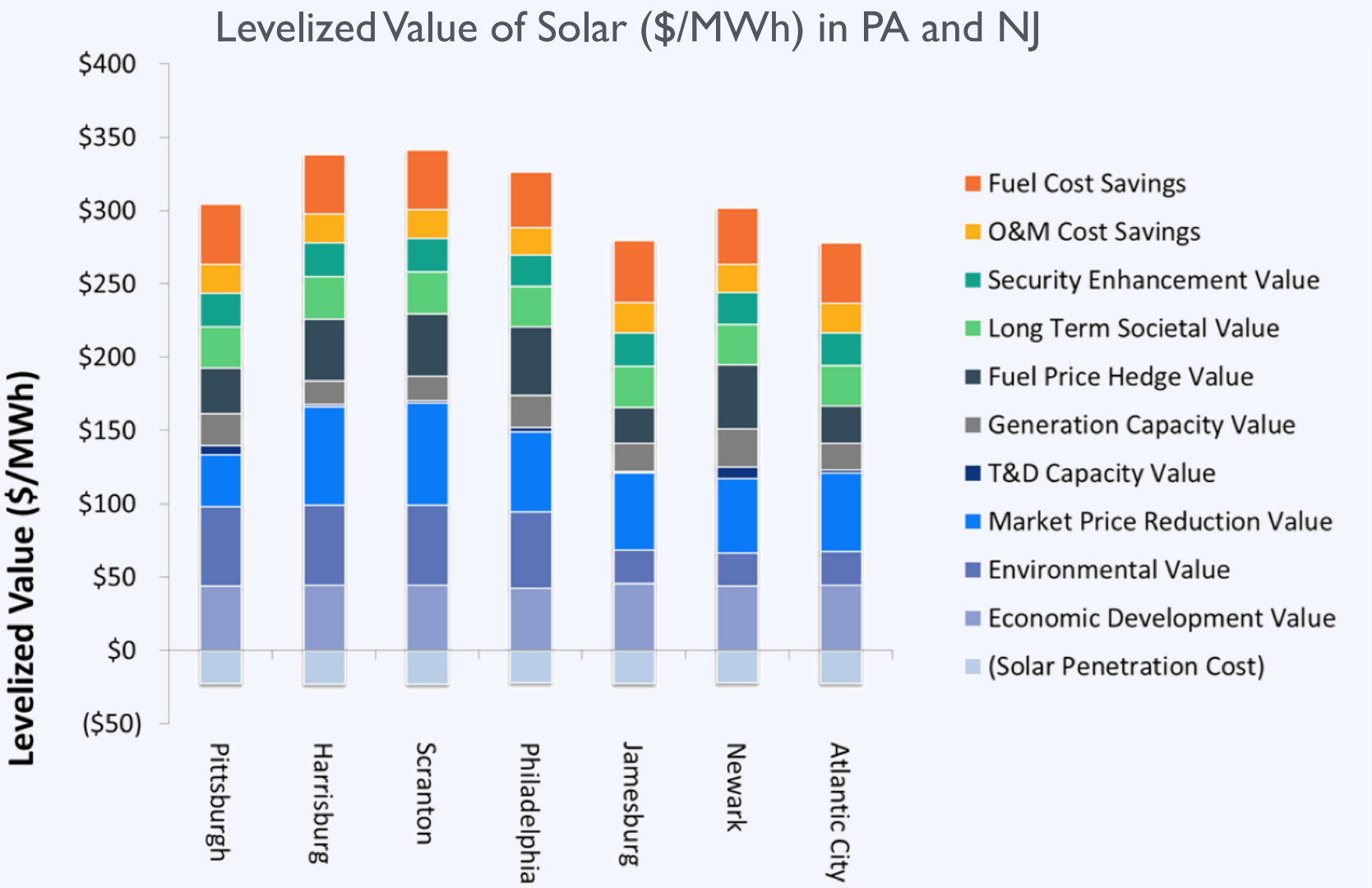


Source: NEPOOL

Benefits: Valuable to Utilities

- Avoided Energy Purchases
- Avoided T&D Line Losses
- Avoided Capacity Purchases
- Avoided T&D Investments
- Fossil Fuel Price Impacts
- Backup Power

Value to Community & Utility



Source: Clean Power Research http://mseia.net/site/wp-content/uploads/2012/05/MSEIA-Final-Benefits-of-Solar-Report-2012-11-01.pdf

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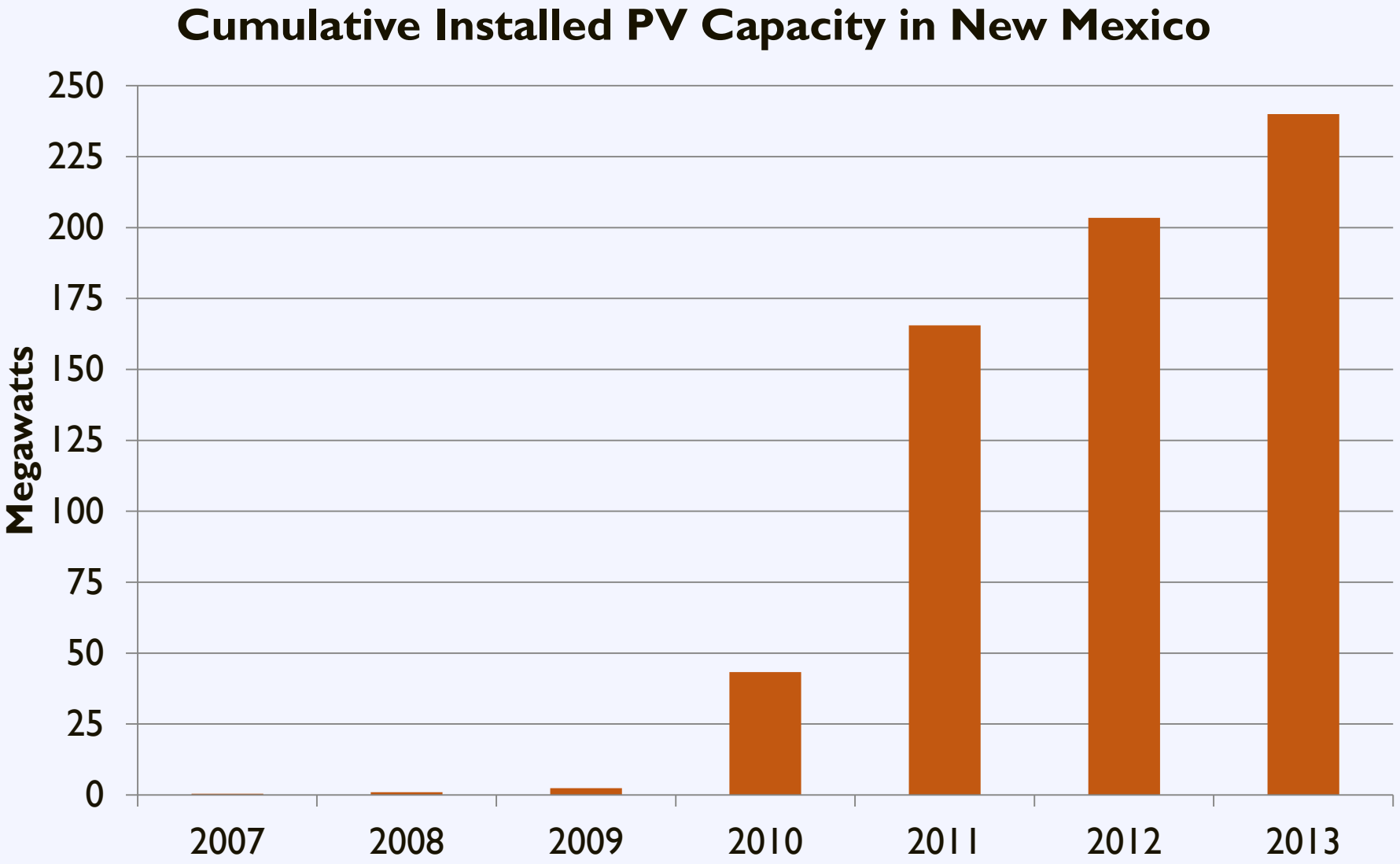
New Mexico Solar Market



Source: IREC: US Solar Market Trends

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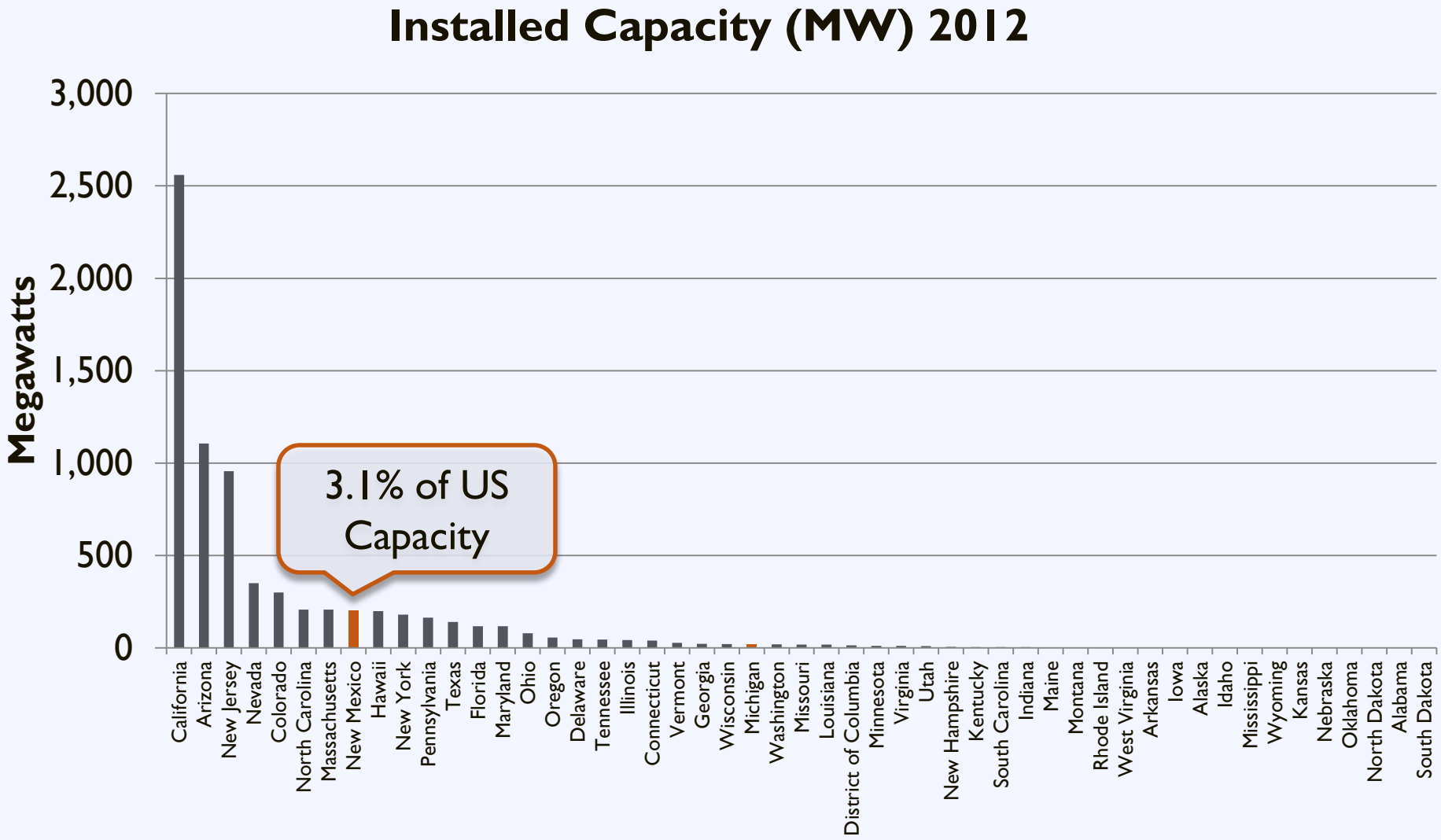
US Solar Market



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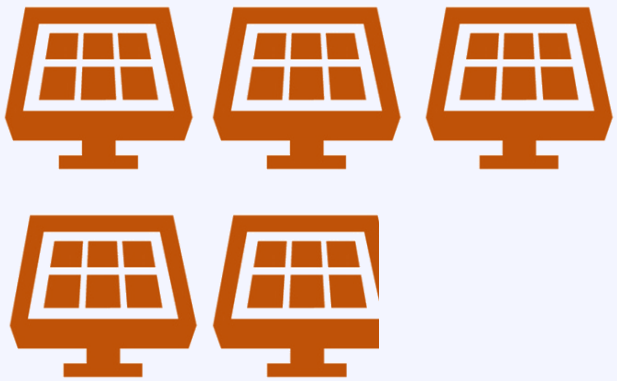
New Mexico Solar Market

New Mexico



97

watts per person

US

39

watts per person

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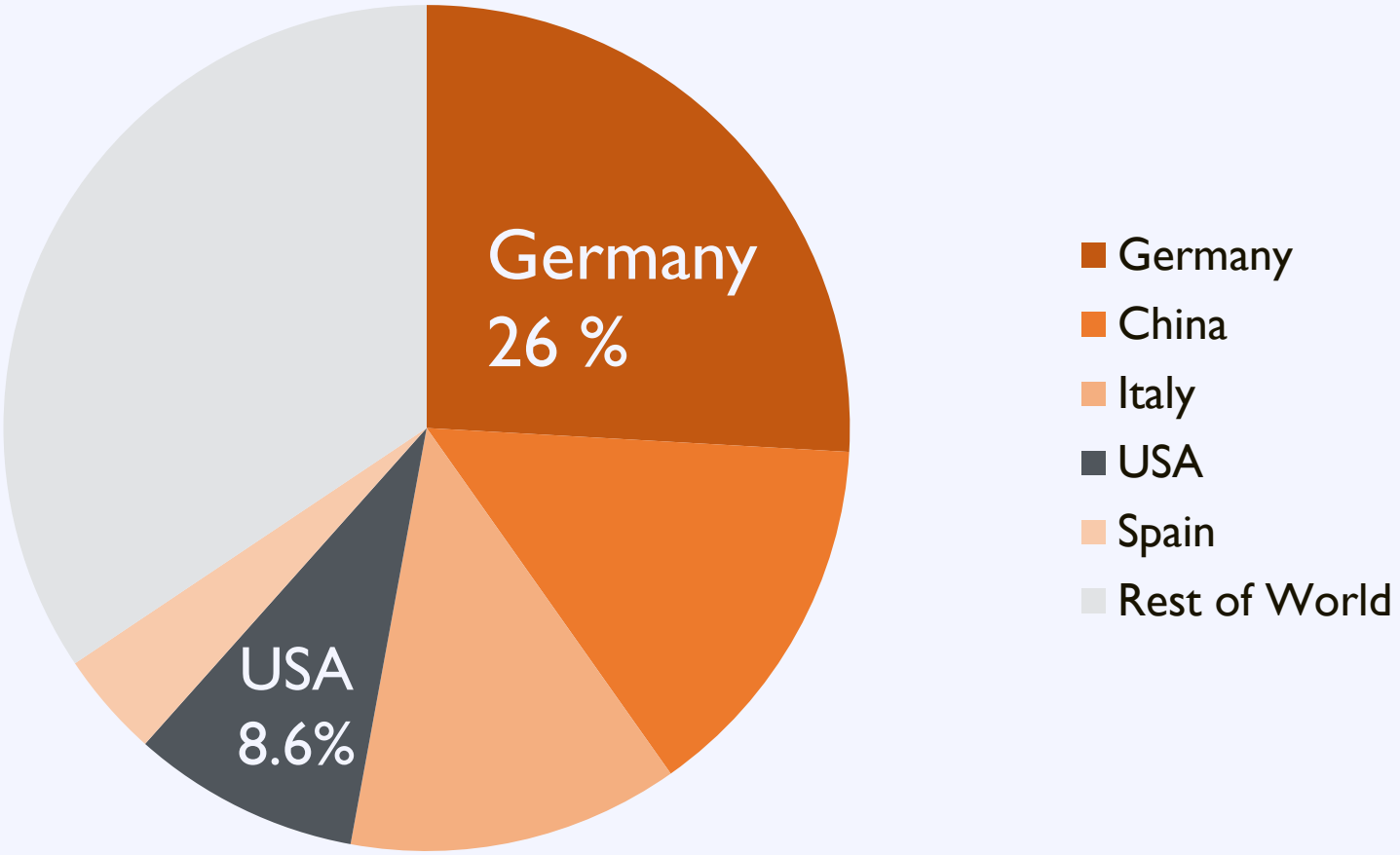
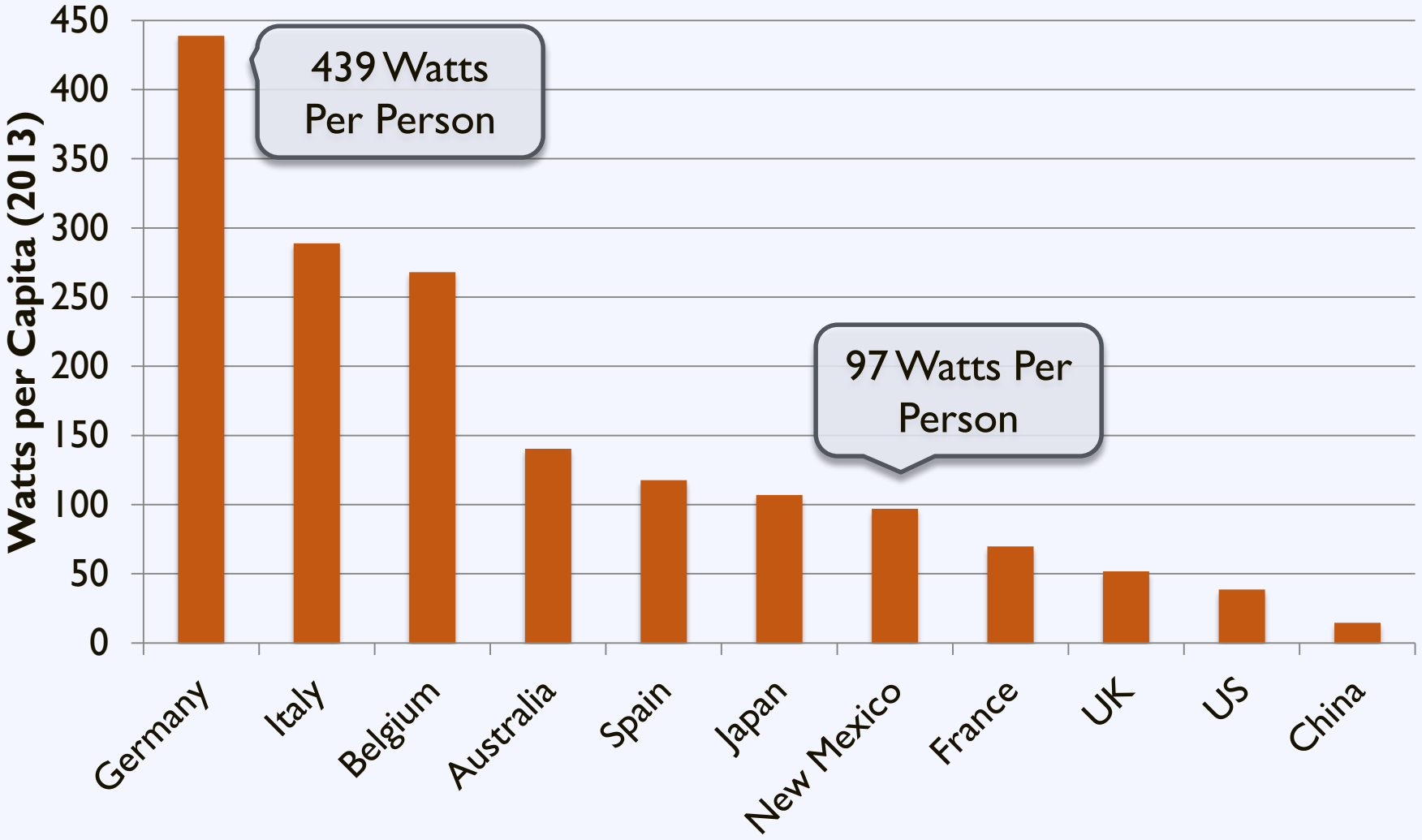
World Solar Market

Top 5 Countries Solar Operating Capacity (2013)



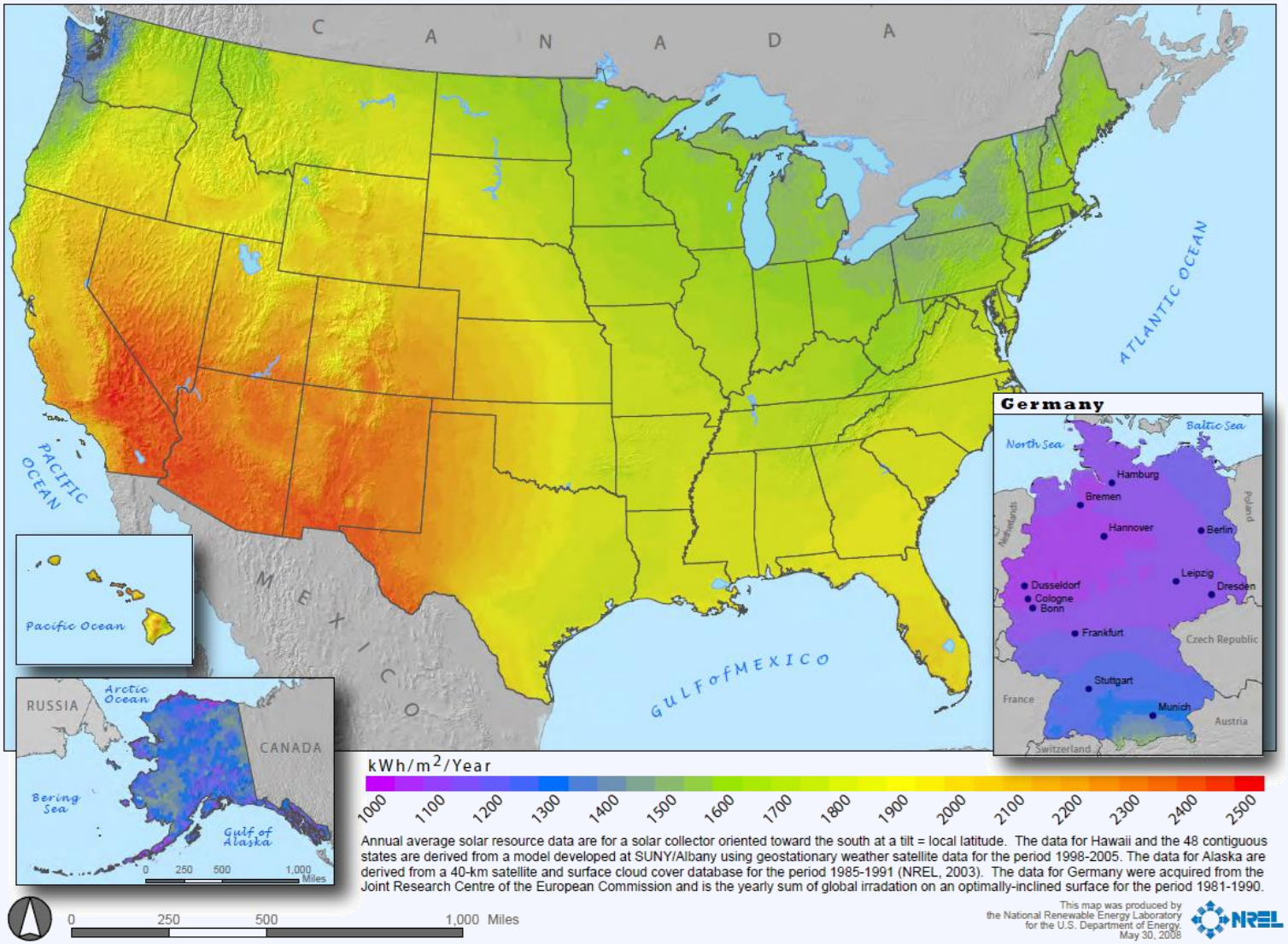
Source: REN 21

Installed Capacity per Capita



Source: REN 21, World Bank

US Solar Resource



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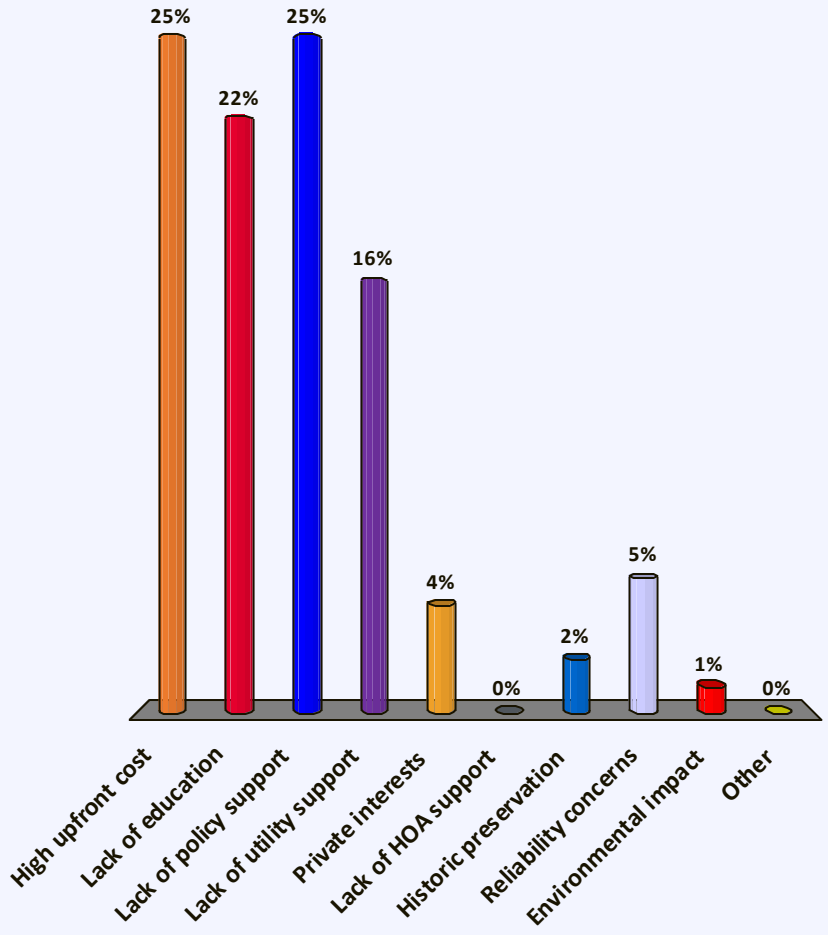
Source: National Renewable Energy Laboratory

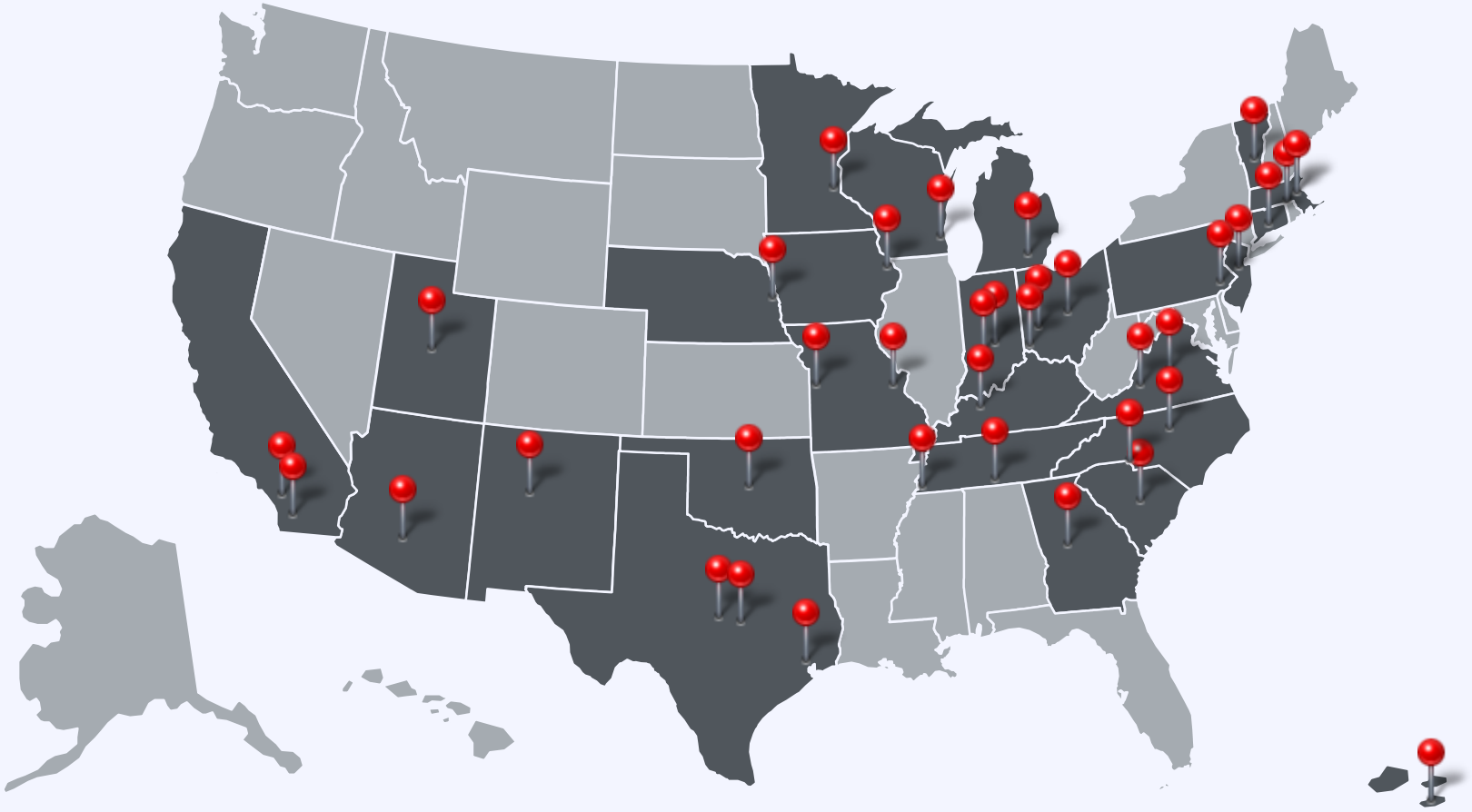
What are the top 3 barriers to solar adoption in your community?

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

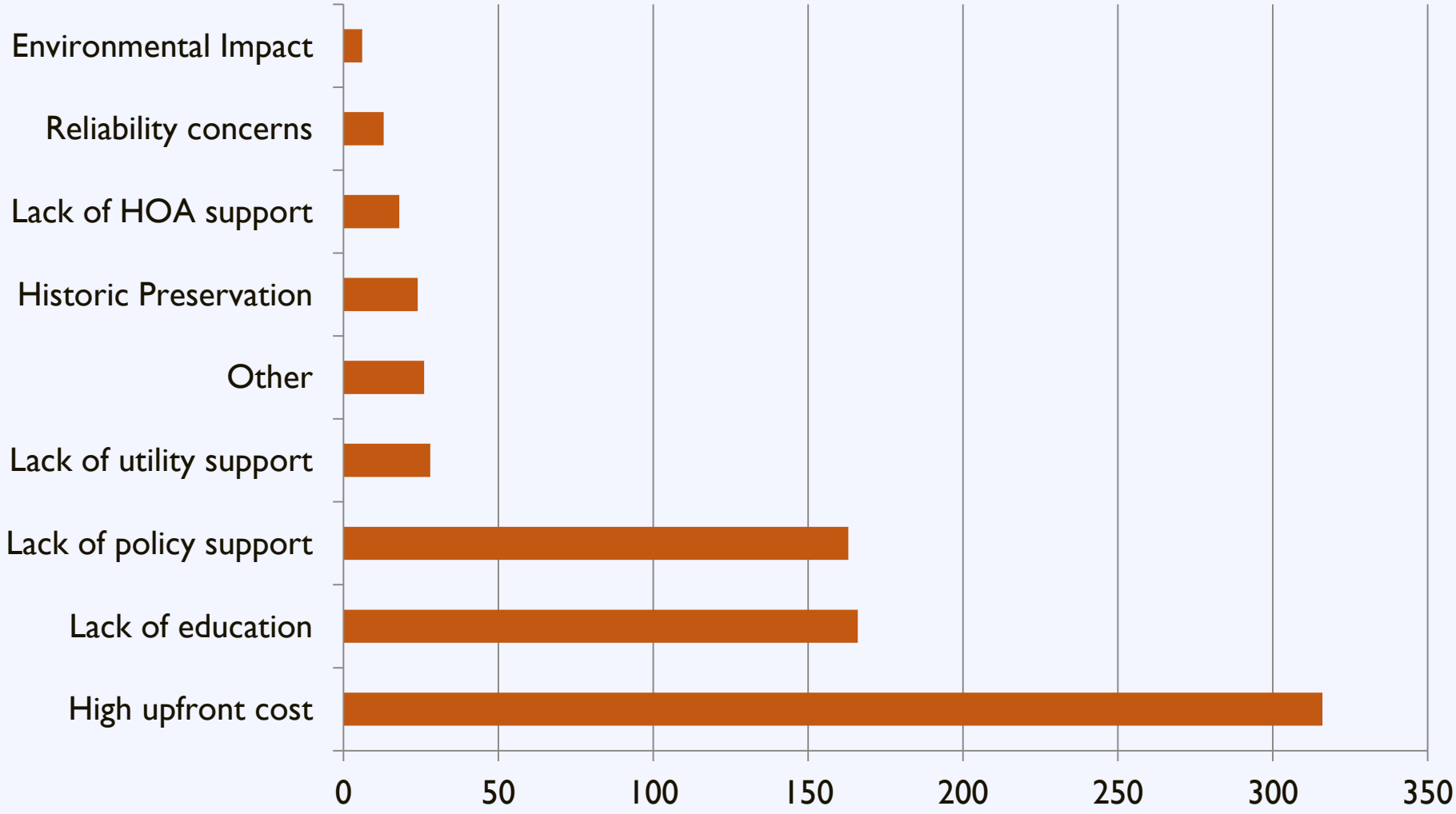


Regional Workshop Surveys

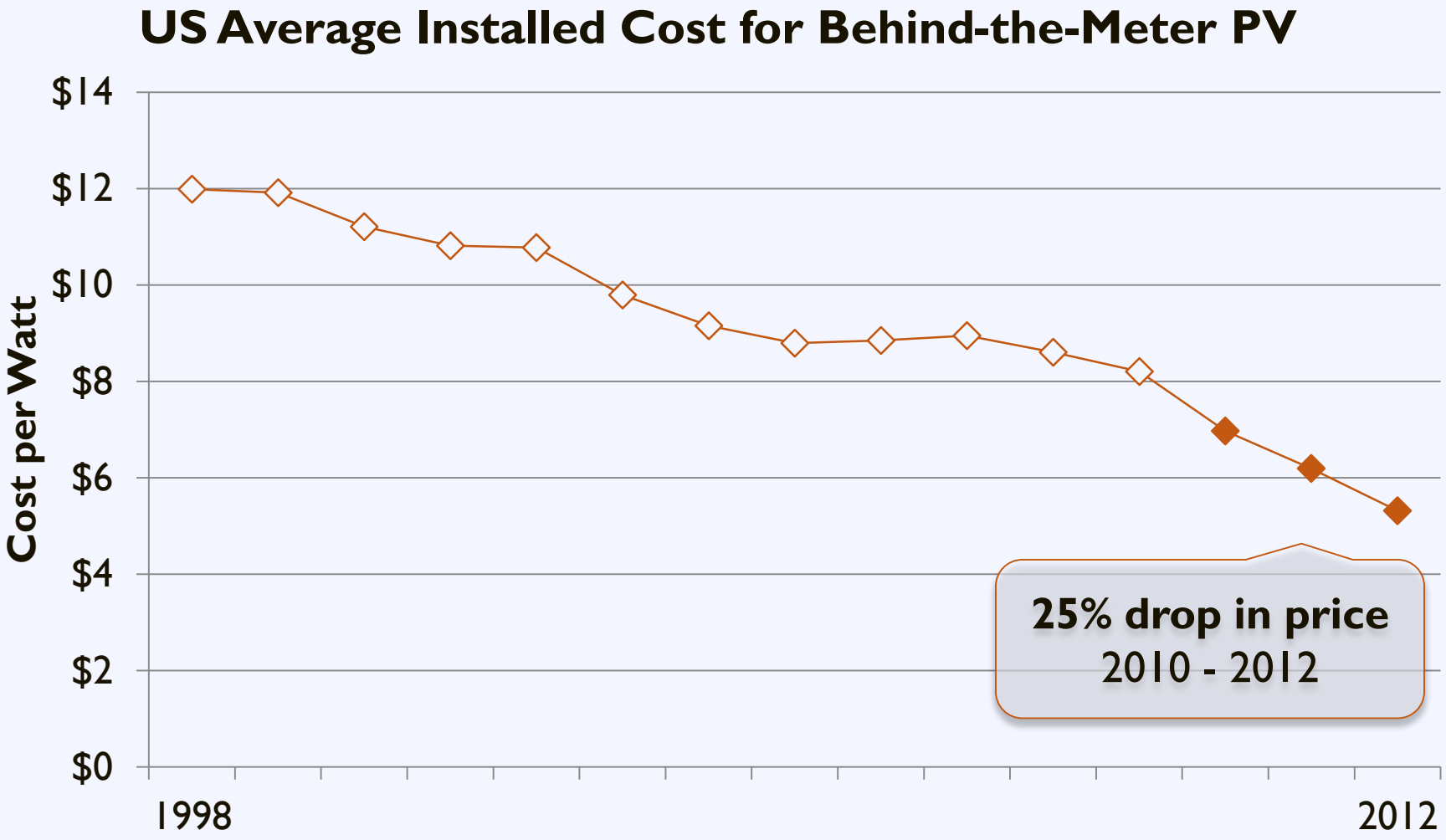
Q: What is the greatest barrier to solar adoption in your community?



Activity: Addressing Barriers



The Cost of Solar PV



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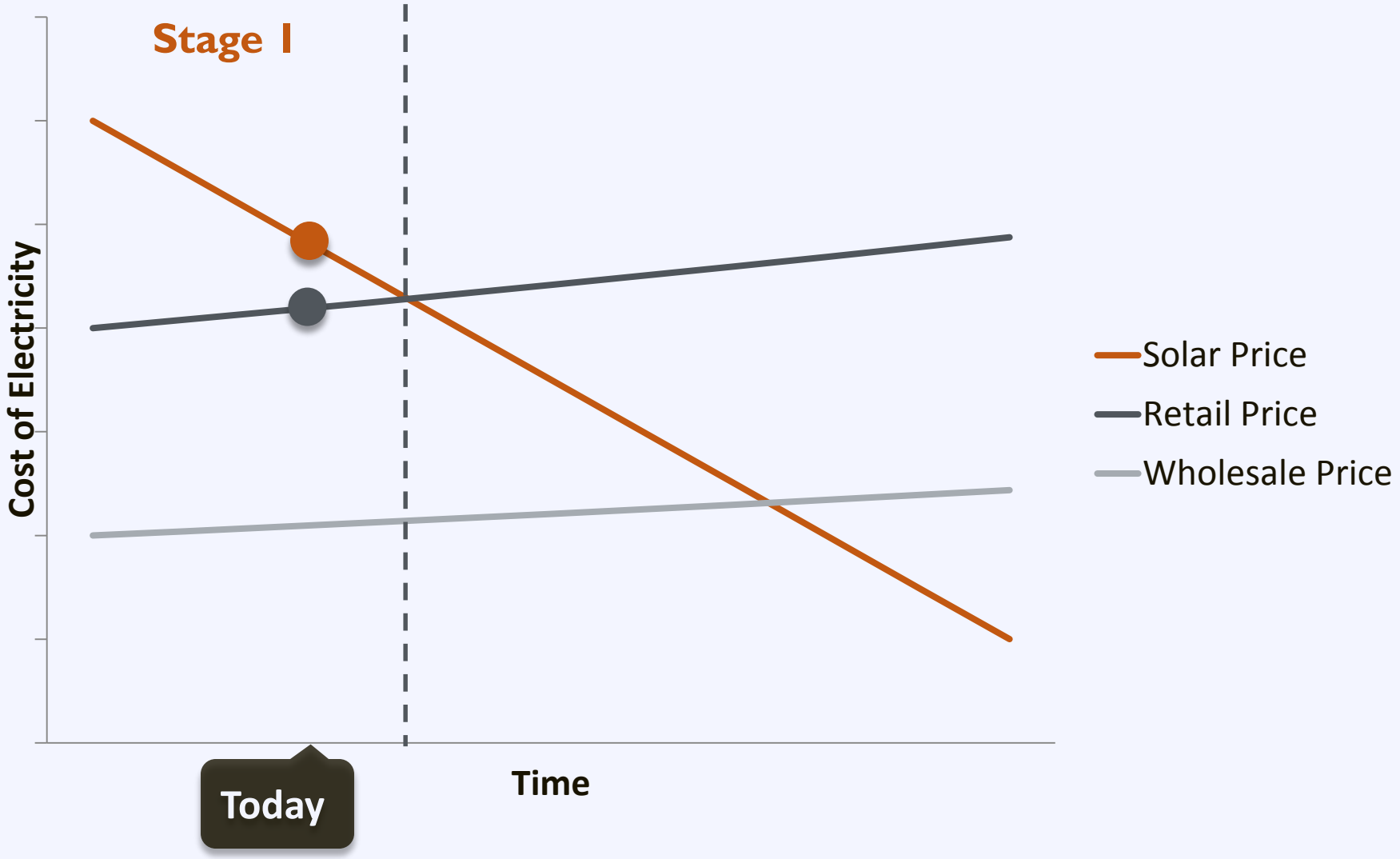
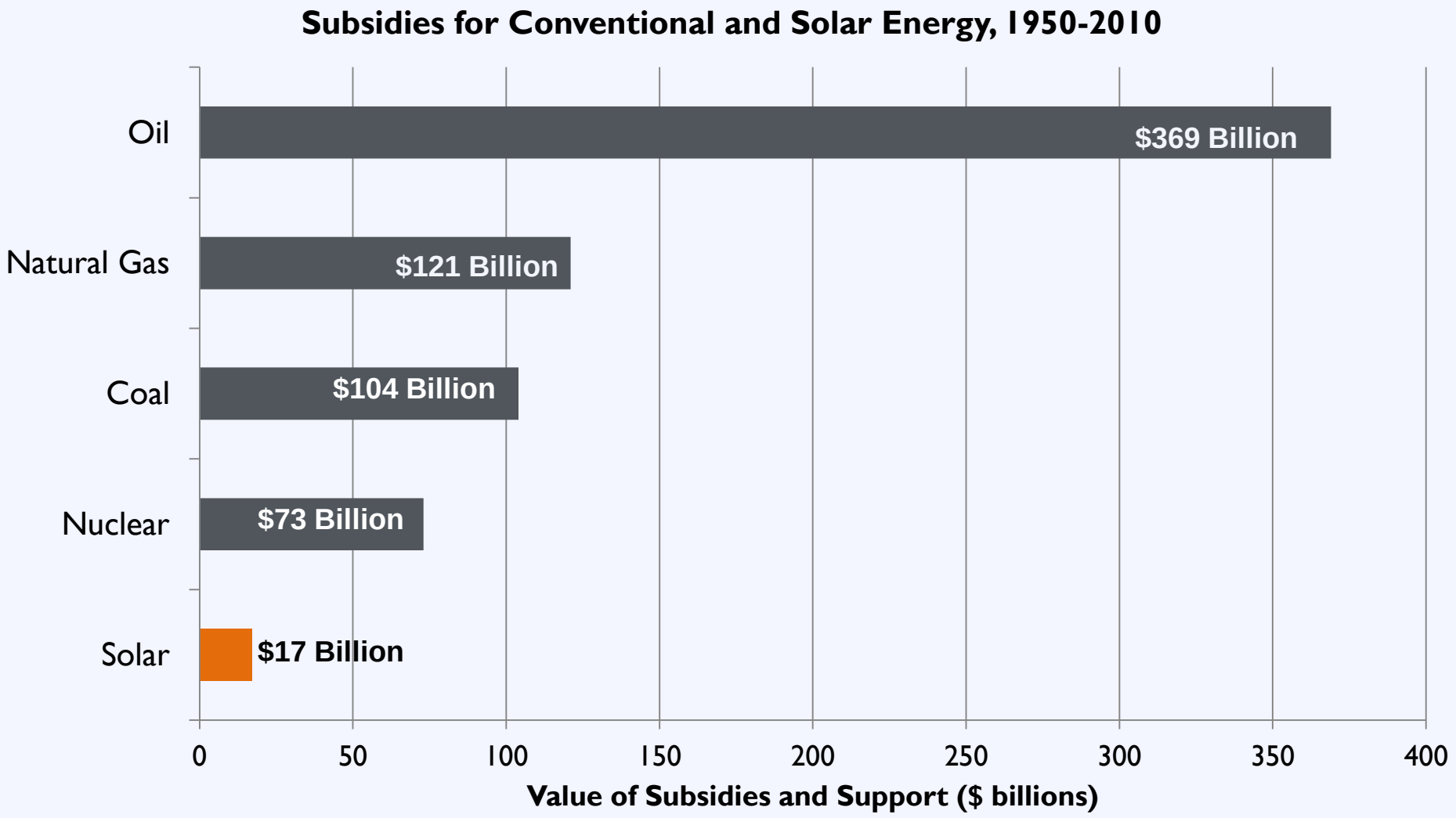
Tracking the Sun VI: The Installed Cost of Photovoltaics in the US from 1998-2012 (LBNL)

The Cost of Solar PV



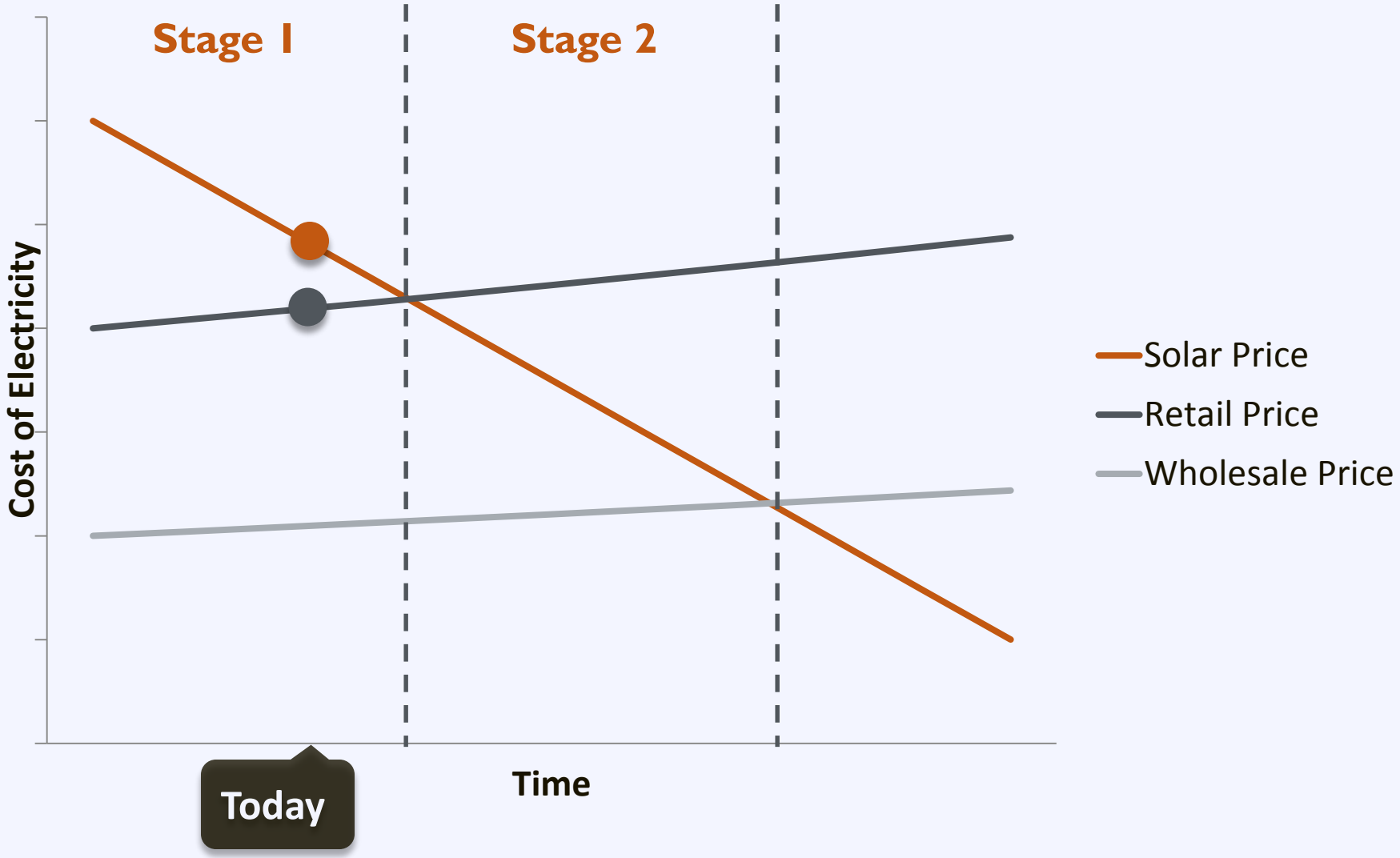
Source: Solar Electric Power Association

Subsidies and Support



Source: Management Information Services, Inc. October 2011. *60 Years of Energy Incentives: Analysis of Federal Expenditures for Energy Development*; SEIA, May 1, 2012. *Federal Energy Incentives Report.*

The Cost of Solar PV



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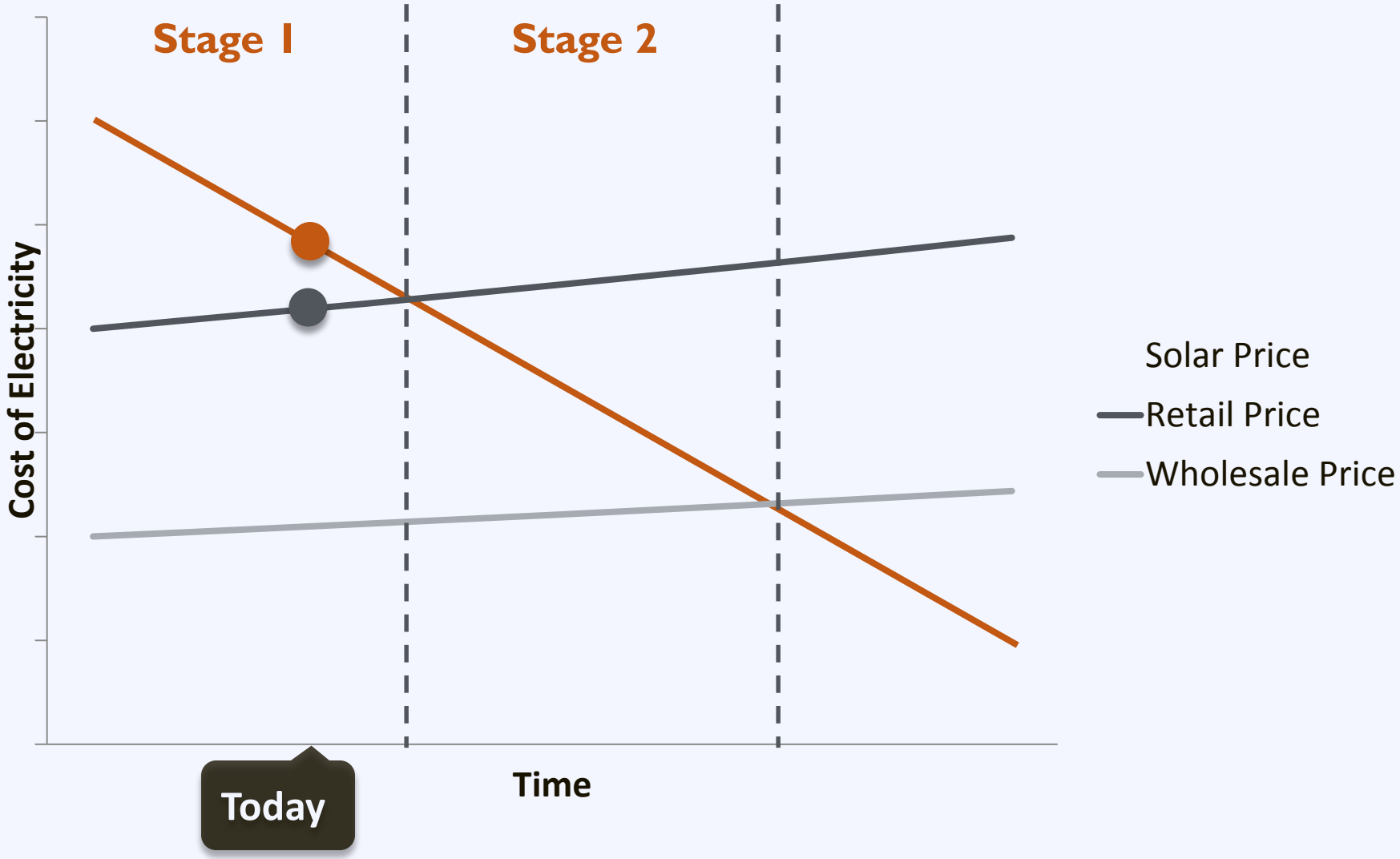
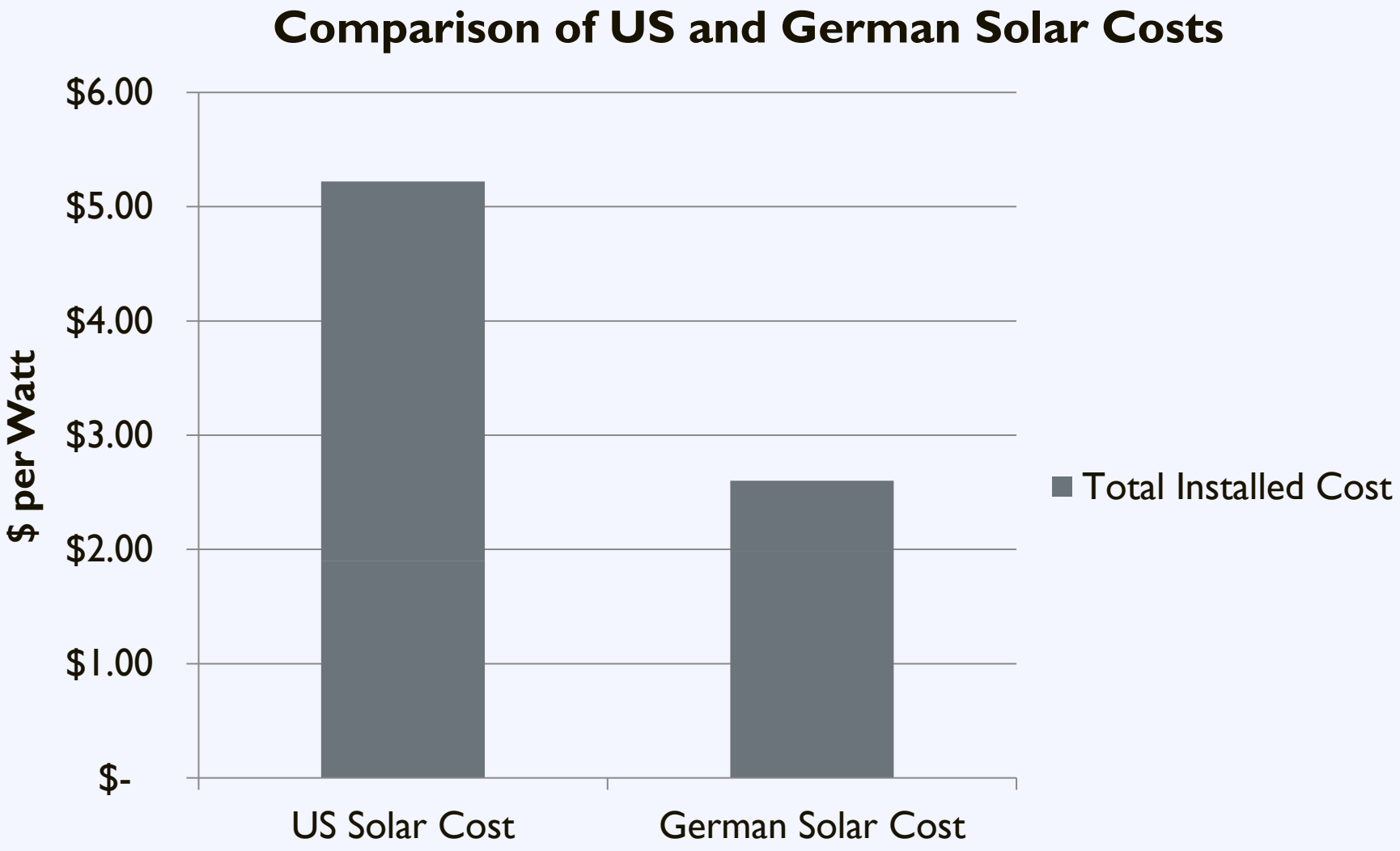


Source: Solar Electric Power Association

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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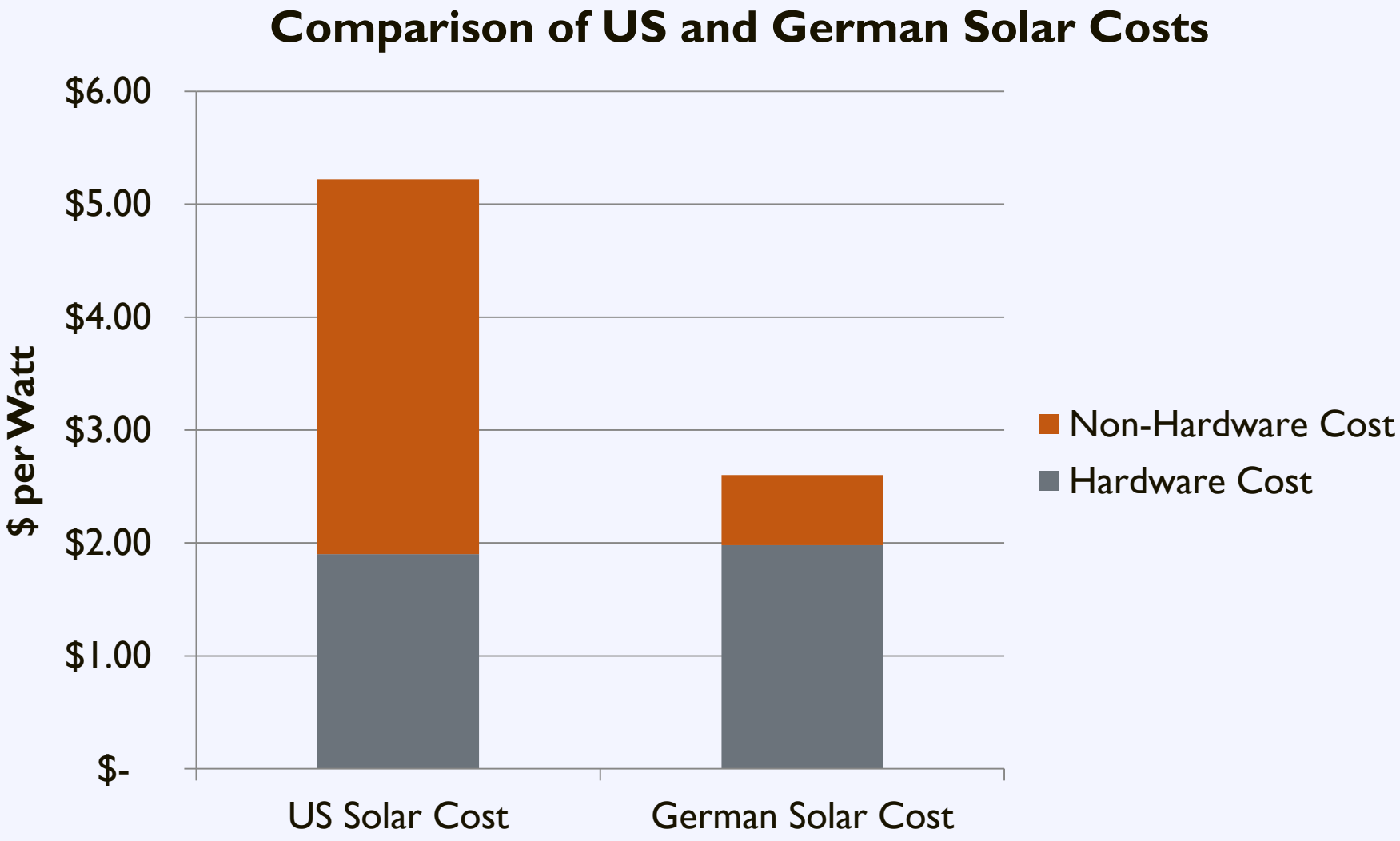
The Cost of Solar in the US



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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)

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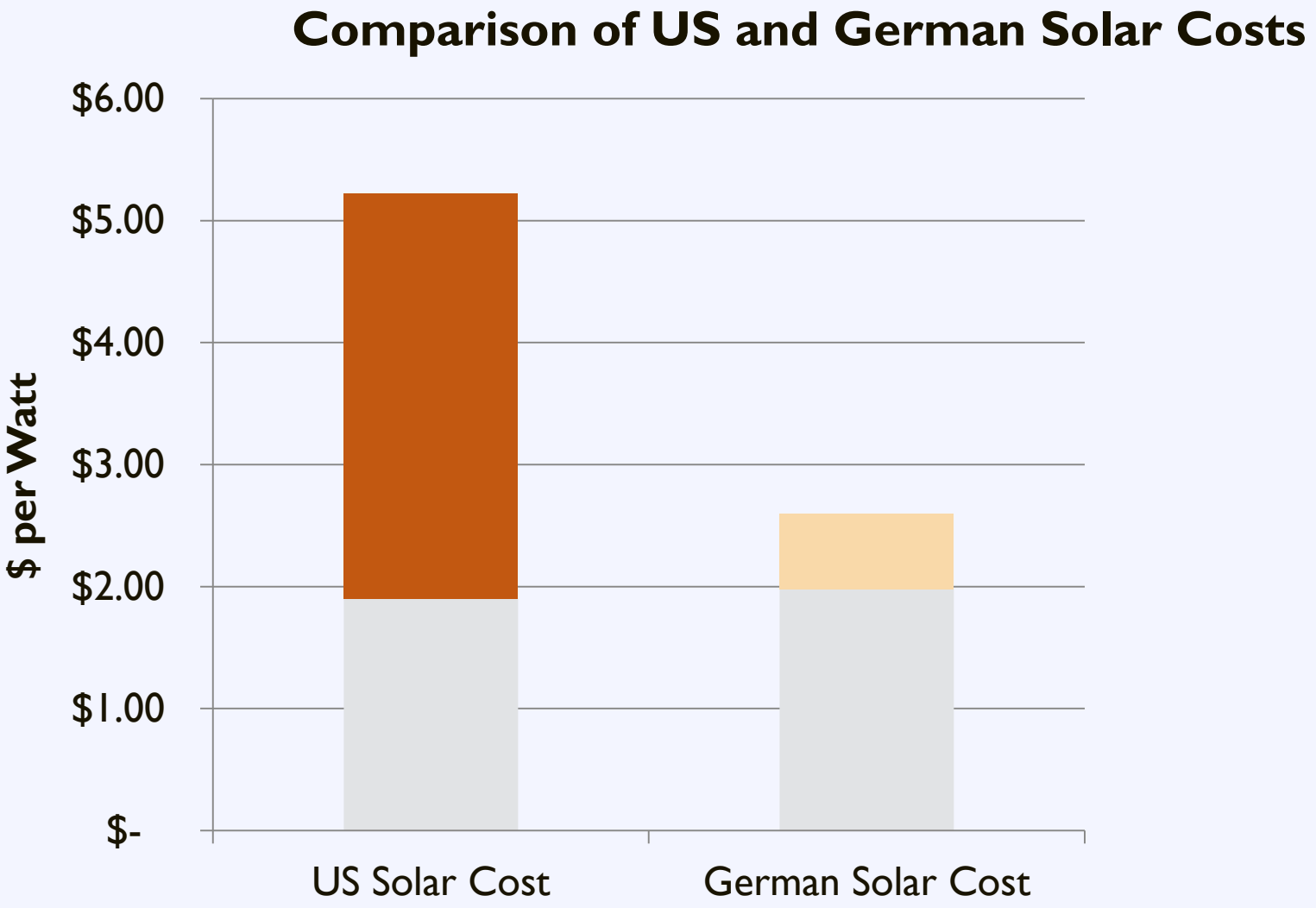

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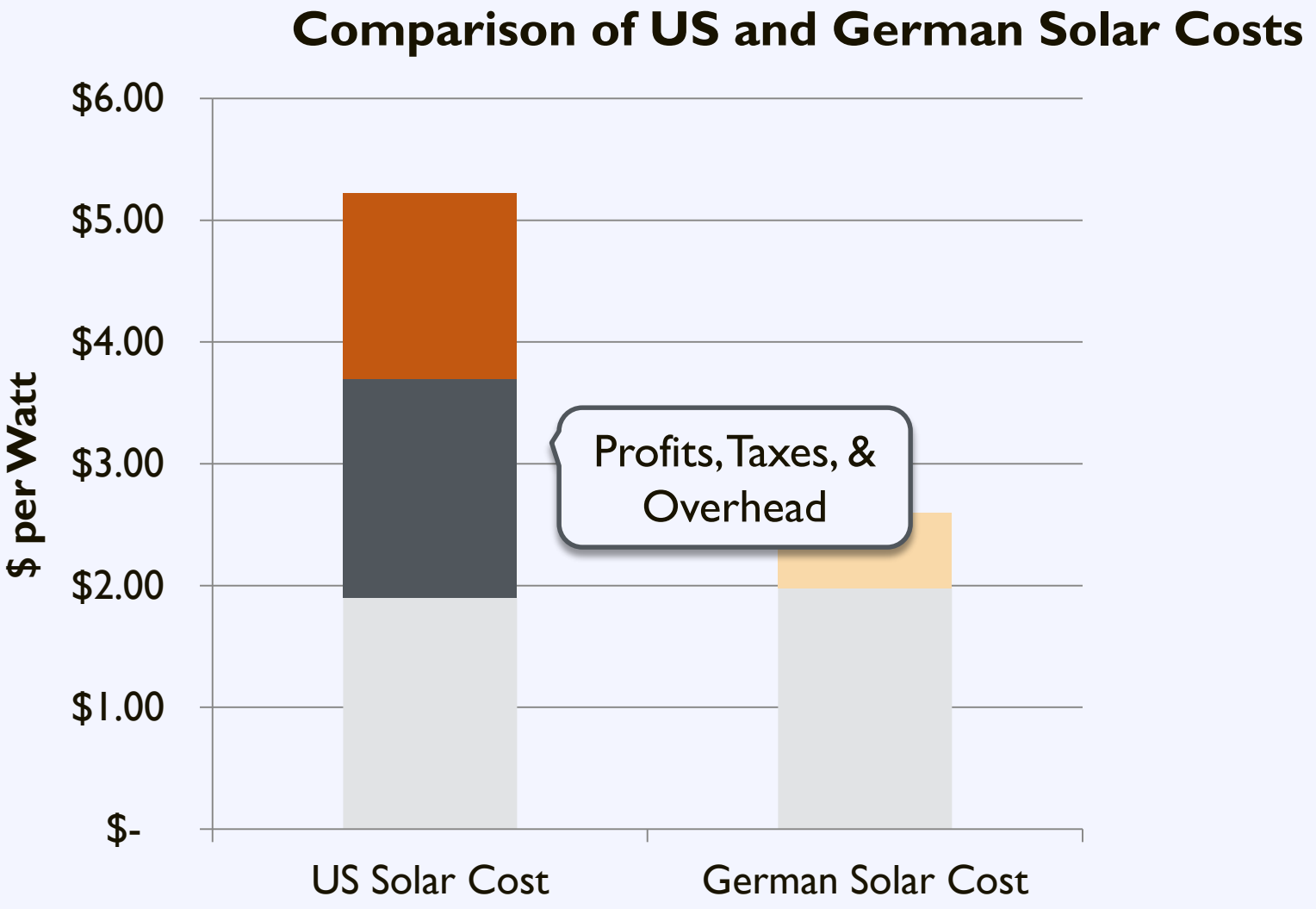

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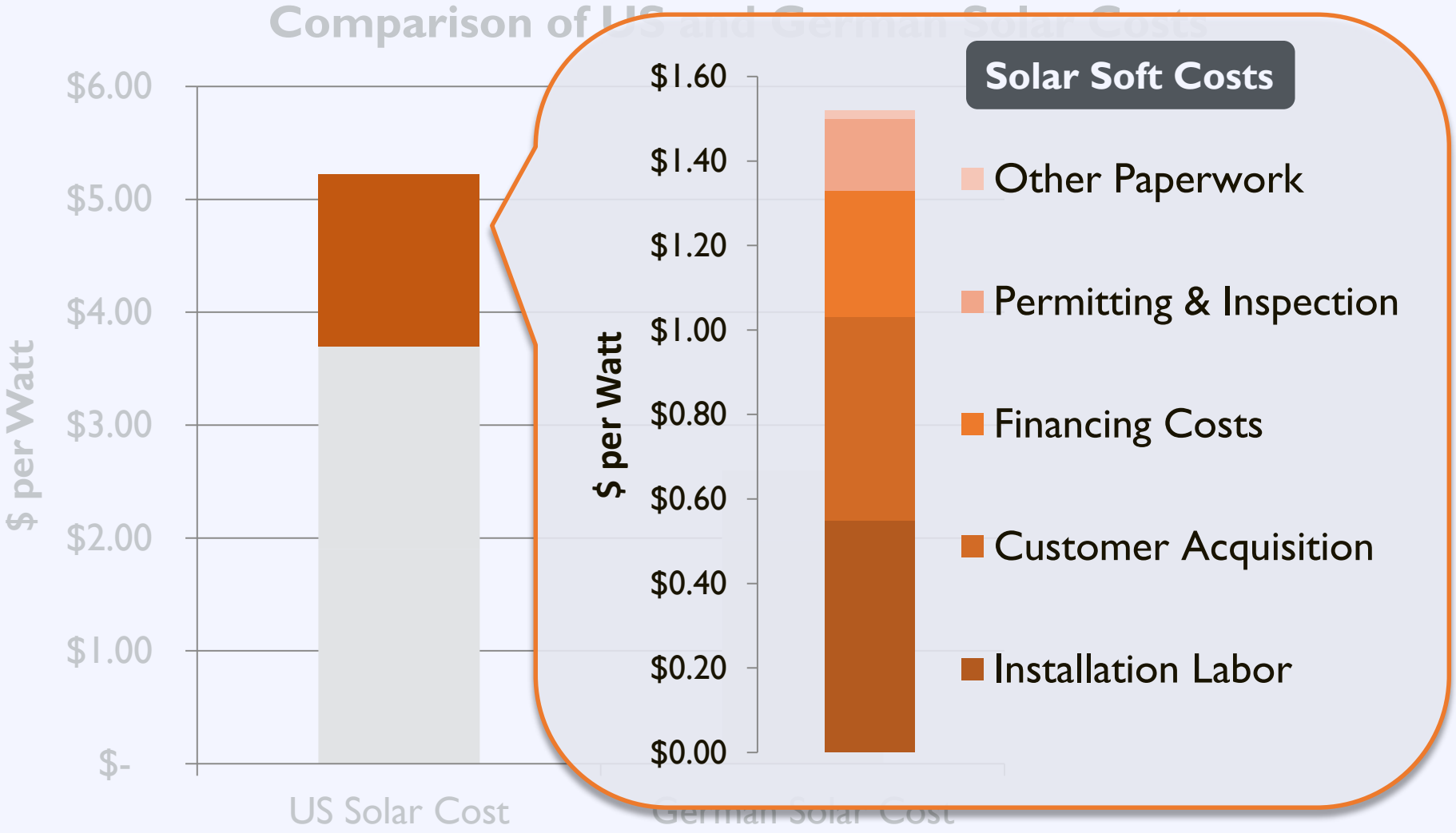

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Source: NREL (http://www.nrel.gov/docs/fy14osti/60412.pdf)
LBNL (http://emp.lbl.gov/sites/all/files/lbnl-6350e.pdf)(http://www1.eere.energy.gov/solar/pdfs/sunshot_webinar_20130226.pdf)

Challenge: Installation Time

New York City's Goal

100 days

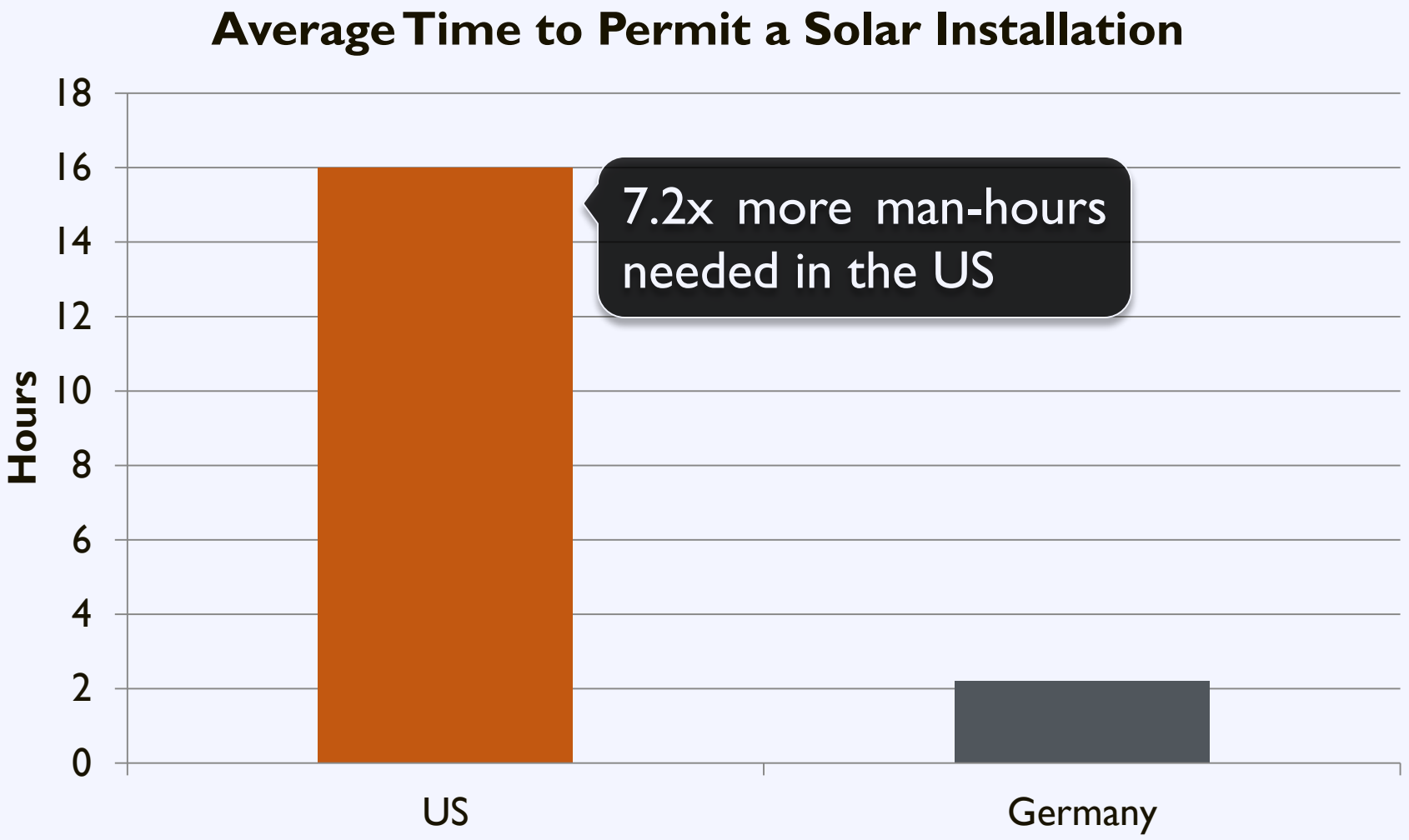
from inception to completion

Germany Today

8 days

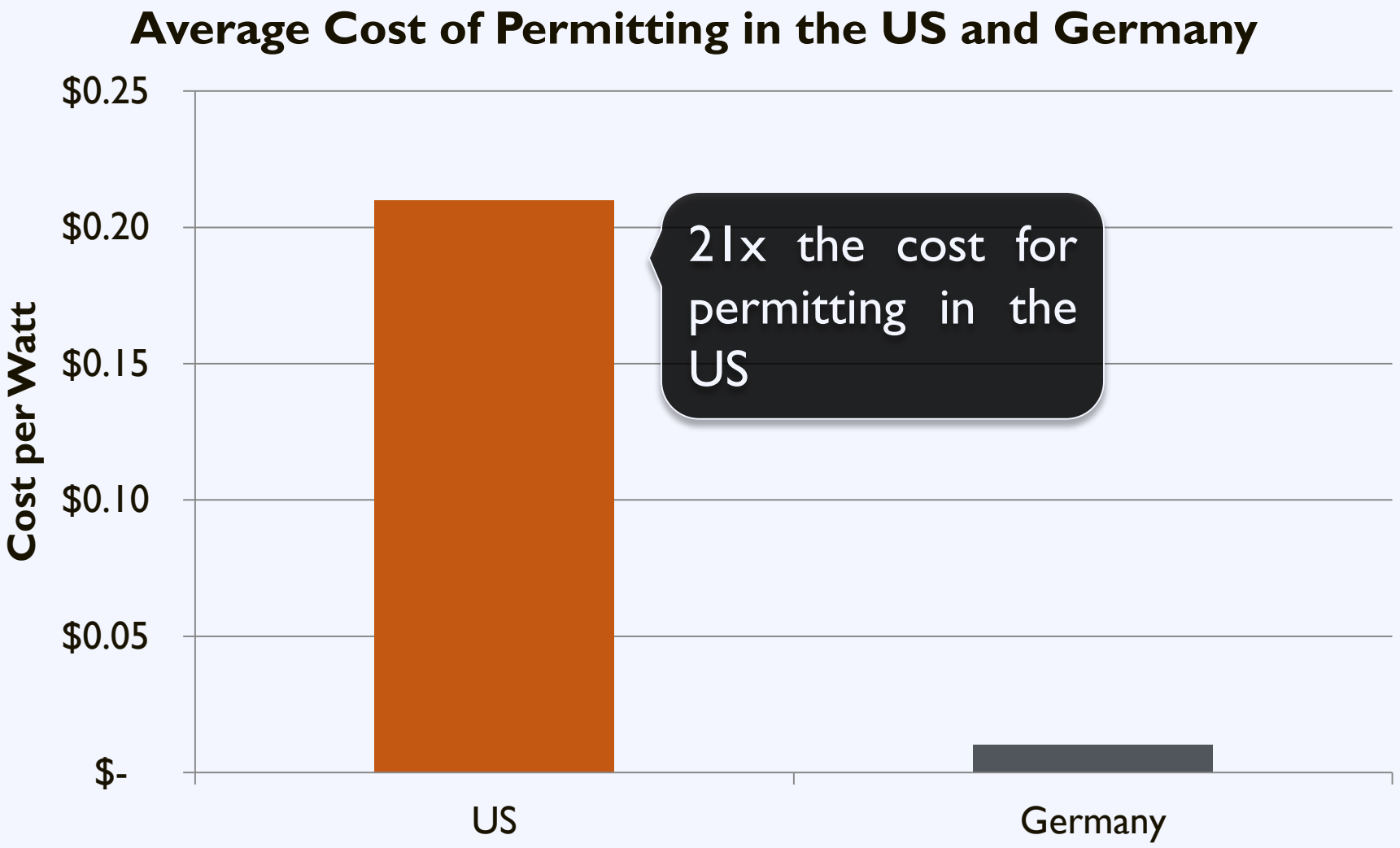
from inception to completion

Time to Installation



Source: NREL, LBNL

Permitting Costs



Source: NREL, LBNL

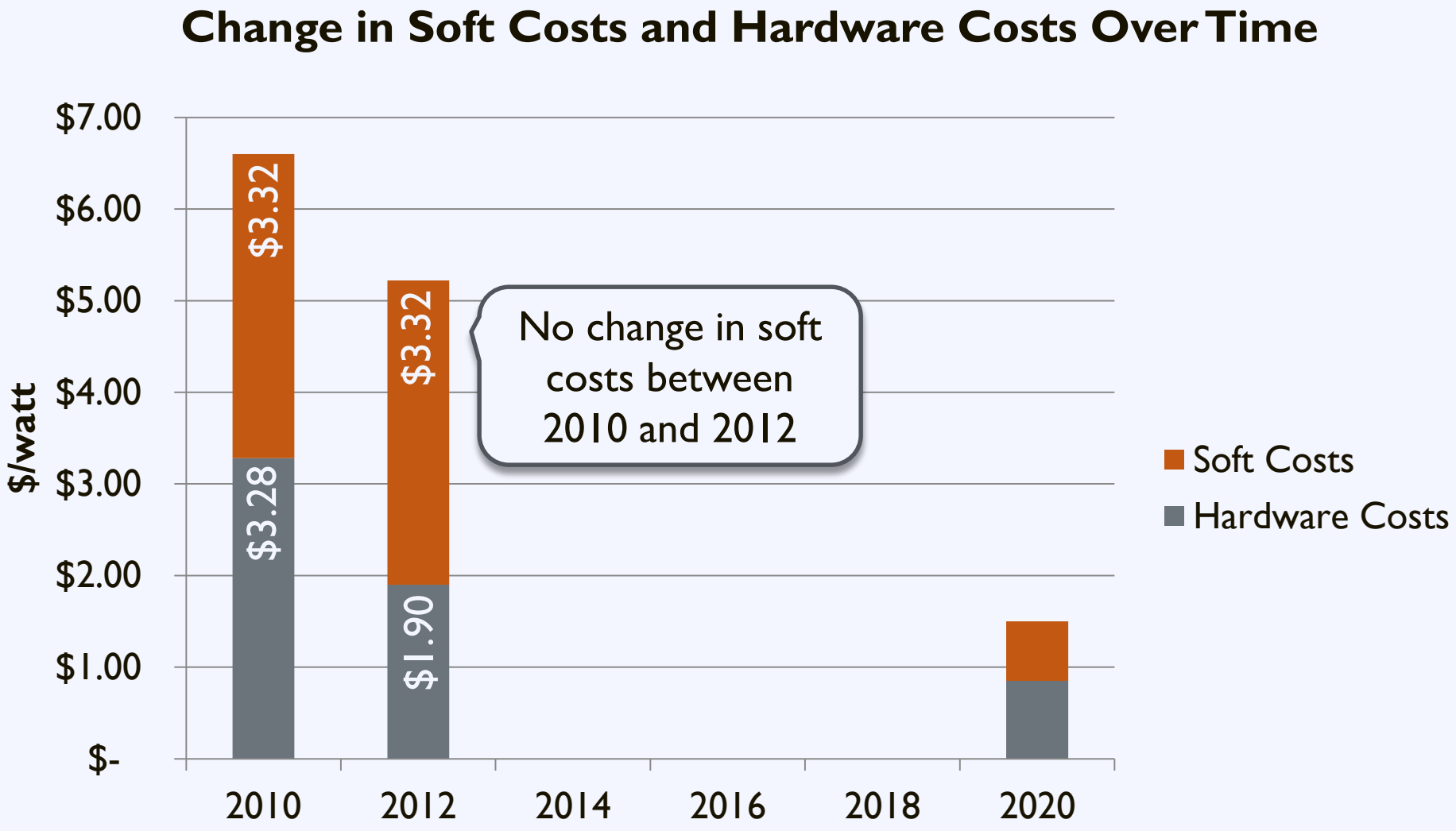
Germany's Success

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

08:50 – 09:10	Putting Solar Energy on the Local Policy Agenda
09:10 – 09:30	State of the Local Solar Market
09:30 – 09:55	Federal, State, and Utility Policy Drivers
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12:15 – 12:50	Developing Solar Policy For Your Community
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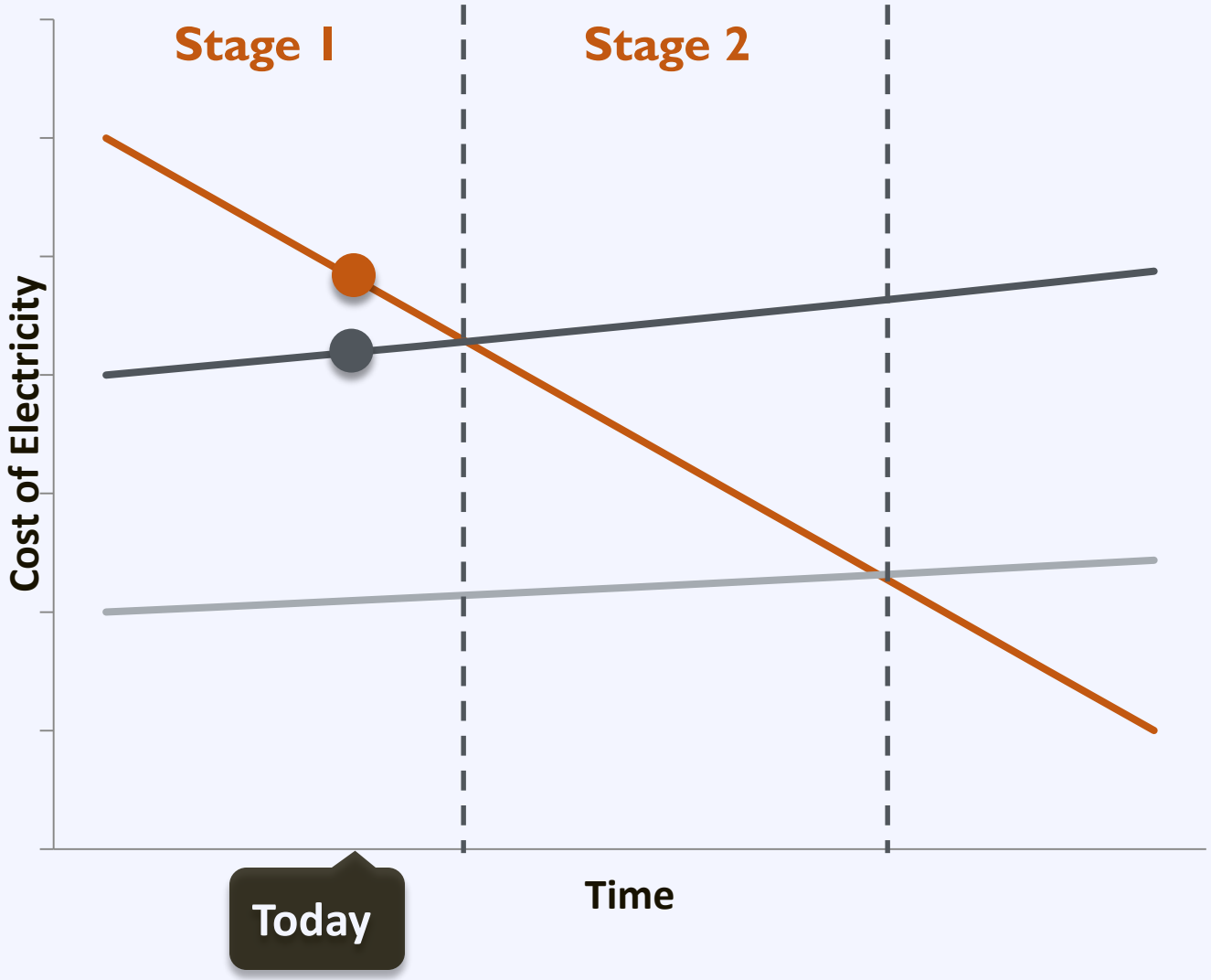
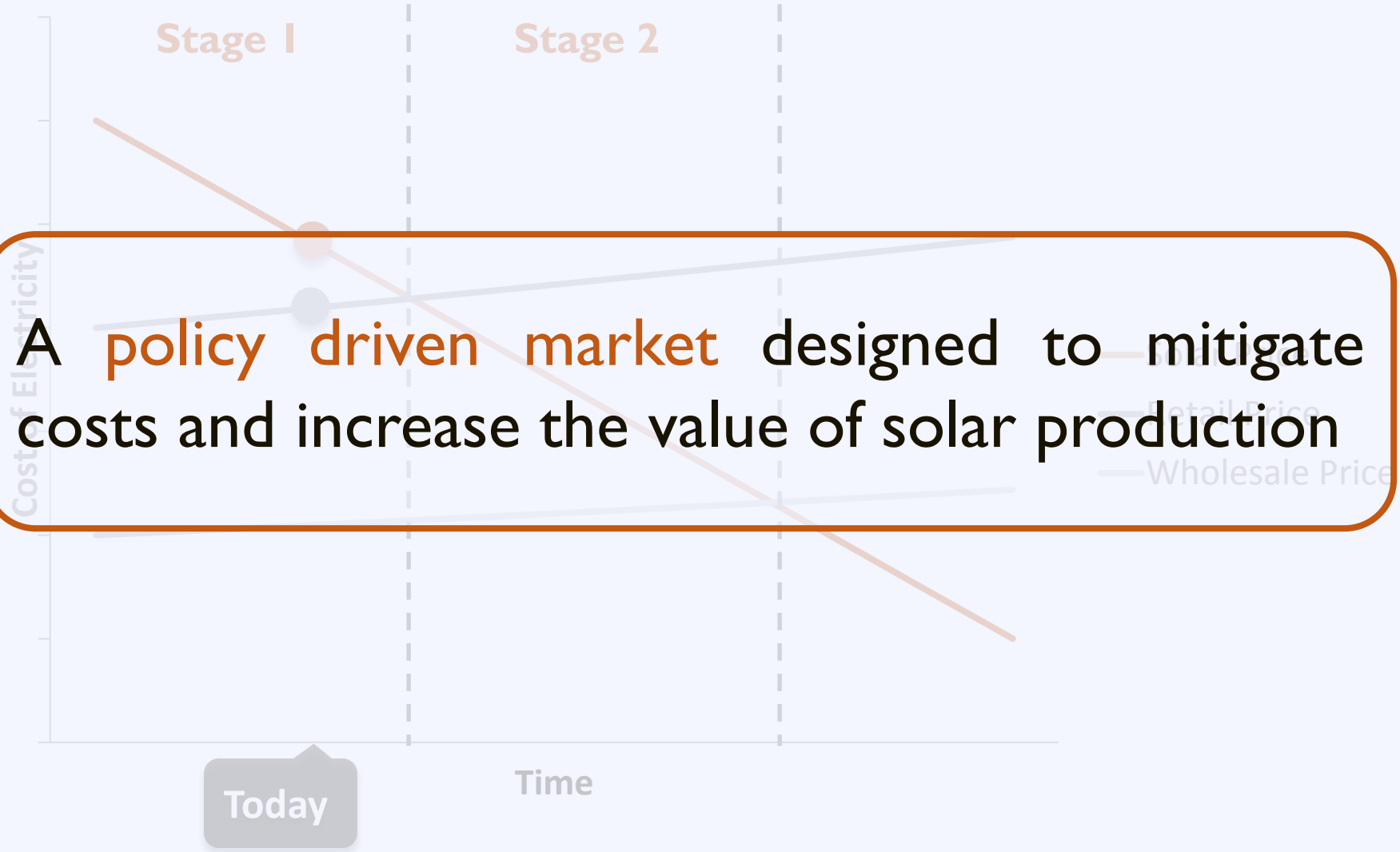
Solar Market: Trends



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		

A Policy Driven Market

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

Investment Tax Credit

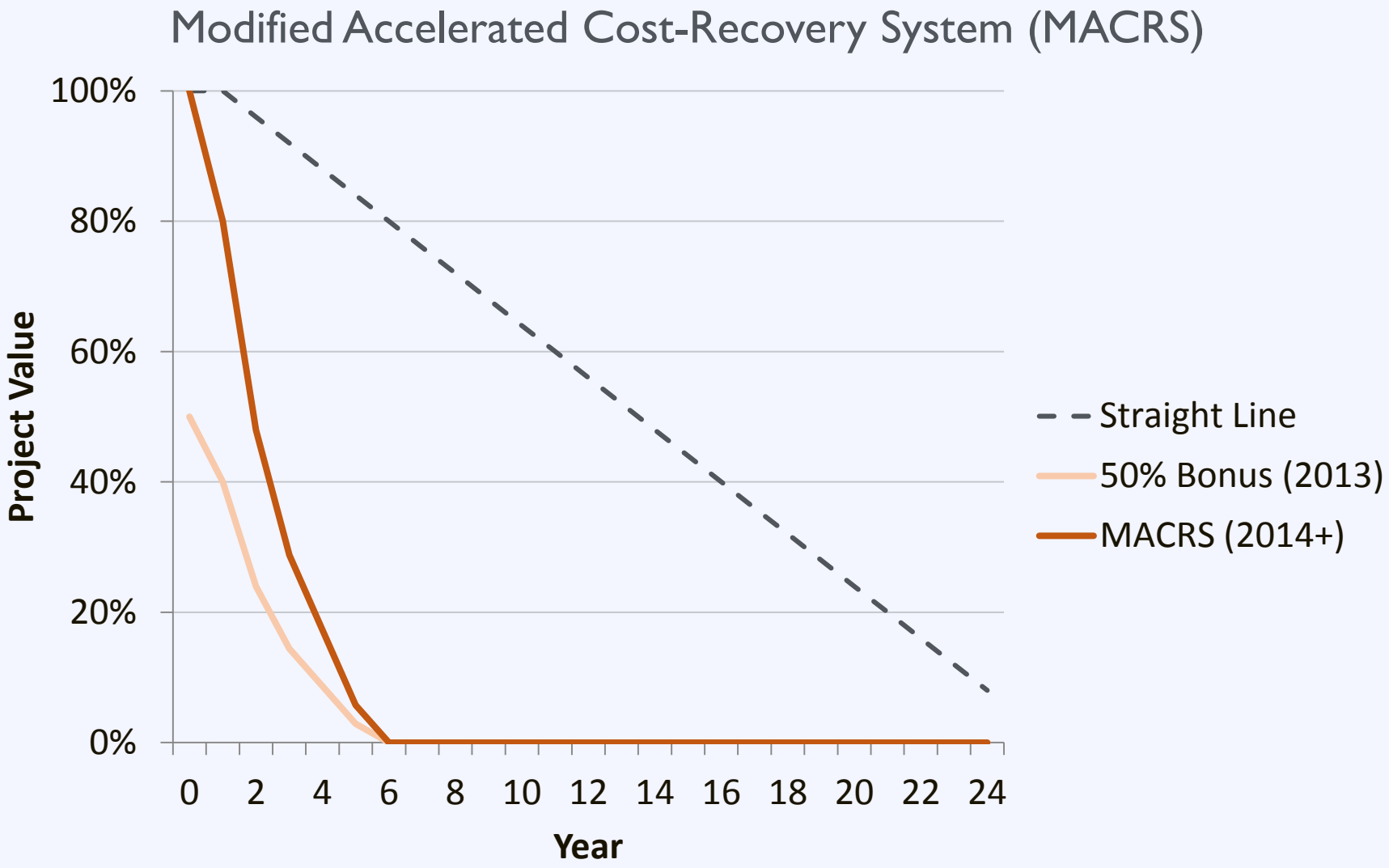
Type: Tax Credit

Eligibility: For-Profit Organization

Value: 30% of the installation cost

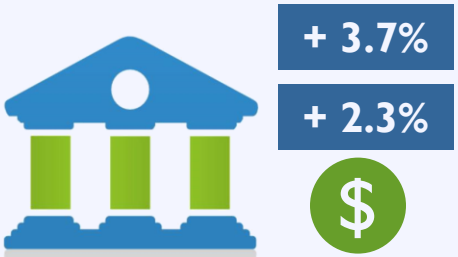
Availability: Through 2016

Accelerated Depreciation



Qualified Energy Conservation Bond

US Treasury



Local Gov

Project

Bond Holders

A Policy Driven Market

Federal

Investment Tax Credit

Accelerated Depreciation

Qualified Energy Conservation Bond

State & Utility

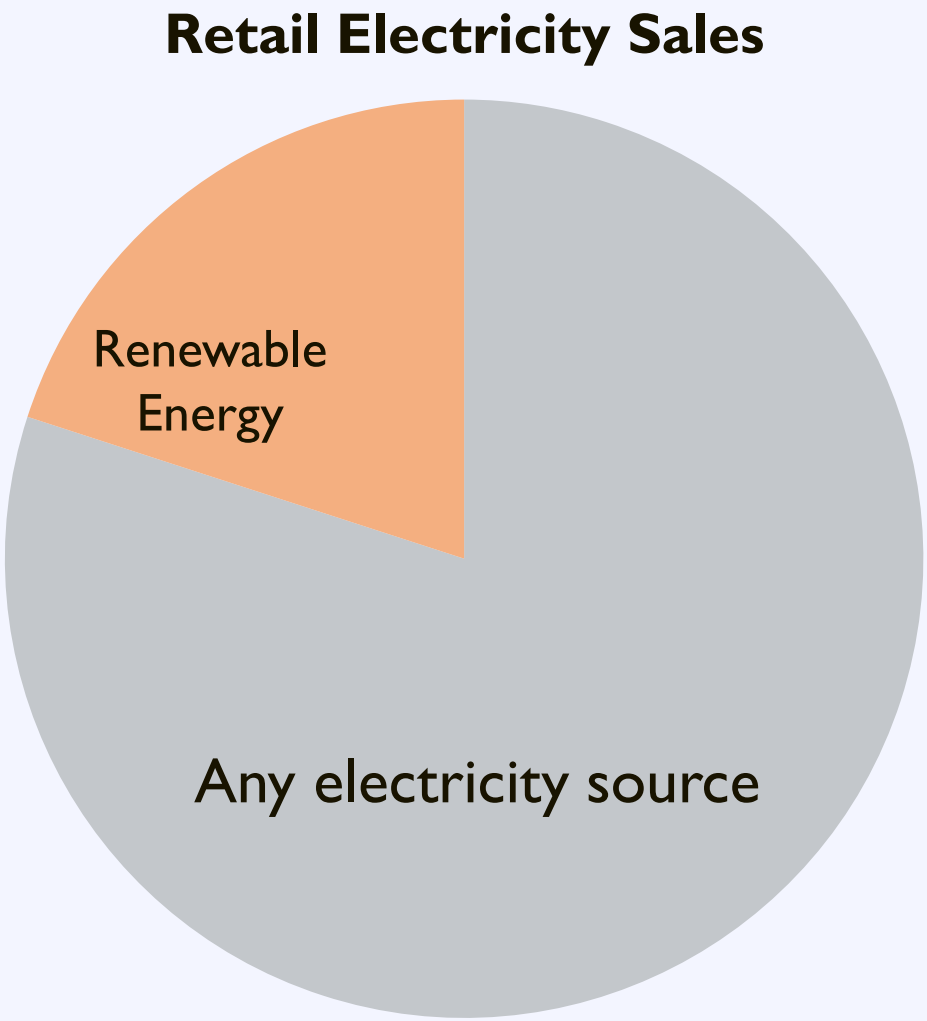
Renewable Portfolio Standard

Net Metering

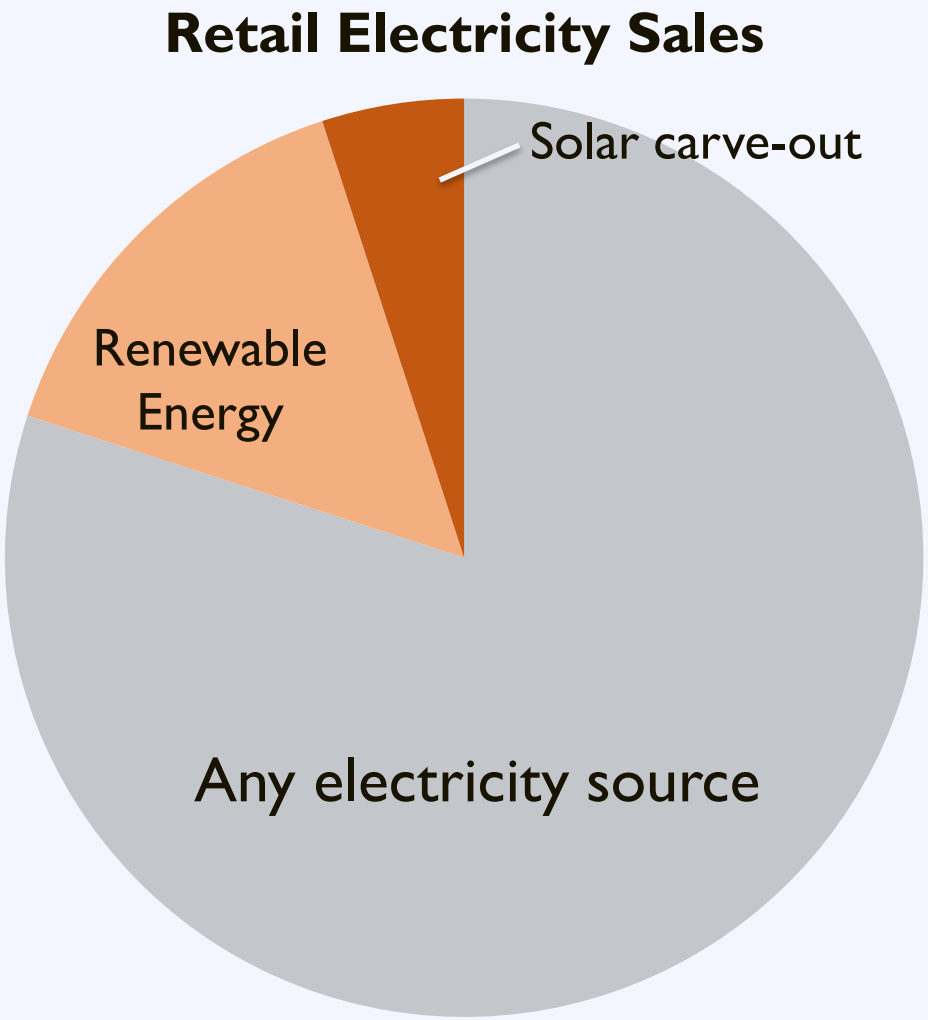
Interconnection

Solar Access

Renewable Portfolio Standard

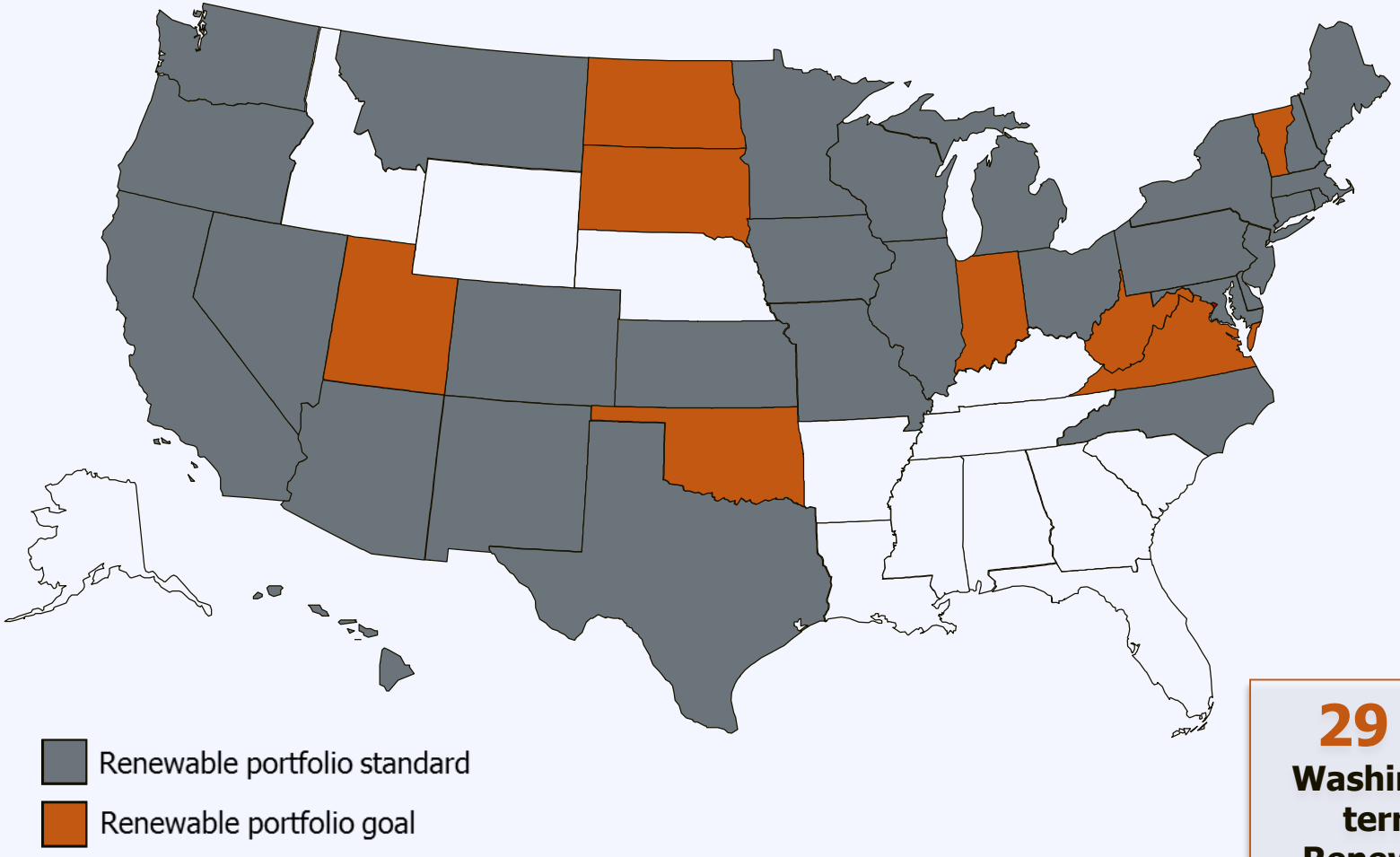


Renewable Portfolio Standard



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 2012)

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

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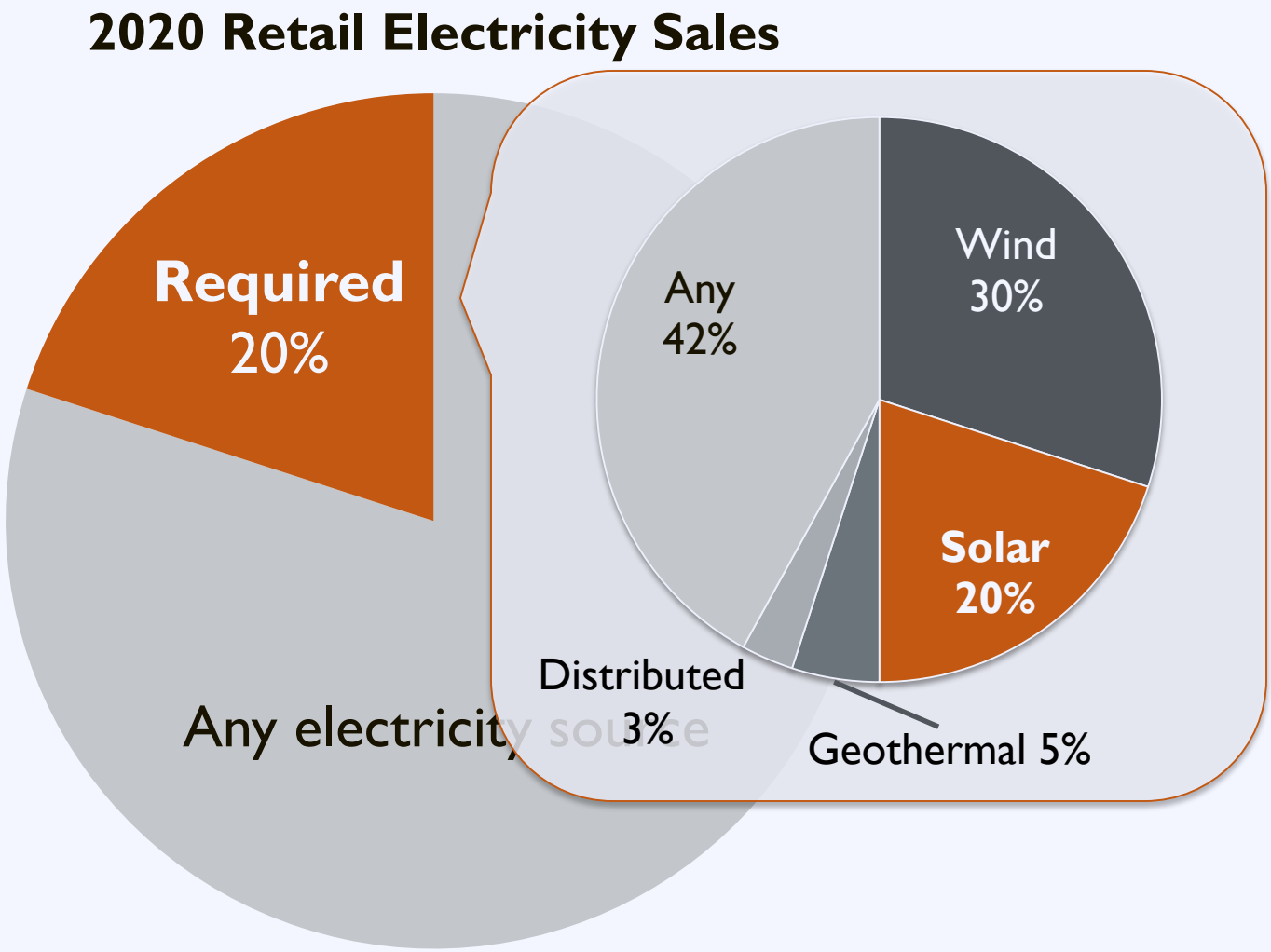
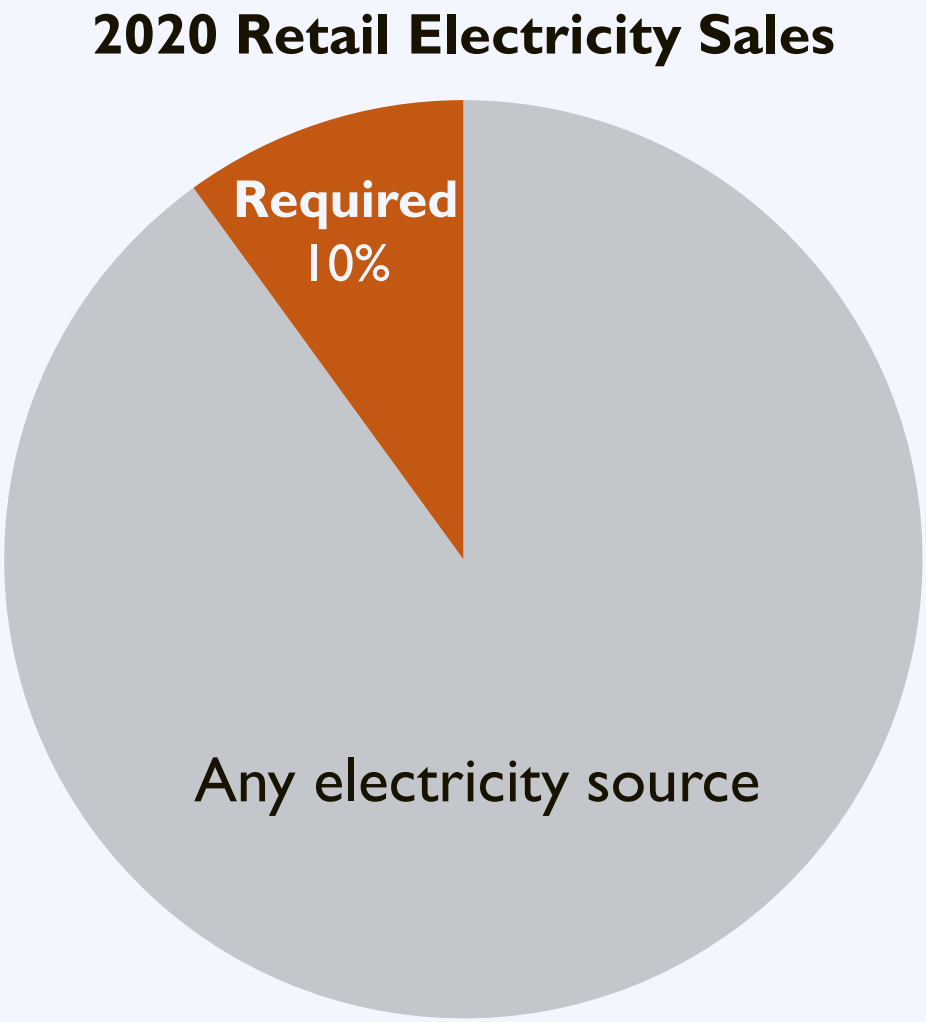
Source: DSIRE Solar (http://dsireusa.org/documents/summarymaps/Solar_DG_RPS_map.pdf); Solar Energy Industries Association/ GTM Research *Solar Market Insight 2012 Year-in-Review*

New Mexico: Investor Owned Utility



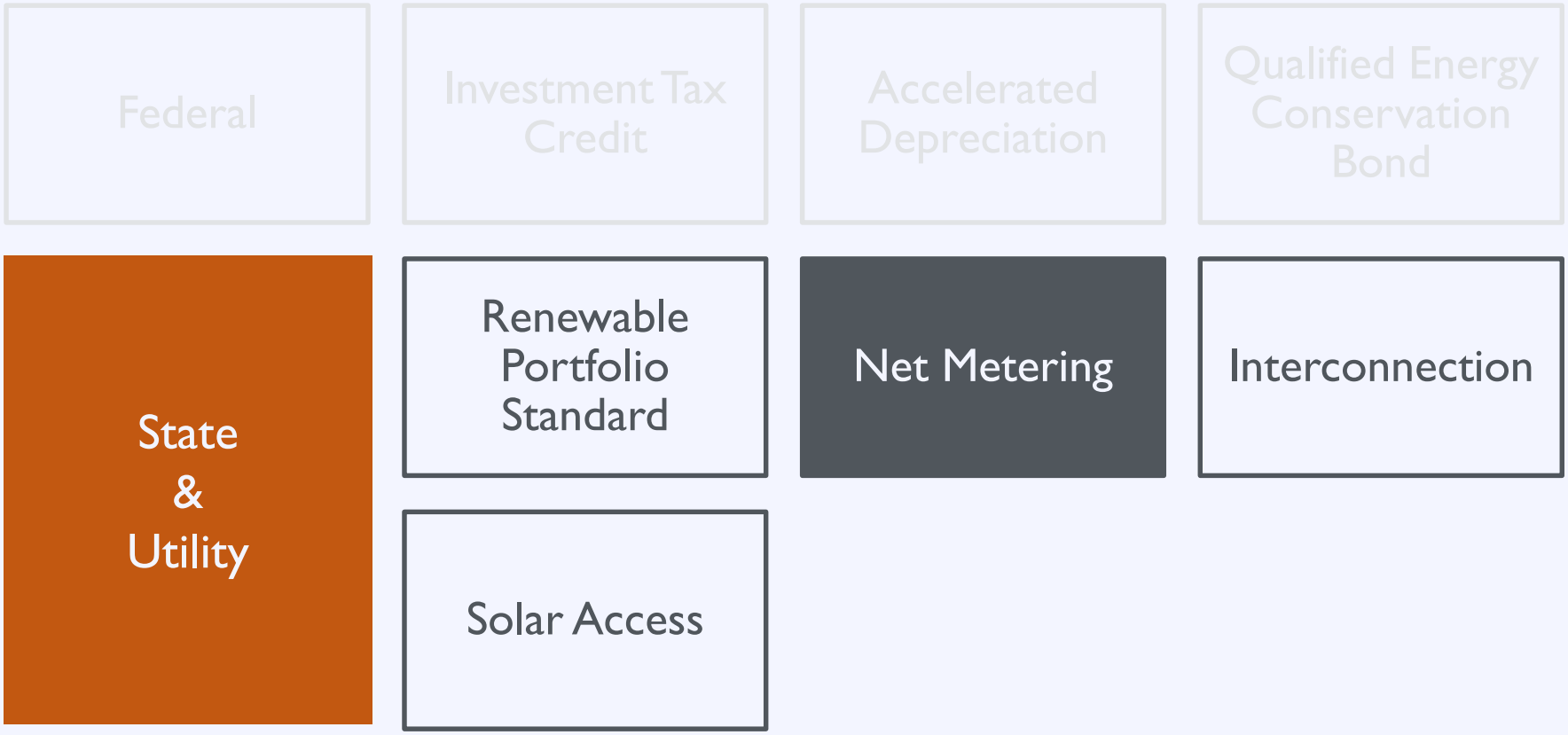
Source: DSIRE

New Mexico: Cooperative Utility



Source: DSIRE

A Policy Driven Market



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

Powered by SunShot U.S. Department of Energy

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

Net Metering: Market Share

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Powered by SunShot U.S. Department of Energy

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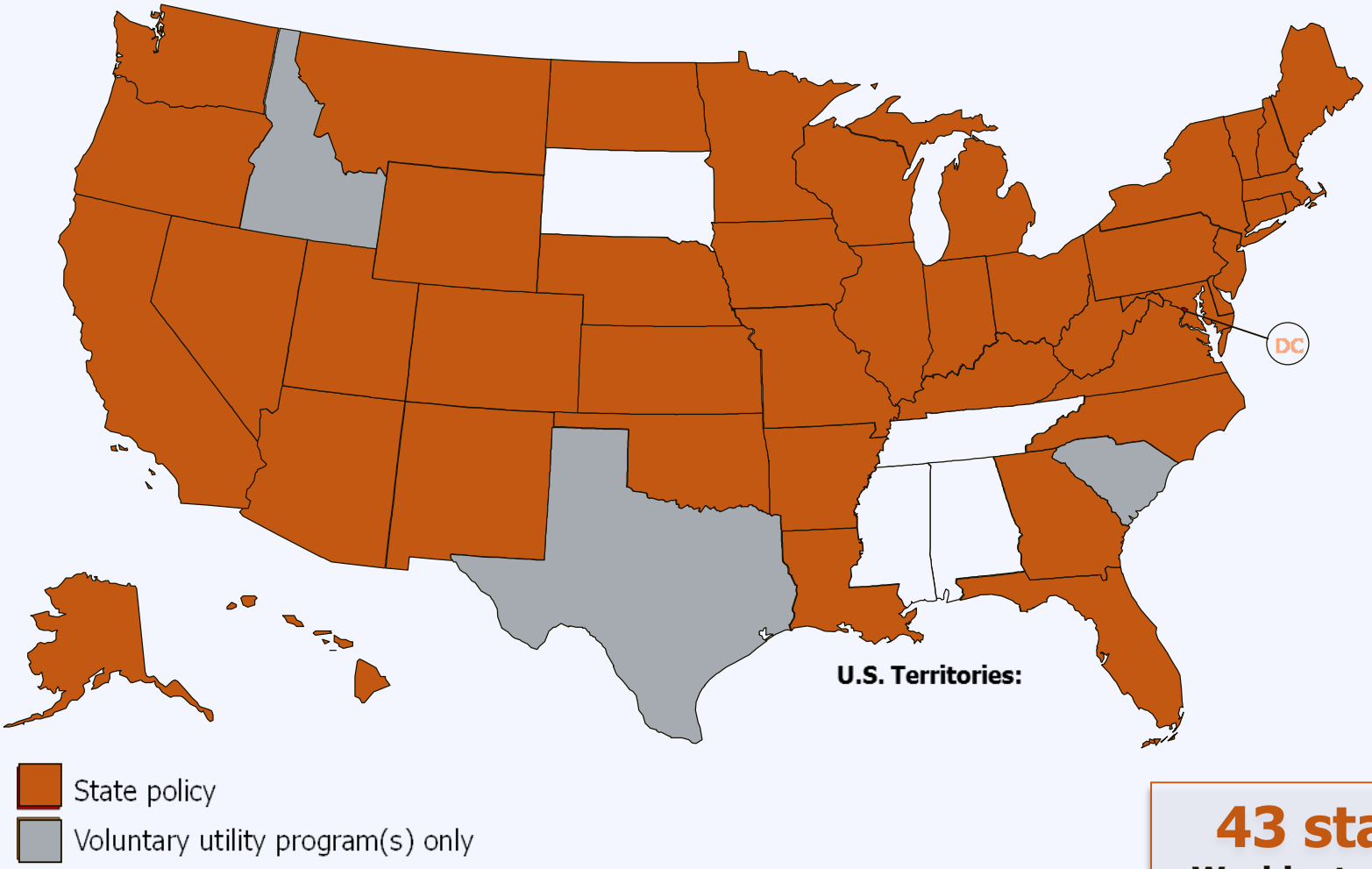
Net Metering



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

Source: DSIRE (July 2013)

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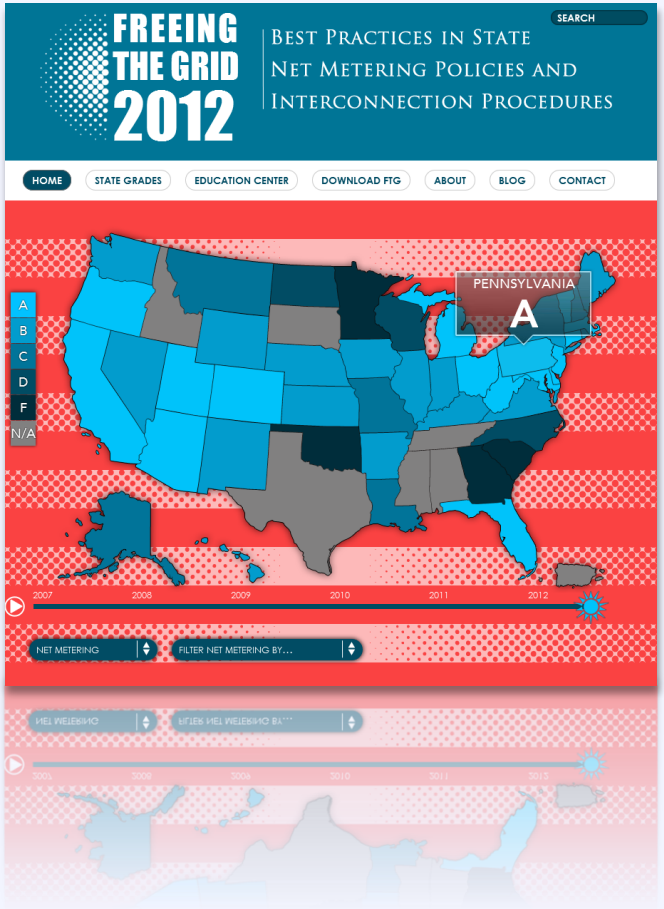
U.S. Department of Energy

Net Metering: Resources

Resource **Freeing the Grid**

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

http://freeingthegrid.org/



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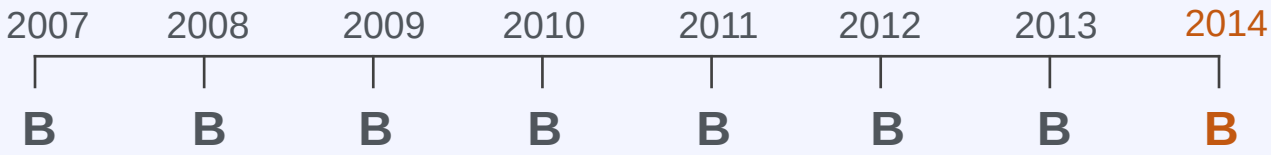
Net Metering: New Mexico



Net Excess Credit Value
Avoided Cost
Reconciled Monthly

Credit Rollover
None

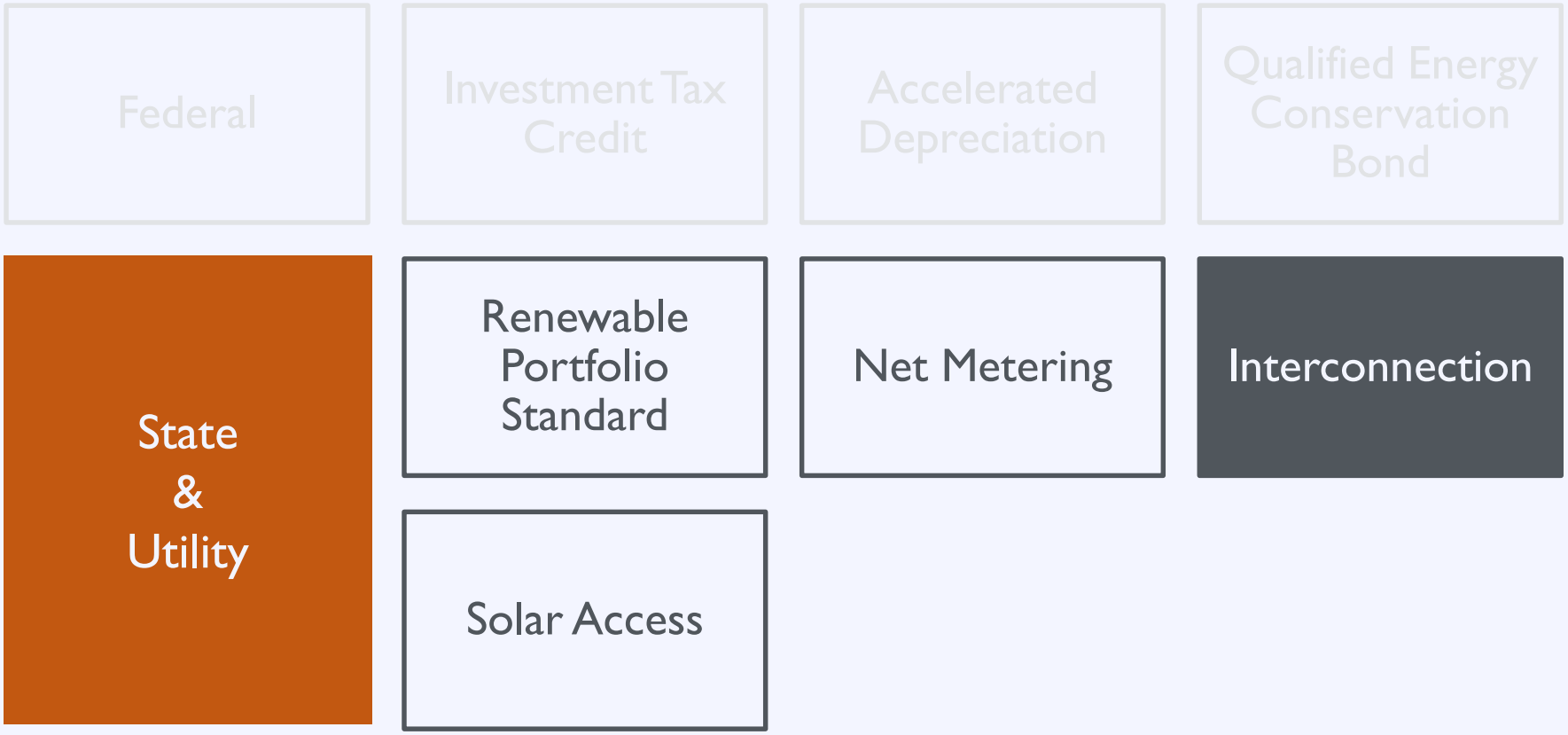
System Capacity Limit
80 MW

REC Ownership
Utility

Powered by SunShot U.S. Department of Energy

Source: Freeing the Grid

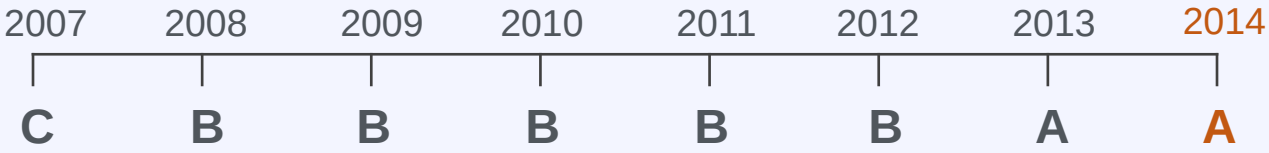
A Policy Driven Market



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: New Mexico



Applicable Technologies
All DG renewables

Applicable Utilities
IOUs & Co-Ops

System Capacity Limit
80 MW

Bonus
Insurance waived for projects < 25 kW

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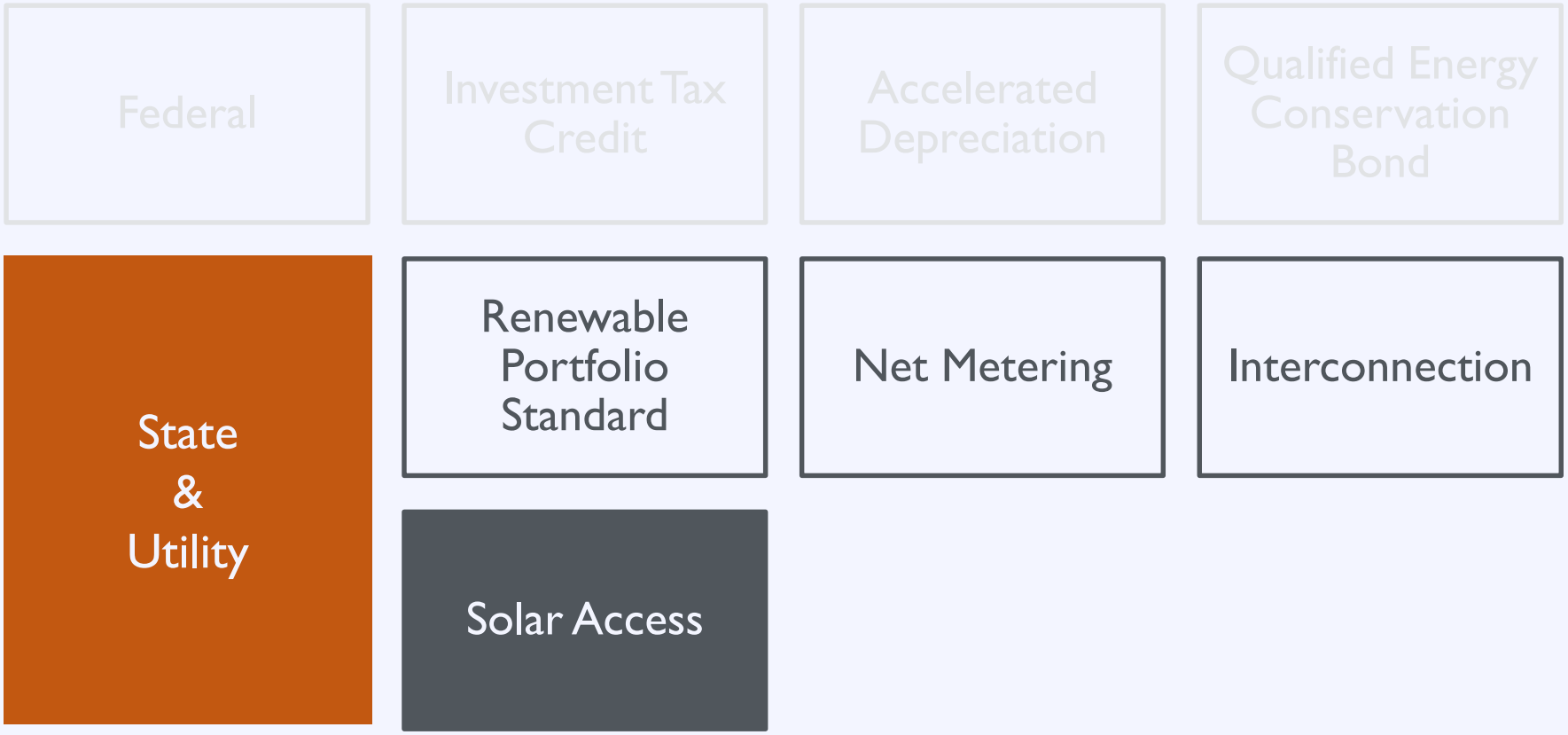
Source: Freeing the Grid

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

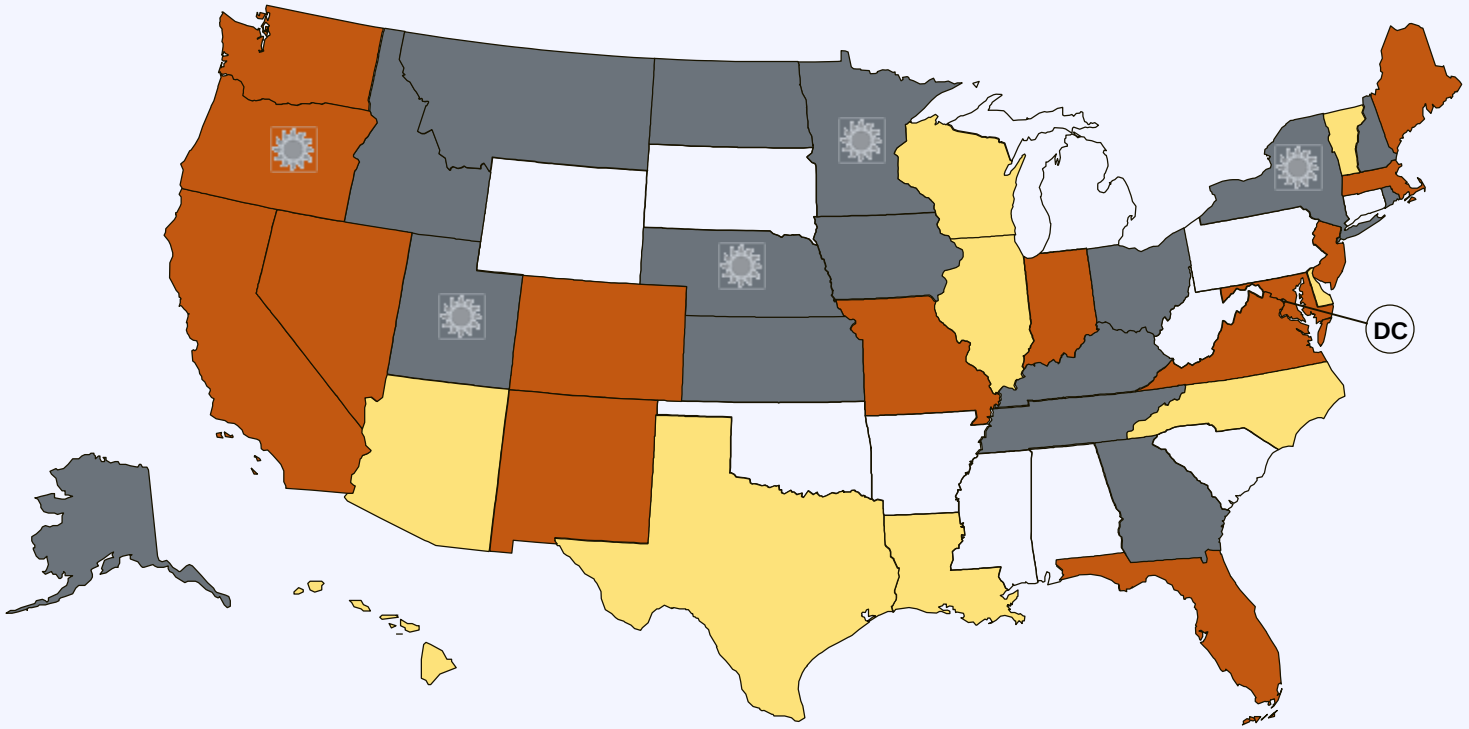
Source: Google Earth

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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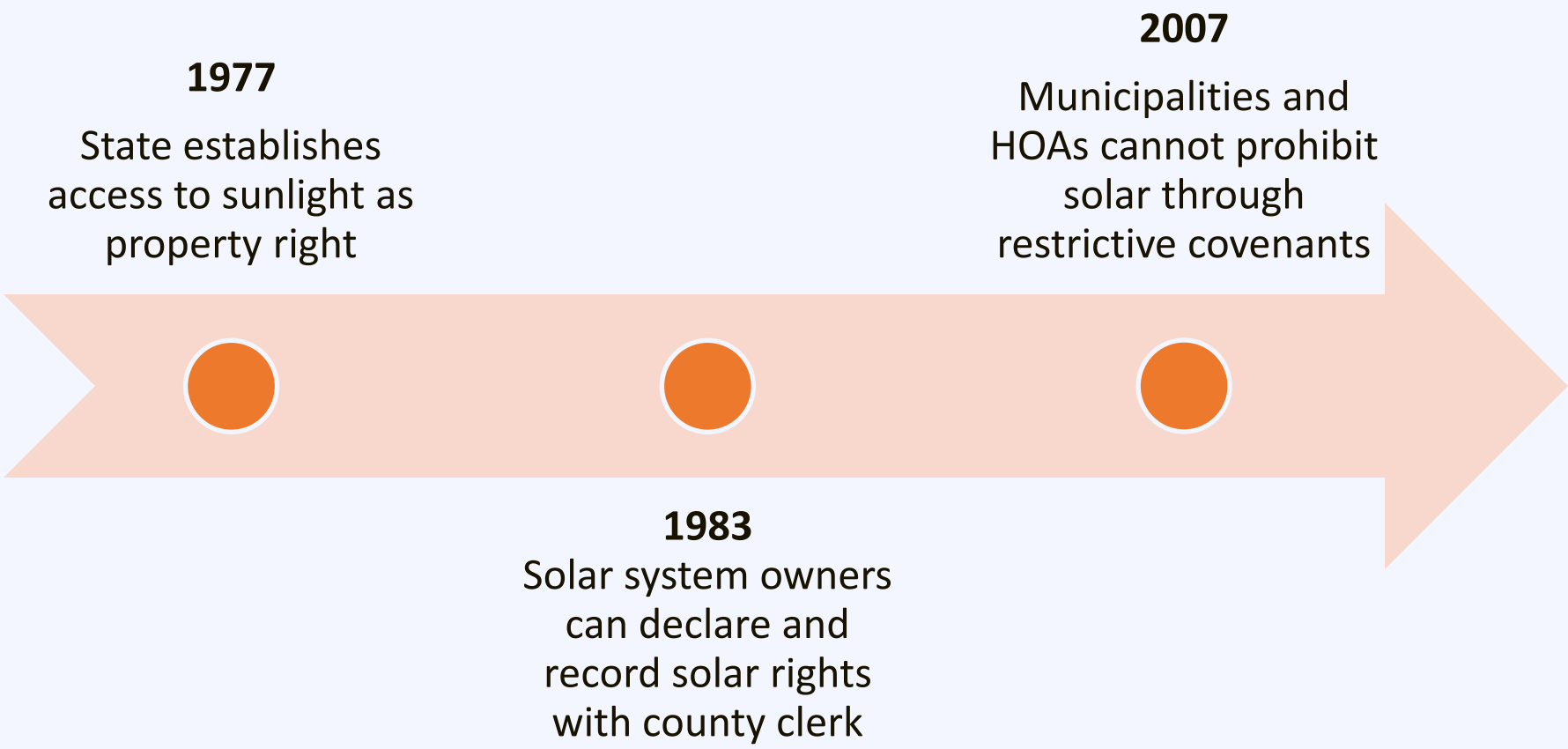
U.S. Department of Energy

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

Solar Rights in New Mexico



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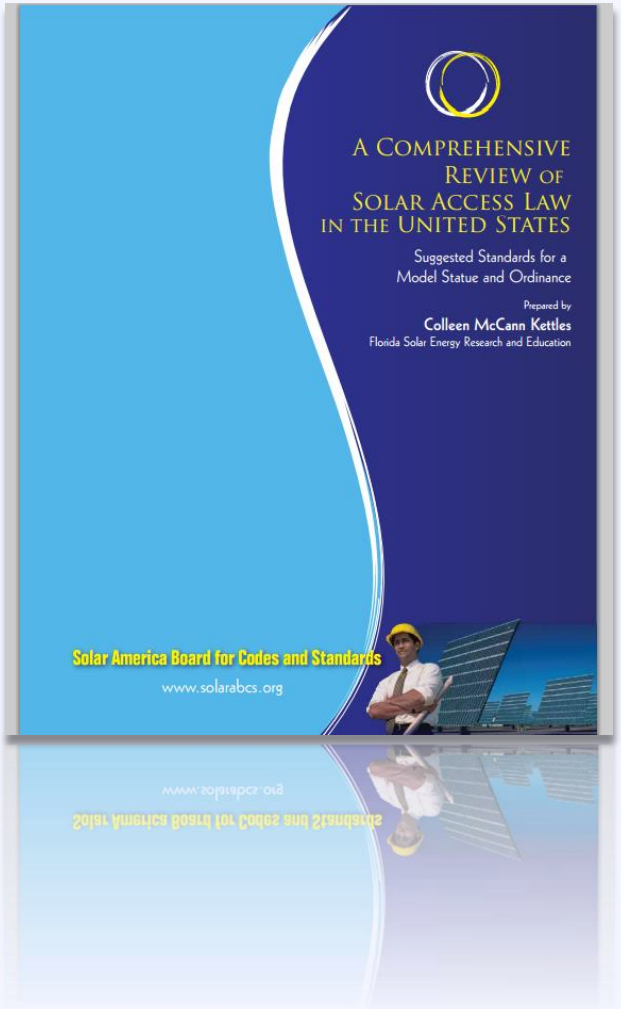
New Mexico Energy, Mineral and Natural Resources Department. (n.d.) Protect Your Solar Rights.

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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Q & A

Agenda

08:50 – 09:10	Putting Solar Energy on the Local Policy Agenda
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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

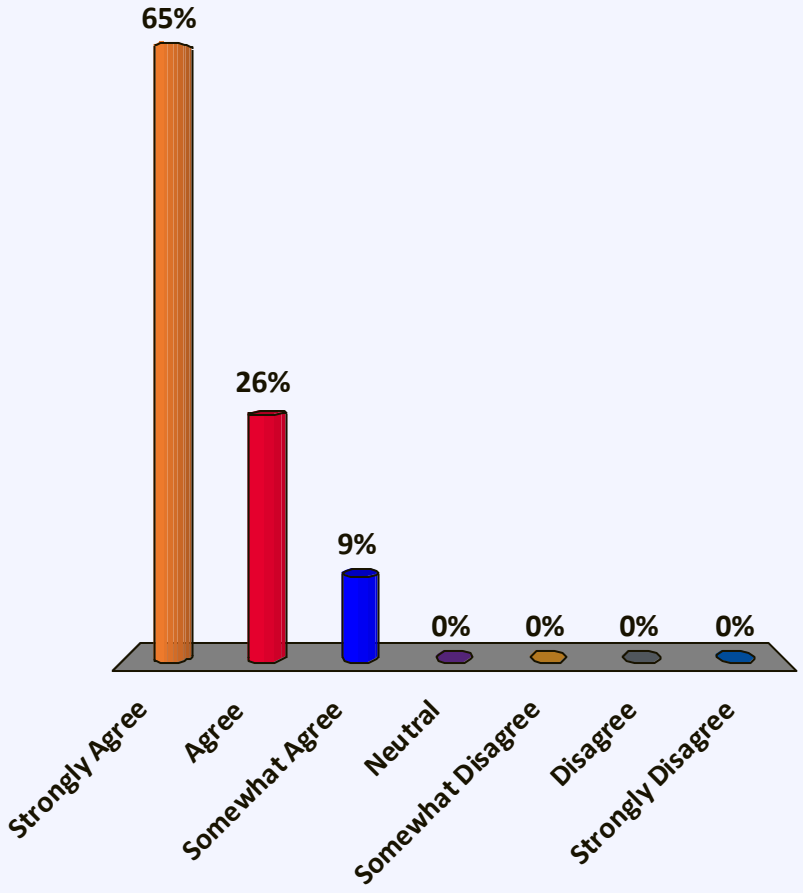
Visioning & goal setting

Effective Solar Permitting Process

Solar Market Development Tools

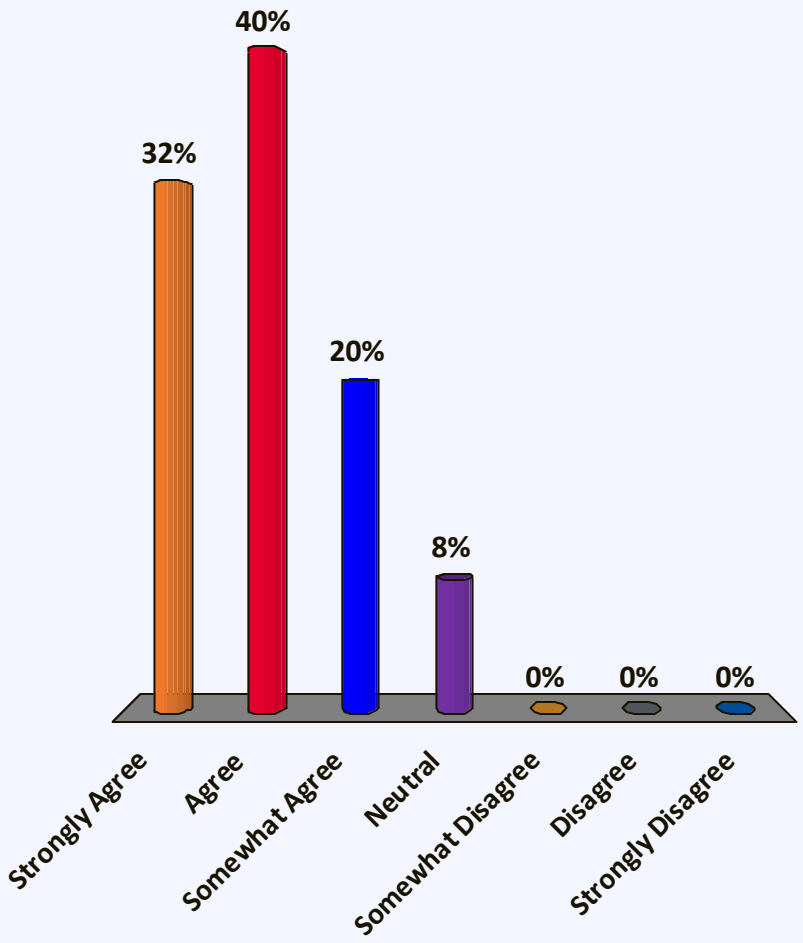
Solar advances your energy goals

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



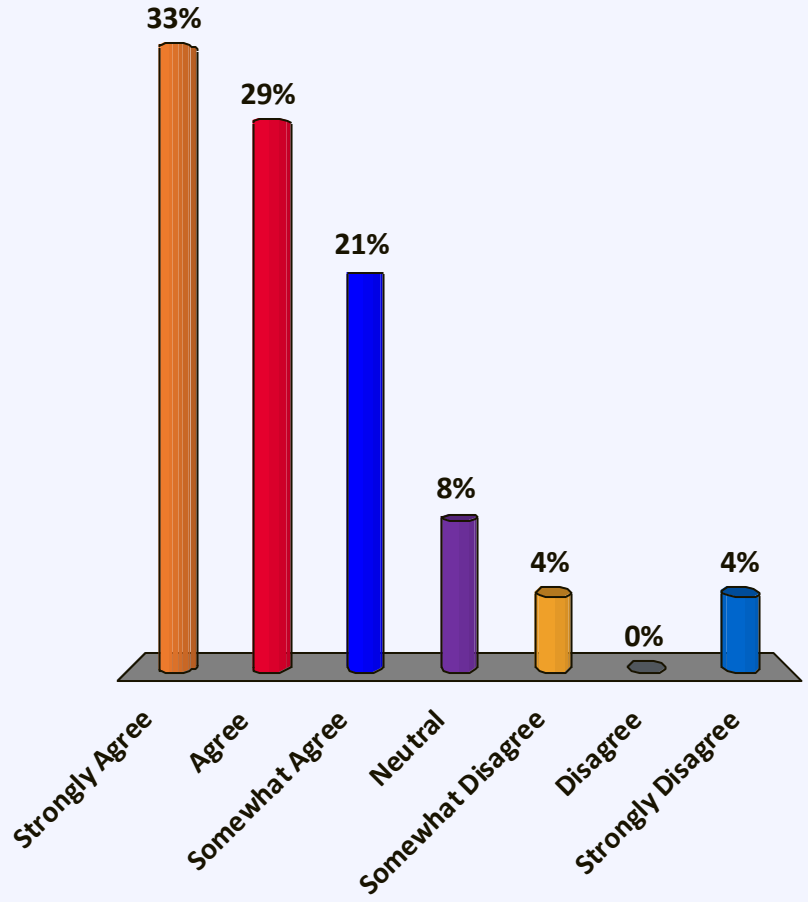
Solar advances your economic development goals

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

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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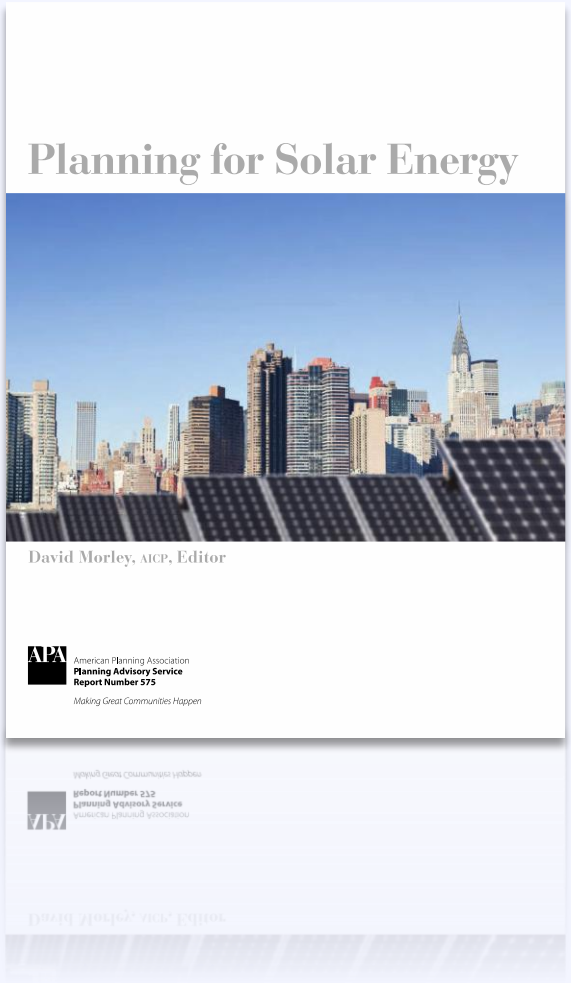
Source: American Planning Association

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

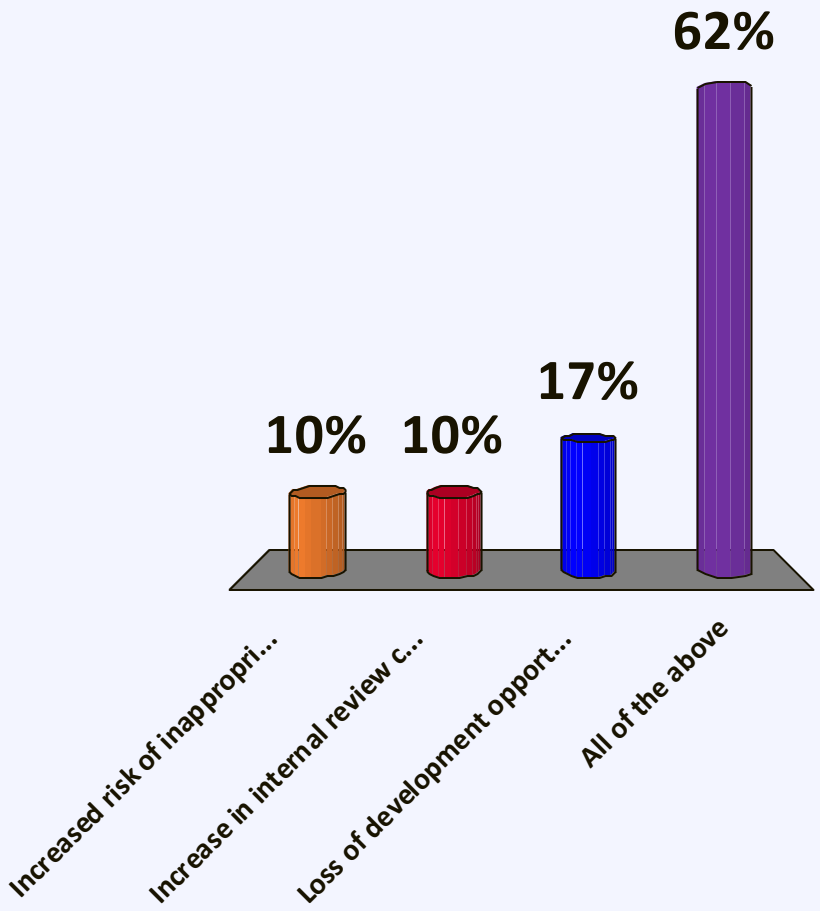
Solar in Development Regulation

Effective Solar Permitting Process

Solar Market Development Tools

What is the cost of convoluted regulations or "regulatory silence"?

A. Increased risk of inappropriate development
B. Increase in internal review costs
C. Loss of development opportunities
D. All of the above



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:

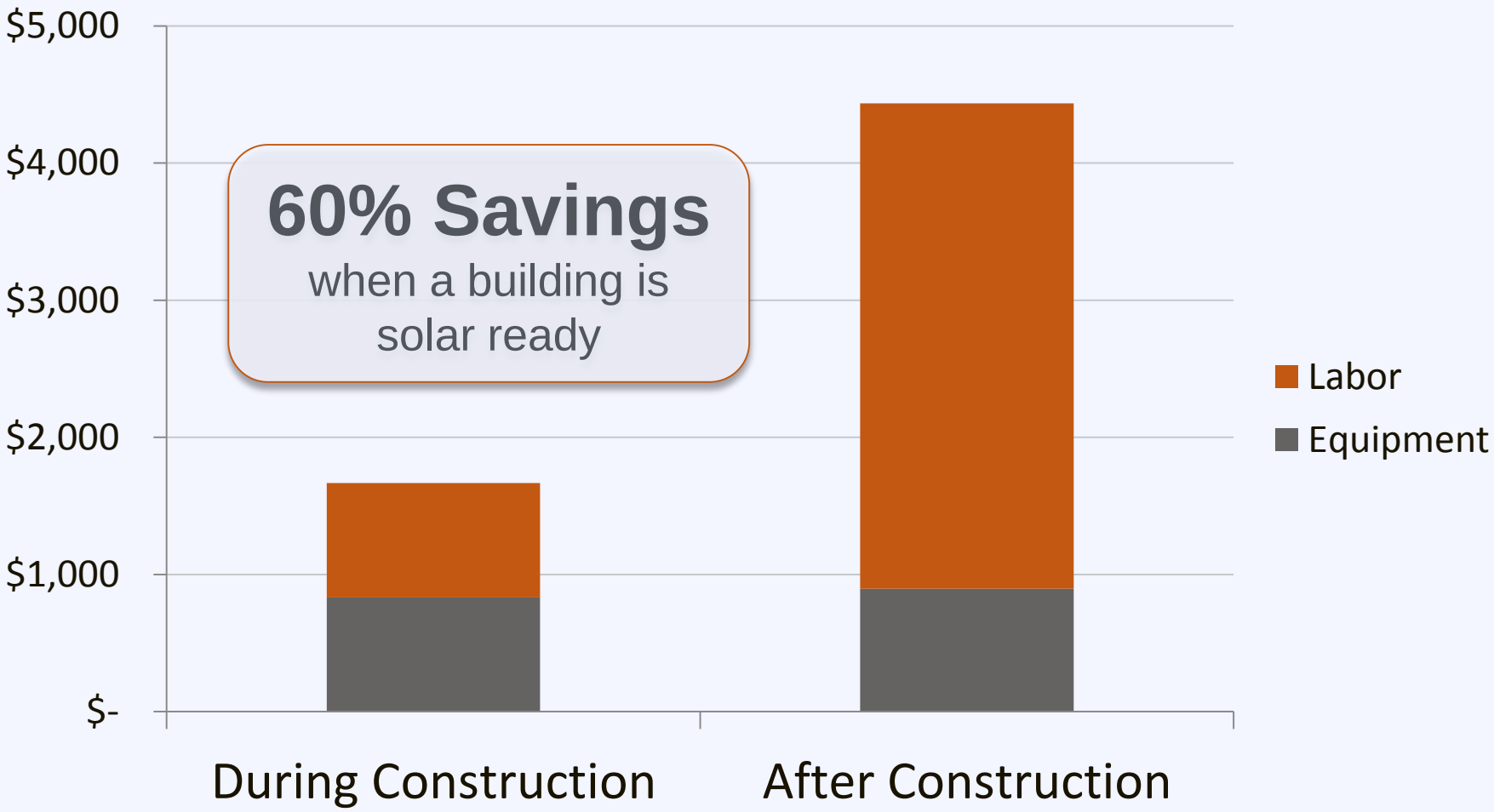
Preparing a building for solar at the outset can help make future solar installations easier and more cost effective.

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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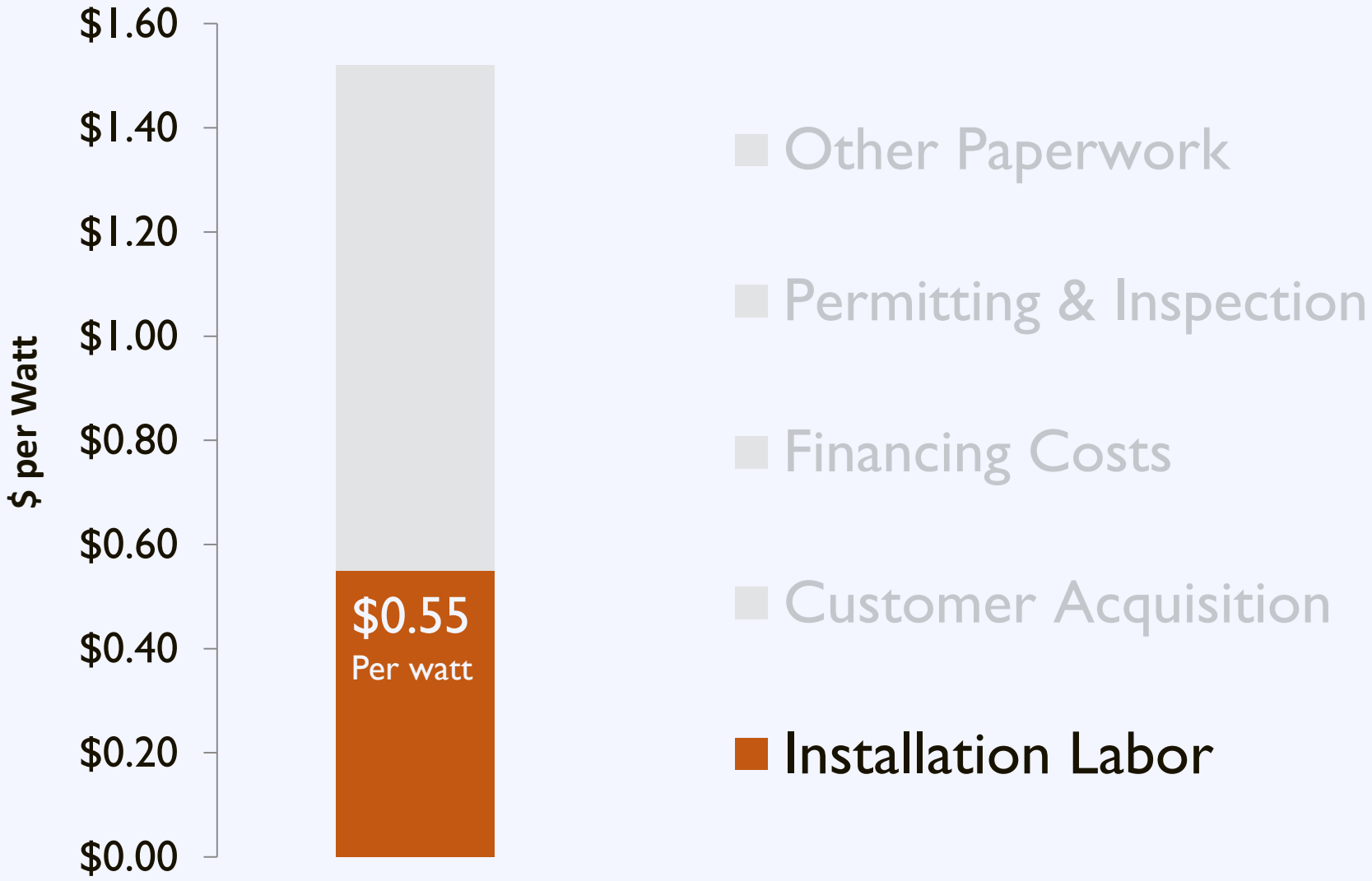
U.S. Department of Energy

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

Installation Soft Costs



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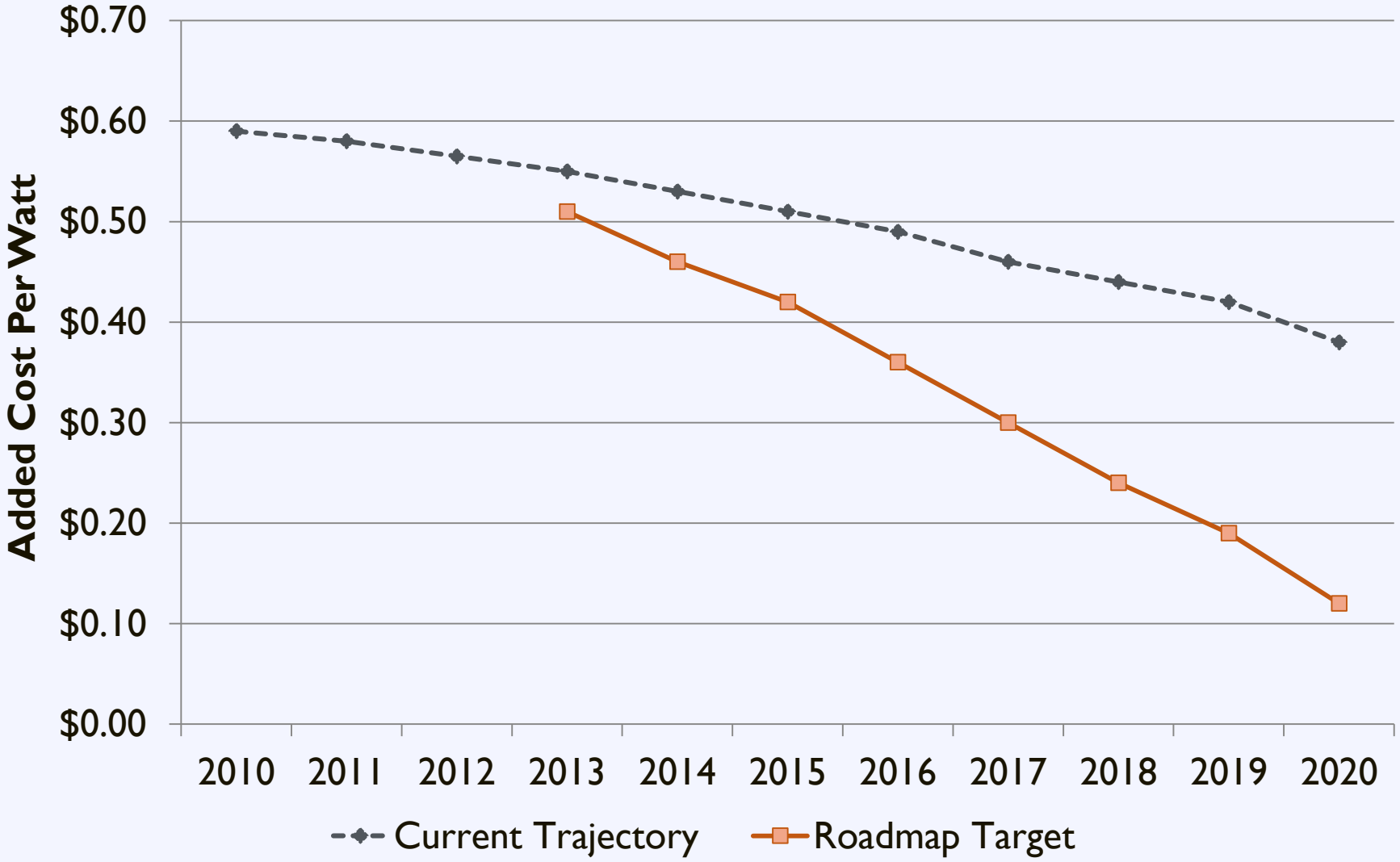
Installation Labor Roadmap



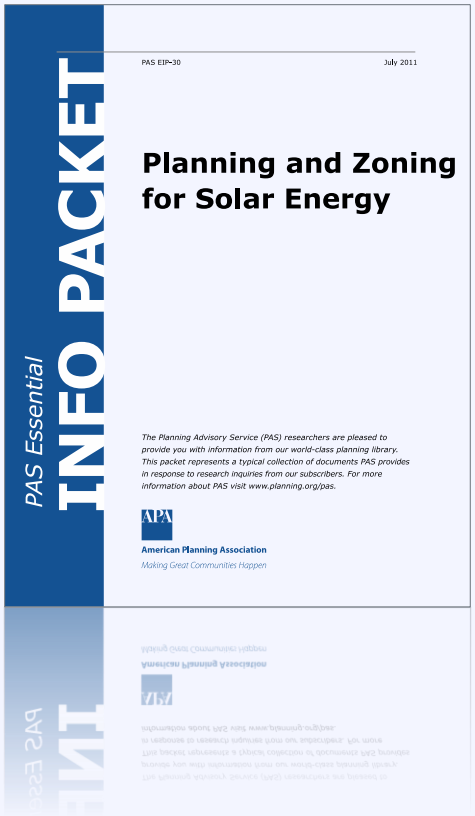
Source: NREL (http://www.nrel.gov/docs/fy13osti/59155.pdf)

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

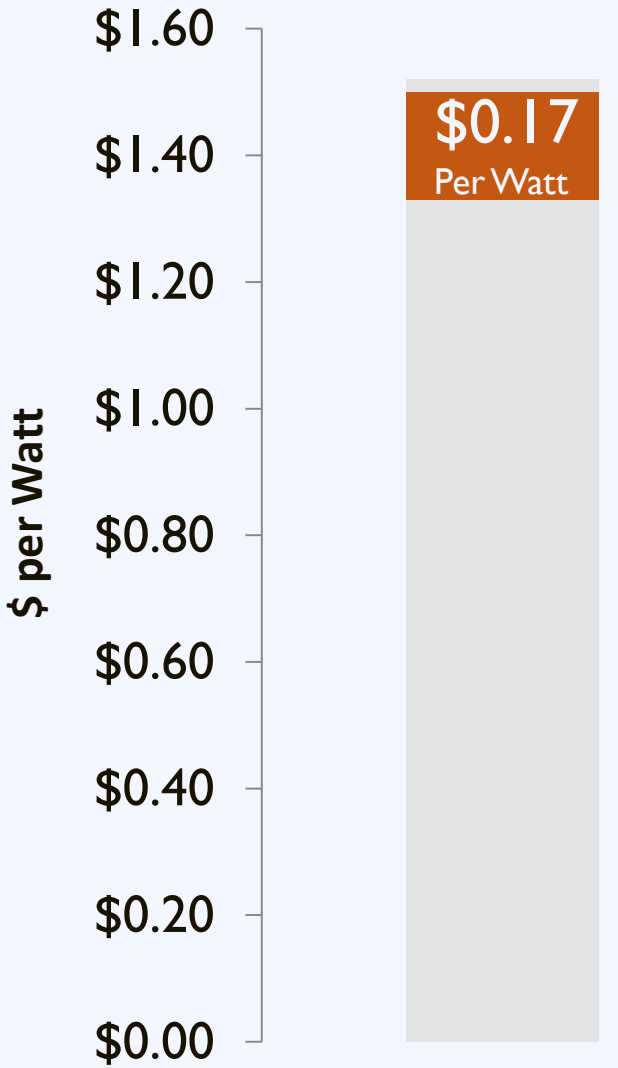
with unique zoning and permitting requirements

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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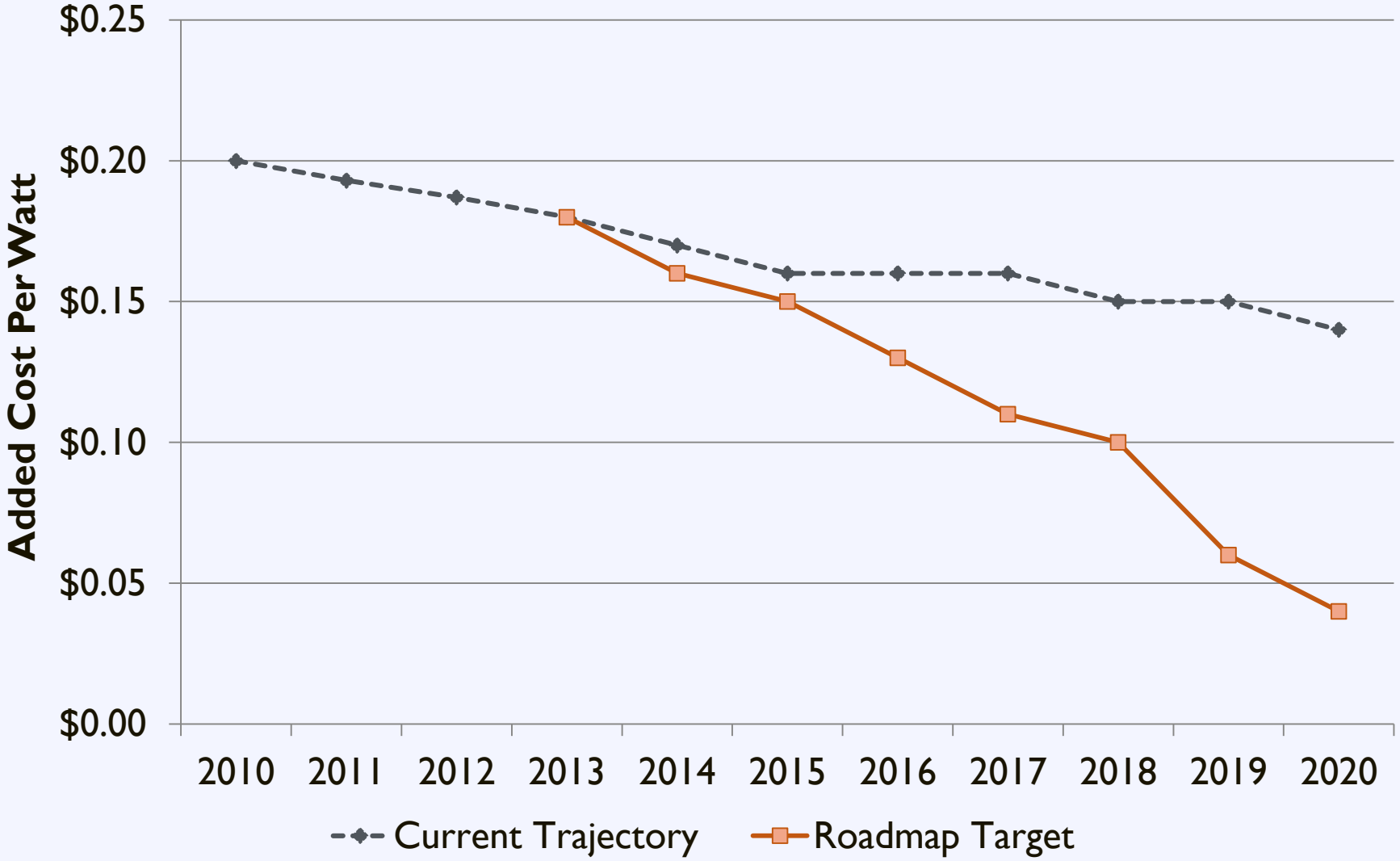
Planning & Permitting Roadmap



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Expedited Review

Expedited Review

Depth of Review

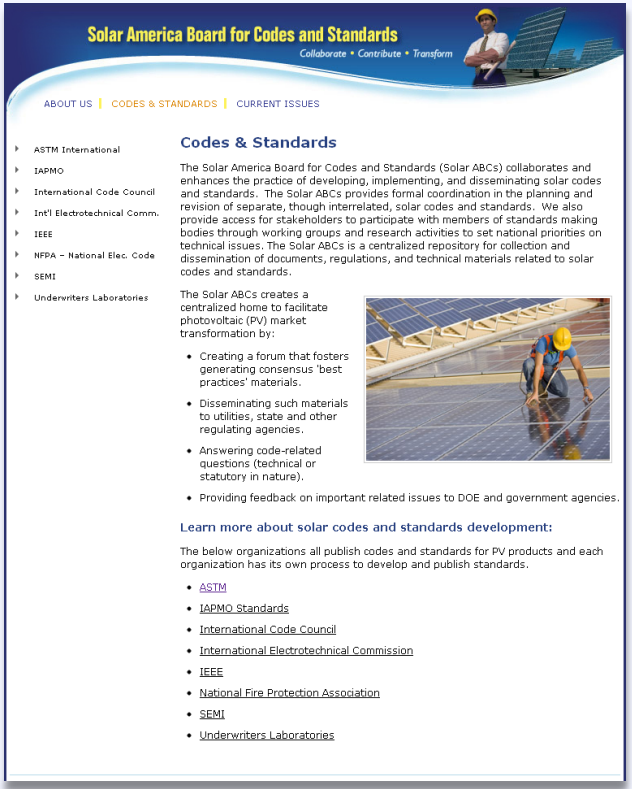
Expedient	**Expedient**	**Standard**
Within established design parameters		Outside of established design parameters
Impacts are well understood		Review necessary to understand impacts
Quick, Easy, Cheap		Flexible

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



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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

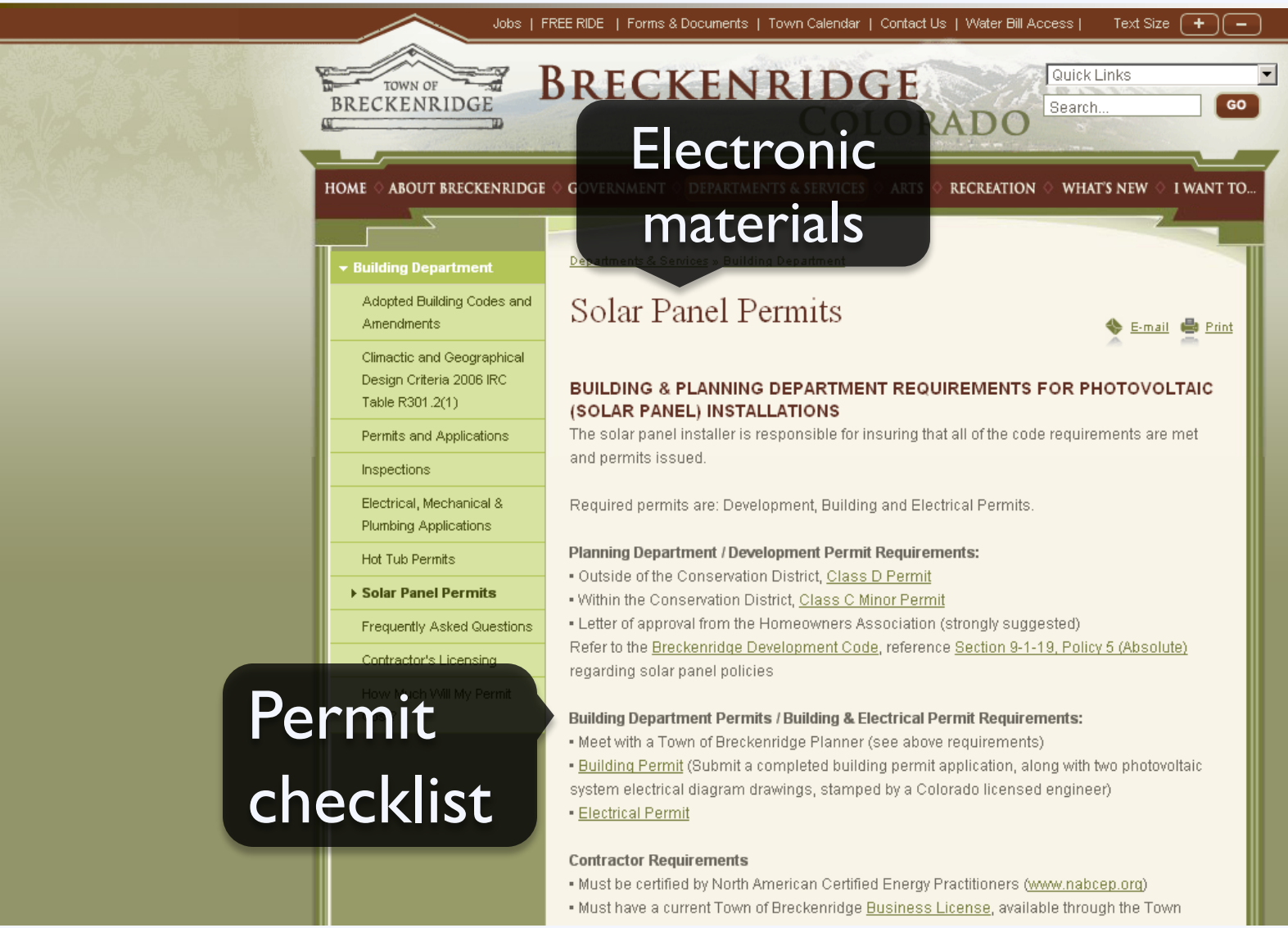
Cost-Based Recovery Fees

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)

Effective Local Solar Policy

Local Solar Policy

Understanding solar financing

Expanding financing options

Addressing customer acquisition

Solar Market Development Tools

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The Solar Equation

Cost

+ Installed Cost

+ Maintenance

- Direct Incentive

Benefit

+ Avoided Energy Cost

+ Excess Generation

+ Performance Incentive

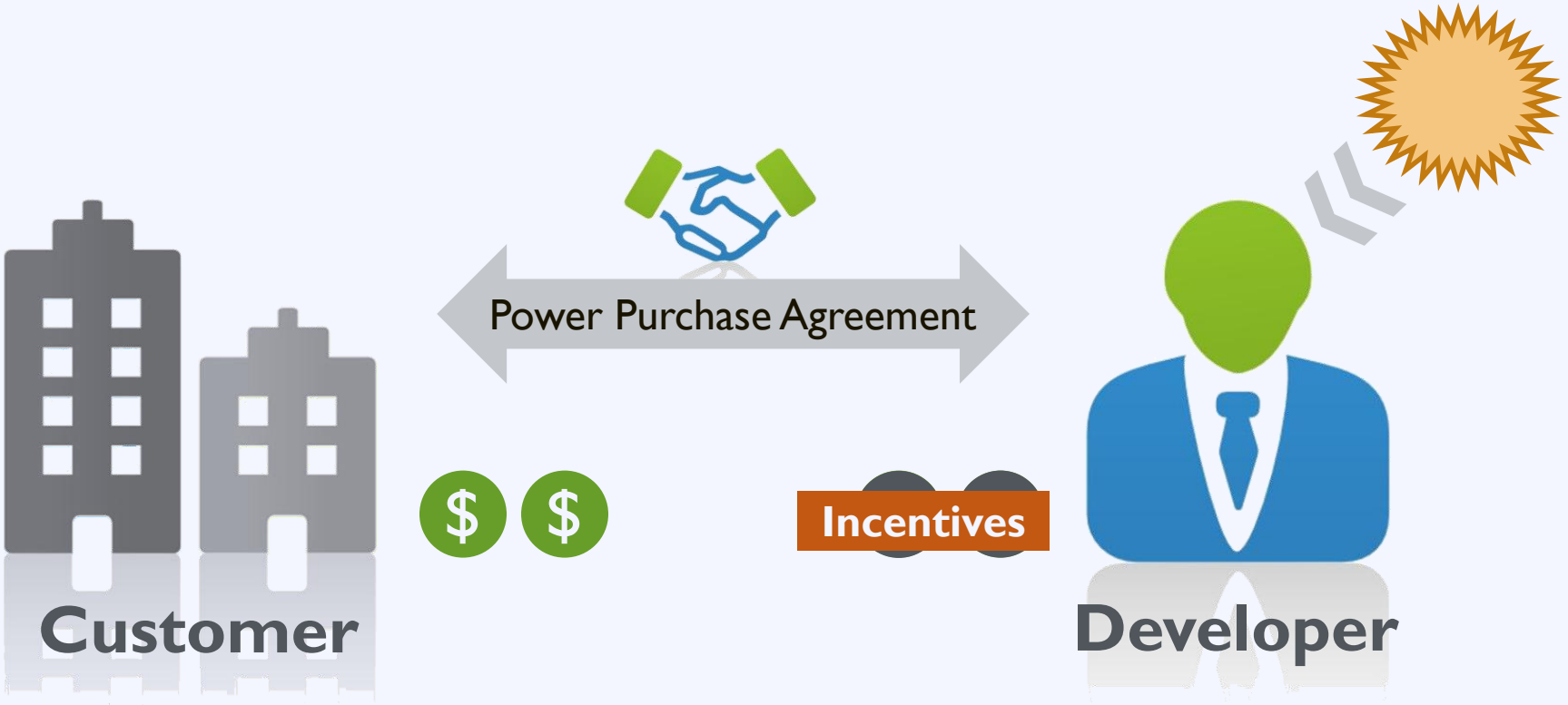
Ownership Options for Solar

Direct Ownership

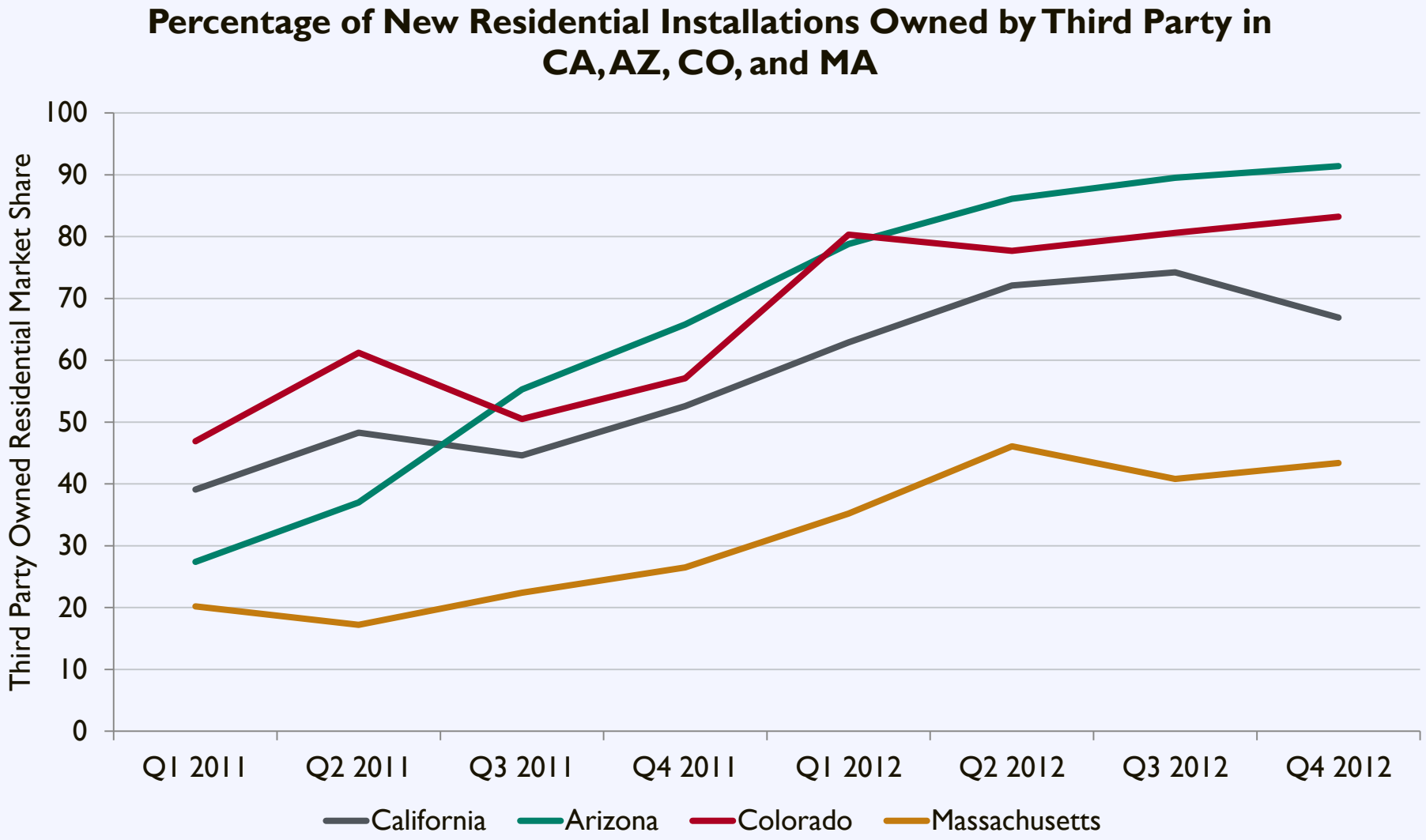
Third-Party Ownership

Direct Ownership

Third Party Ownership



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

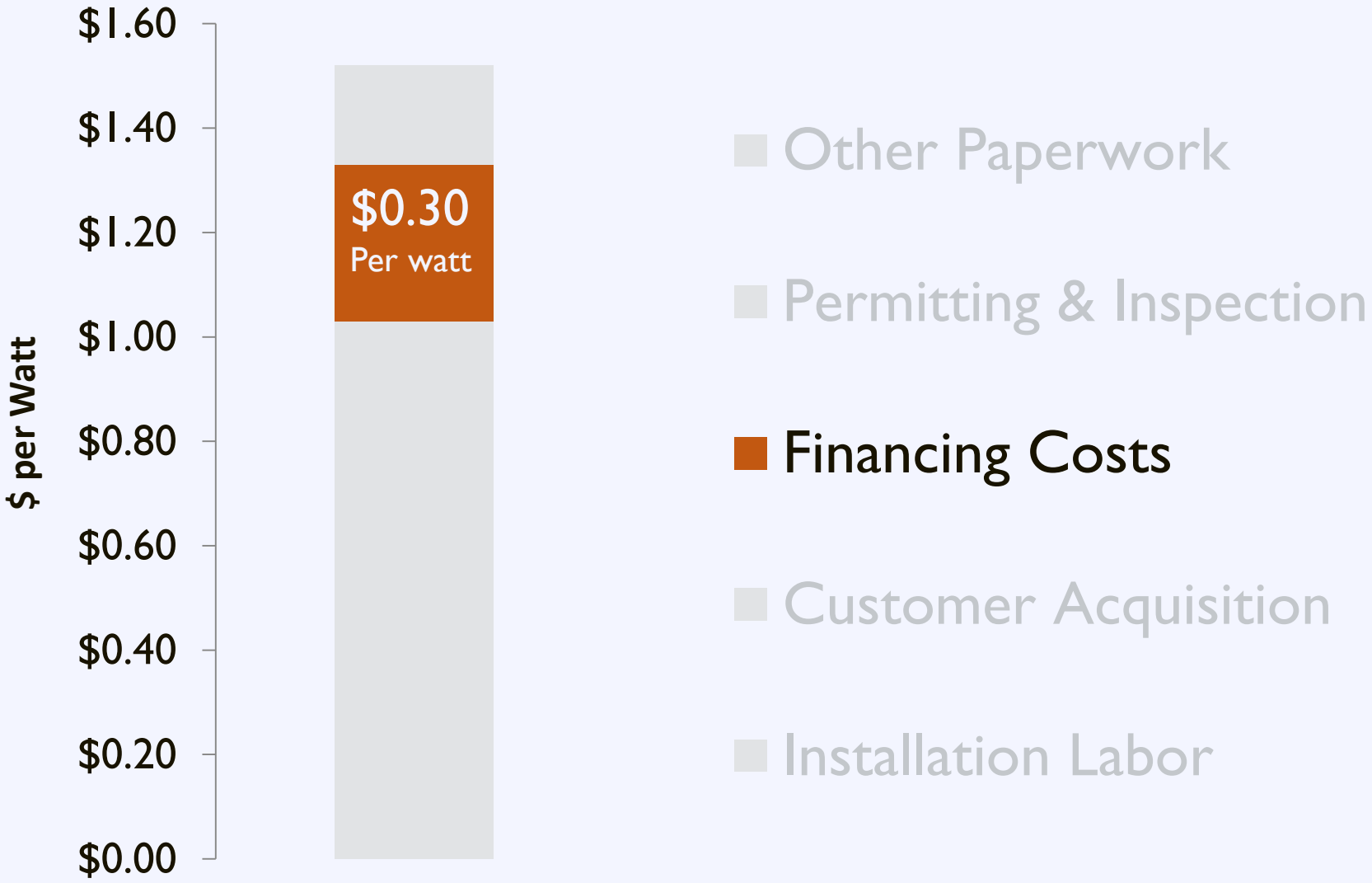
Benefits

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

Drawbacks

- Investor needs higher ROI
- Not available in all states

Third Party Ownership



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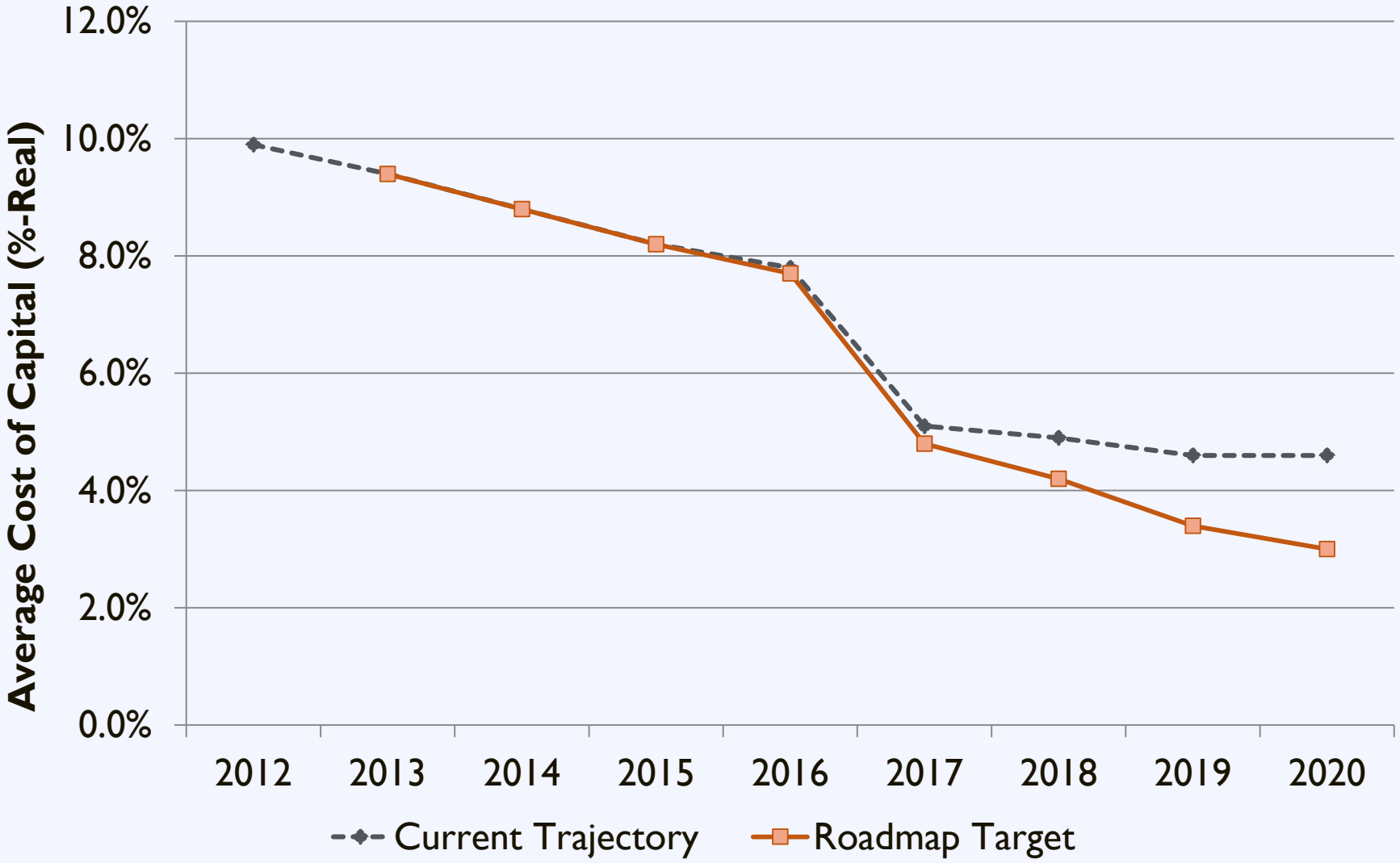
Finance Cost Targets



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

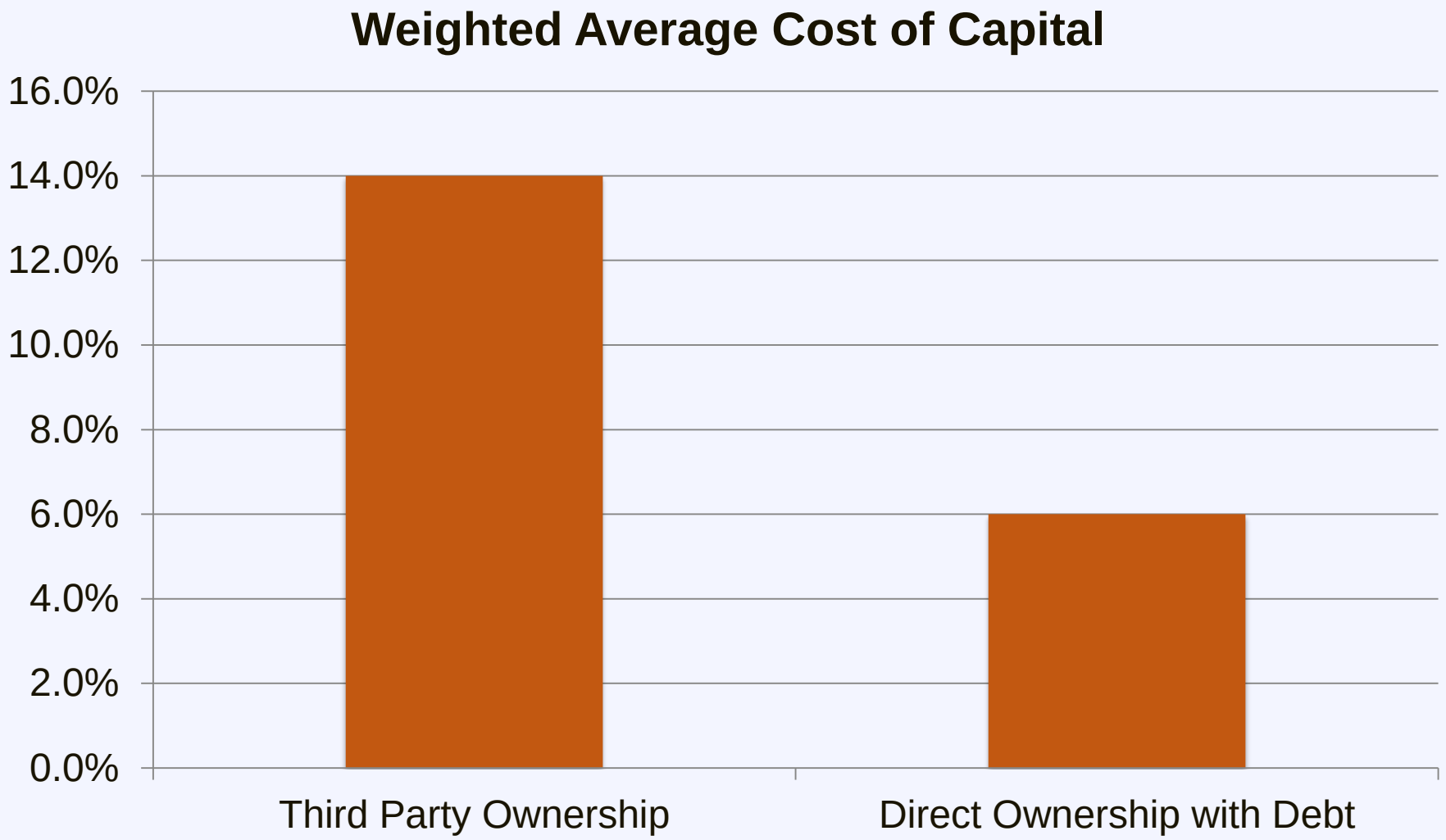
Ownership Options for Solar

Direct Ownership

Third-Party Ownership

Expand direct ownership options by engaging local lenders

Third Party Ownership: Cost



Engage Local Lenders

Fewer than **5%**

of the

6,500 banks in the US

are

actively financing solar PV projects

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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U.S. Department of Energy

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

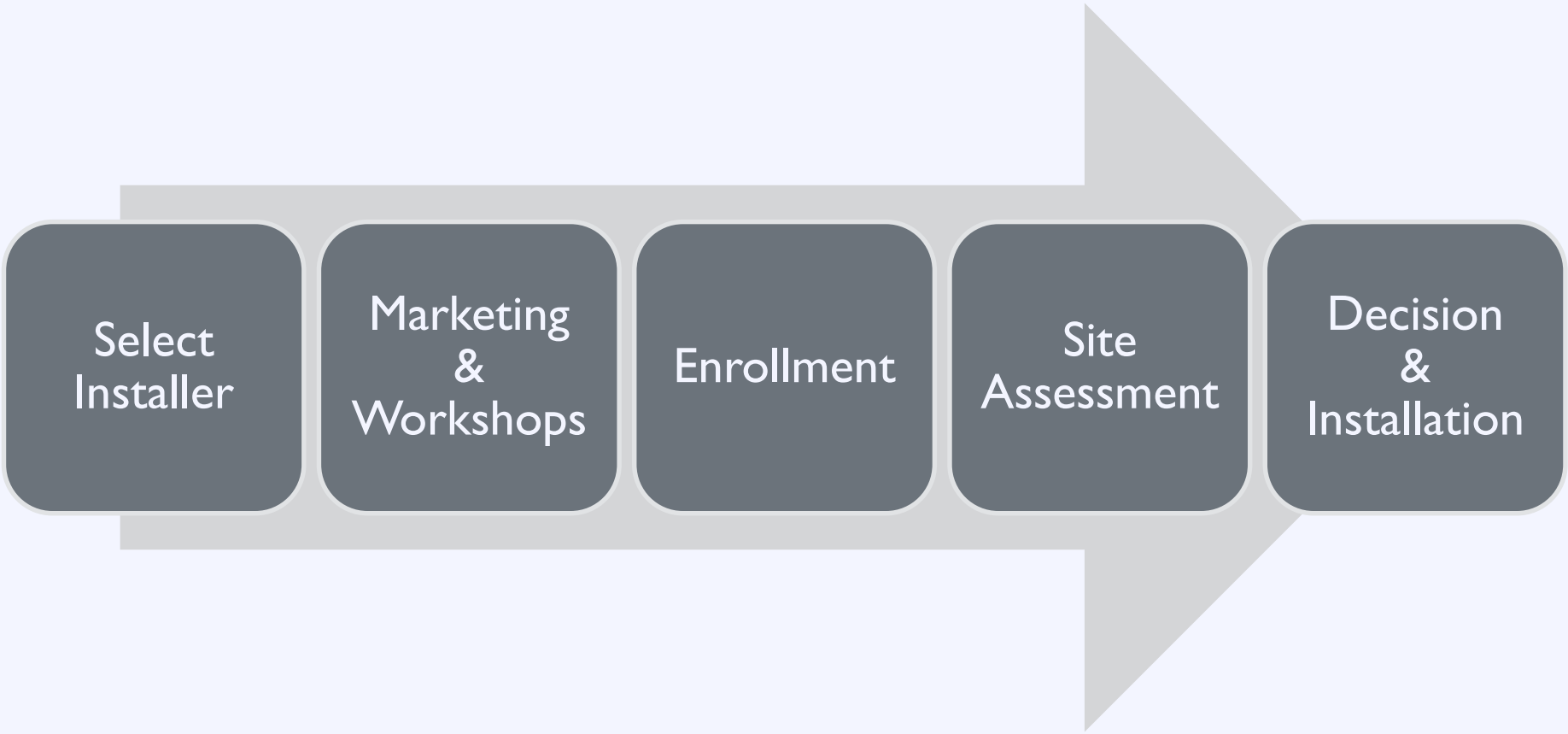
solarize ASHEVILLE

solarize washington
a program of northwest seed

solarize portland

I helped solarize pendleton oregon

Solarize: Process



The Solarize Program

Barriers		Solutions
High upfront cost	→	Group purchase
Complexity	→	Community outreach
Customer inertia	→	Limited-time offer

Solarize: Case Study

Harvard, Massachusetts

Population: 6,520

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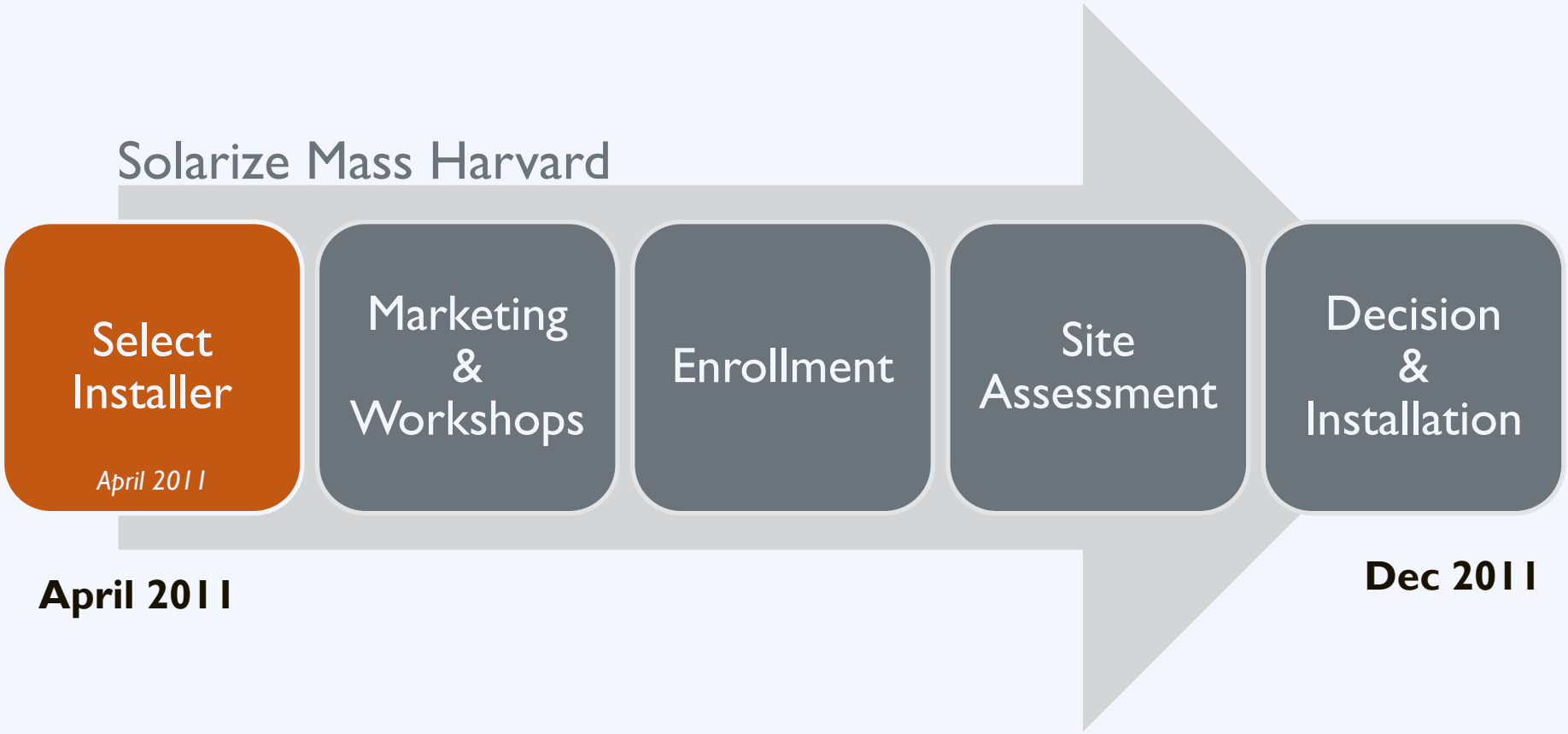
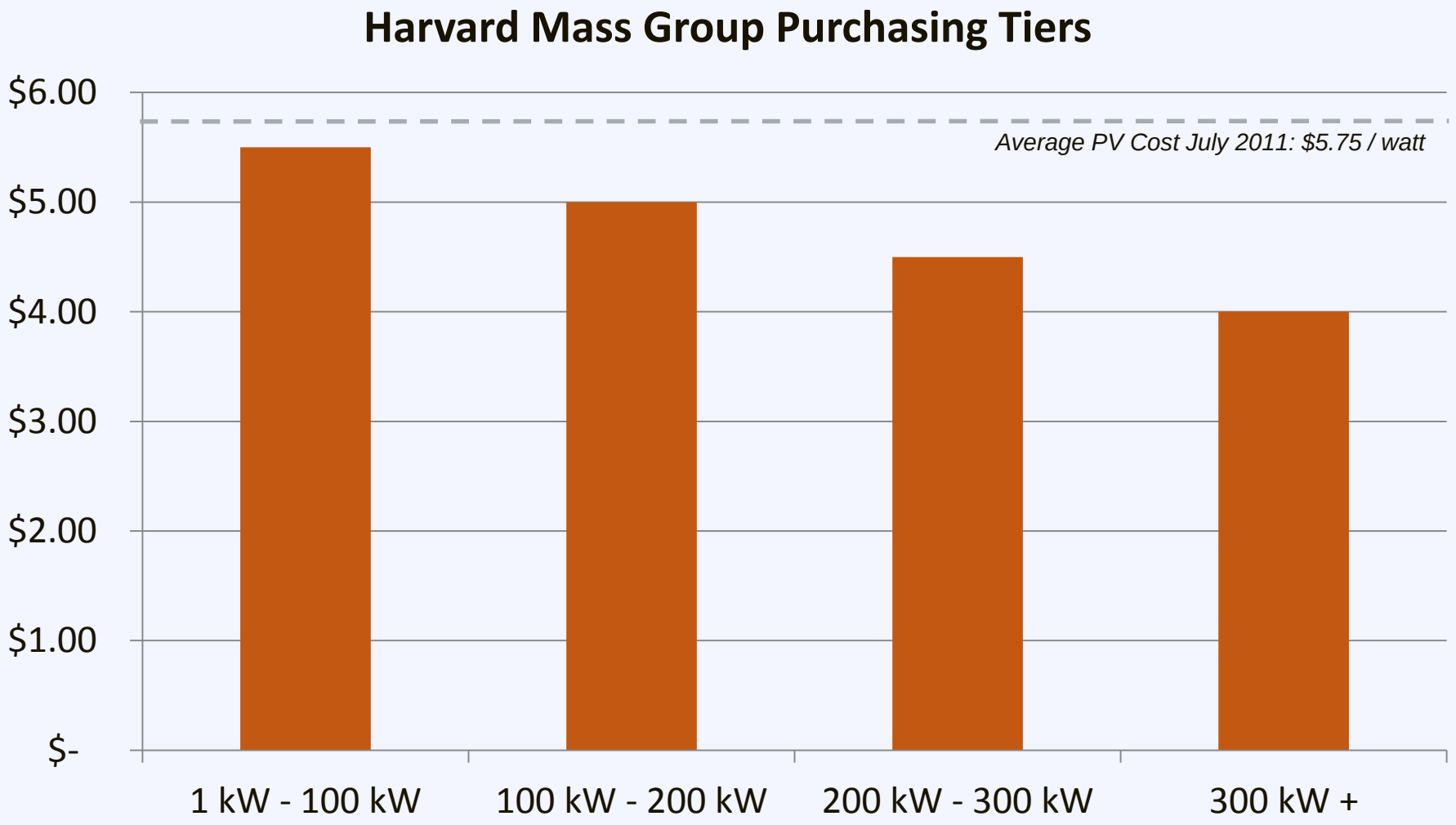
U.S. Department of Energy

Source: Wikipedia

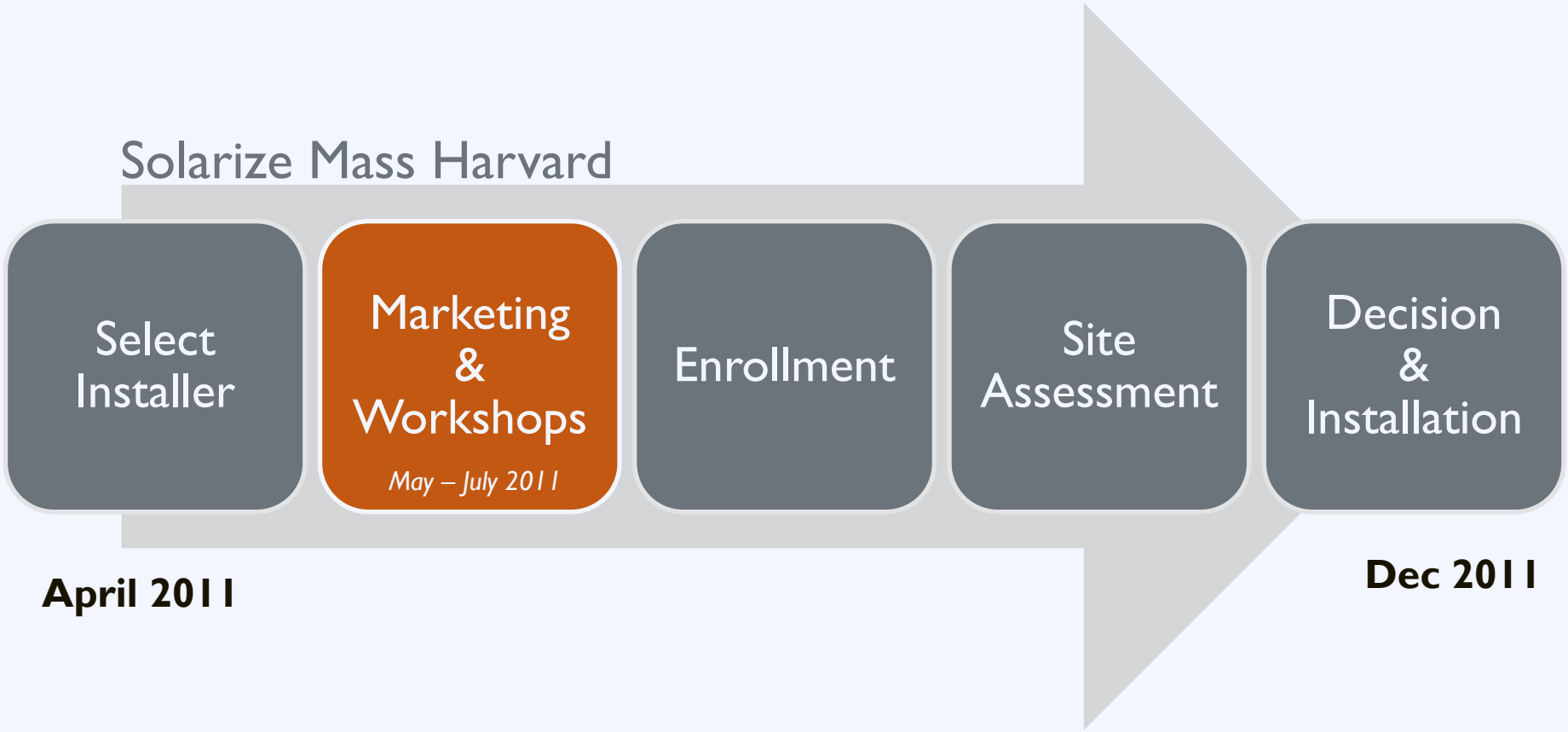
Solarize: Case Study



Group Purchasing



Solarize: Case Study



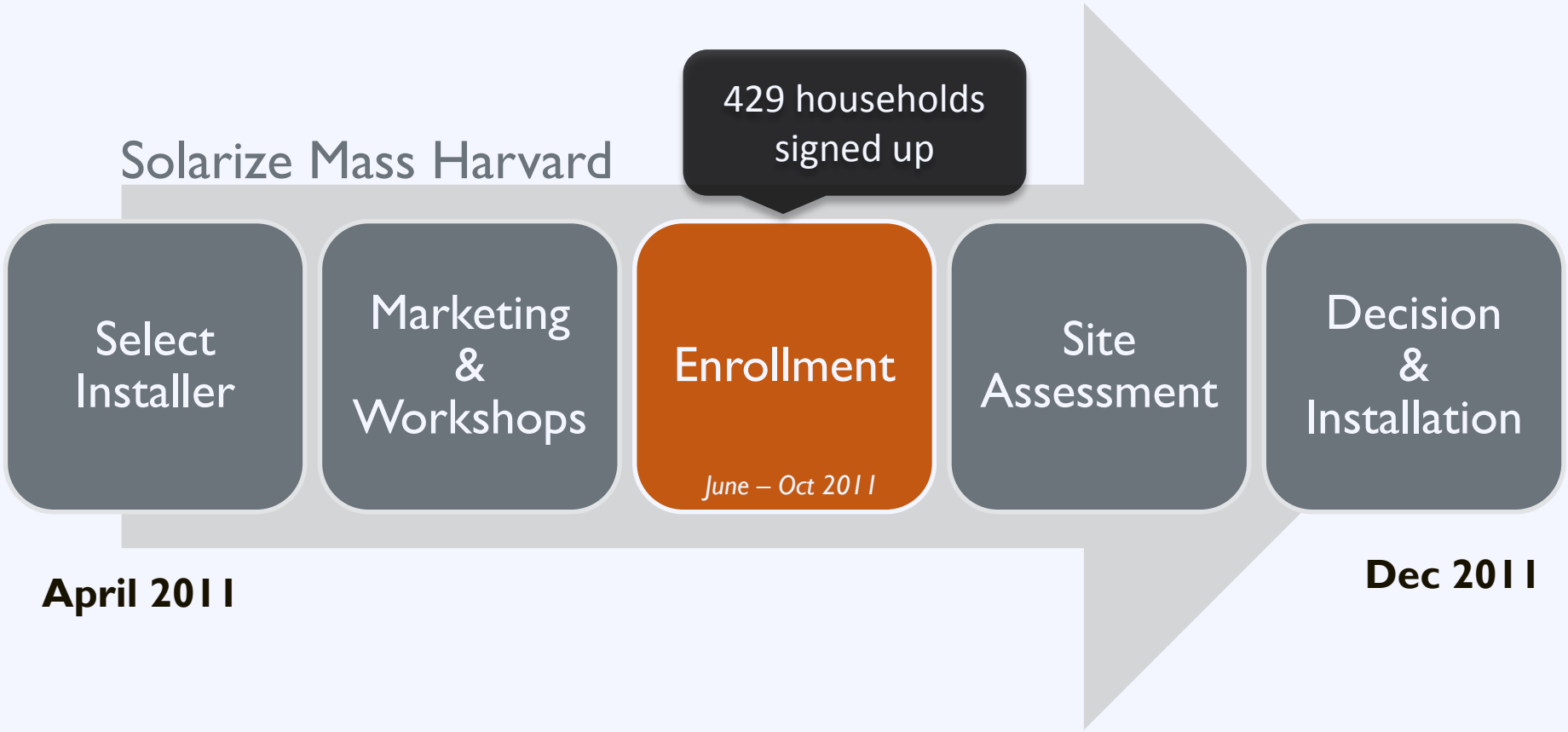
Solarize: Case Study

Marketing Strategy:

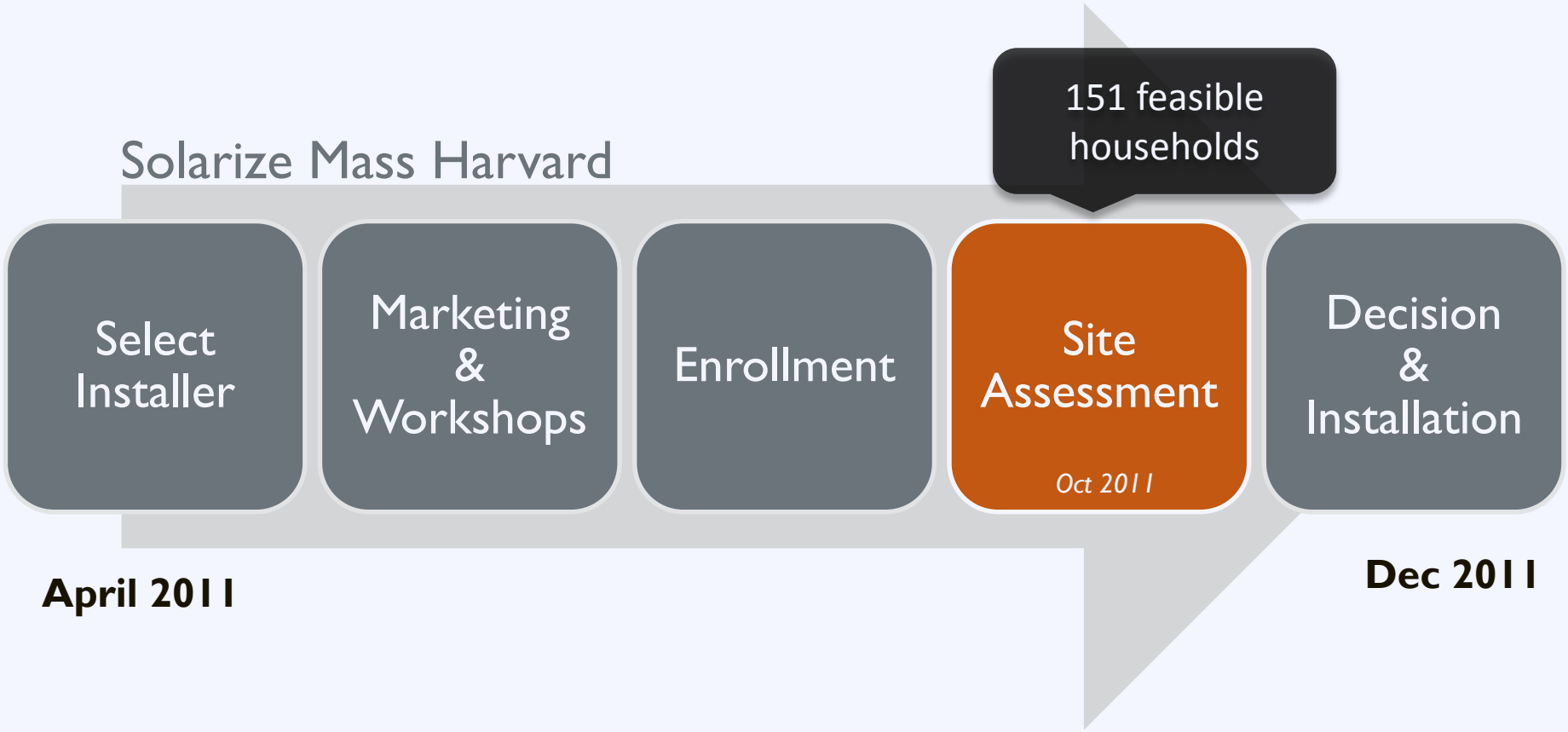
- Electronic survey of 1,100 households
- Email newsletters and direct mailings
- Float in July 4 parade
- Articles and advertisements in local newspaper
- Facebook page and online discussion board

Source: Vote Solar

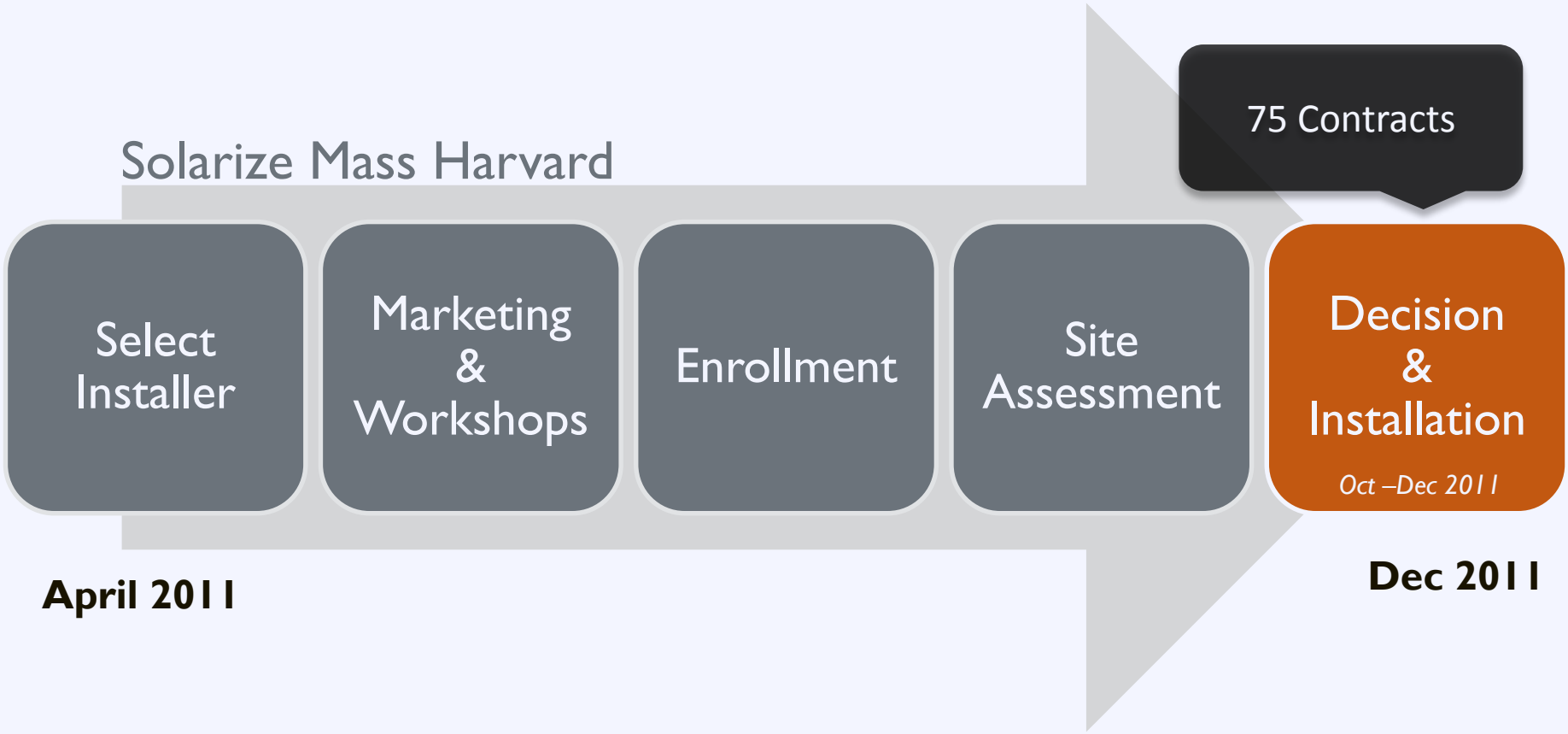
Solarize: Case Study



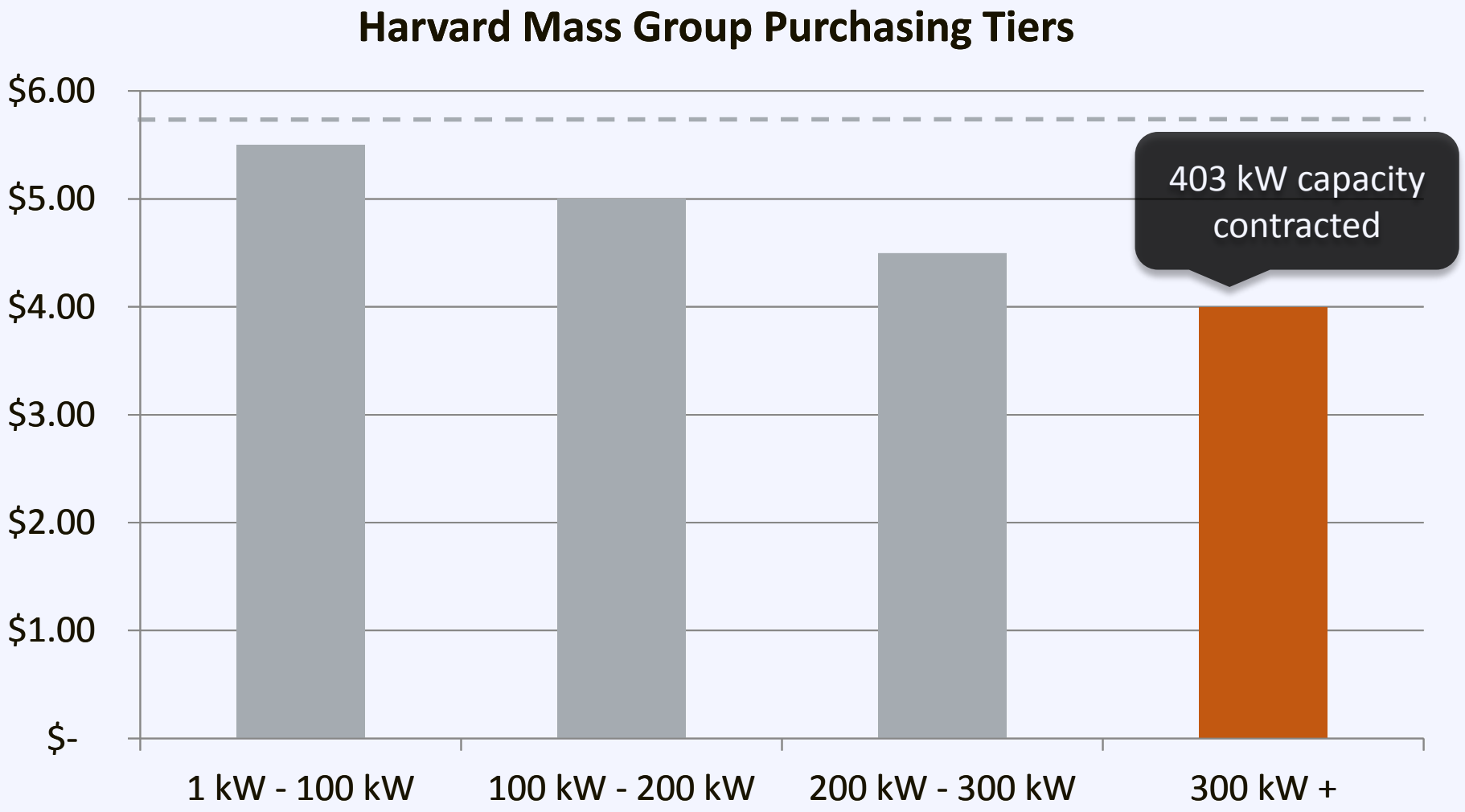
Solarize: Case Study



Solarize: Case Study



Group Purchasing



Solarize: Case Study

75 new installations totaling 403 kW

30% reduction in installation costs

575% increase in residential installations

Solarize: Lasting Impact

A household is

0.78% more likely to adopt solar

for

each additional installation in their zip code

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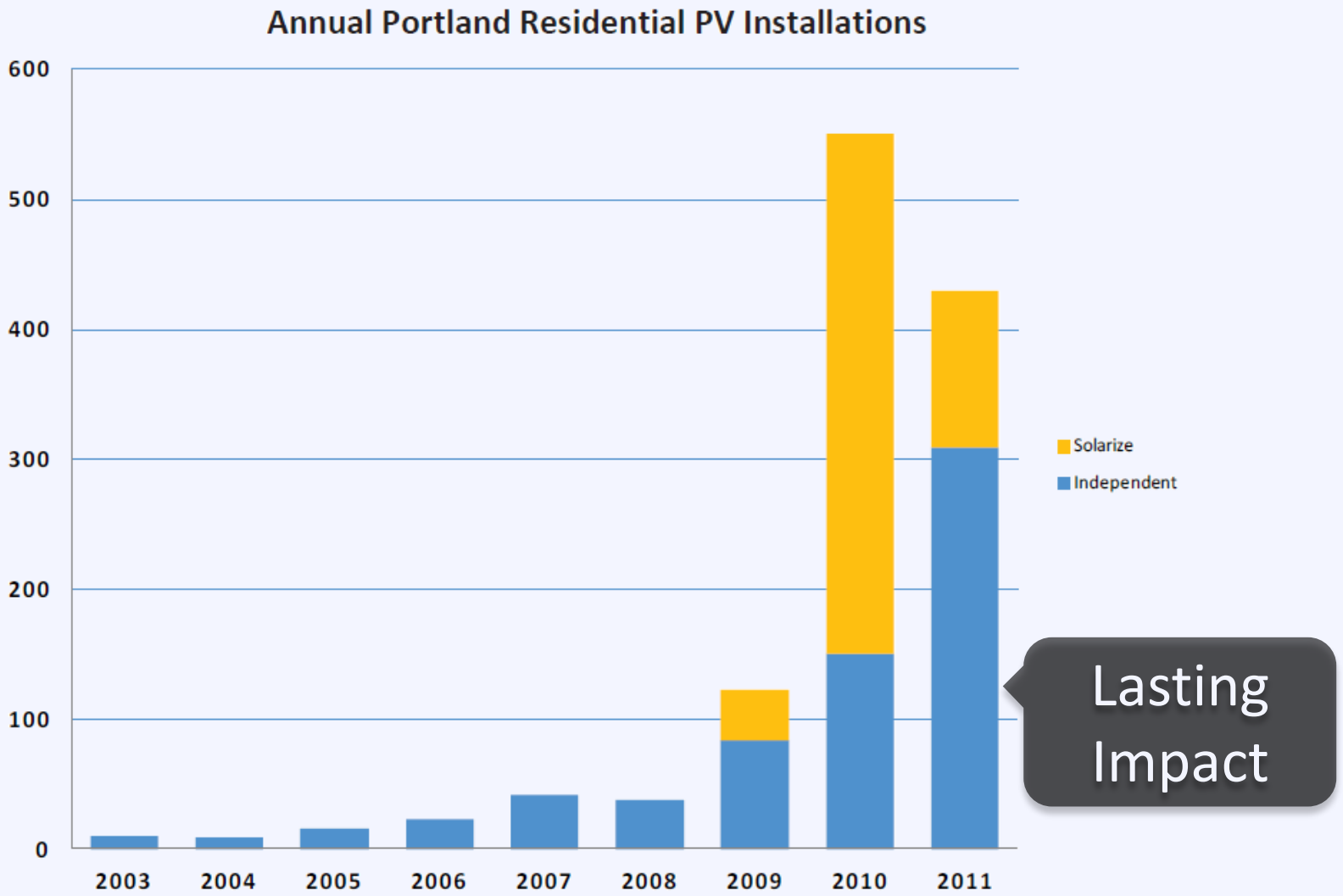
U.S. Department of Energy

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

Solarize: Lasting Impact



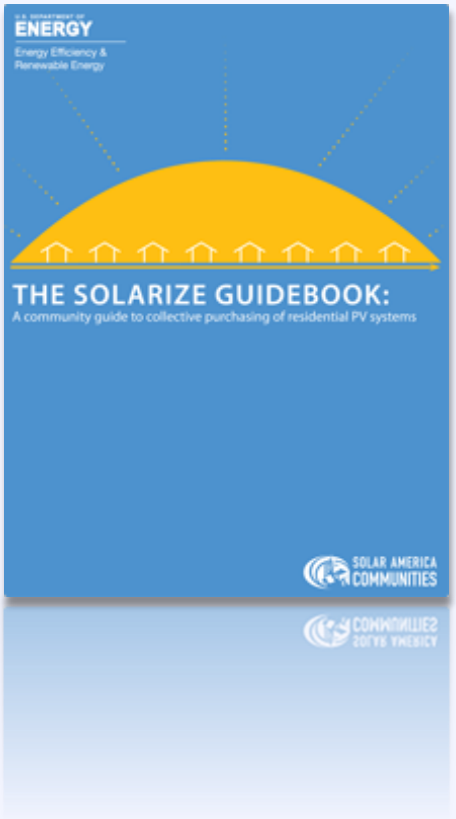
Source: NREL

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



Agenda

08:50 – 09:10	Putting Solar Energy on the Local Policy Agenda
09:10 – 09:30	State of the Local Solar Market
09:30 – 09:55	Federal, State, and Utility Policy Drivers
09:55 – 10:05	*Break*
10:05 – 11:05	Effective Solar Policies and Programs
11:05 – 11:15	*Break*
11:15 – 12:15	Solar in Central NM: A Local Perspective
12:15 – 12:50	Developing Solar Policy For Your Community
12:50 – 01:00	Next Steps

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U.S. Department of Energy

Cyndie Tidwell

Planning & Zoning Administrator

Village of Corrales

Scot Moye

Founder

Evolve Advanced Energy Strategies

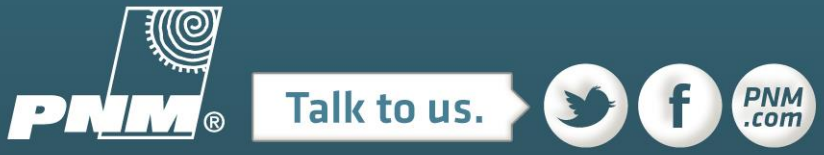
Kumiko Styes

Manager of Renewable Energy Programs

PNM Resources

PNM Customer Owned Solar for MRCOG

KUMIKO STYES – MANAGER CUSTOMER SOLAR PROGRAM



MARCH 6, 2014

SOLAR BASICS

1 kWh generated from PV

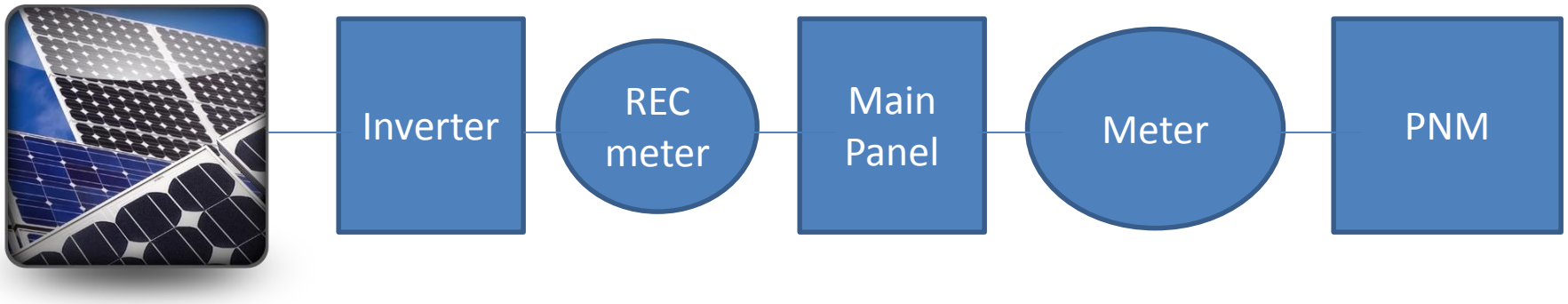
Energy (kWh)

Environmental Attribute (REC)

HISTORY OF CUSTOMER SOLAR

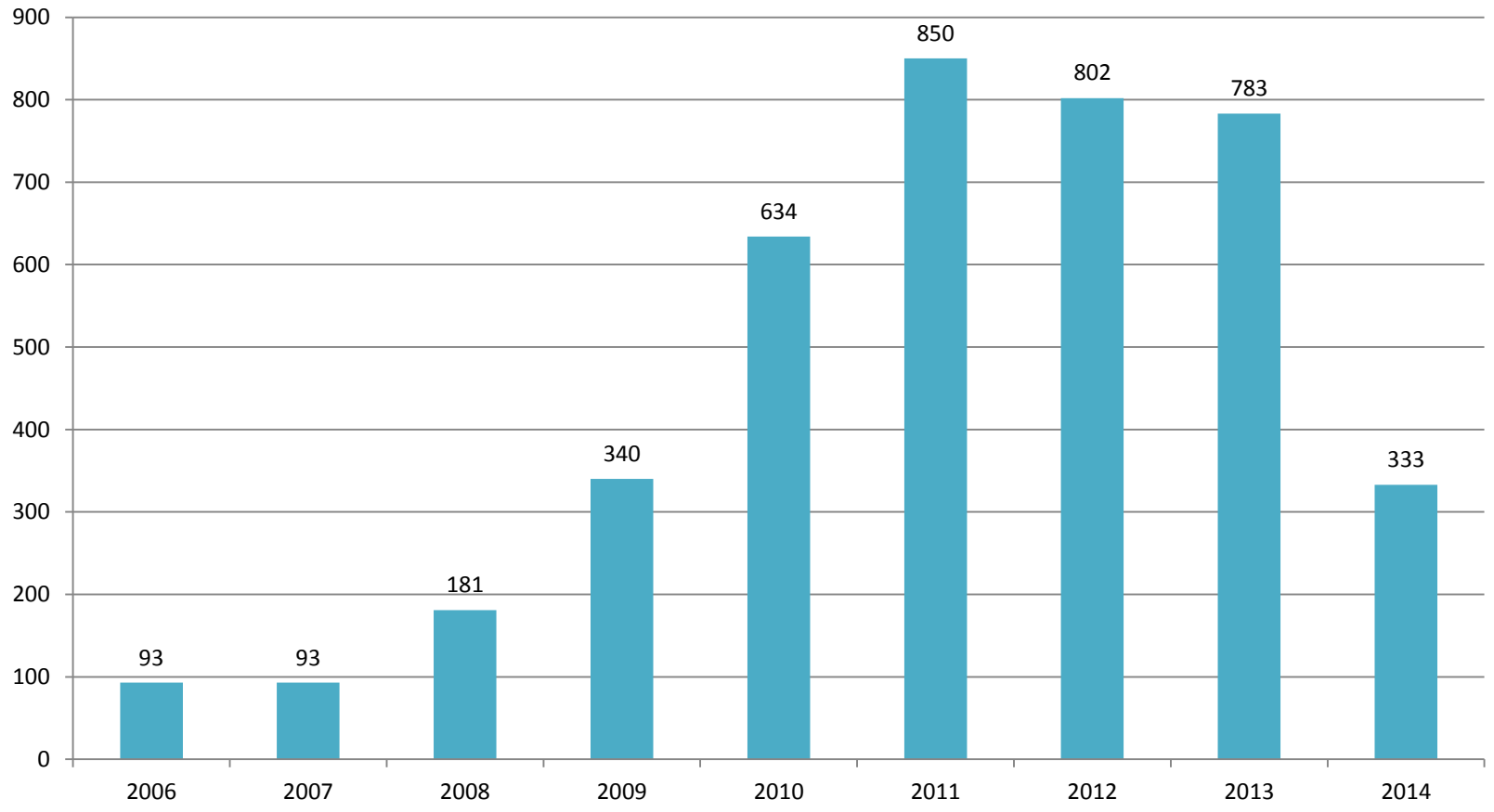
Program started in 2006 for customers wanting to purchase and install a solar array behind the utility meter.

These customers are NET METERED and PNM purchases the Renewable Energy Certificate (REC).



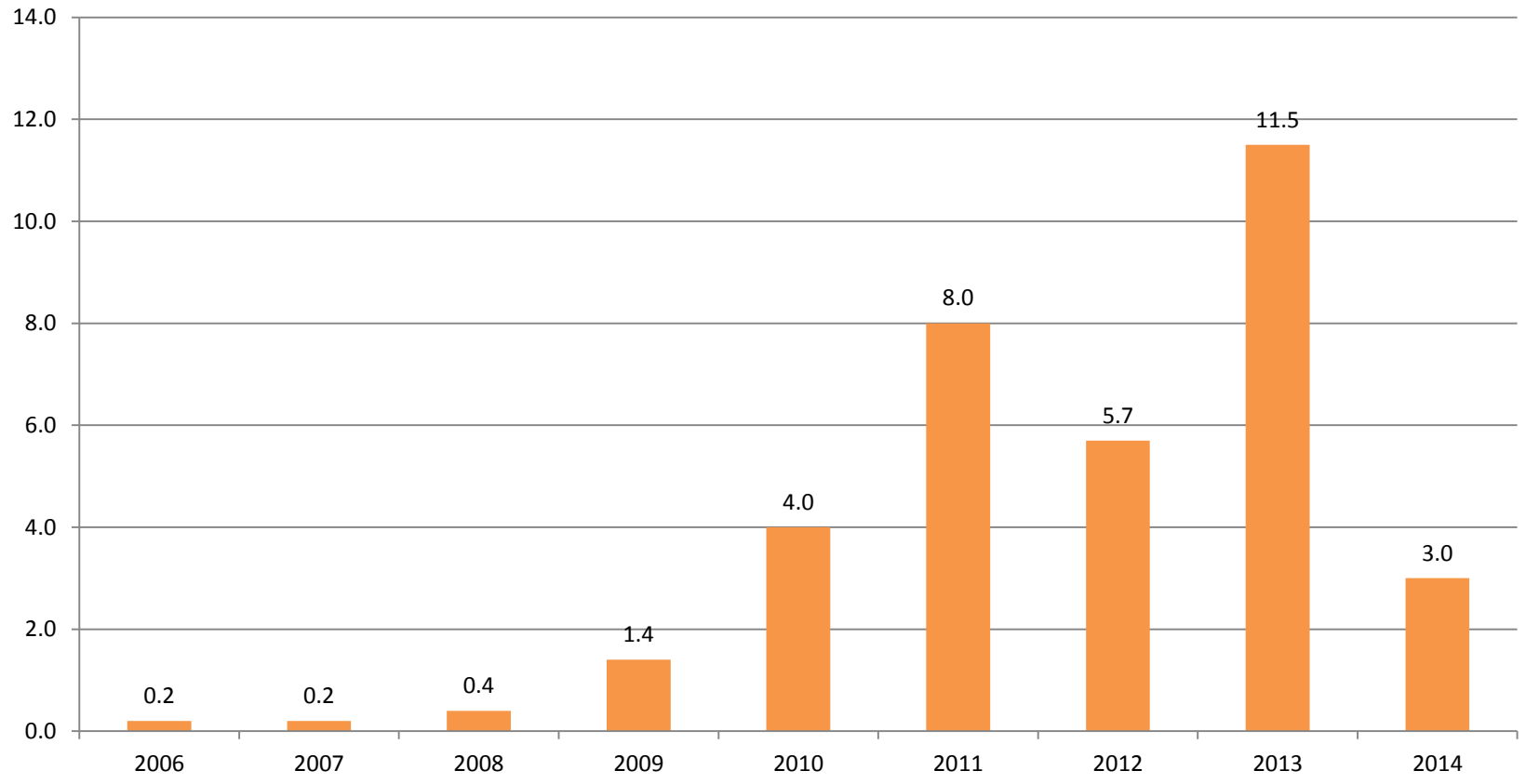
Since 2006, we have experience exponential growth in the program.

GROWTH OF CUSTOMER SOLAR PROGRAM - # OF PROJECTS



Total 4,000+ Participants

GROWTH OF CUSTOMER SOLAR PROGRAM - MW INSTALLED



Total 34+ MW

CURRENT PROGRAM

NET METERING AND REC PURCHASE

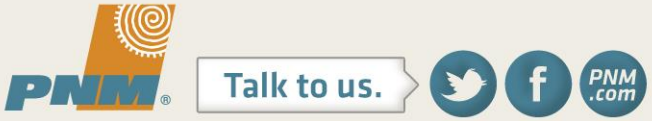
- Two system size categories: 0 to 10 kW and 10 to 100 kW
- Capacity limits by size
- Currently 1,100 kW available at 3.5 cents for 0 to 10 kW
- 700 kW available at 4 cents for 10 to 100 kW
- Benefits to customers: avoided kWh charge + REC price
- REC purchase agreement is for 8 years

WHY GO SOLAR?

CONSIDERATIONS

- Is there room in your capital budget ($2,500 - $5,000 per kW)?
- Do the economics make sense?
  - » kWh charge
  - » Volume of kWh
  - » Fixed charges (customer charge and demand charge) will remain with solar
- What are your energy goals and directives?

Thank you



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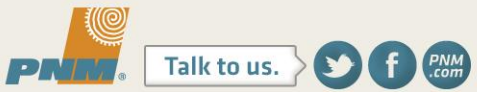

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Activity: Solar in Your Community

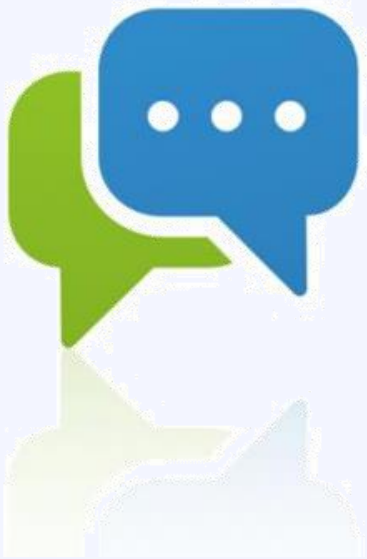
1. Recognize successes
2. Identify opportunities
3. Select strategies & best practices
4. Outline implementation plan
5. Discuss barriers to implementation

Activity: Solar in Your Community

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

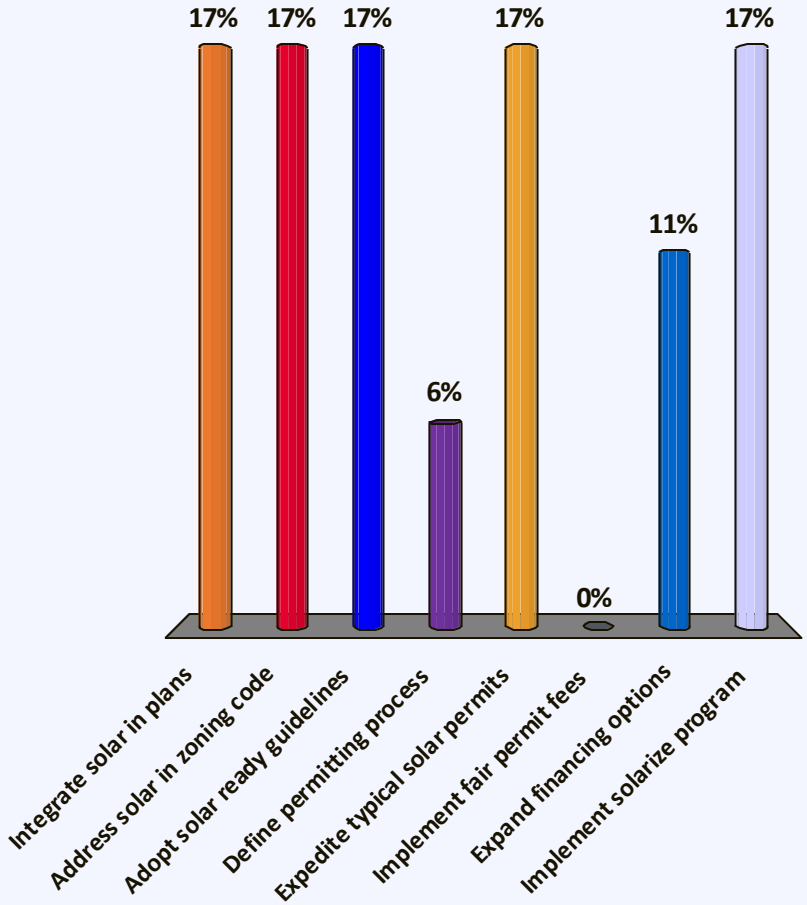
Activity: Solar in Your Community

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.



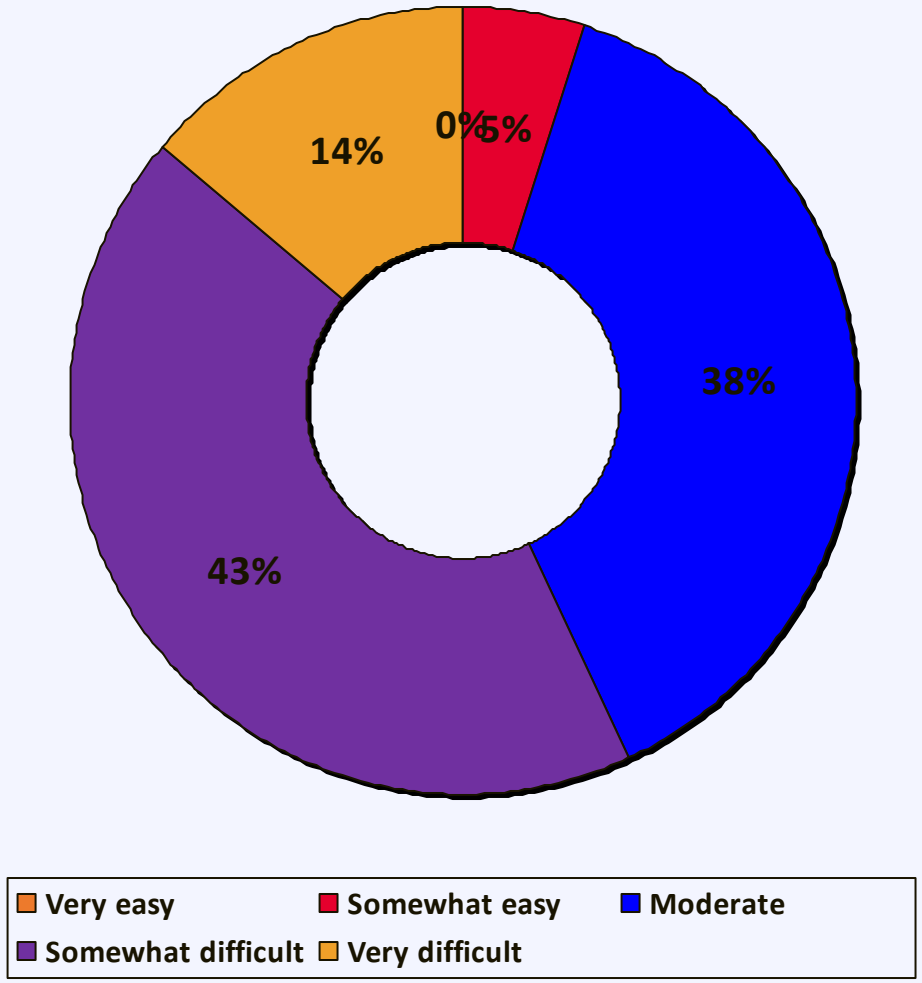
Which "best practice" did you select to pursue first?

A. Integrate solar in plans
B. Address solar in zoning code
C. Adopt solar ready guidelines
D. Define permitting process
E. Expedite typical solar permits
F. Implement fair permit fees
G. Expand financing options
H. Implement solarize program



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

1. Very easy
2. Somewhat easy
3. Moderate
4. Somewhat difficult
5. Very difficult



Discussion

What obstacles stand in the way of implementation?

Discussion

What are possible strategies to overcome those obstacles?

Activity: Next Steps

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

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Next Steps

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

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U.S. Department of Energy

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