Solar Powering Your Community

Addressing Soft Costs and Barriers

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U.S. Department of Energy

About the SunShot Solar Outreach Partnership

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

About the SunShot Solar Outreach Partnership

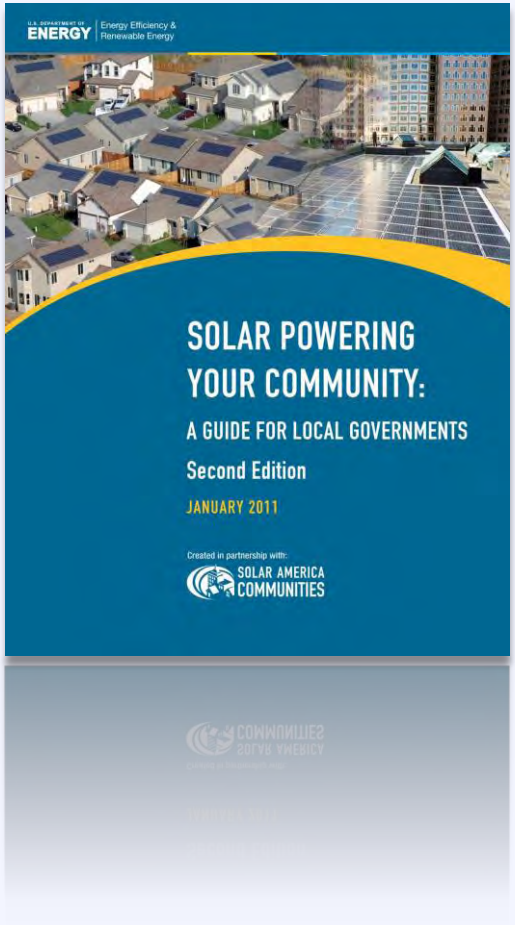
- Increase installed capacity of solar electricity in U.S. communities
- Streamline and standardize permitting and interconnection processes
- Improve planning and zoning codes/regulations for solar electric technologies
- Increase access to solar financing options

About the SunShot Solar Outreach Partnership

Resource **Solar Powering Your Community Guide**

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

www.energy.gov



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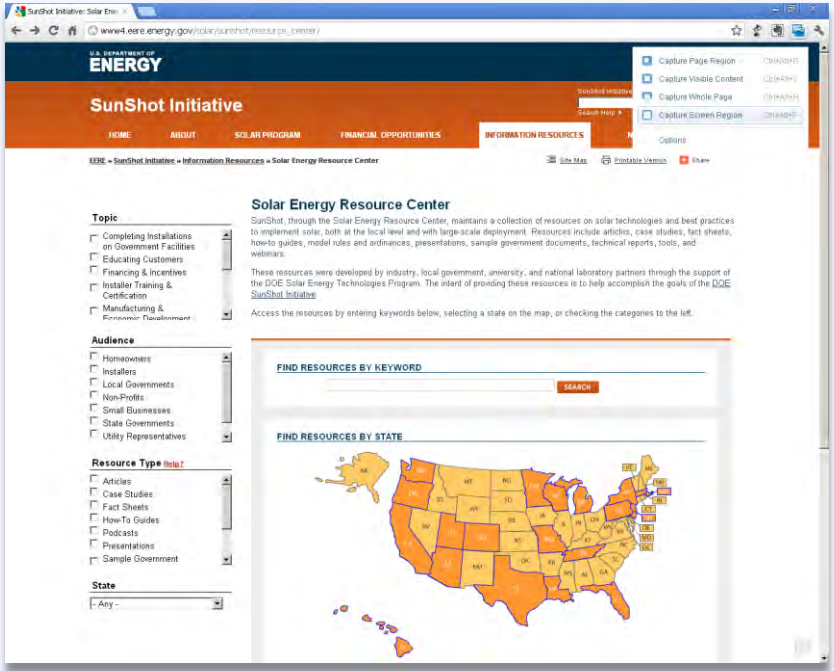
About the SunShot Solar Outreach Partnership

Resource Sunshot Resource Center

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



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

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About the SunShot Solar Outreach Partnership

Technical Support

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

www.solaroutreach.org

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

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Agenda

08:40 – 09:00	Solar 101
09:00 – 09:20	Creating a Regulatory Landscape for Solar
09:20 – 09:40	Texas Policy Environment
09:40 – 09:50	*Break*
09:50 – 10:10	Benefits and Barriers Activity
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Poll

Who's in the room?

Poll

What is your experience with solar?

Solar Technologies

Solar Photovoltaic (PV)

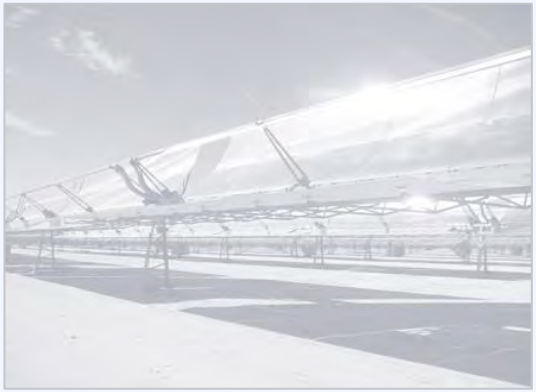
Solar Hot Water

Concentrated Solar Power

Solar Technologies

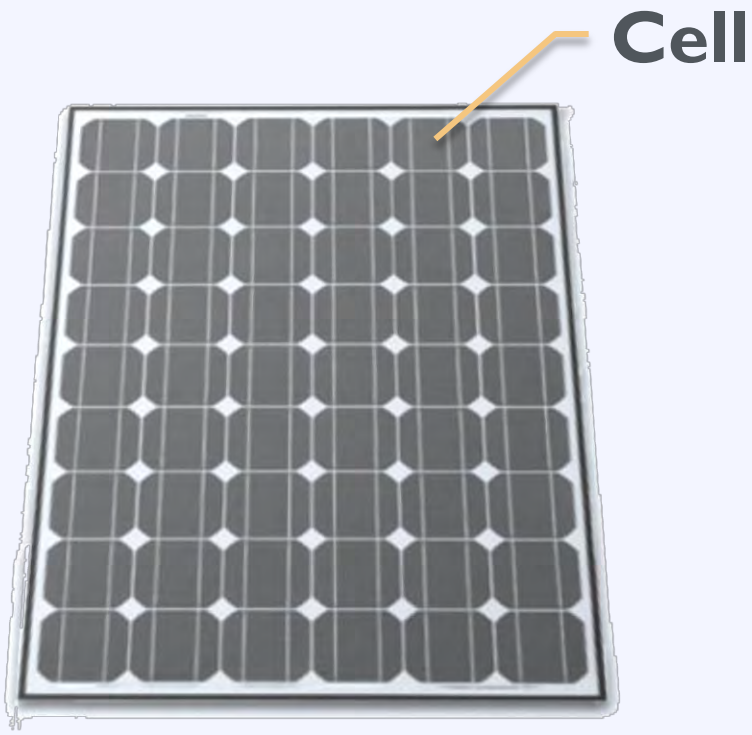
Solar Photovoltaic (PV)

Solar Hot Water



Concentrated Solar Power

Some Basic Terminology



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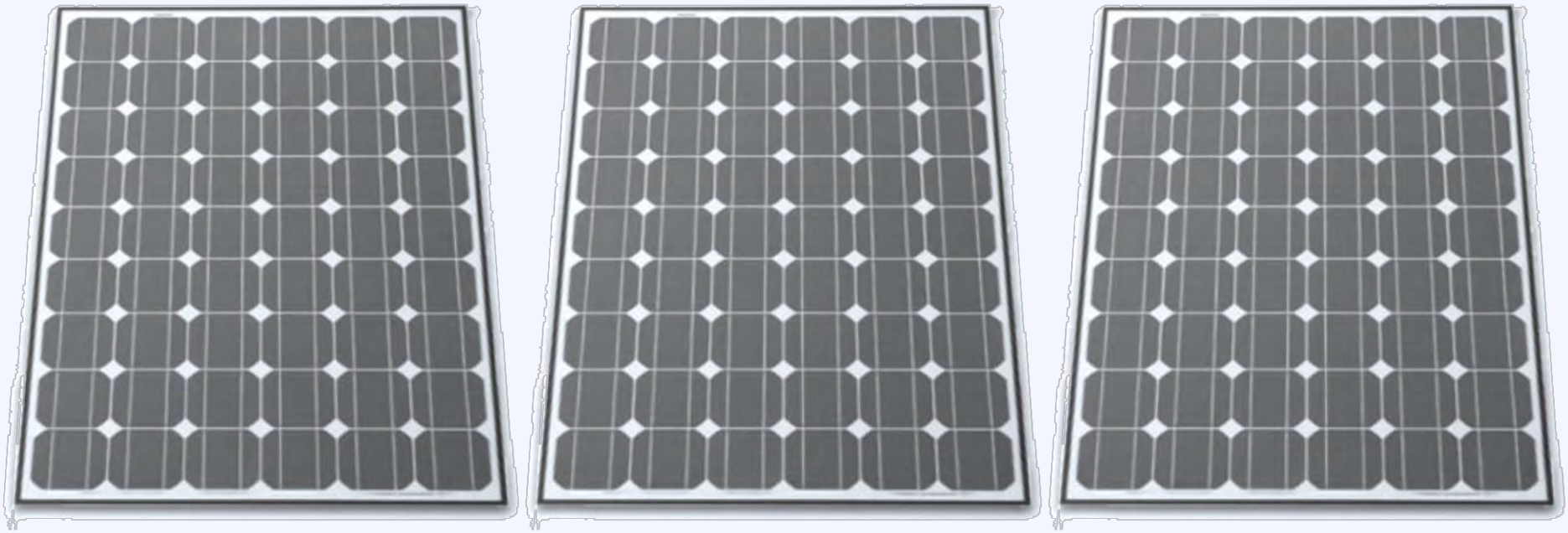
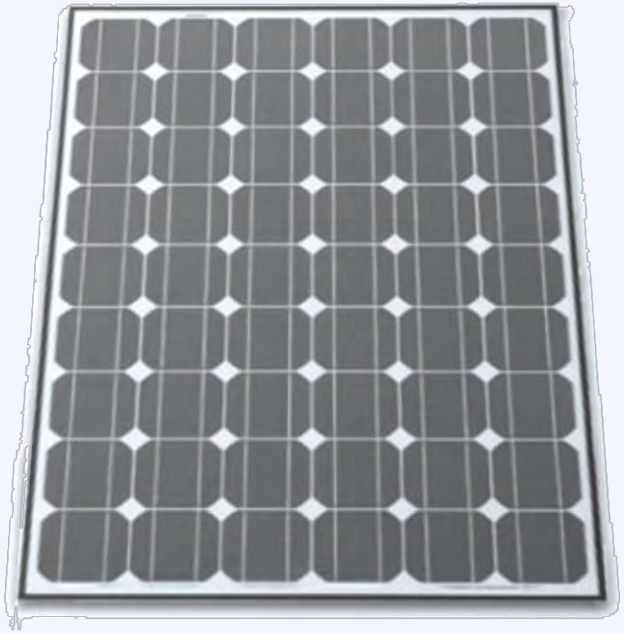


Array

Some Basic Terminology



Capacity / Power

kilowatt (kW)

Production

Kilowatt-hour (kWh)

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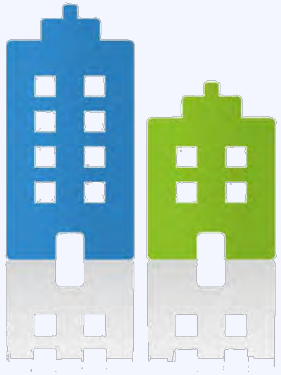
Some Basic Terminology

Residence
5 kW

Factory
1 MW+



Office
50 – 500 kW

Utility
2 MW+

Workshop Goal

Enable local governments to replicate successful solar practices and expand local adoption of solar energy

Explore benefits

and

Overcome barriers

Activity: Identifying Benefits

What is the greatest benefit solar can bring to your community? [Blue Card]

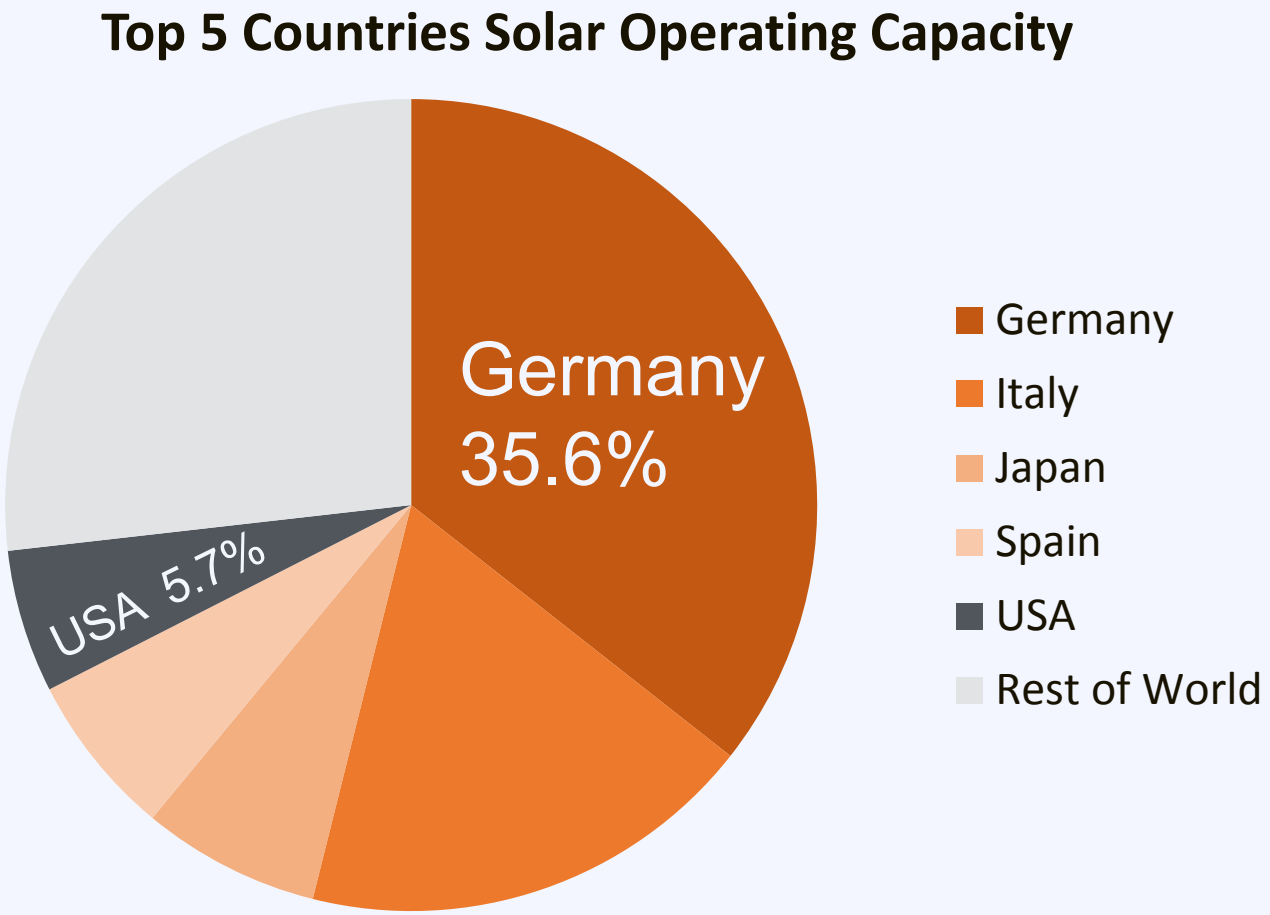
Right Now	During Session	After Break
		
Write answer on card	Compile results	Group discussion

Activity: Addressing Barriers

What is the greatest barrier to solar adoption in your community? [Green Card]

Right Now	During Session	After Break
		
Write answer on card	Compile results	Group discussion

Installed Capacity



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http://www.map.ren21.net/GSR/GSR2012.pdf

Installed Capacity

Total installed solar capacity in the US

7.2 GW

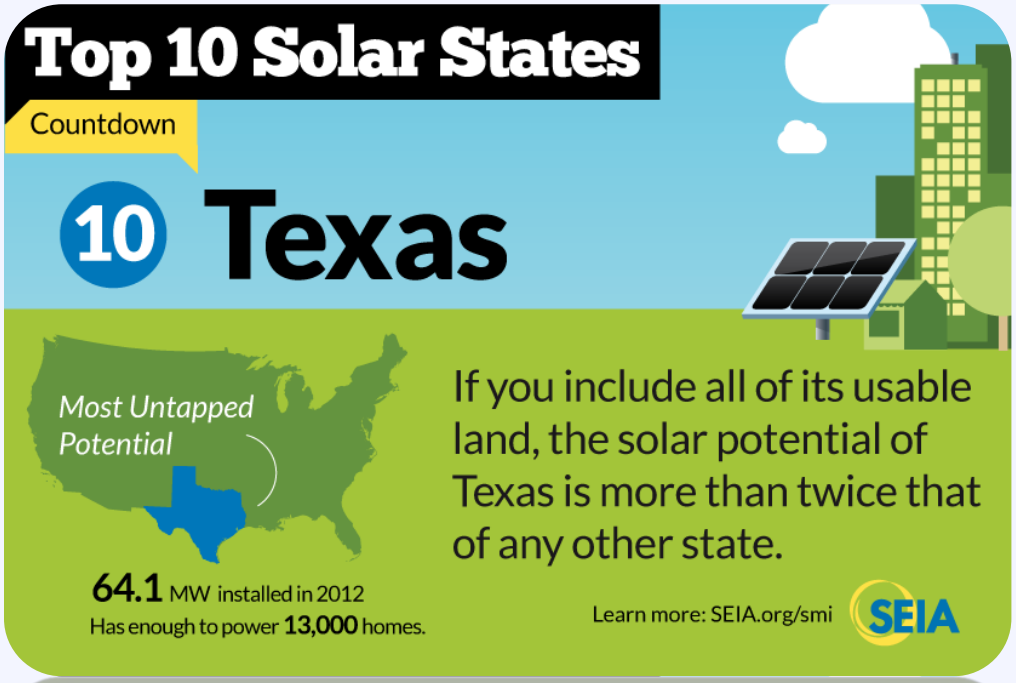
Capacity installed in Germany in 2012 alone

7.5 GW

http://www.map.ren21.net/GSR/GSR2012.pdf

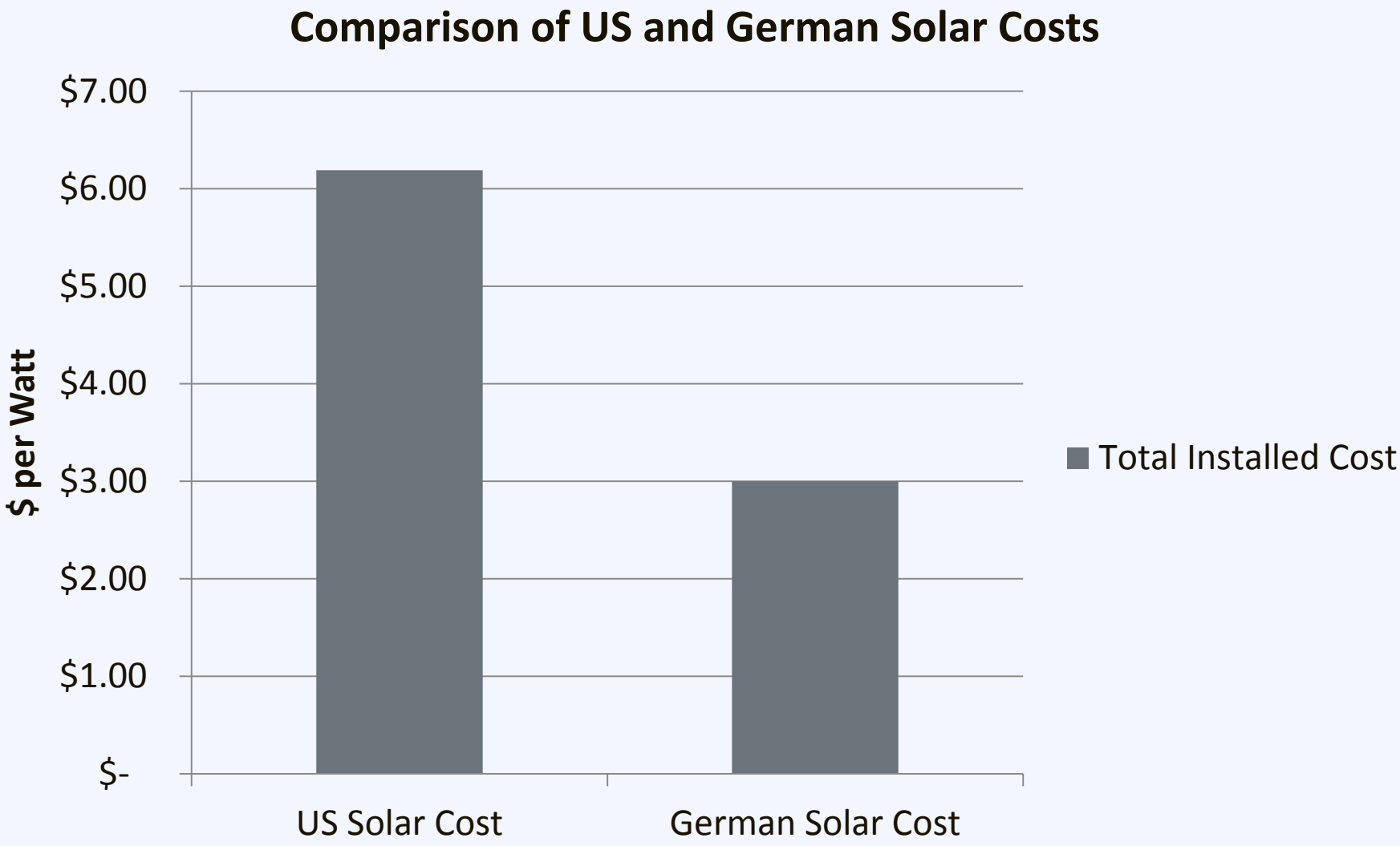
Texas Solar PV Market

- 17 MW installed in Q4, 2012
- 64 MW in all of 2012
- System prices fell by 20% in Texas in 2012
- 266 solar companies in the state, with 3,200 employees



Source: Image from SEIA, Photon Magazine, The Solar Foundation

The Cost of Solar in the US



Source: NREL (http://ases.conference-services.net/resources/252/2859/pdf/SOLAR2012_0599_full%20paper.pdf) (http://www.nrel.gov/docs/fy12osti/53347.pdf) (http://www.nrel.gov/docs/fy12osti/54689.pdf)

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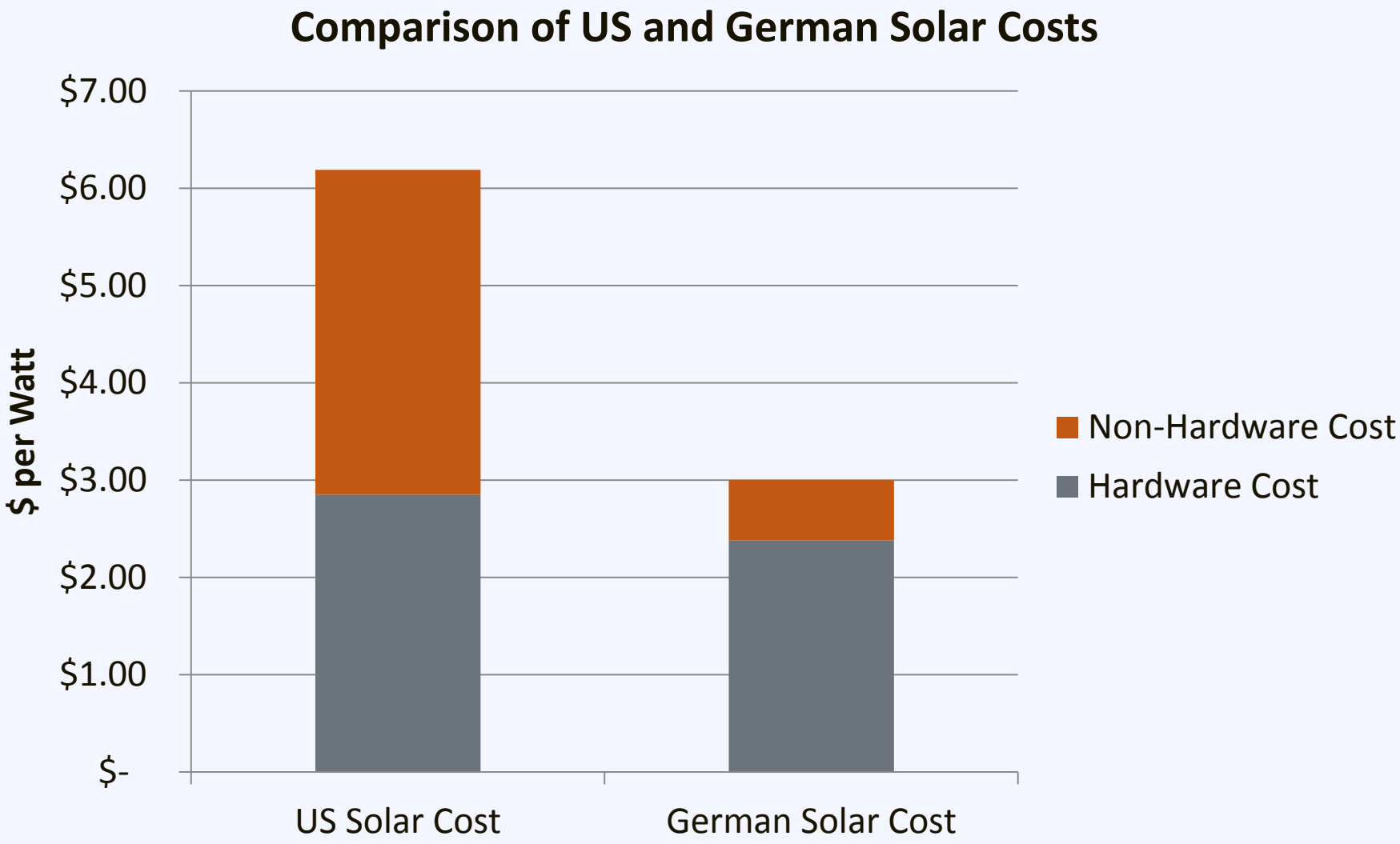

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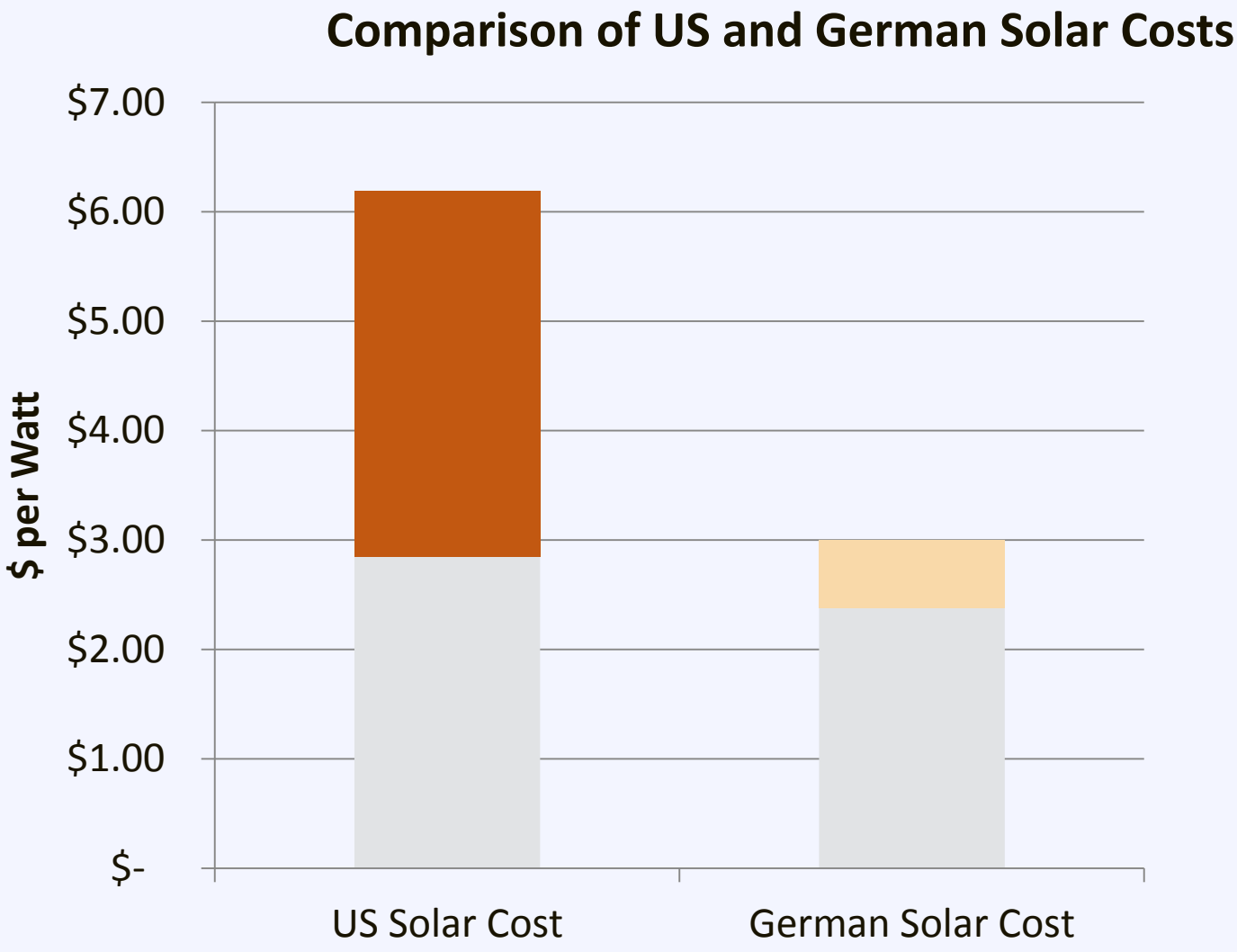

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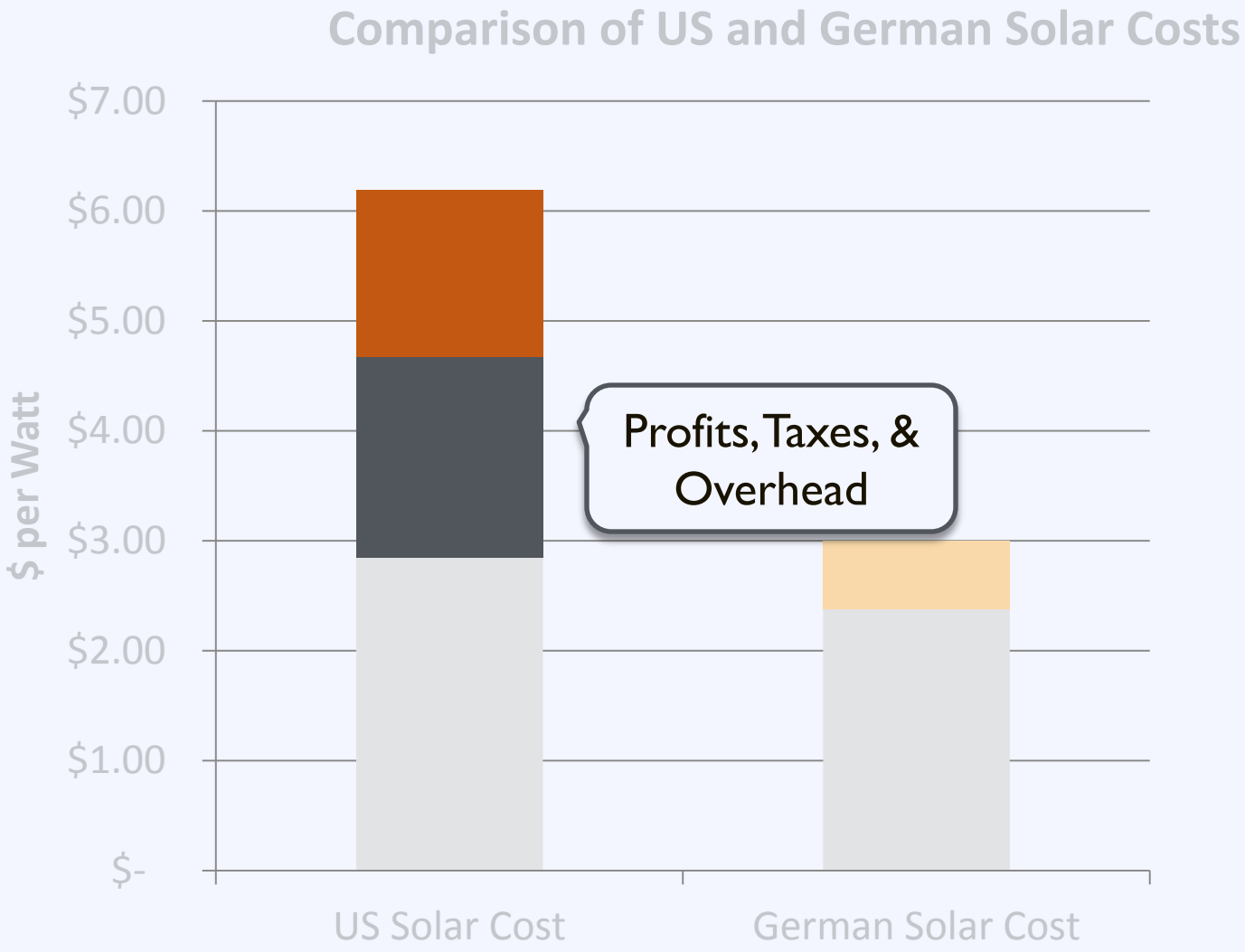

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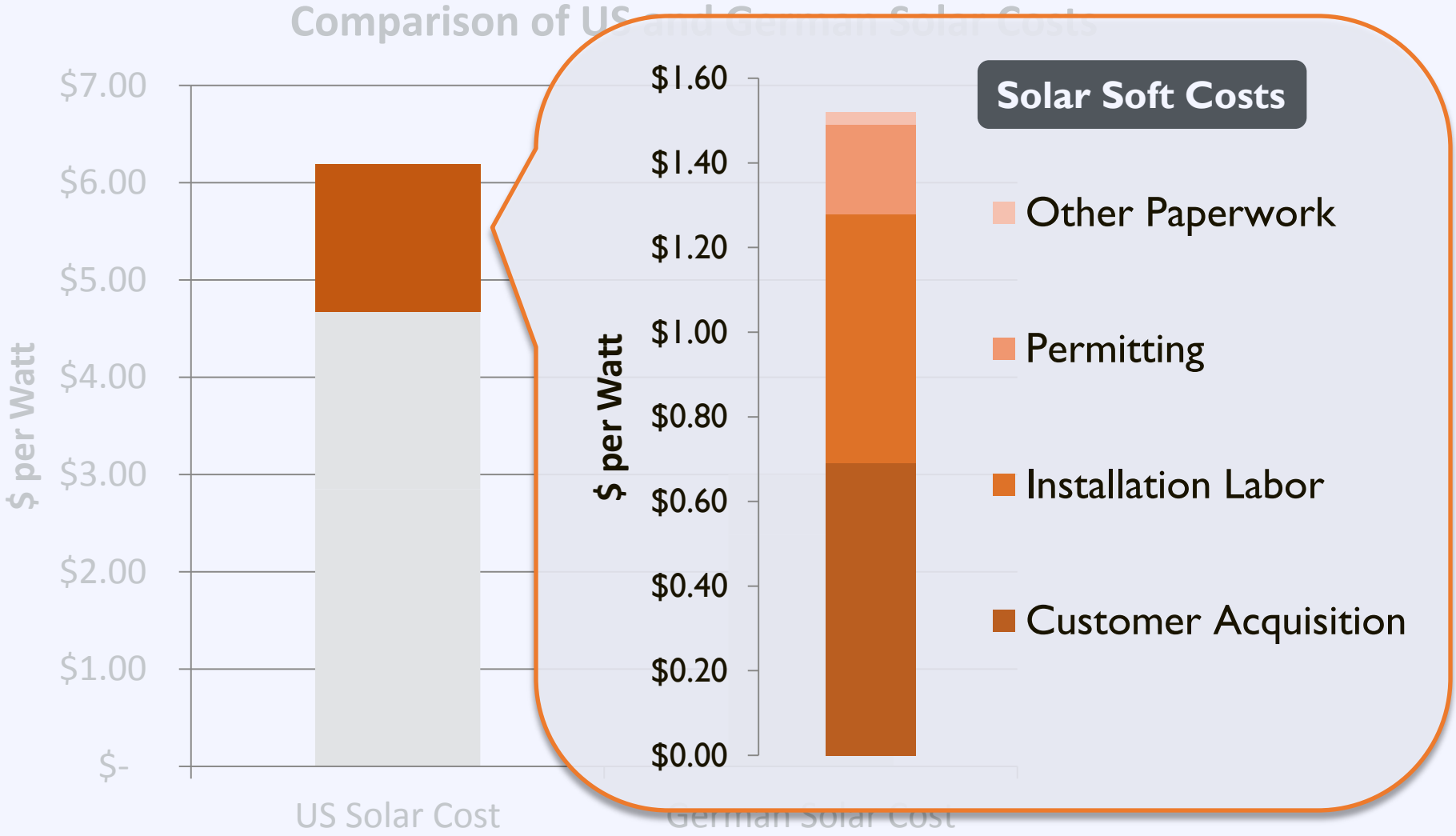

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The Permitting Process: Challenges

18,000+ local jurisdictions

with unique permitting requirements

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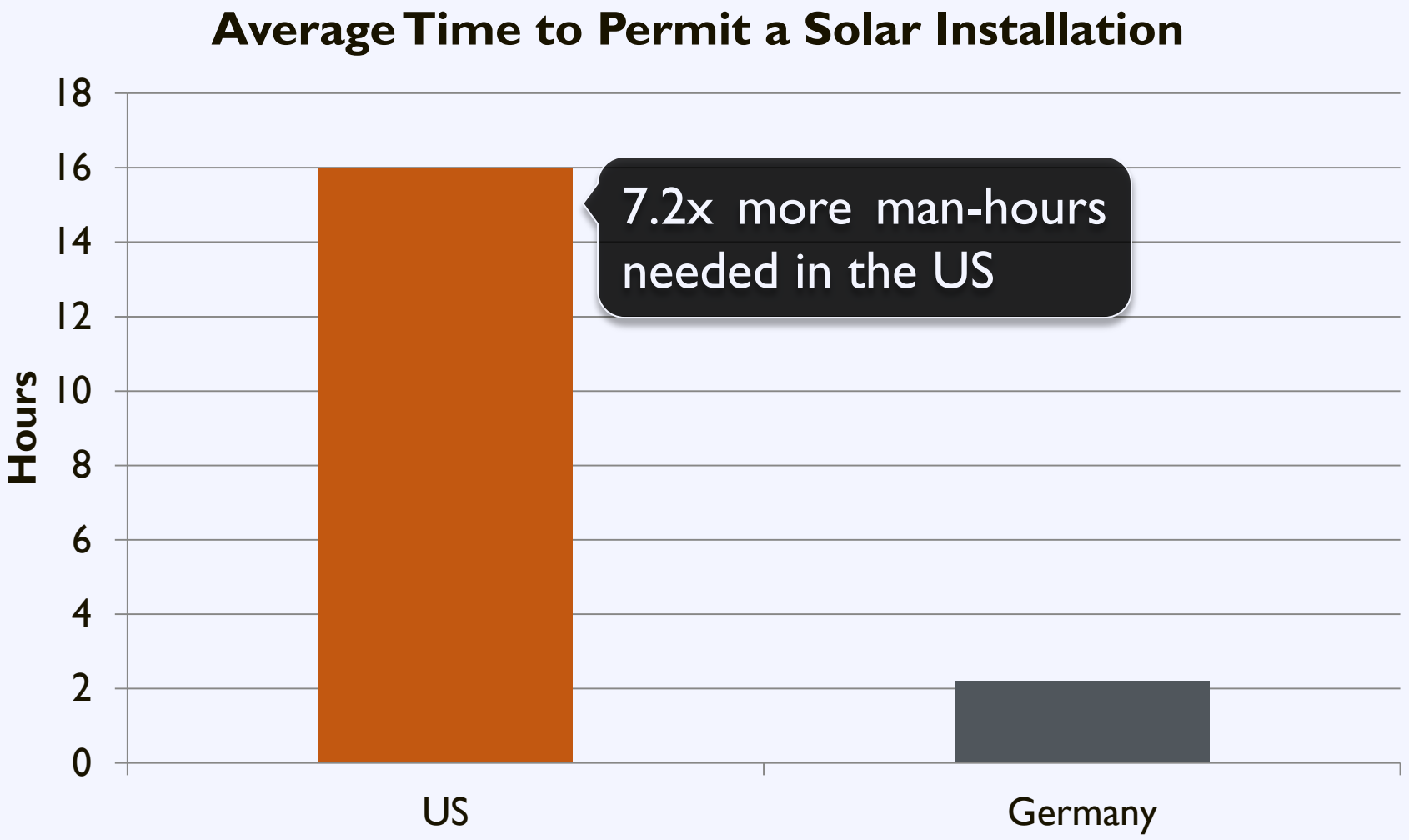
Source: http://www.nrel.gov/docs/fy12osti/54689.pdf

Time to Installation



Time to Installation

New York City's Goal

100 days

from inception to completion

Germany Today

8 days

from inception to completion

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Photon Magazine

Germany's Success

Consistency and Transparency

through

Standardized Processes

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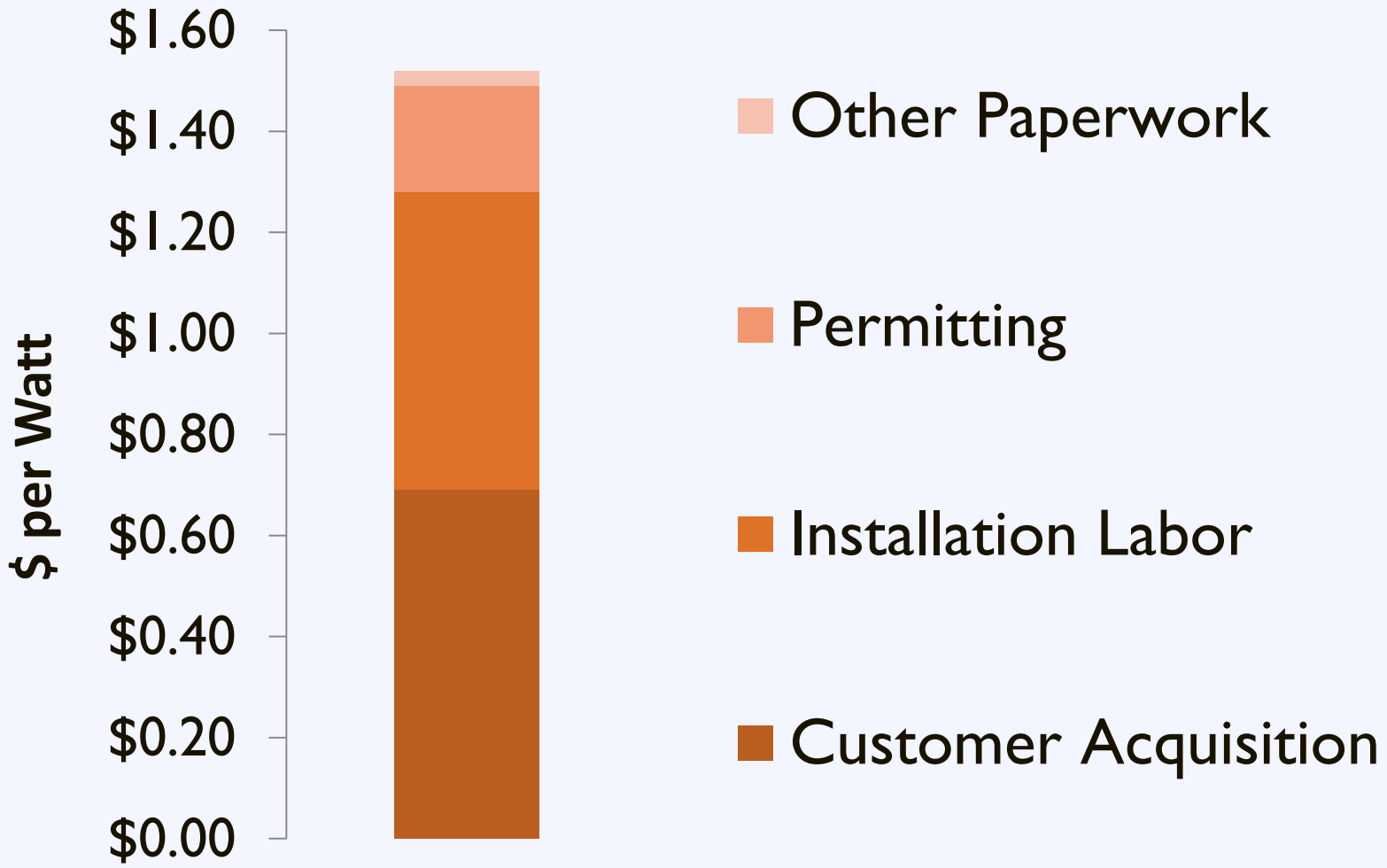
Mitigate Soft Costs



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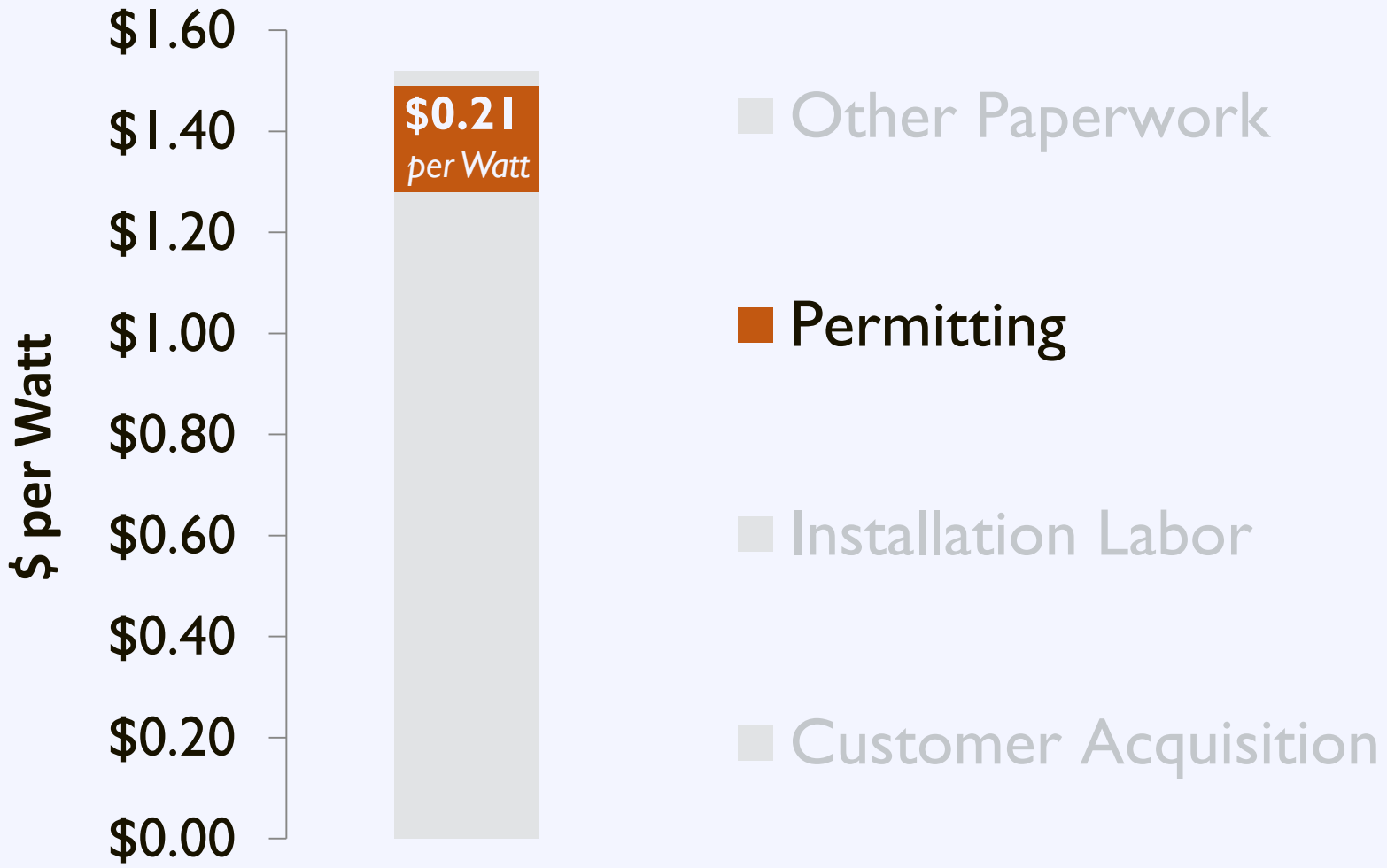
Mitigate Soft Costs



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

Permitting

Remove barriers by:

- Make qualified solar projects a by-right accessory use
- Modify regulations to clarify what types of solar projects are allowed where
- Define and protect solar access
- Streamline the permitting process

Zoning Code: Solar Framework

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

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Source: American Planning Association

Zoning Code: Accessory Use

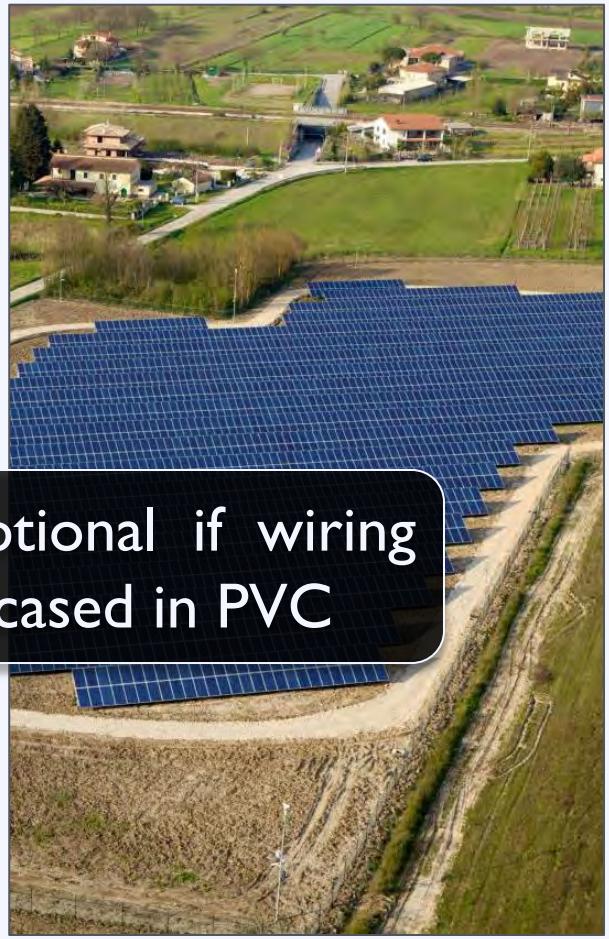
Typical Requirements:

- Size limit: onsite load
- Height limit: 4-6’ above roof
- Setbacks: NFPA Guidelines
- Max Array Size: 150’ x 150’
- Markings: NFPA Guidelines

Zoning Code: Principal Use

Typical Requirements:

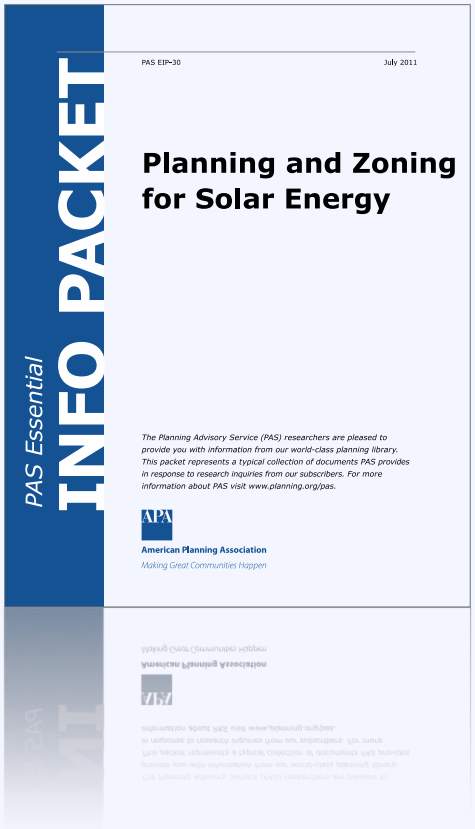
- Height not to exceed zoning
- Setbacks: 25’
- Fence or barrier: 8’ height
- Vegetation screen if visible from adjacent property



Zoning Code: Large Scale Solar

Resource **Planning and Zoning for Solar Energy**

This Essential Info Packet provides a number of articles and guidebooks to help planners plan for solar in their communities.



planning.org/research/solar

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The Permitting Process: Challenges

18,000+ local jurisdictions

with unique permitting requirements

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

The Permitting Process: Challenges

Local permitting processes add on average

$2,516

to the installation cost of residential PV

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Source: SunRun

The Permitting Process: Challenges

Source: Forbes

Expedited Permitting

Solar Permitting Best Practices:

- ✓ Fair flat fees
- ✓ Electronic or over-the-counter issuance
- ✓ Standardized permit requirements
- ✓ Electronic materials

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Source: Vote Solar

Expedited Permitting

Solar Permitting Best Practices:

- ✓ Training for permitting staff in solar
- ✓ Removal of excessive reviews
- ✓ Reduction of inspection appointment windows
- ✓ Utilization of standard certifications

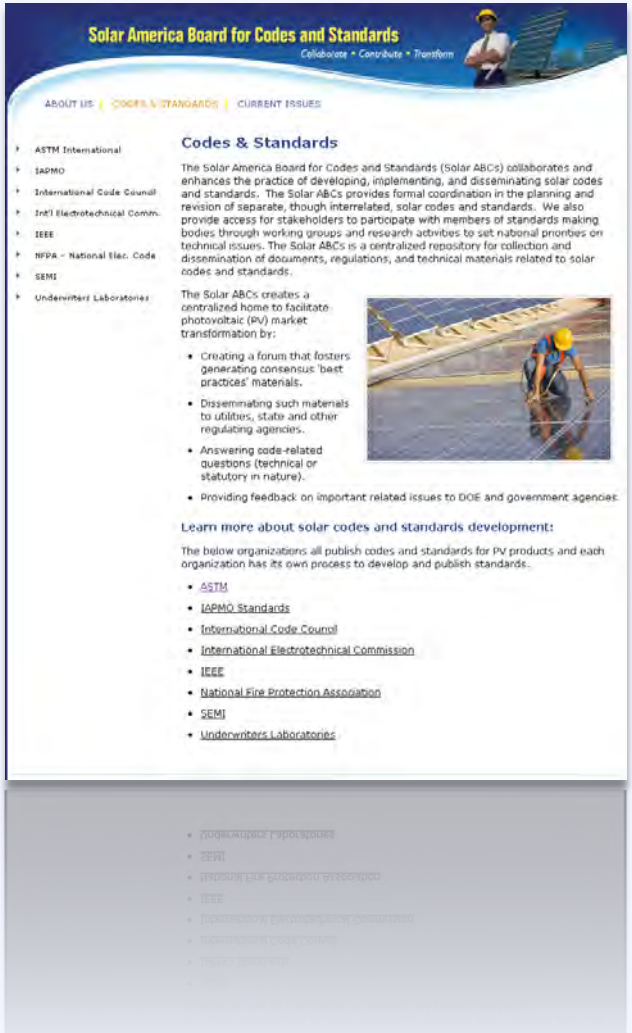
Source: Vote Solar

Expedited Permitting

Resource **Solar ABCs**

Expedited Permitting:

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



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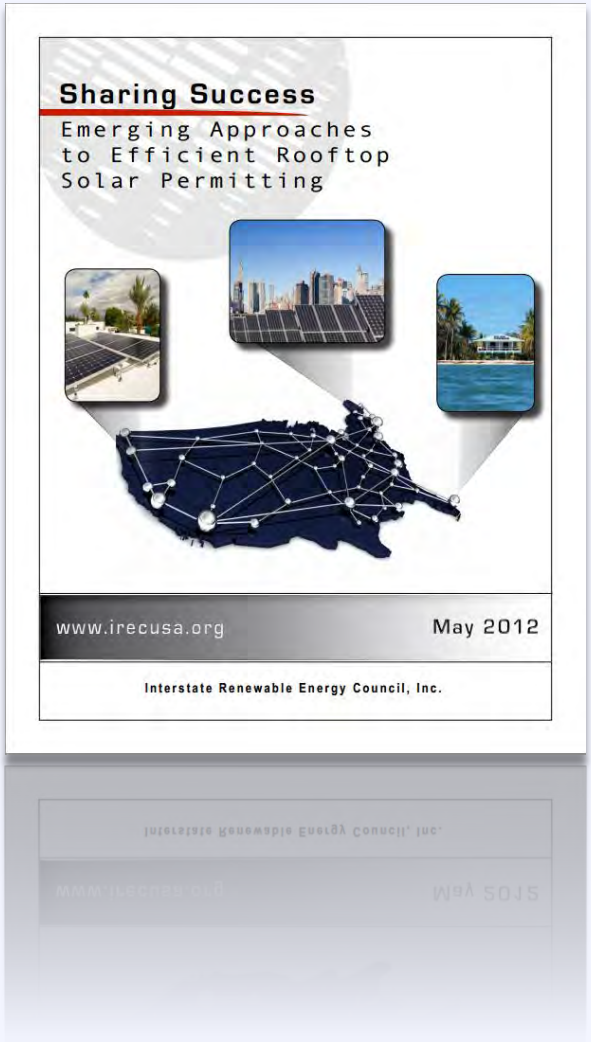
Expedited Permitting

Resource **Interstate Renewable Energy Council**

Outlines emerging approaches to efficient rooftop solar permitting

www.irecusa.org



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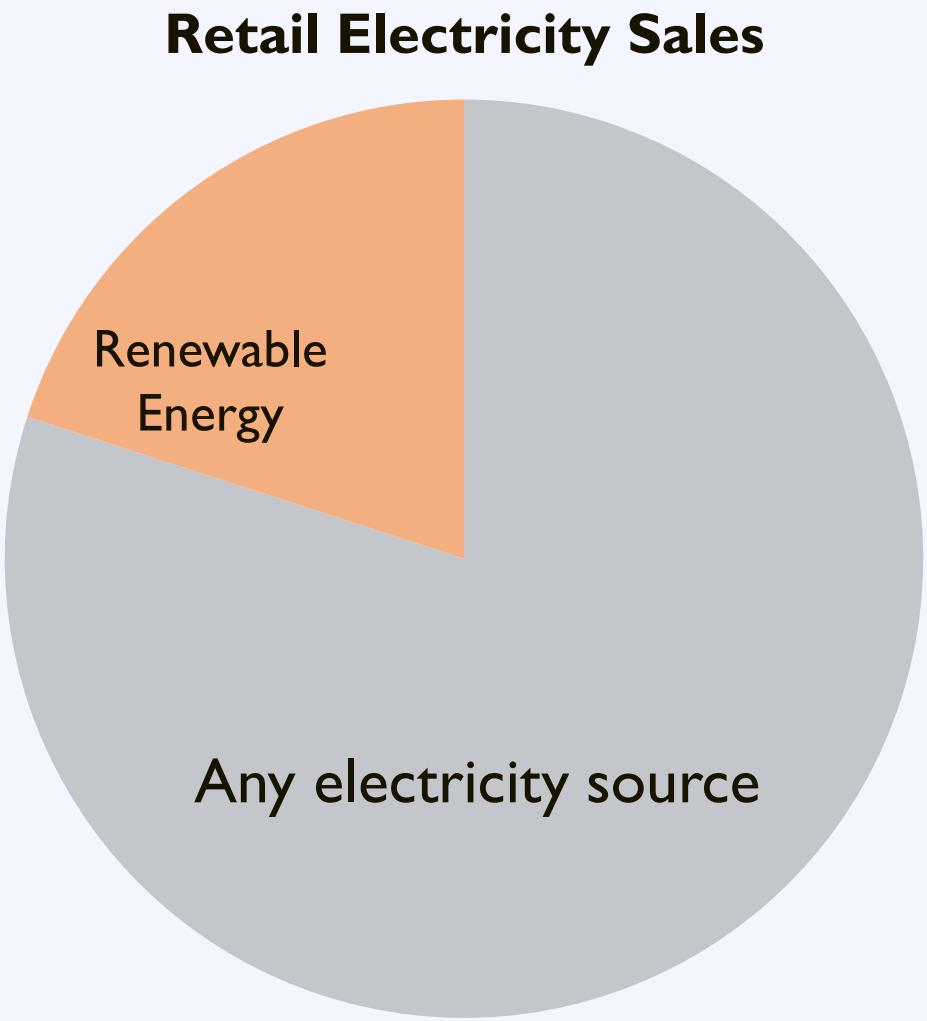
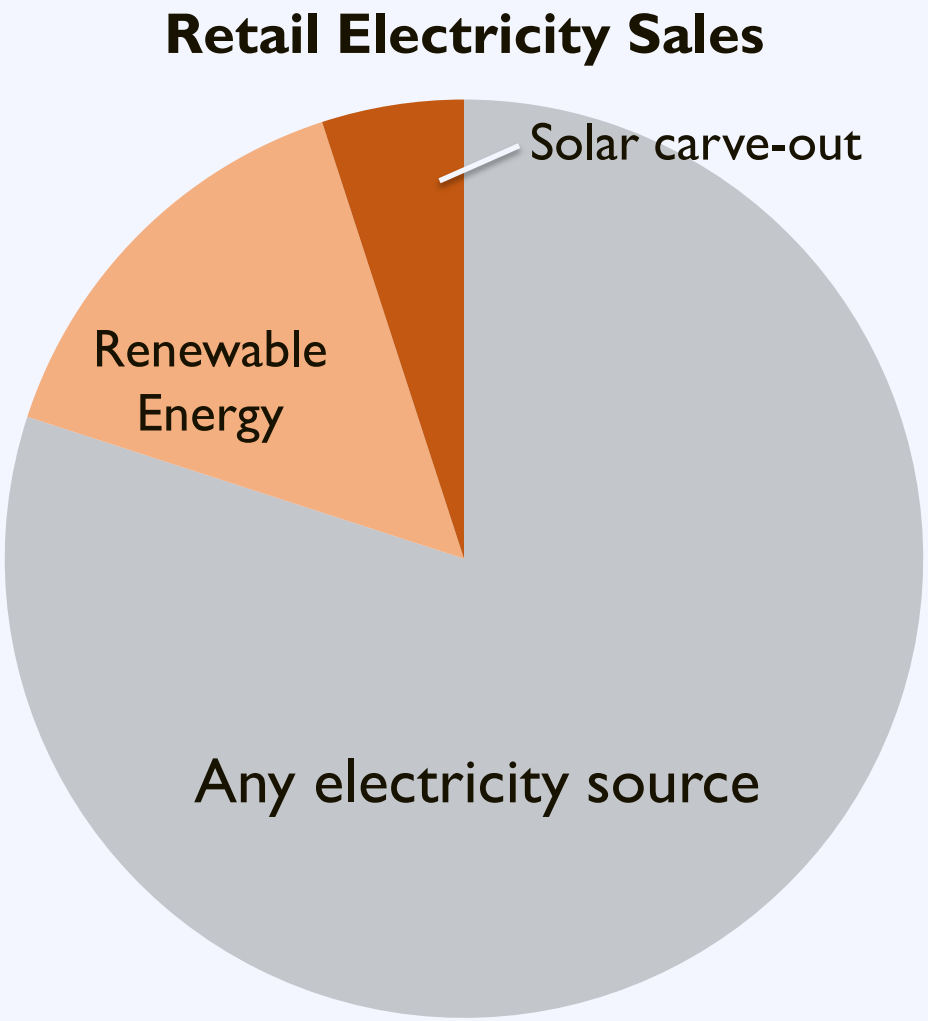
State Solar Policies

- Renewable Portfolio Standard
- Net Metering?
- Interconnection Standards
- Solar Access Laws
- Incentive Programs
- PACE?

Renewable Portfolio Standard



Renewable Portfolio Standard



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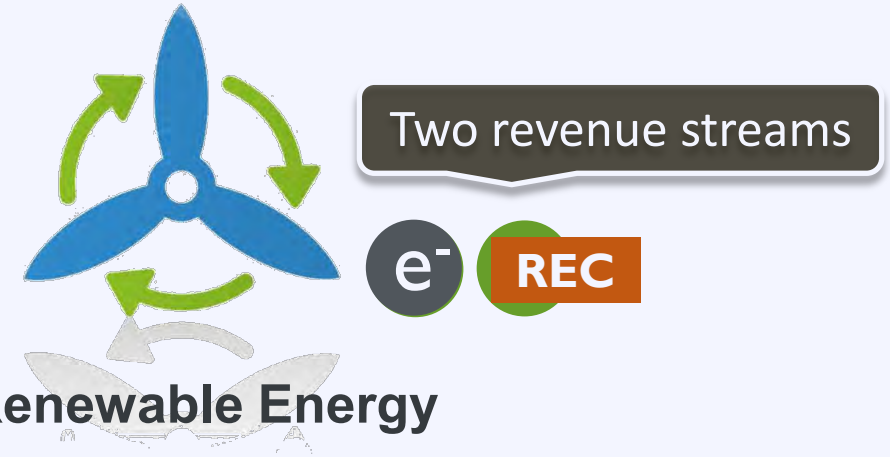
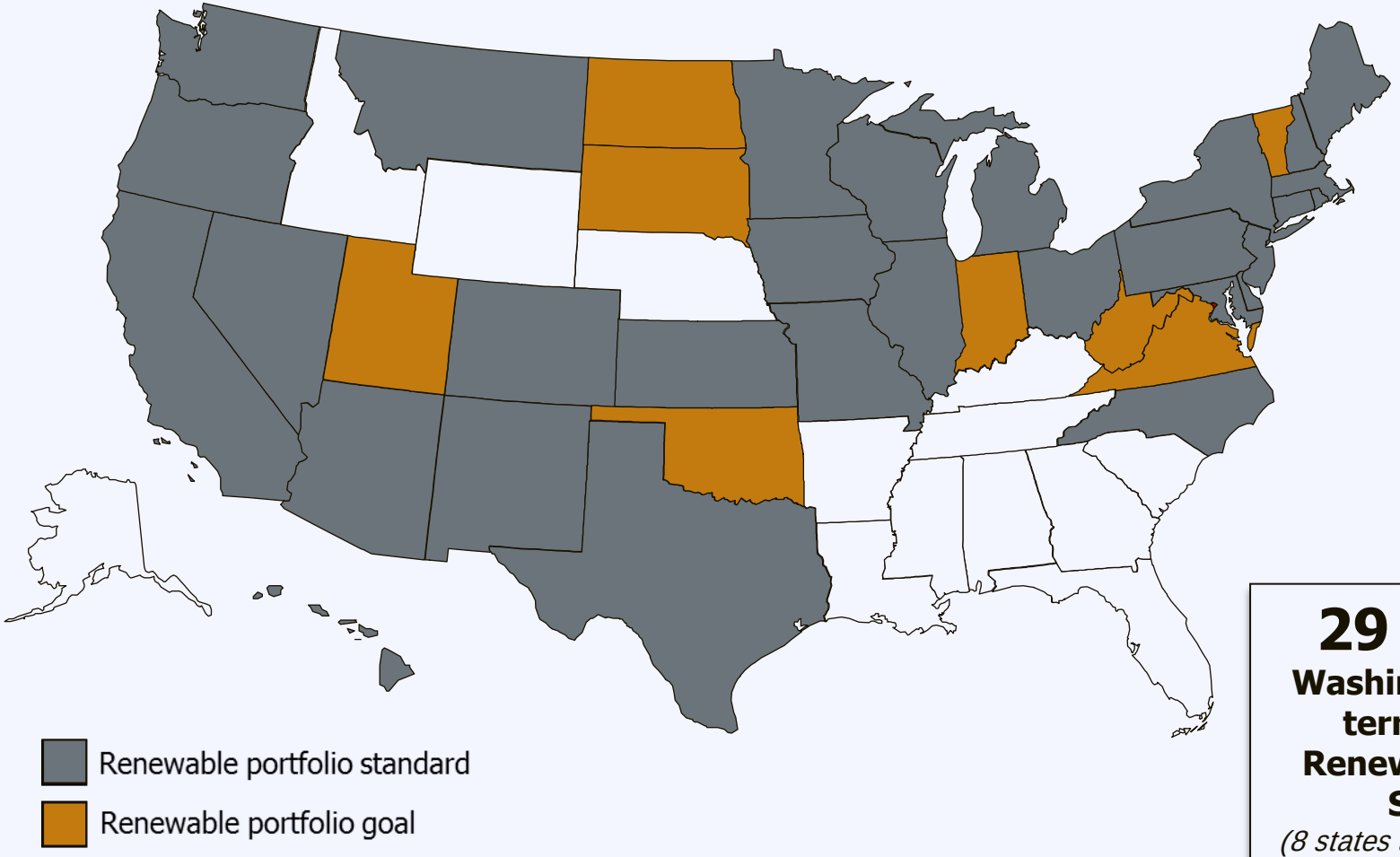


Renewable Portfolio Standard

www.dsireusa.org / March 2013



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

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RPS: Texas Overview

- Renewable Generation Requirement
- 5,880 MW by 2015; 10 GW *goal* by 2025
- Non-Wind Goal of 500 MW
  - Not legally binding
  - Double credit towards overall requirement for non-wind
- Each retail supplier is responsible for a percentage of the MW requirement based on their pro-rata share retail sales

RPS and Solar

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 Q3 2012*.

Net Metering

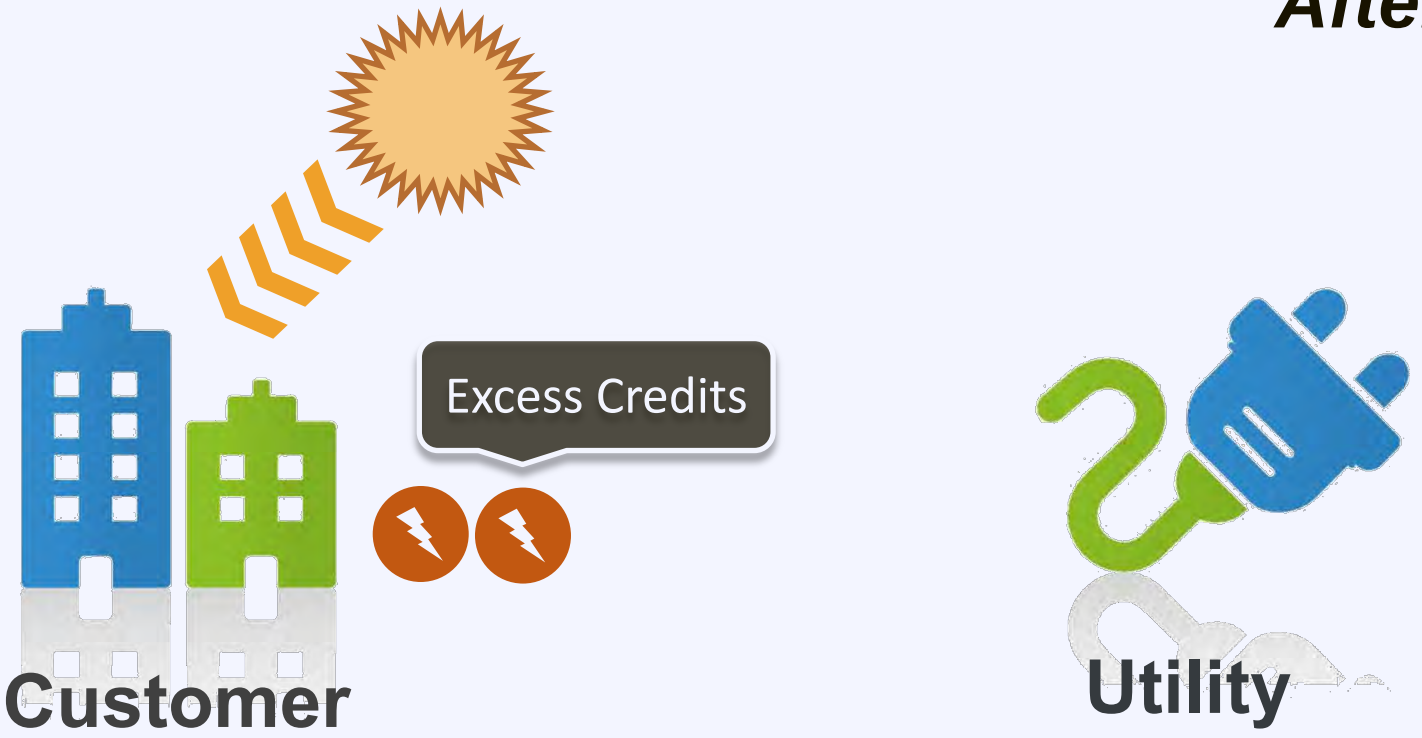
Net metering allows customers to export power to the grid during times of excess generation, and receive credits that can be applied to later electricity usage

Net Metering: Overview

Morning

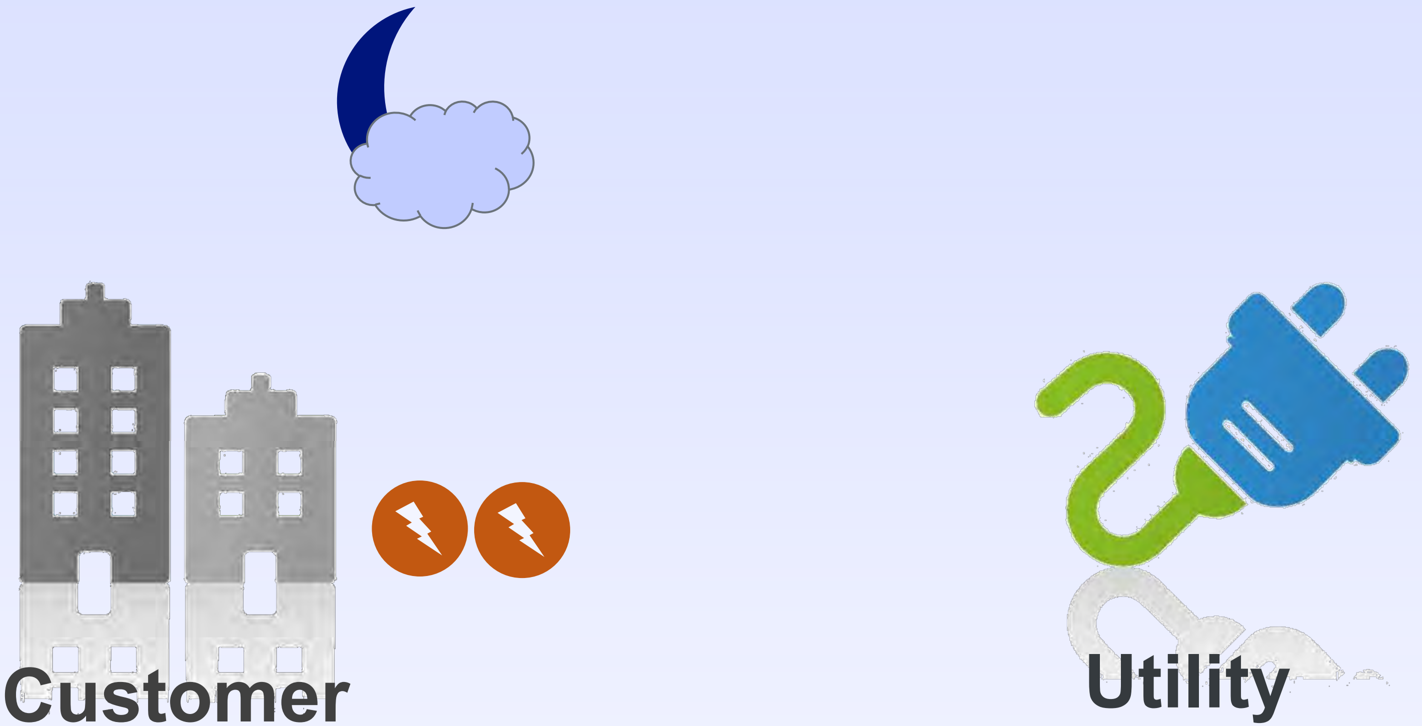
Net Metering: Overview

Afternoon



Net Metering: Overview

Night



Solar covers 100% of the customer's load, even at night!

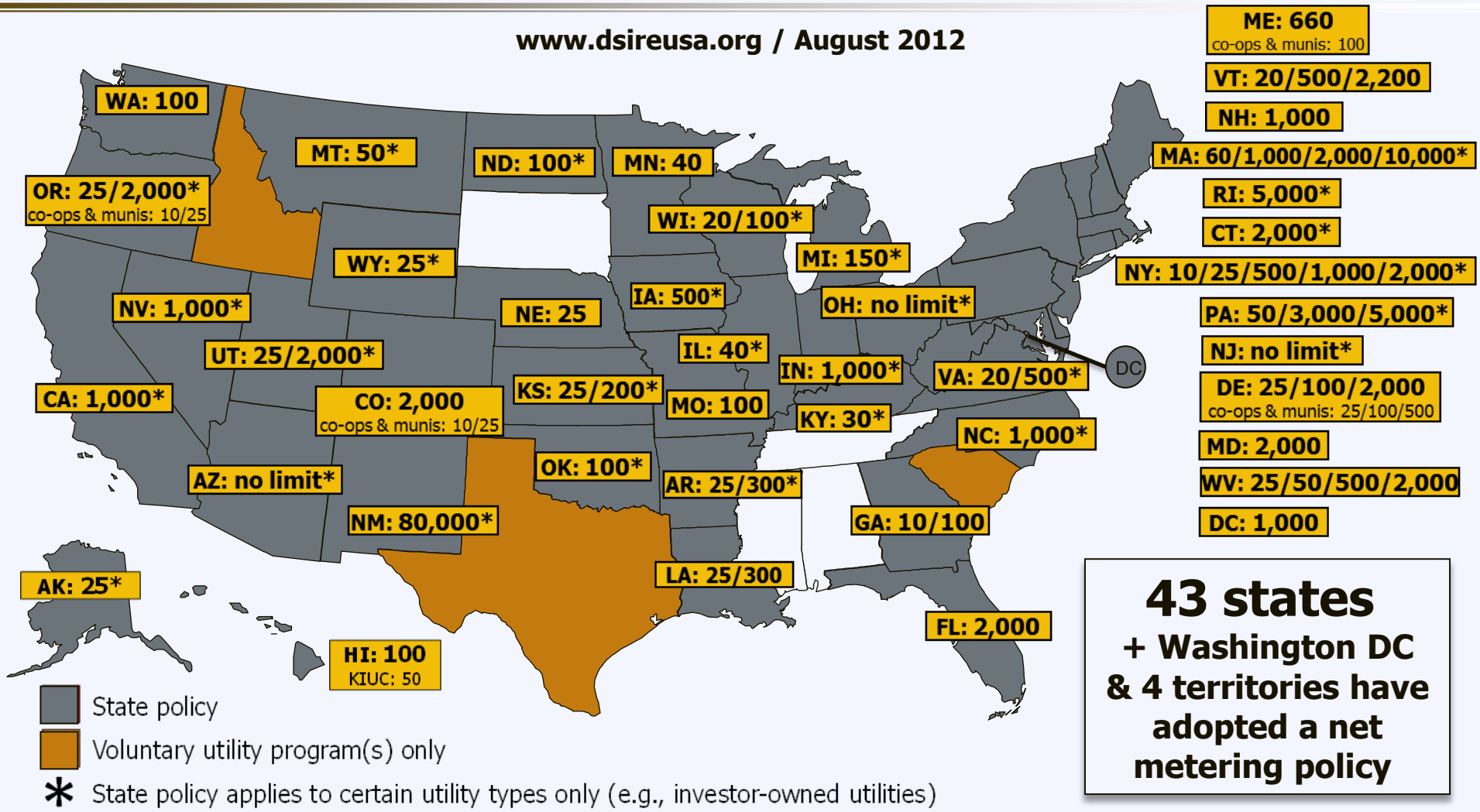
Net Metering: Market Share

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: State Policies



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

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

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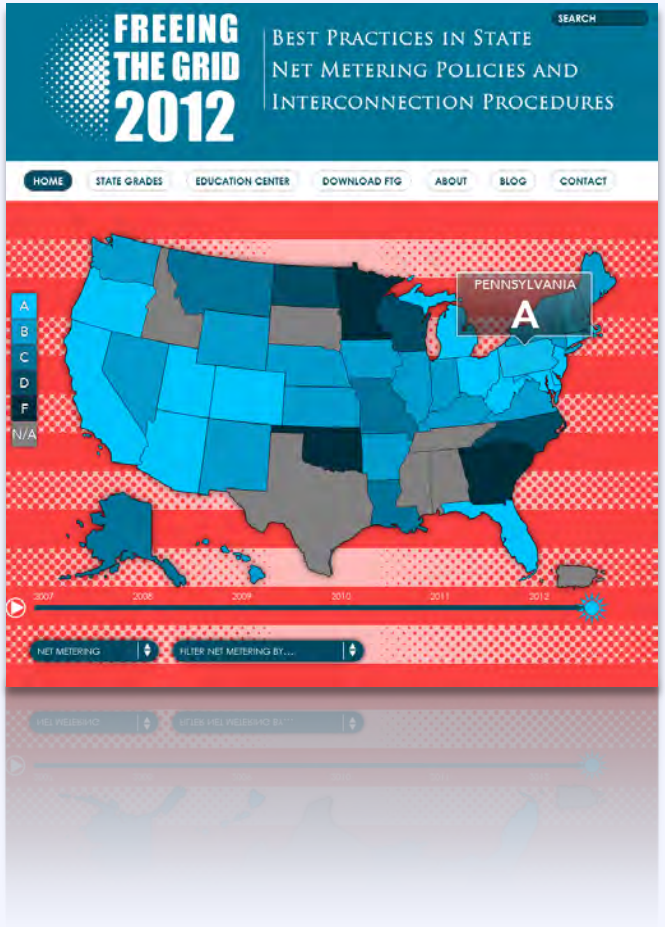
Net Metering: Resources

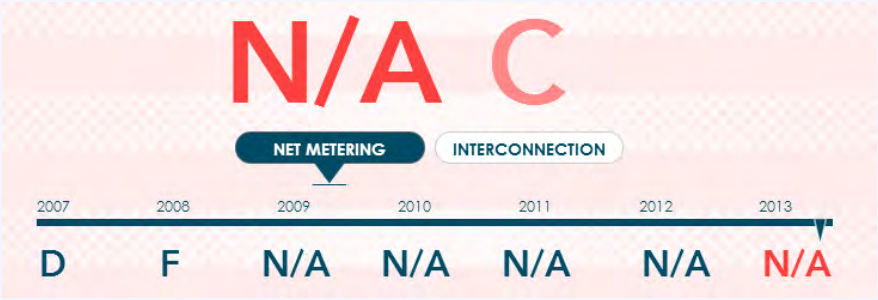
Resource **Freeing the Grid**

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

http://freeingthegrid.org/



Net Metering: Texas



- Texas does not have statewide net metering rules
- Retail providers are permitted, but not required, to offer net metering
- Austin Energy, CPS Energy, and Green Mountain Energy offer some form of net metering.
- Other providers may allow a billing arrangement similar to, but not quite, net metering

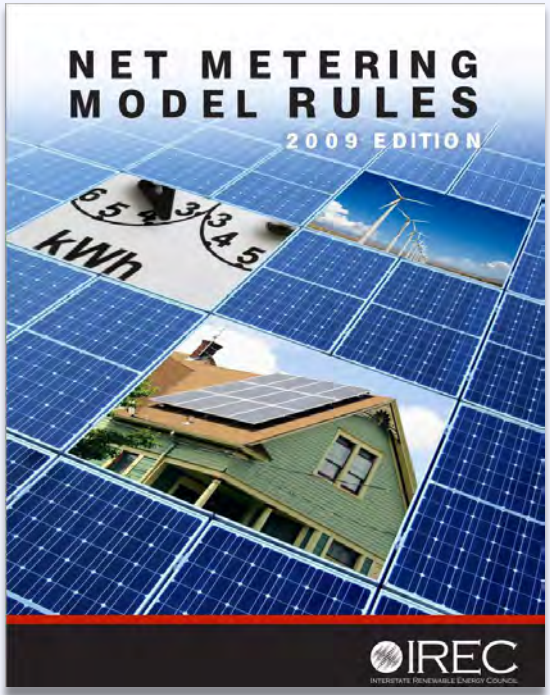
Source: Freeing the Grid http://freeingthegrid.org/#state-grades/virginia

Net Metering: Resources

Resource **Interstate Renewable Energy Council**

IREC developed its model rules in an effort to capture best practices in state net metering policies.

www.irecusa.org



Interconnection

5,000+ utilities

with unique interconnection procedures

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

Interconnection: Background

2000: NREL finds that interconnection is a significant barrier to customer sited DG

2005: Congress requires state regulator authorities to consider an interconnection standard (IEEE 1547)

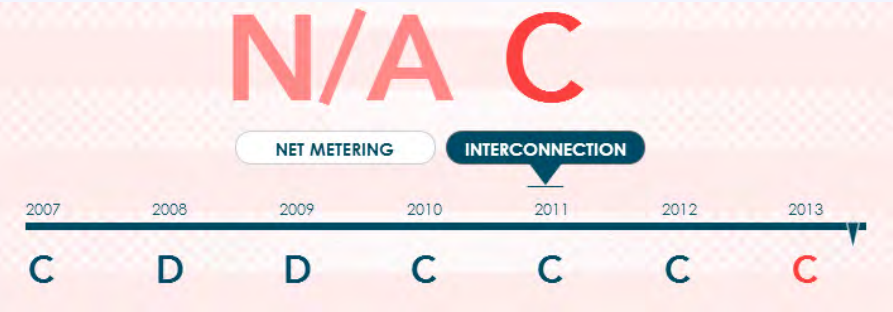
2012: 43 States & DC have adopted interconnection standards

- CA Rule 21
- FERC SGIP
- MADRI Procedures
- IREC Procedures

Interconnection Standards

1. Use standard forms and agreements
2. Implement expedited process
3. Implement simplified procedure for small solar arrays

Interconnection: Texas



Eligible Renewable/Other Technologies:	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, CHP/Cogeneration, Reciprocating Engines, Turbines, Storage , Tidal Energy, Wave Energy, Ocean Thermal, Fuel Cells using Renewable Fuels, Microturbines, Other Distributed Generation Technologies
Applicable Sectors:	Commercial, Industrial, Residential
Applicable Utilities:	Investor-owned utilities
System Capacity Limit:	10 MW
Standard Agreement:	Yes
Insurance Requirements:	"Additional" liability insurance not required for systems of 2 MW or less that meet certain technical standards
External Disconnect Switch:	Required

Powered by SunShot U.S. Department of Energy

Source: Freeing the Grid http://freeingthegrid.org/#state-grades/virginia

Solar Access

Solar Access Laws:

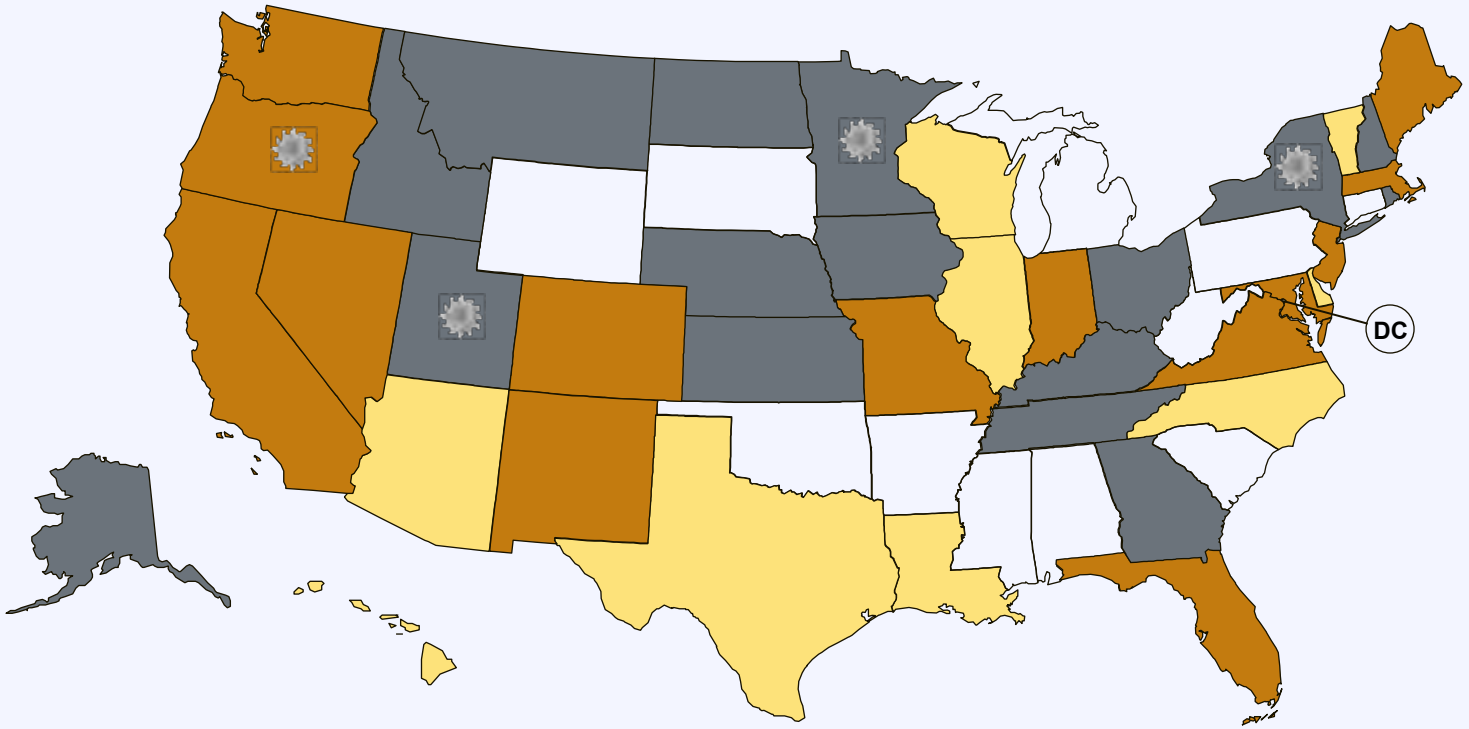
1. Increase the likelihood that properties will receive sunlight
2. Protect the rights of property owners to install solar
3. Reduce the risk that systems will be shaded after installation

Fontainebleau V. Eden Roc (1959)

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 Easements Provision

Solar Rights Provision

Solar Easements and Solar Rights Provisions

U.S. Virgin Islands

Local option to create solar rights provision

Powered by SunShot
U.S. Department of Energy

Source: DSIRE

Solar Access Law: Texas

Solar Rights:

Texas Property Code § 202.010. Regulation of Solar Devices.

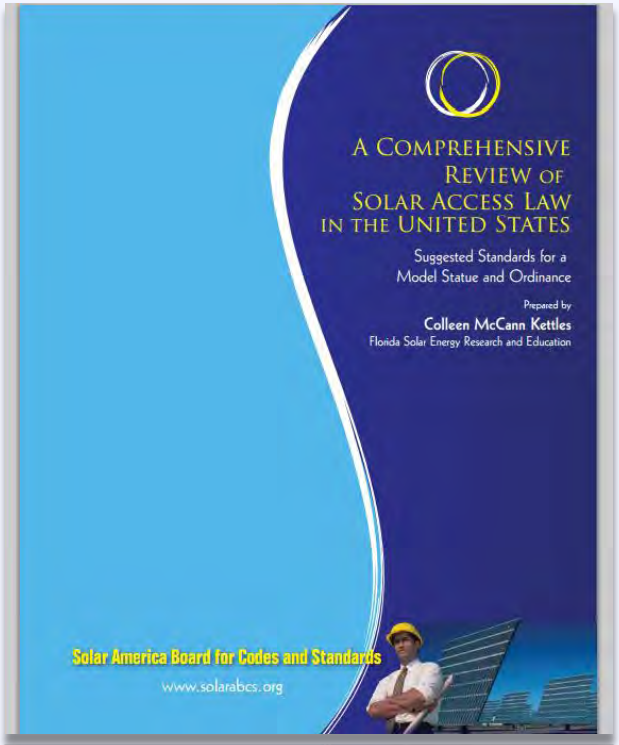
- *HOAs cannot prohibit an owner from installing or using a solar energy collection device on that owner's property. However, a community association may establish reasonable restrictions concerning the location, and manner of placement of such solar energy collection devices.*
- *The community association may prohibit or restrict the installation of solar energy collection devices on the common elements or common area within the real estate development served by the community association…*

Solar Access

Resource **Solar ABCs**

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

www.solarabcs.org



Property Tax Exemptions

Tx. Code § 11.27:

Creates an exemption from taxation of the amount of appraised value of a property that arises from the installation or construction of a solar or wind-powered energy device that is primarily for production and distribution of energy for on-site use.

See Comptroller of Public Accounts

Form 50-123

Property Assessed Clean Energy

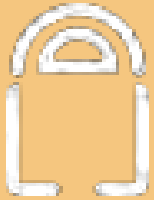
Property Assessed Clean Energy (PACE) financing allows property owners to install solar and energy efficiency projects with little or no upfront cost. Costs repaid on property tax bills over 20 years.

Powered by SunShot
U.S. Department of Energy

Source: Department of Energy

Property Assessed Clean Energy

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



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

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

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

Powered by SunShot
U.S. Department of Energy

Source: Department of Energy

Property Assessed Clean Energy

Advantages Over Conventional Loan:

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

PACE: Texas

- HB 1937 of 2009 authorized municipalities to adopt PACE programs
- If passed, SB 385 will allow counties to adopt PACE programs, and provide greater flexibility
- There are currently no active PACE programs in Texas

Agenda

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09:00 – 09:20	Creating a Regulatory Landscape for Solar
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10:50 – 11:00	*Break*
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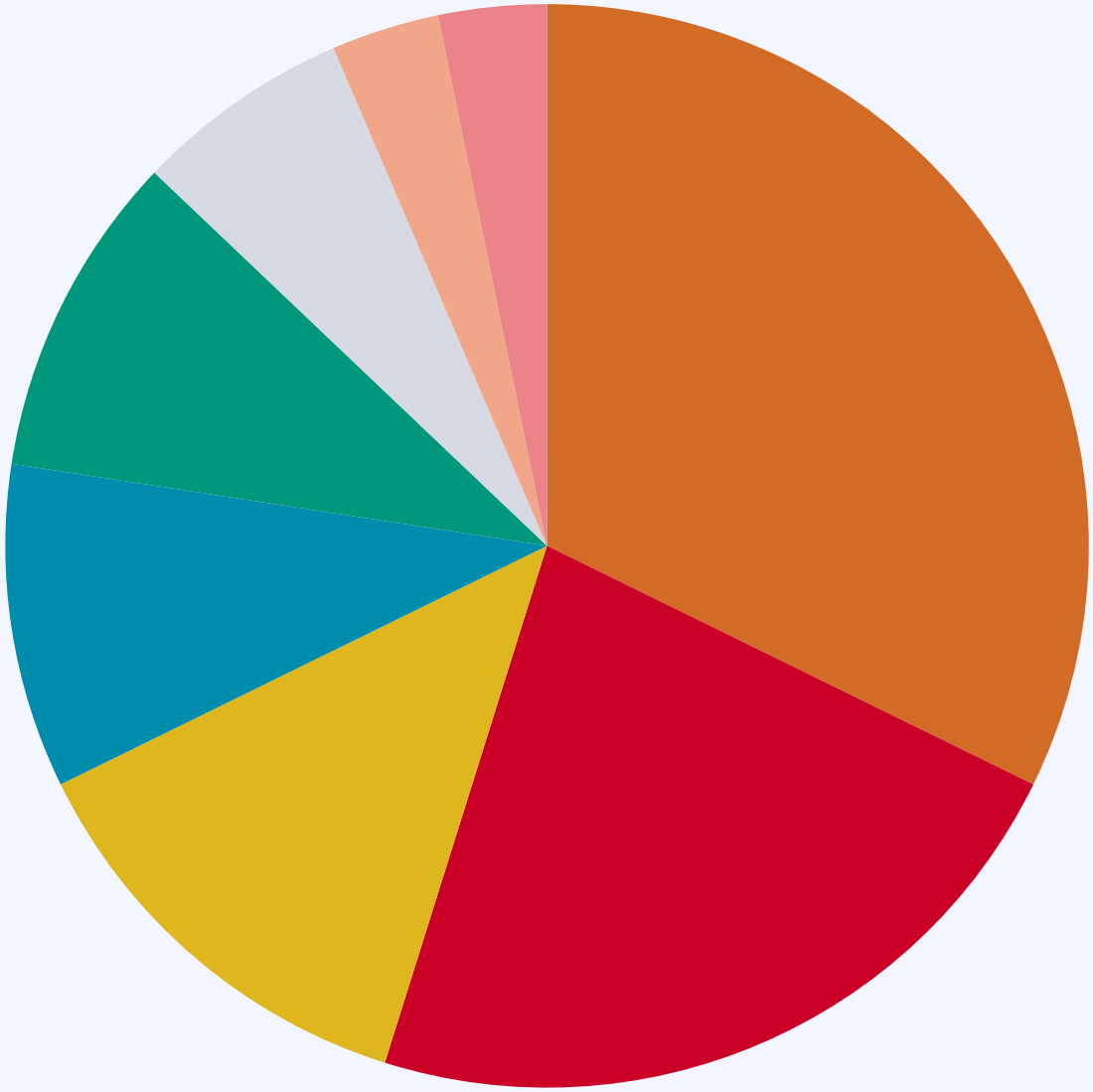
12:00 – 12:15	Wrap Up and Closing Remarks

Activity: Identifying Benefits

What is the greatest benefit solar can bring to your community? [Blue Card]

Right Now	During Session	After Break
		
Write answer on card	Compile results	Group discussion

Benefits

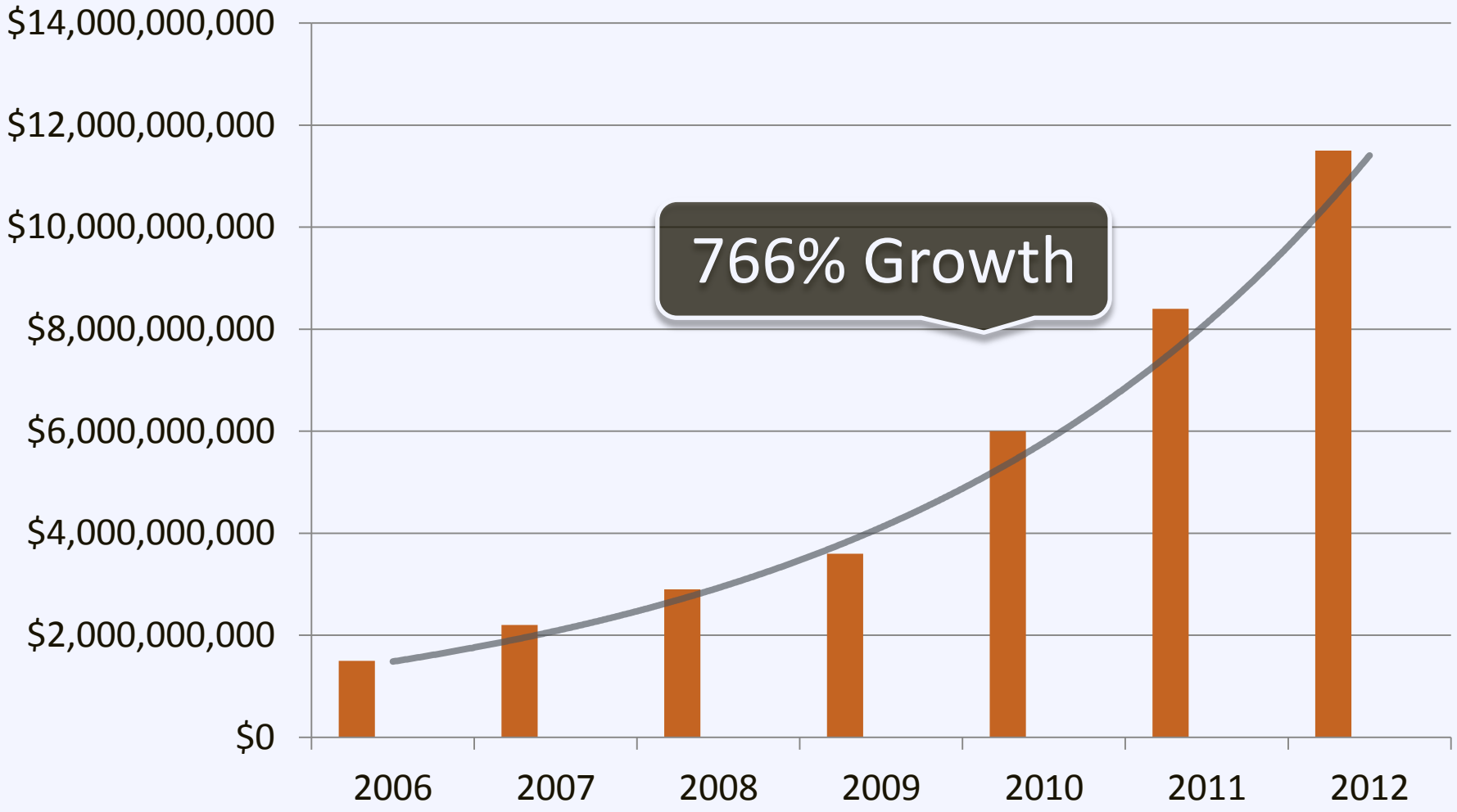


- Environment
- Energy Diversity
- Energy Awareness
- Cost Savings
- Jobs
- Reduced Peak Demand
- Community Building
- Distributed Power Needs

Benefits of Solar Energy

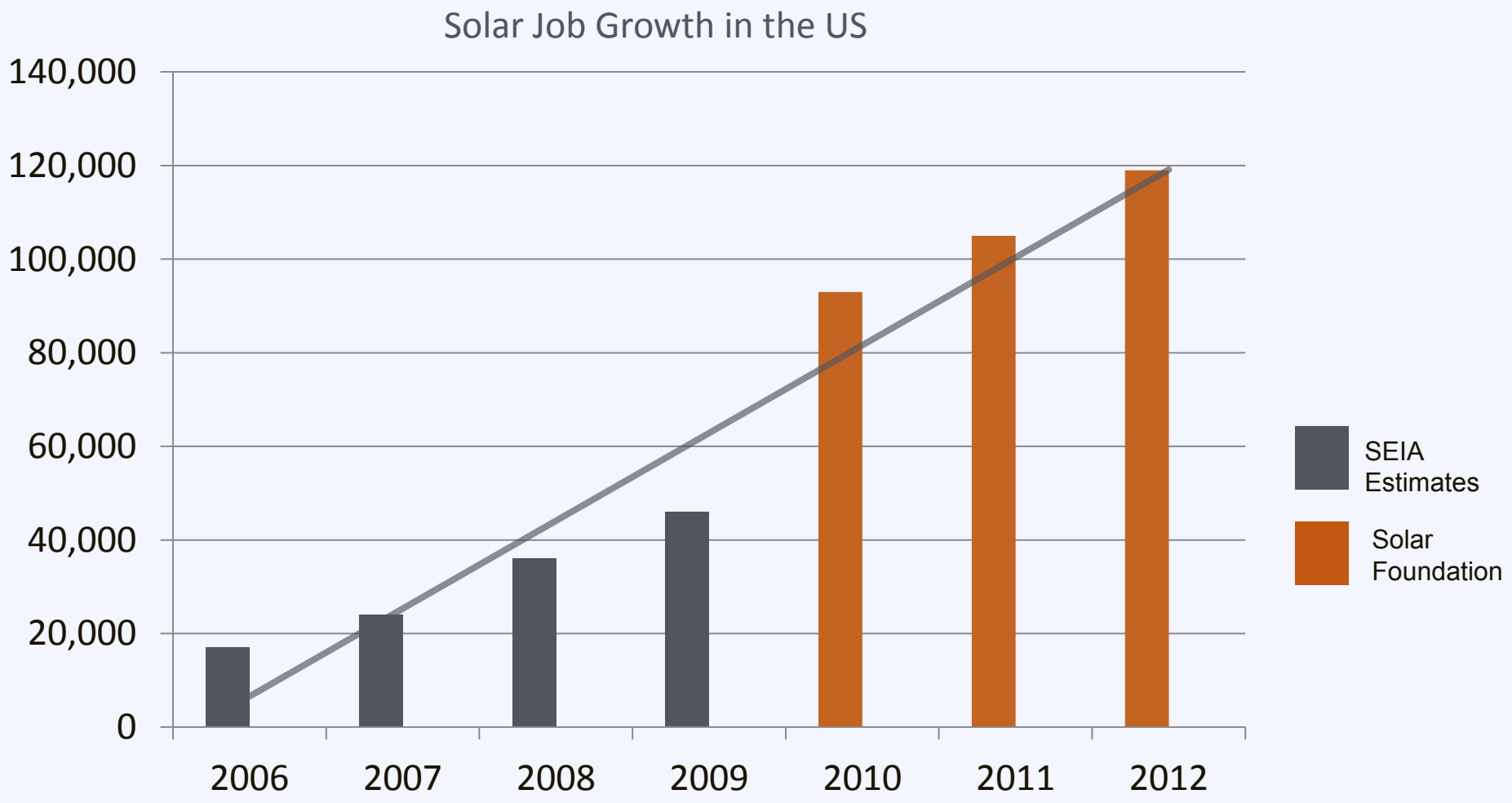
- Local economy growth
- Local jobs
- Energy independence
- Stabilizes price volatility
- Valuable to utilities
- Smart investment

Benefit: Economic Growth



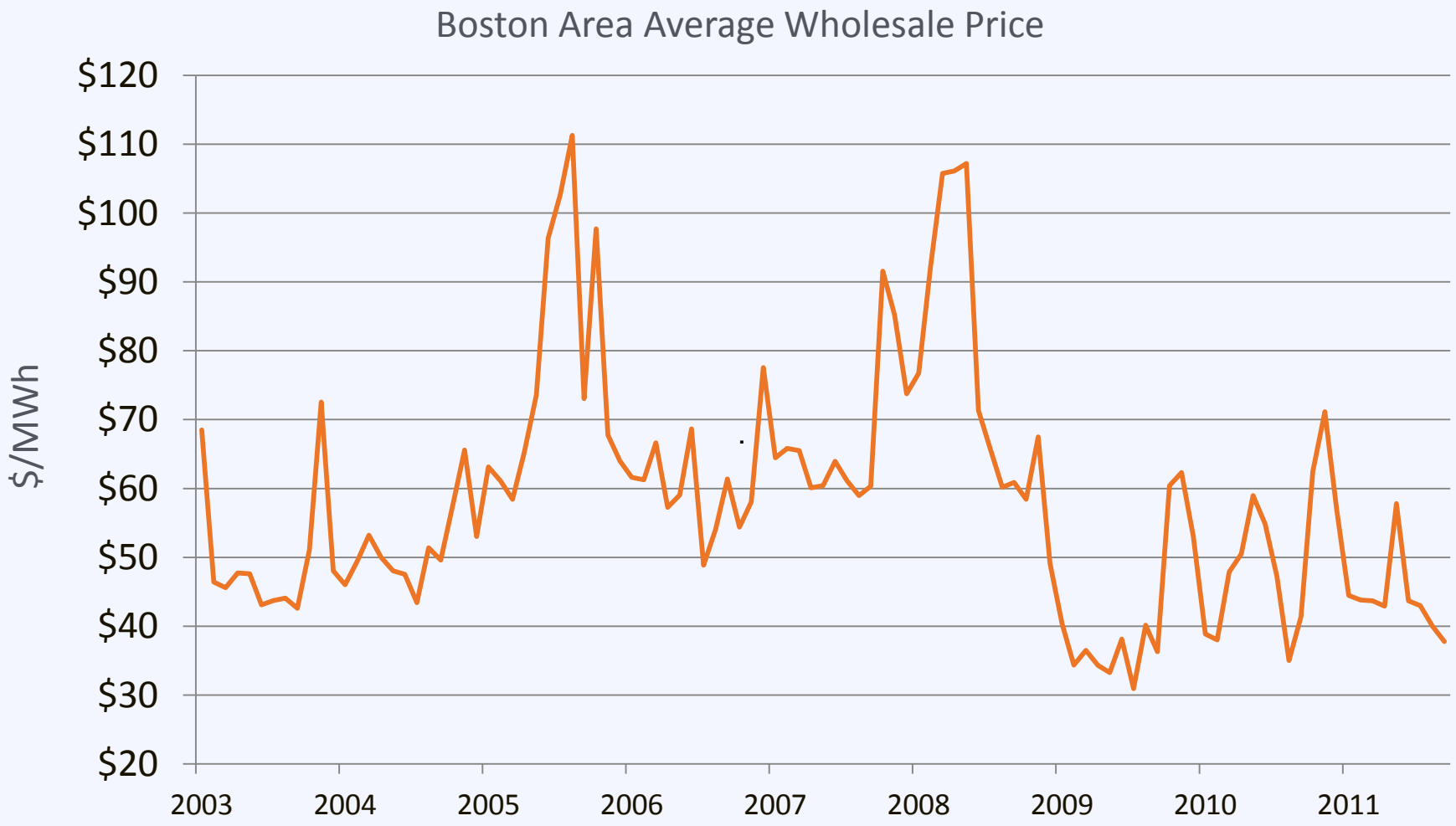
Source: SEIA/GTM Research – 2009/2010/2011/2012 Year in Review Report
http://www.seia.org/research-resources/us-solar-market-insight

Benefit: 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).

Benefit: Stabilize Energy Prices



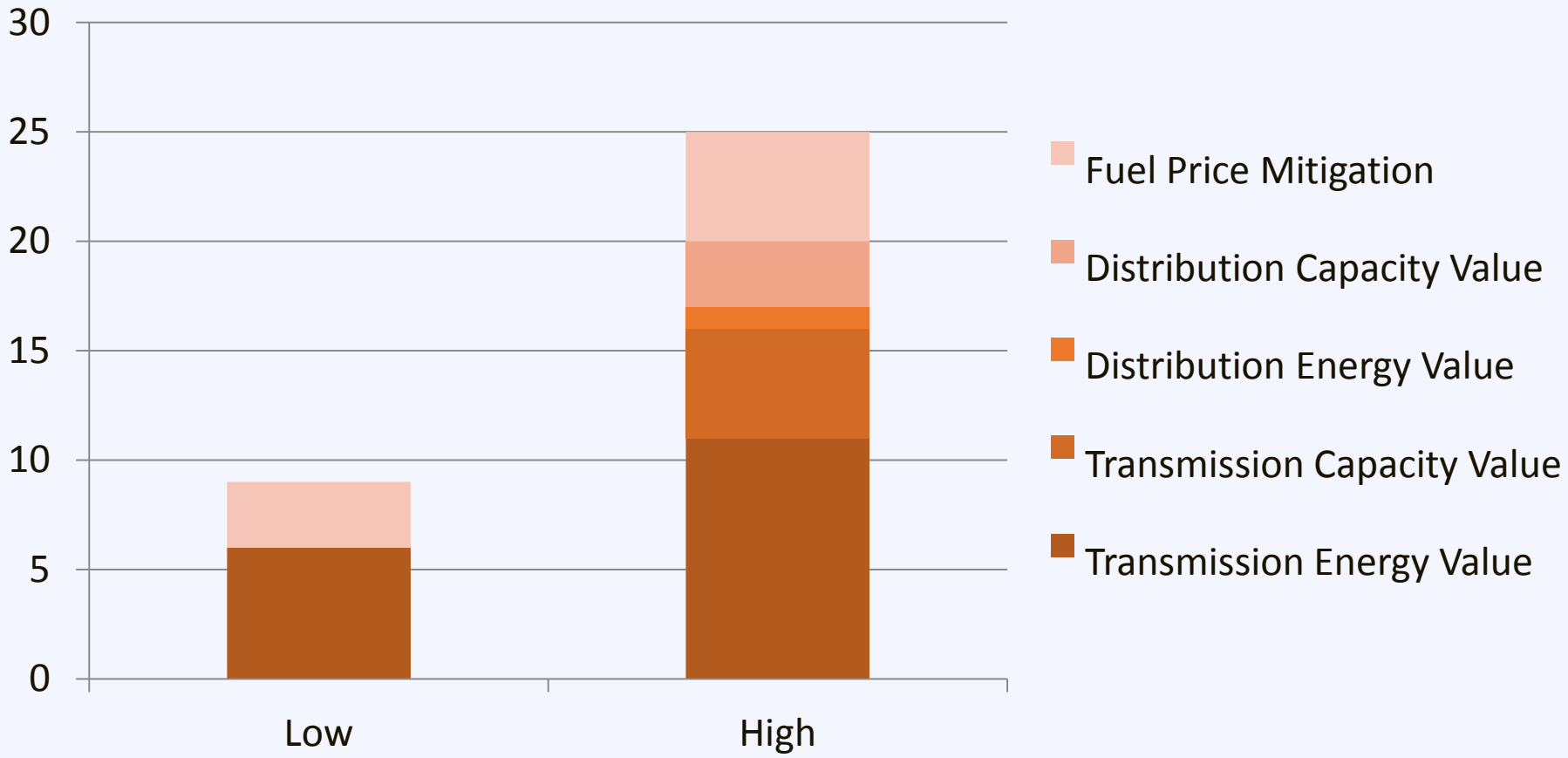
Source: NEPOOL

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

Benefits: Valuable to Utilities

Value to the utility is **10 to 25 cents** beyond the value of the electricity



Source: http://www.asrc.cestm.albany.edu/perez/2011/solval.pdf

Benefit: Smart Investment for Homes

From NREL:

Solar homes sold

20% faster

and for

17% more

than the equivalent non-solar homes

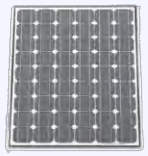
in surveyed California subdivisions

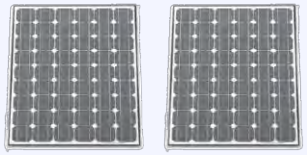
Powered by SunShot U.S. Department of Energy

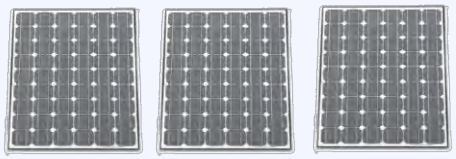
Source: http://www.nrel.gov/docs/fy07osti/38304-01.pdf

Benefit: Smart Investment for Homes

From SunRun:

3 kW  = **$ 16,500** *added sale premium*

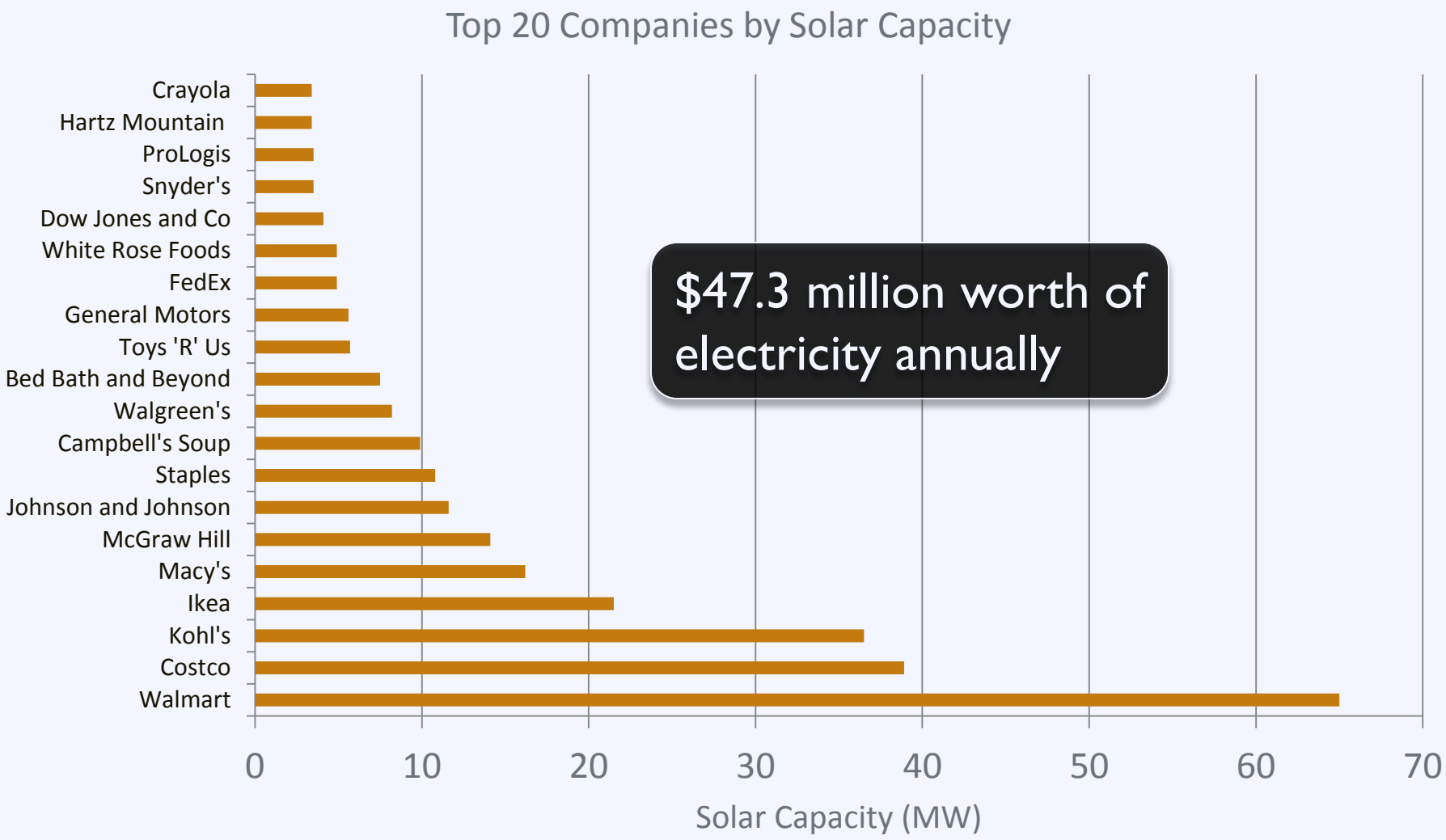
6 kW  = **$ 33,000** *added sale premium*

9 kW  = **$ 49,500** *added sale premium*

Source: Tracking the Sun IV, SunRun

Benefit: Smart Investment for Business

Benefit: Smart Investment for Business



Powered by SunShot U.S. Department of Energy

Source: Solar Energy Industries Association

Benefit: Smart Investment for Government

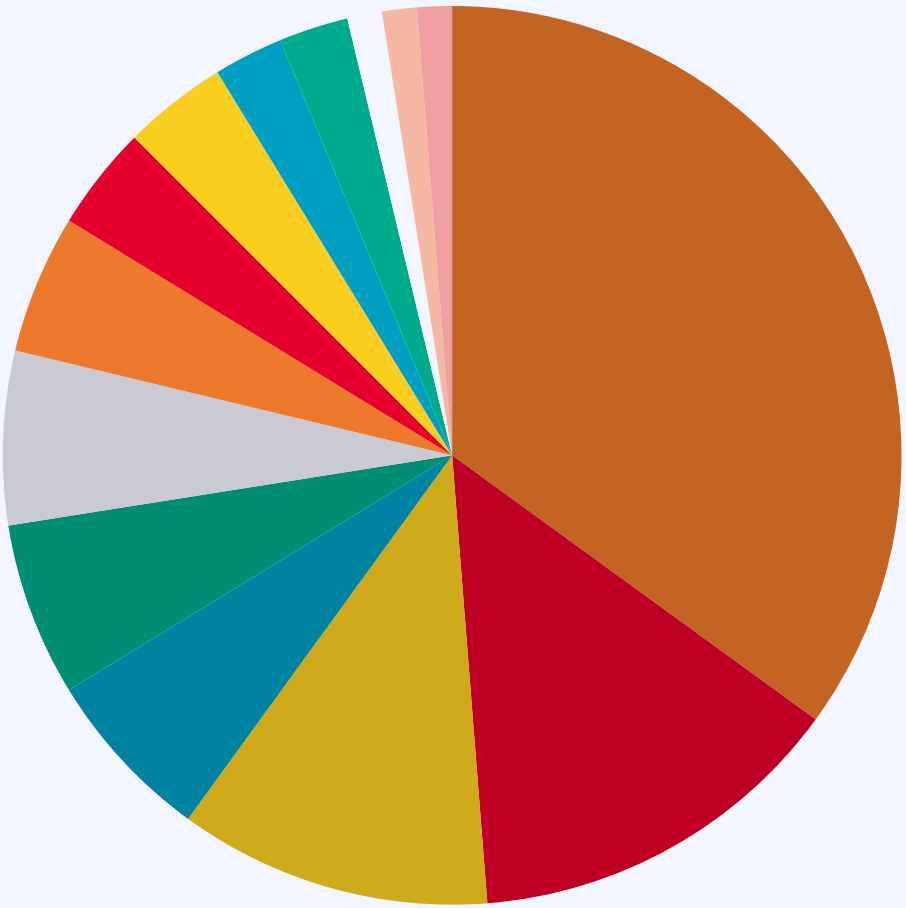
Source: Borrego Solar

Activity: Addressing Barriers

What is the greatest barrier to solar adoption in your community? [Green Card]

Right Now	During Session	After Break
		
Write answer on card	Compile results	Group discussion

Barriers



- Cost
- Lack of Education
- Lack of financial Incentives
- Slow ROI
- HOA's
- Confidence in Technology
- Competing Interests
- Utilities
- Local Codes
- Politics
- Lack of Certified Installers
- Net Metering
- Soft Costs
- Aesthetics

Some things you may hear…

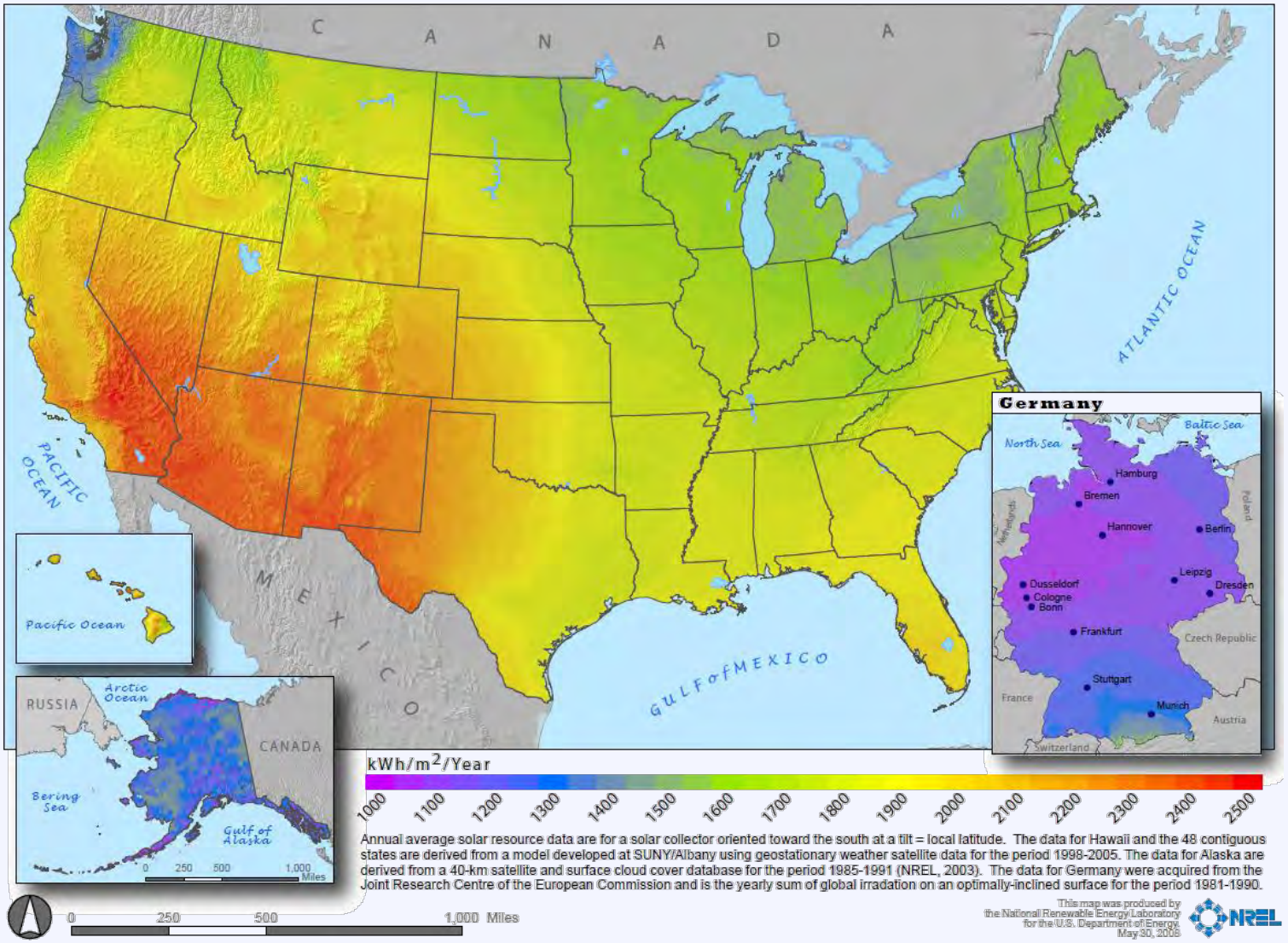
My area isn't sunny enough for solar

Going solar is too expensive

Solar is not ready to compete as a serious energy source

The government should not "pick winners and losers"

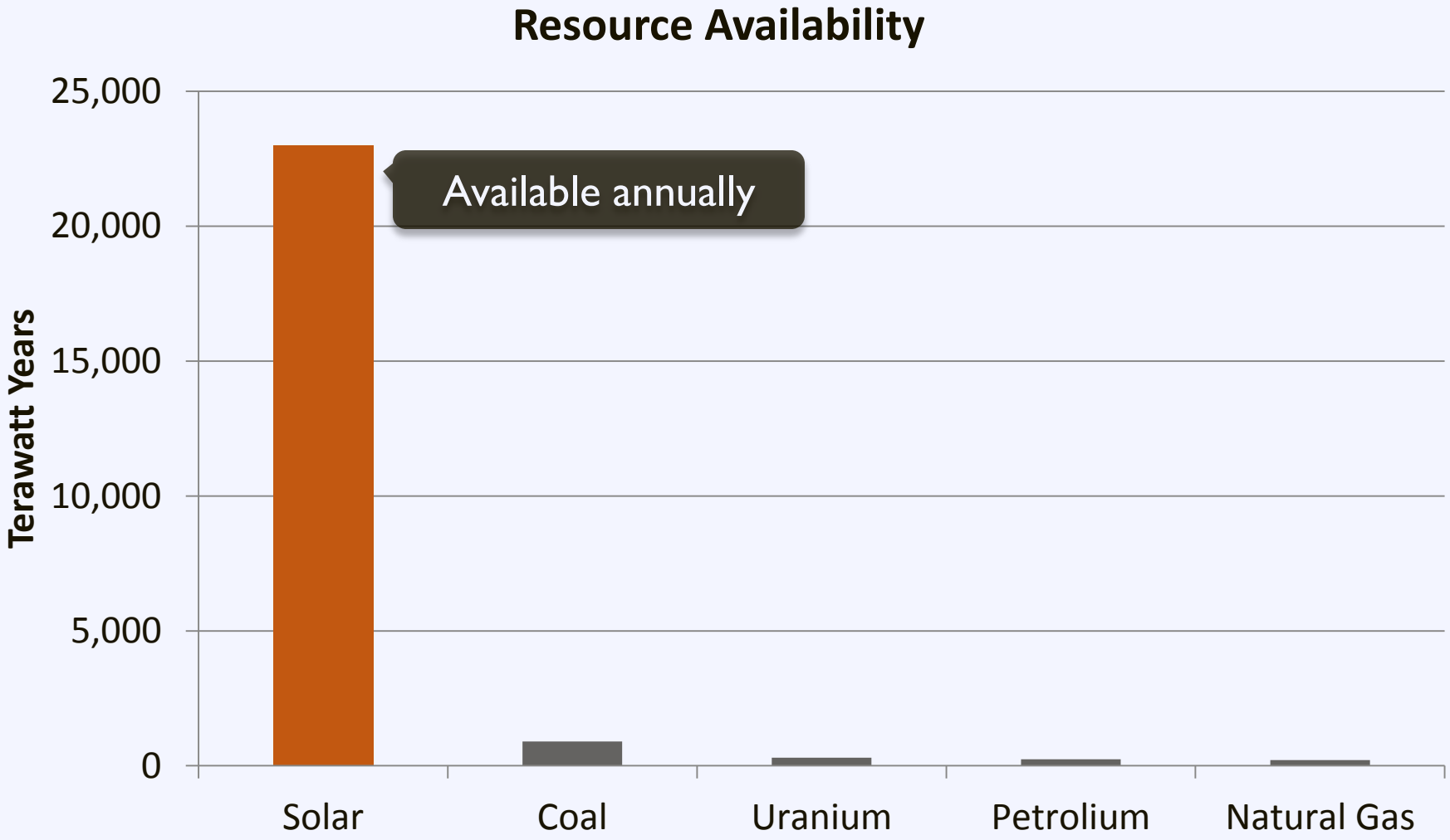
Fact: Solar works across the US



Powered by SunShot
U.S. Department of Energy

Source: National Renewable Energy Laboratory

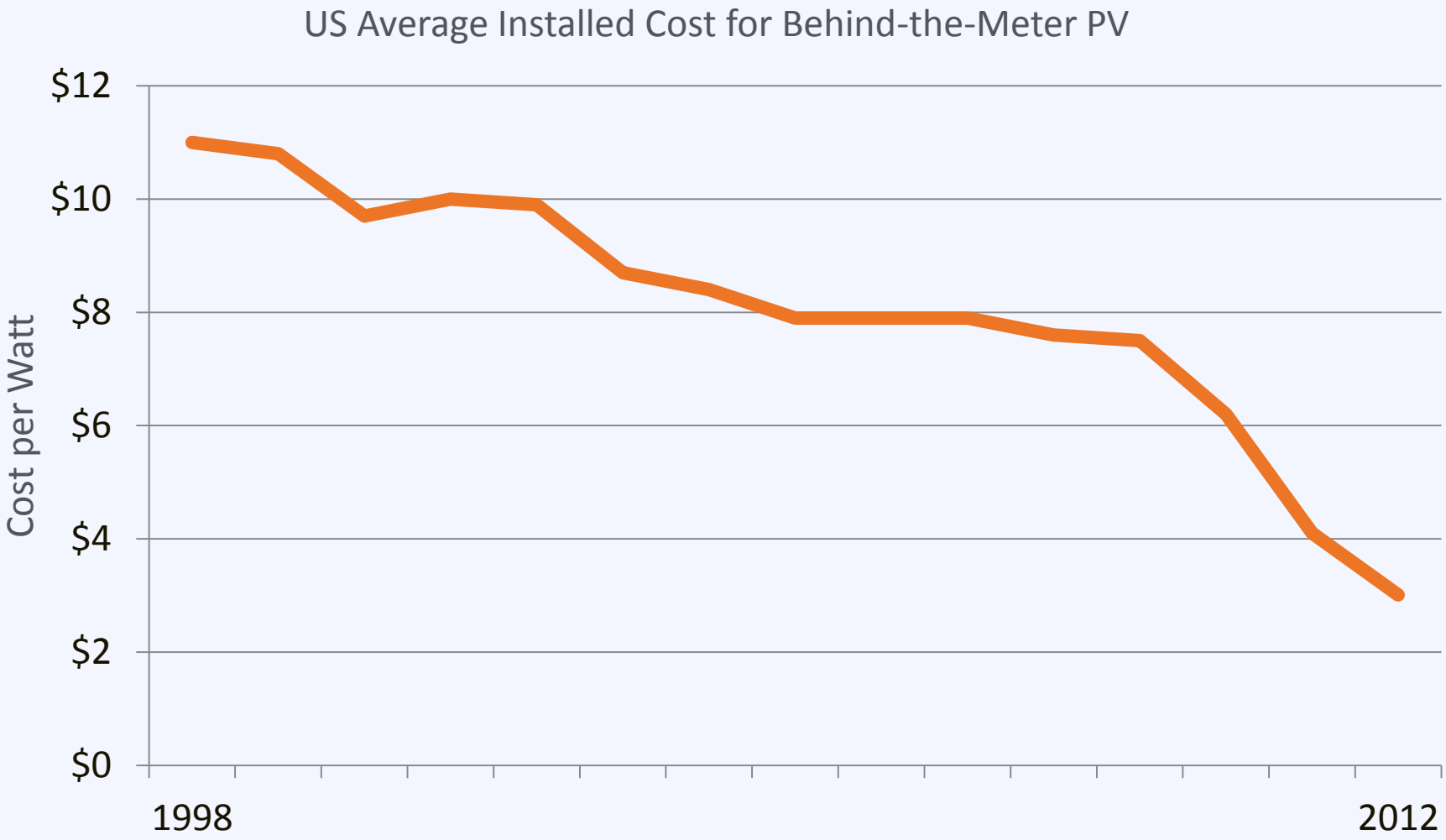
Fact: Solar is a ubiquitous resource



Powered by SunShot U.S. Department of Energy

Source: Perez & Perez. 2009. *A fundamental look at energy reserves for the planet.*

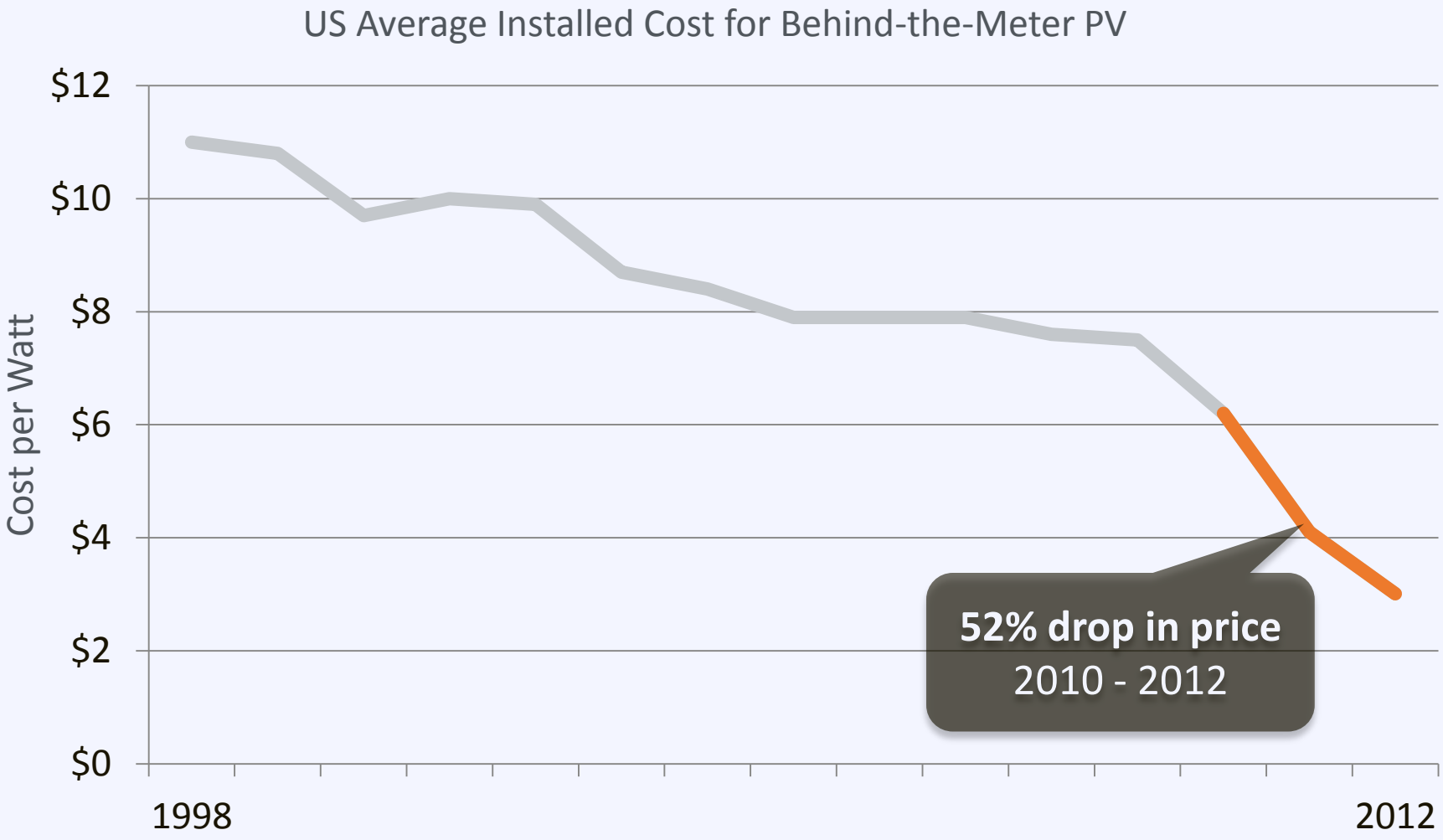
Fact: Solar is cost competitive



Tracking the Sun IV: The Installed Cost of Photovoltaics in the US from 1998-2010 (LBNL), SEIA/GTM Research *Solar Market Insight 2012 Year-in-Review.*

Powered by SunShot U.S. Department of Energy

Fact: Solar is cost competitive

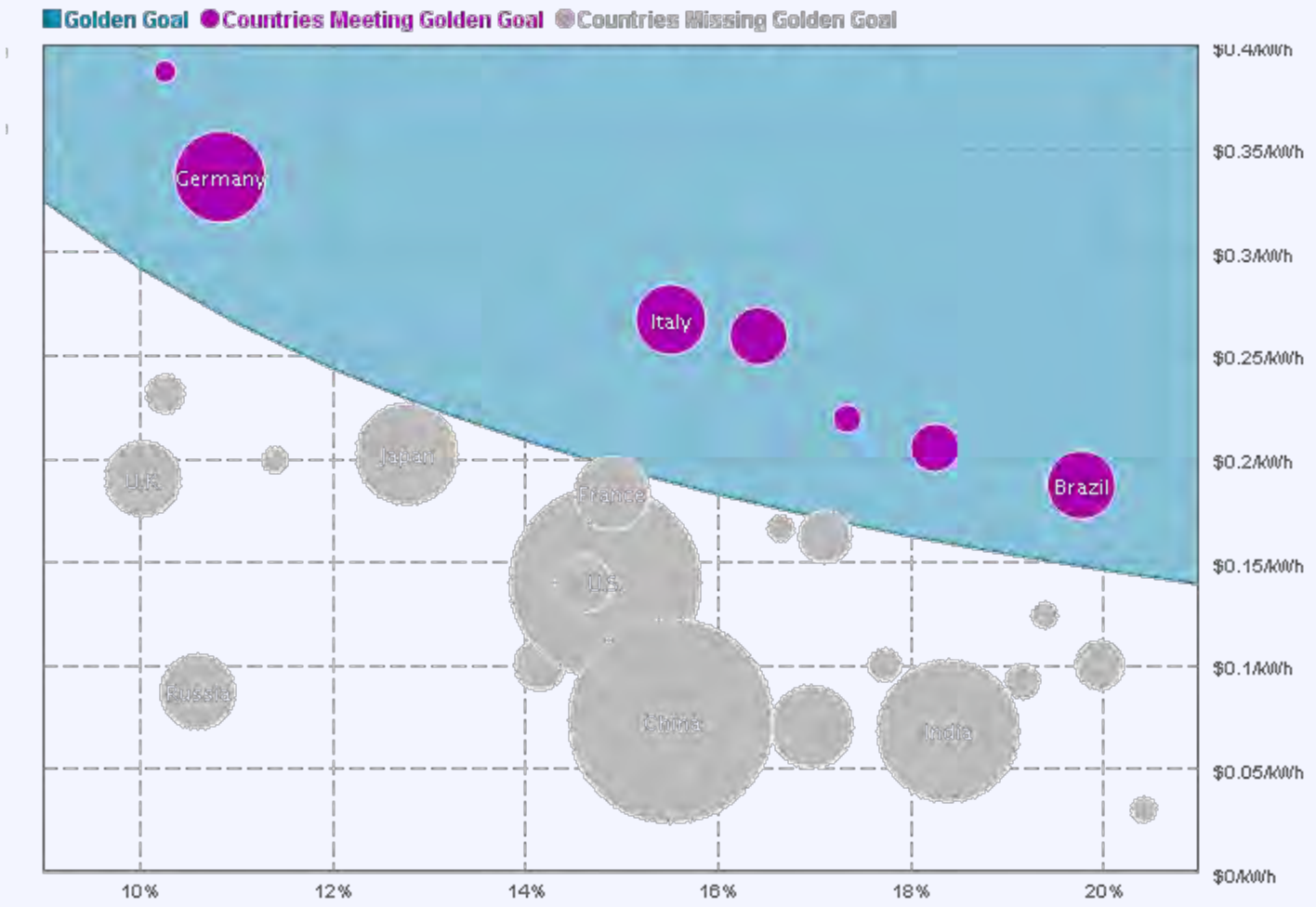


Tracking the Sun IV: The Installed Cost of Photovoltaics in the US from 1998-2010 (LBNL), SEIA/GTM Research *Solar Market Insight 2012 Year-in-Review.*

Powered by SunShot U.S. Department of Energy

Fact: Solar is cost competitive

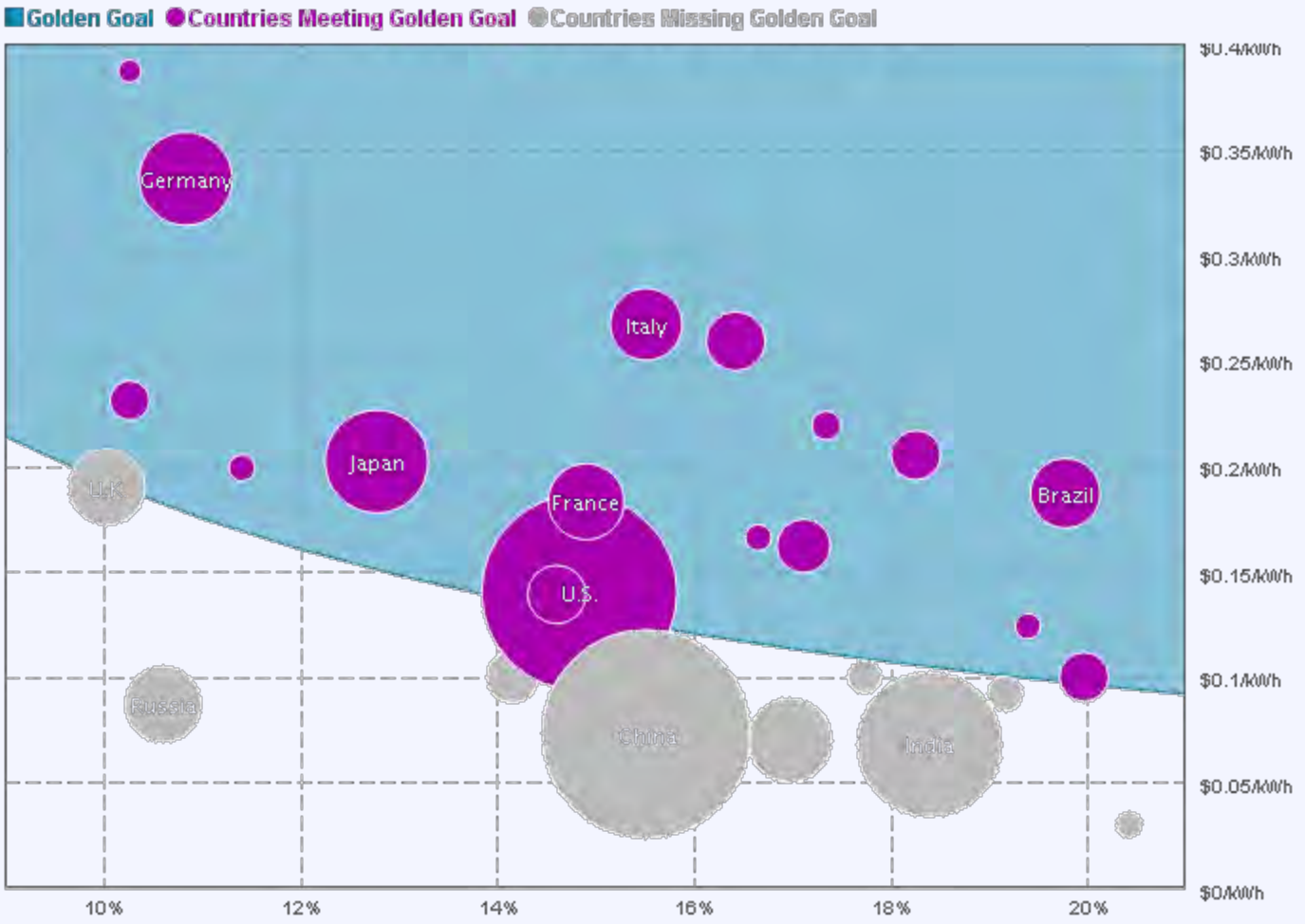
2012



Source: Bloomberg

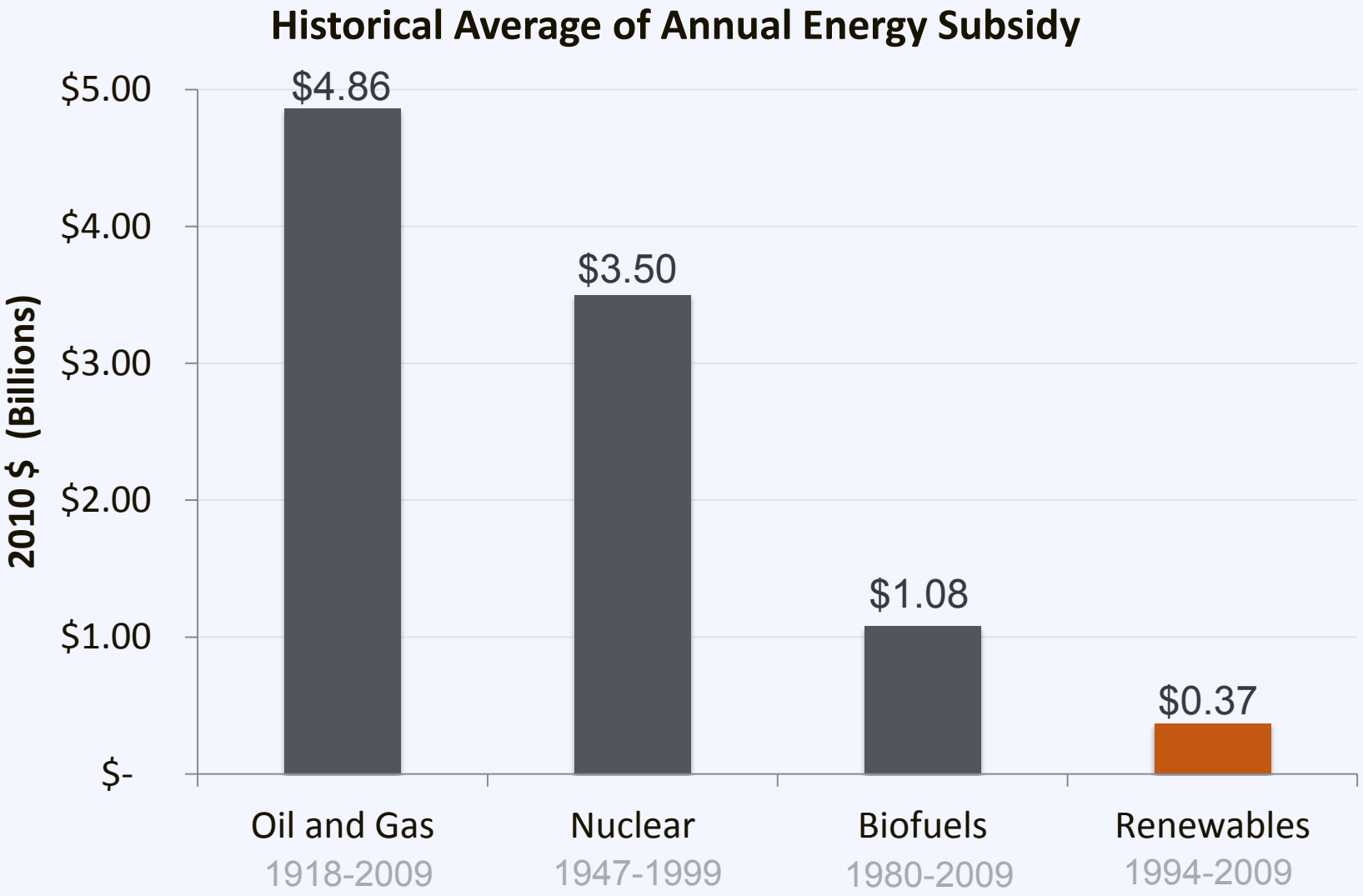
Fact: Solar is cost competitive

2020



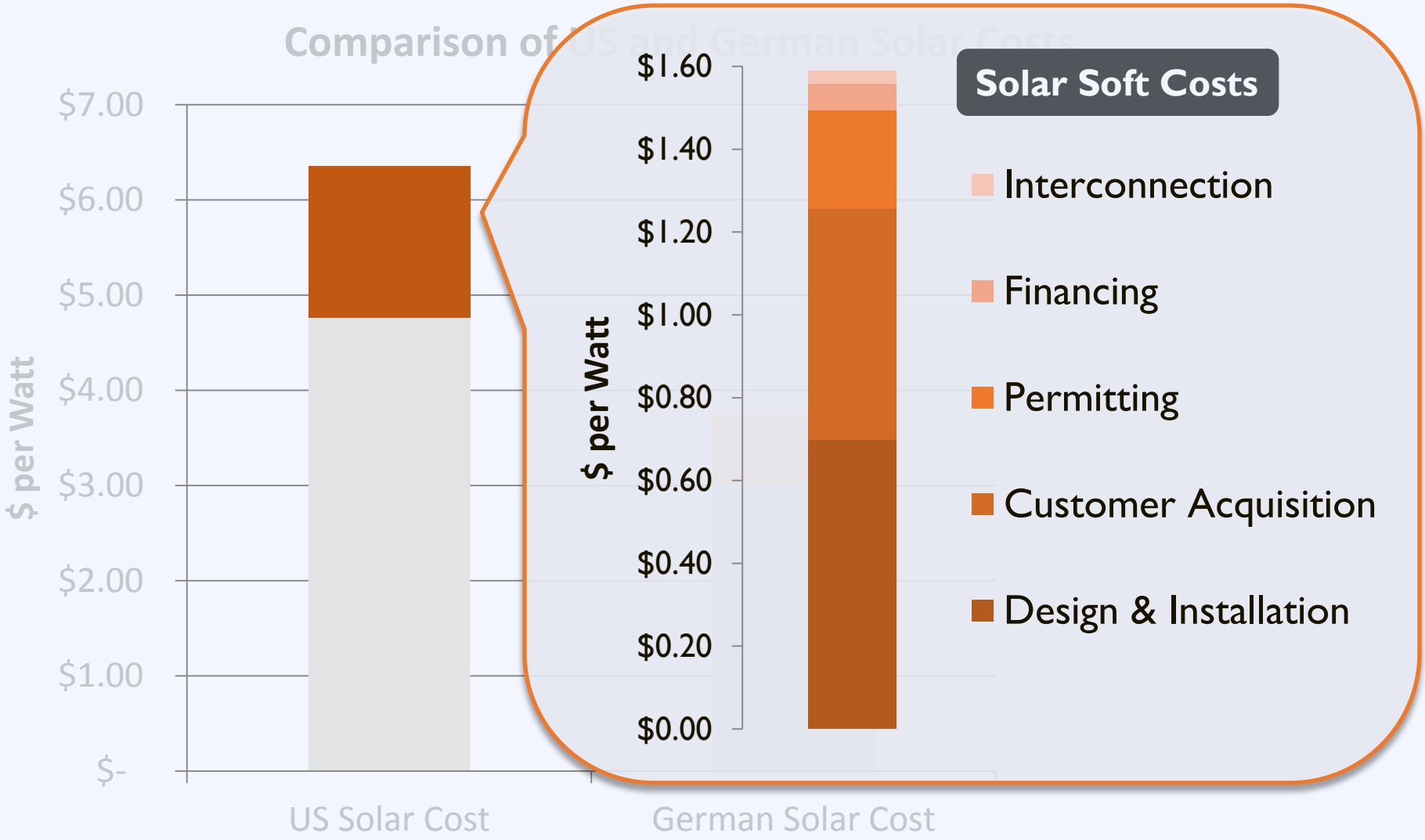
Source: Bloomberg

Fact: All energy is subsidized



Sources: DBL Investors

Barriers Still Exist



Powered by SunShot U.S. Department of Energy

Source: NREL (http://ases.conference-services.net/resources/252/2859/pdf/SOLAR2012_0599_full%20paper.pdf) (http://www.nrel.gov/docs/fy12osti/53347.pdf) (http://www.nrel.gov/docs/fy12osti/54689.pdf)

Q & A

Agenda

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The Solar Equation

Cost

+ Installed Cost

+ Maintenance

- Direct Incentive

Benefit

+ Avoided Energy Cost

+ Excess Generation

+ Performance Incentive

The Solar Equation

Cost

+ Installed Cost

+ Maintenance

- Direct Incentive

Benefit

+ Avoided Energy Cost

+ Excess Generation

+ Performance Incentive

Incentives

Federal	Investment Tax Credit	Accelerated Depreciation	QECBs
State	LoanSTAR Revolving Loan Program	Energy Device Franchise Tax Deduction	
Utility	**Denton Muni** Solar Rebate Program	**CoServ** Solar Rebate Program	**Oncor Electric** Solar Standard Offer Program

Incentives

Federal	Investment Tax Credit	Accelerated Depreciation	QECBs
State	LoanSTAR Revolving Loan Program	Energy Device Franchise Tax Deduction	
Utility	**Denton Muni** Solar Rebate Program	**CoServ** Solar Rebate Program	**Oncor Electric** Solar Standard Offer Program

Investment Tax Credit

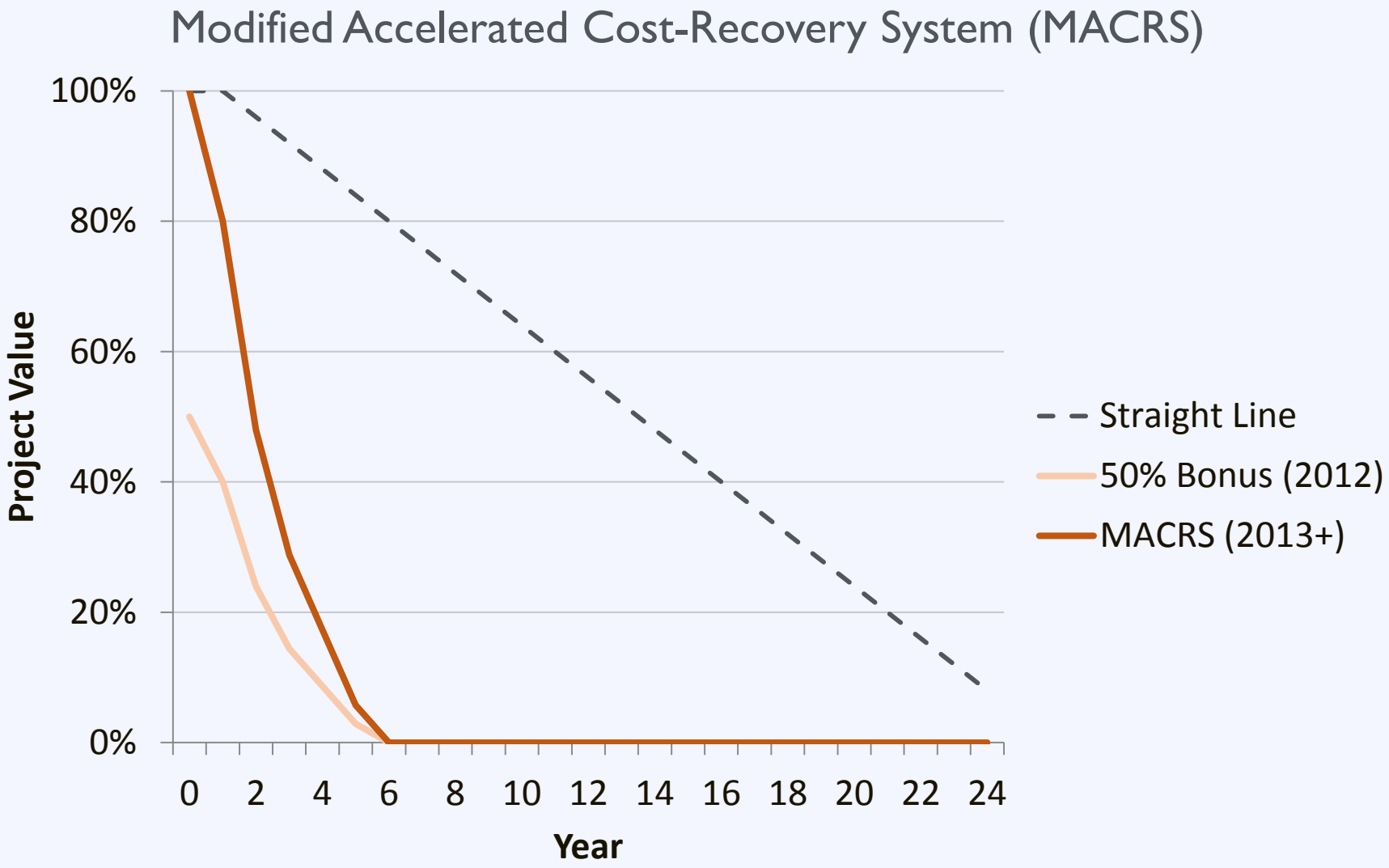
Type: Tax Credit

Eligibility: For-Profit Organization

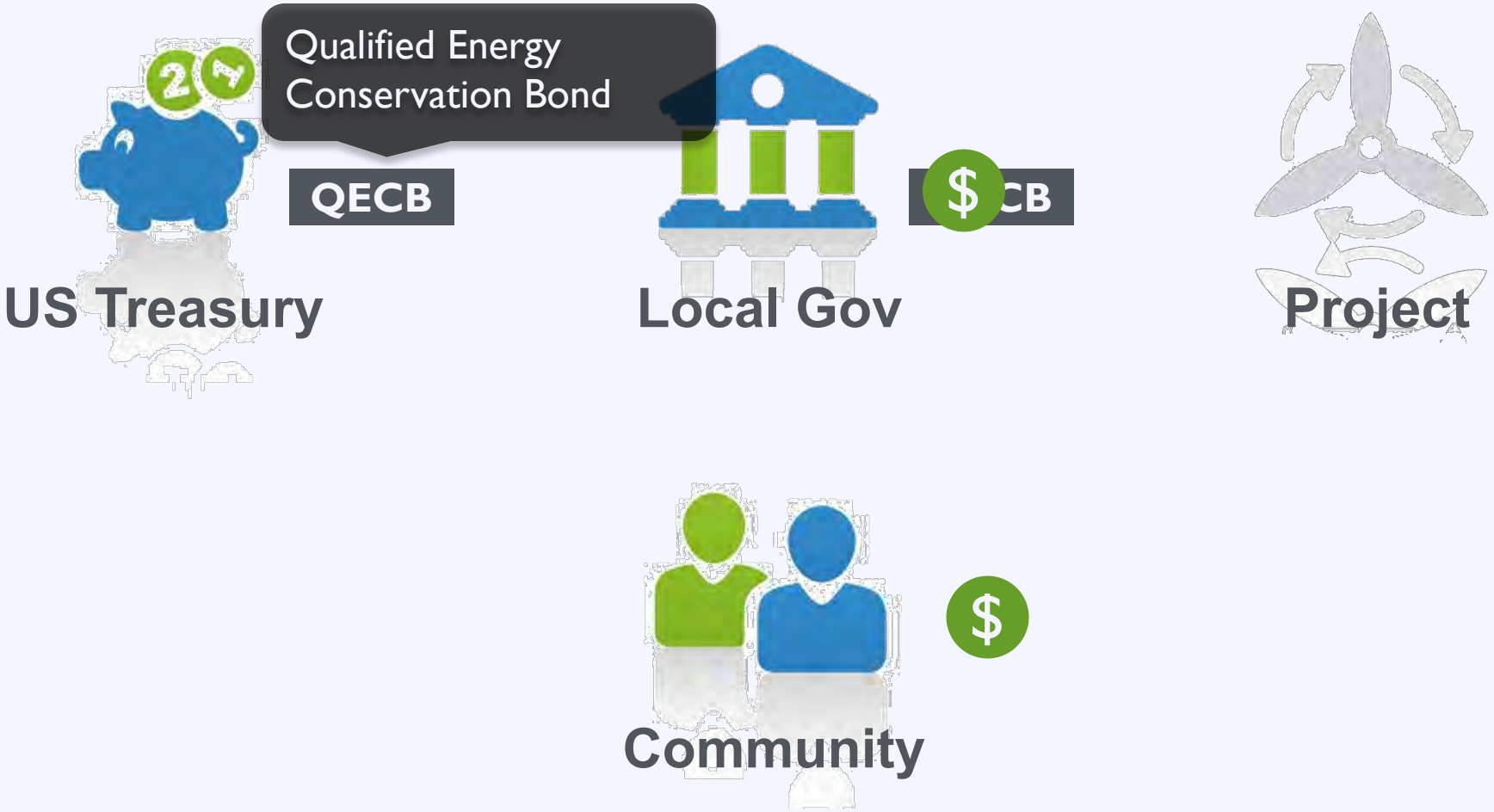
Value: 30% of the installation cost

Availability: Through 2016

Accelerated Depreciation



Qualified Energy Conservation Bond



Qualified Energy Conservation Bond

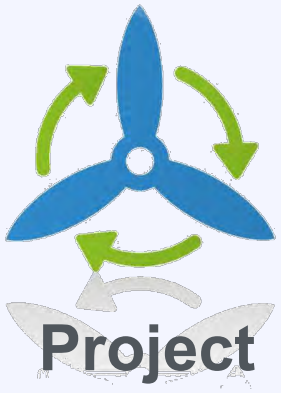
US Treasury

+ 3.7%

+ 2.3%

$

Local Gov



Project

QECB

Community

Incentives

Federal	Investment Tax Credit	Accelerated Depreciation	QECBs
State	LoanSTAR Revolving Loan Program	Energy Device Franchise Tax Deduction	
Utility	**Denton Muni** Solar Rebate Program	**CoServ** Solar Rebate Program	**Oncor Electric** Solar Standard Offer Program

LoanSTAR Revolving Loans

- 2013 Budget Allocation: $40 million
- Maximum loan amount of $7.5 million
  - 2% interest rate
- Loan recipients can be cities, counties, independent school districts, state agencies, public institutions of higher education, and tax-district supported public hospitals.
- Application deadline of June 7, 2013 for this round

Energy Device Franchise Tax Deduction

- Entities subject to the franchise tax (corporate tax) may deduct the cost of the solar energy device from their franchise tax
  - the total cost of the system may be deducted from the company's taxable capital; or,
  - 10% of the system's cost may be deducted from the company's income.

Incentives

Federal	Investment Tax Credit	Accelerated Depreciation	QECBs
State	LoanSTAR Revolving Loan Program	Energy Device Franchise Tax Deduction	
Utility	**Denton Muni** Solar Rebate Program	**CoServ** Solar Rebate Program	**Oncor Electric** Solar Standard Offer Program

Utility Rebate Programs

- AEP (SWEPCO) - SMART Source Solar PV Program
- AEP Texas Central Company - SMART Source Solar PV Rebate Program
- AEP Texas North Company - SMART Source Solar PV Rebate Program
- Austin Energy - Residential Solar PV Rebate Program
- City of San Marcos - Distributed Generation Rebate Program
- CoServ - Solar Energy Rebate
- CPS Energy - Solar PV Rebate Program
- Denton Municipal Electric - GreenSense Solar Rebate Program
- El Paso Electric Company - Solar PV Pilot Program
- Guadalupe Valley Electric Cooperative - Renewable Energy Rebates
- Oncor Electric Delivery - Solar Photovoltaic Standard Offer Program
- Xcel Energy - Residential and Hard-to-Reach Standard Offer Program

Denton Muni – GreenSense Solar Rebate

- Direct incentive:
  - $3.00 per Watt AC
  - Maximum of $15,000 per structure
  - Applicants qualify only once per 12-month period
  - May require pre-inspection and post-inspection by DME
  - Must be applied for by a home or rental property owner
  - Equipment must come with a five (5) year warranty.

CoServ – Solar Energy Rebate

- Direct incentive:
  - $2.00 per Watt AC
  - Maximum of $5,000 per structure
  - PV systems must be less than or equal to 50 kW, but the rebate is available only on the first 2.5 kW

Oncor – PV Standard Offer Program

- Direct incentive + performance incentive:
  - Residential: $538.79/kW AC
    - $0.53/kWh AC
  - Non-residential: $538.79/kW AC
    - $0.41/kWh AC
  - Residential: 1 kW to 10 kW DC
  - Non-residential: minimum 1 kW DC
  - Maximum rebate is equivalent to 20% of that year's funding allocation

Solar Financing Options

Solar Financing Options

Direct Ownership

Third Party Ownership

Direct Ownership

Direct Ownership

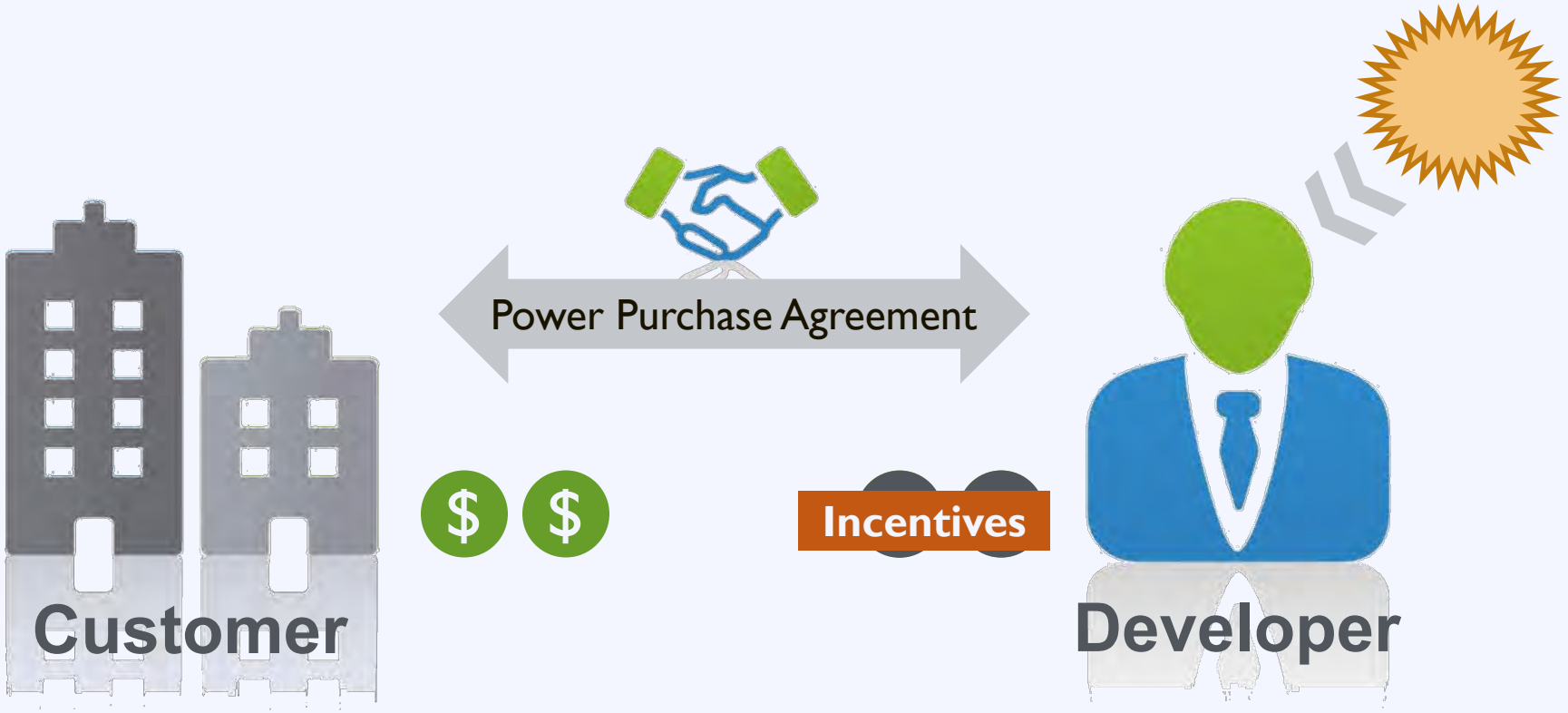
Pros

- Low – cost electricity
- REC revenue
- Full ownership

Cons

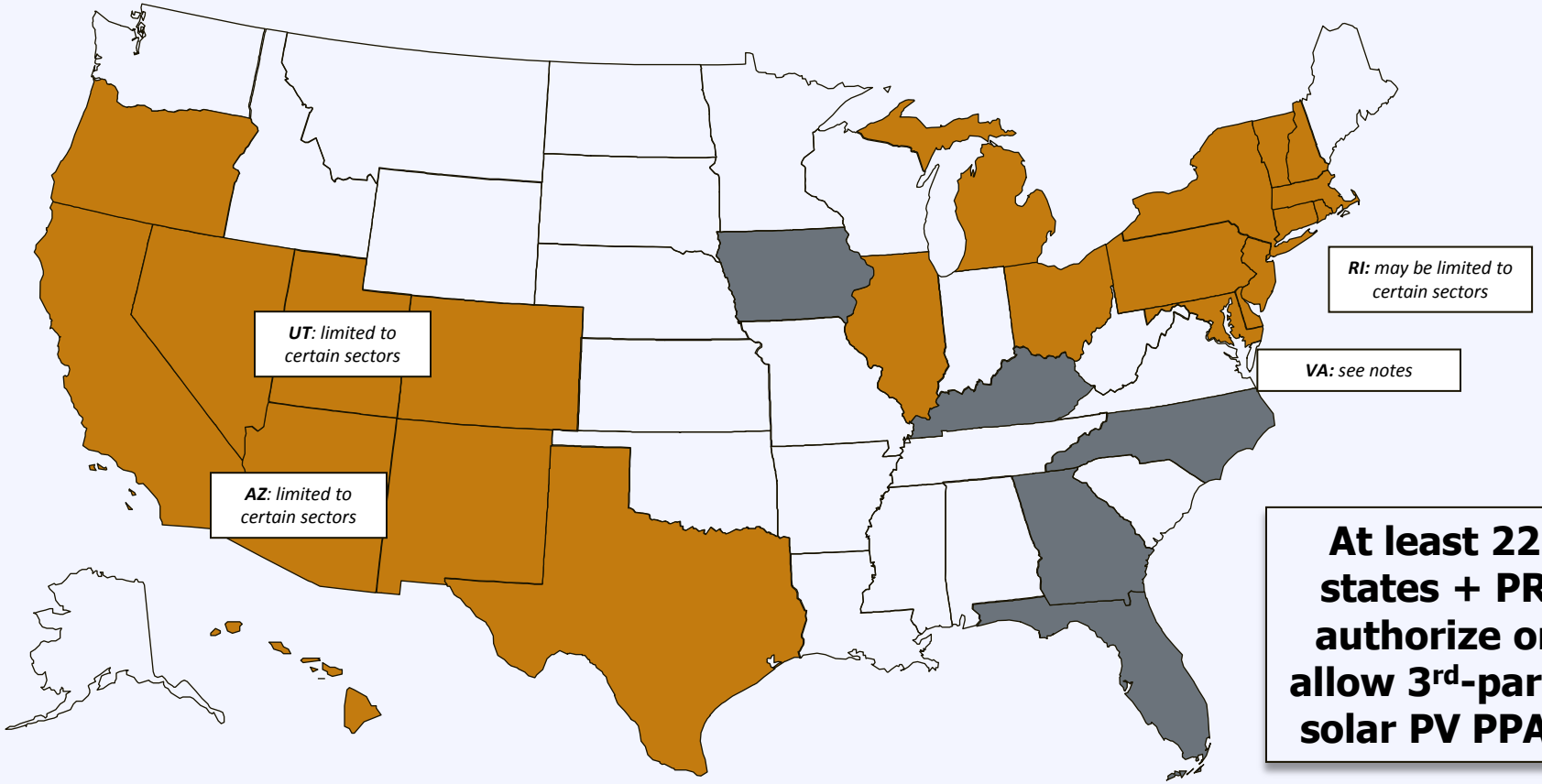
- Large upfront cost
- Long term management
- Can't take tax benefits
- Development risk
- Performance risk

Third Party Ownership: PPA



Third Party Ownership: PPA

www.dsireusa.org / August 2012



Note: This map is intended to serve as an unofficial guide; it does not constitute legal advice. Seek qualified legal expertise before making binding financial decisions related to a 3rd-party PPA. See following slides for additional important information and authority references.

Third Party Ownership

In the top 5 solar markets

60-90%

of new installations use third party ownership

Powered by SunShot U.S. Department of Energy

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

Third Party Ownership: PPA

Pros

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

Cons

- Not supported in all states
- Don't keep RECs

Third Party Ownership: Lease

Third Party Ownership: Lease

Pros

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

Cons

- Can't take tax benefits

Solar Financing Options

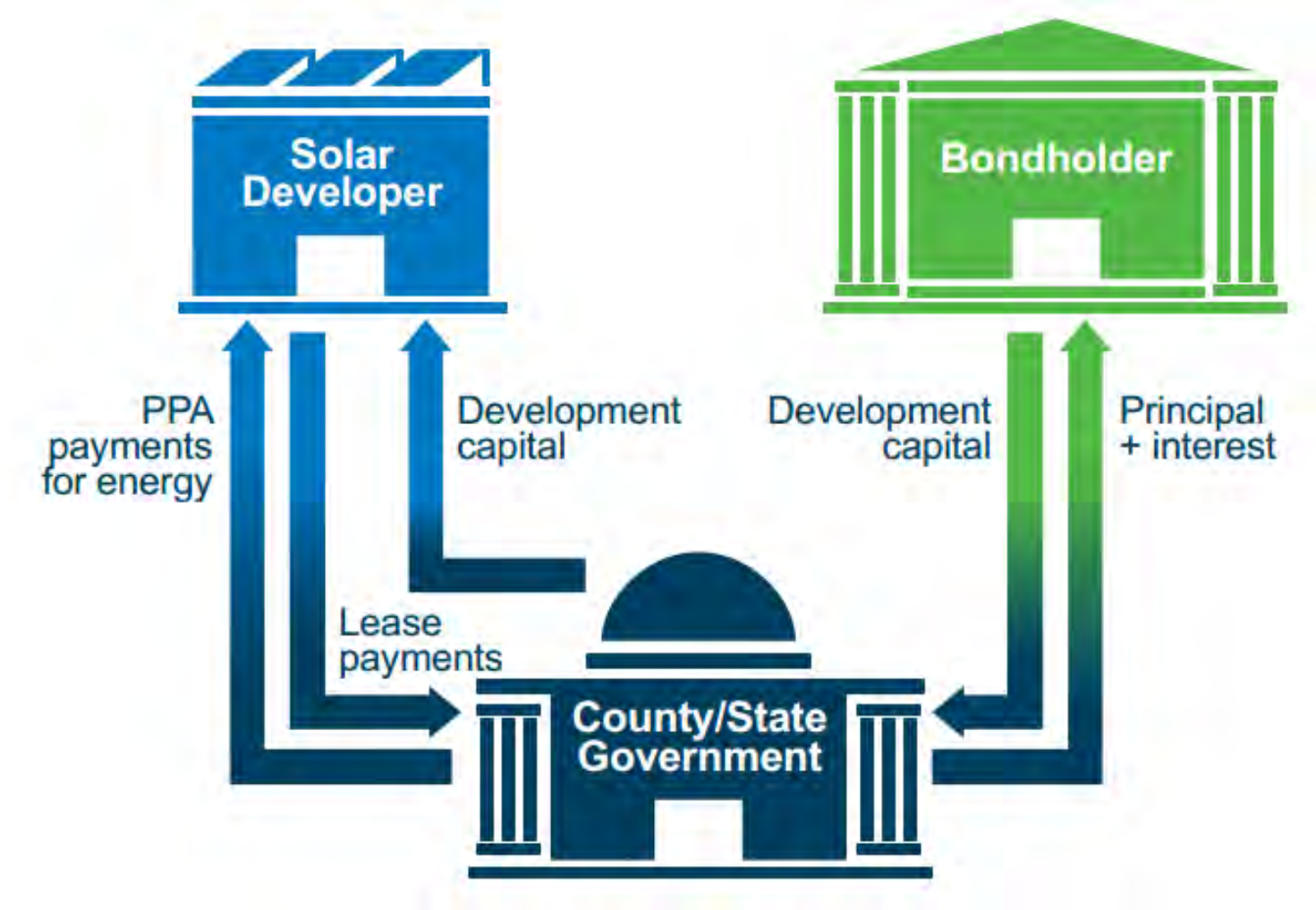
Direct Ownership

Direct Ownership

Third Party Lease

Direct Ownership

Bond-PPA Hybrid



Solarize

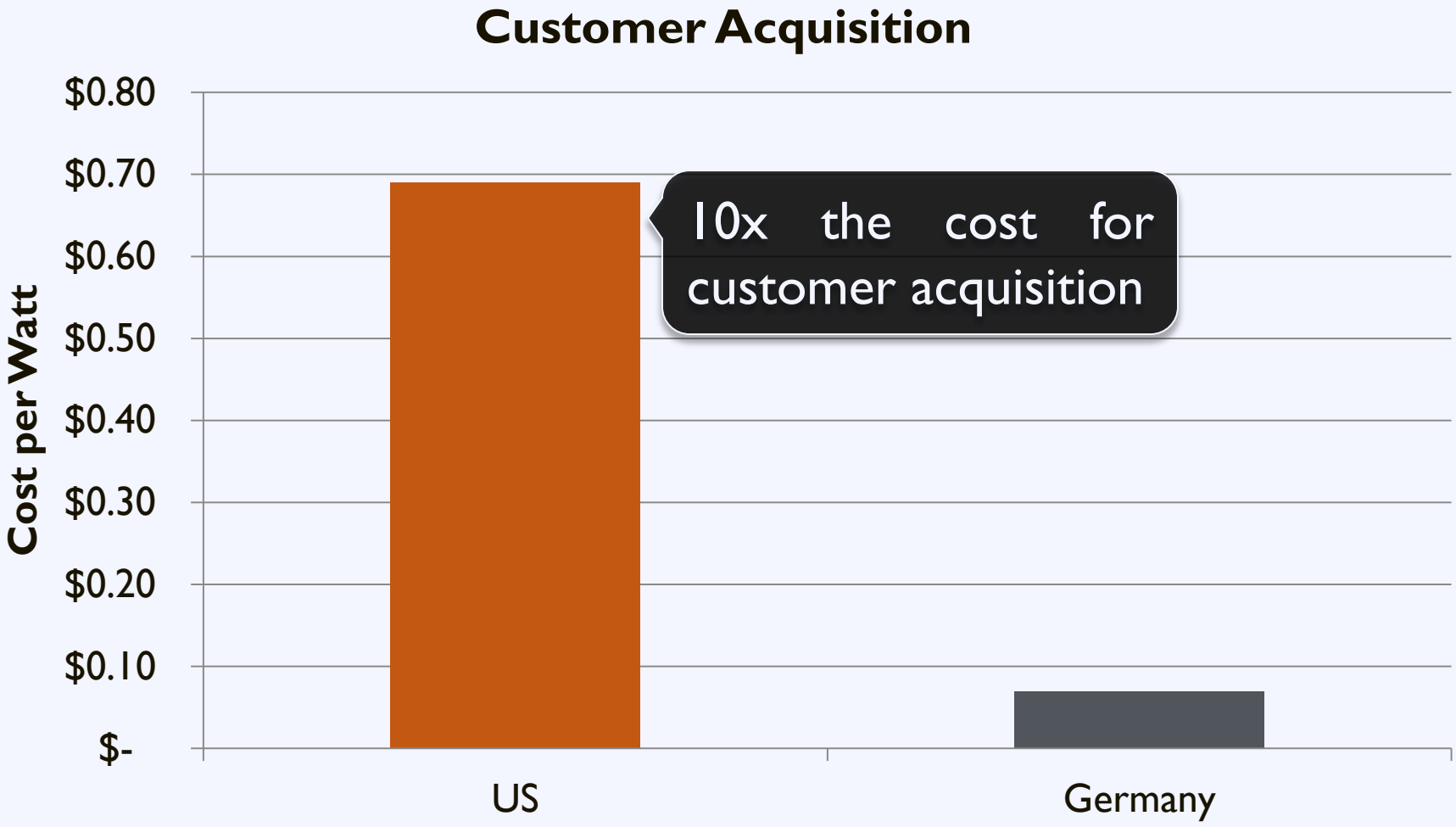
Solarize

Group Purchasing

Solarize: Advantages

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

Solarize: Advantages



Source: NREL, LBNL

Solarize: Advantages

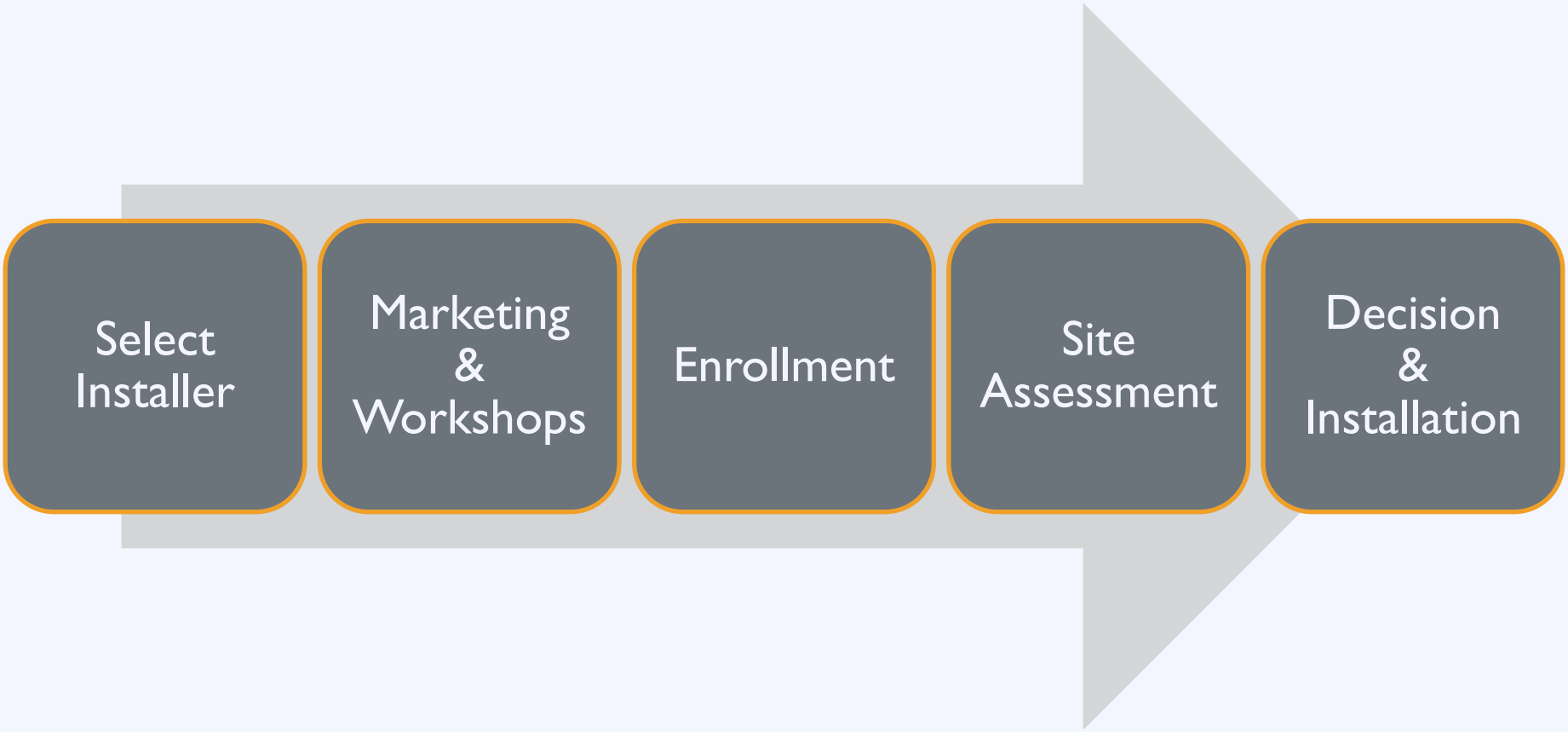
Benefits to Local Government:

Low upfront cost: $5,000 - $10,000 + Labor

Quick turn-around: 9 Months

Long-term impact: Sustainable ecosystem

Solarize: Process



Solarize: Case Study

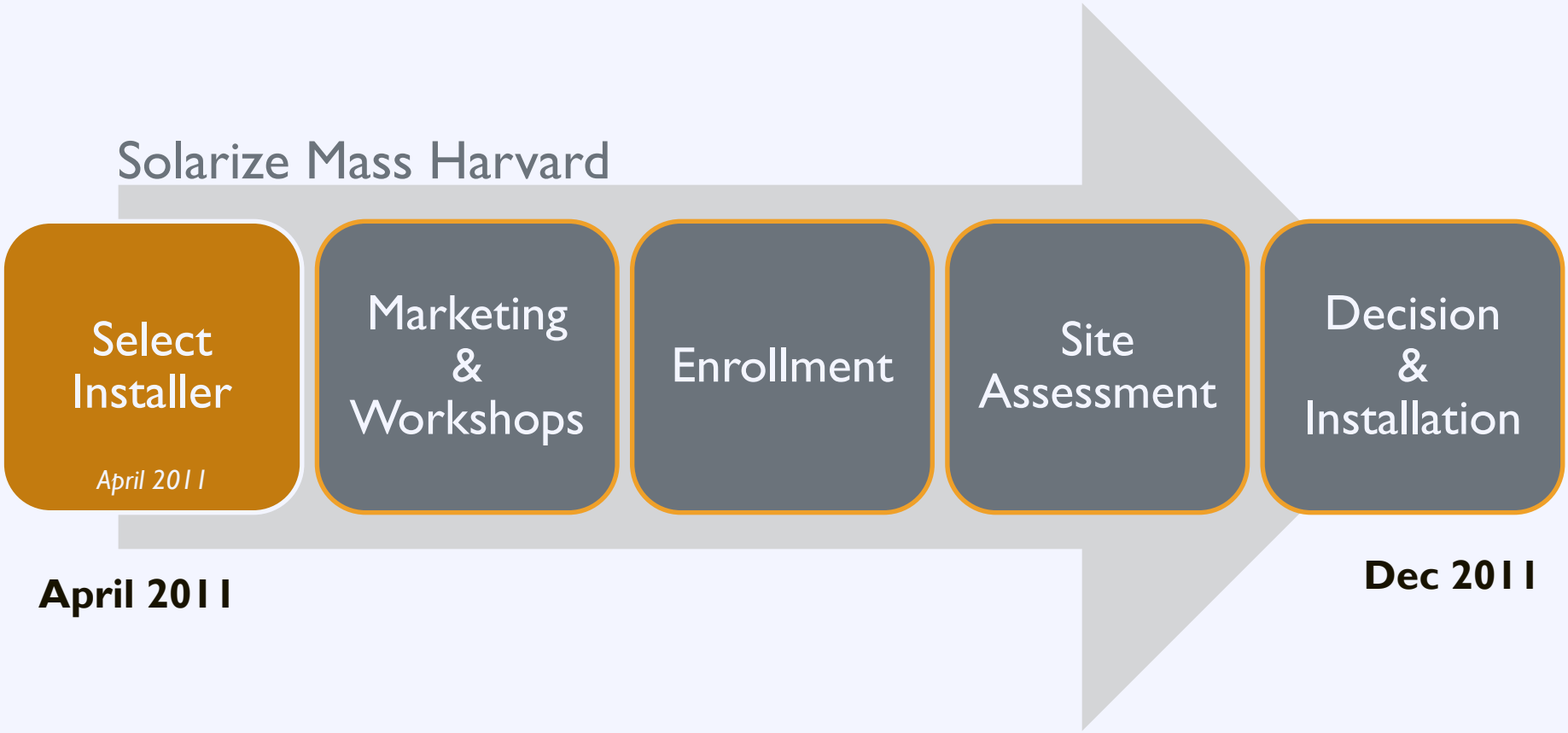
Harvard, Massachusetts

Population: 6,520

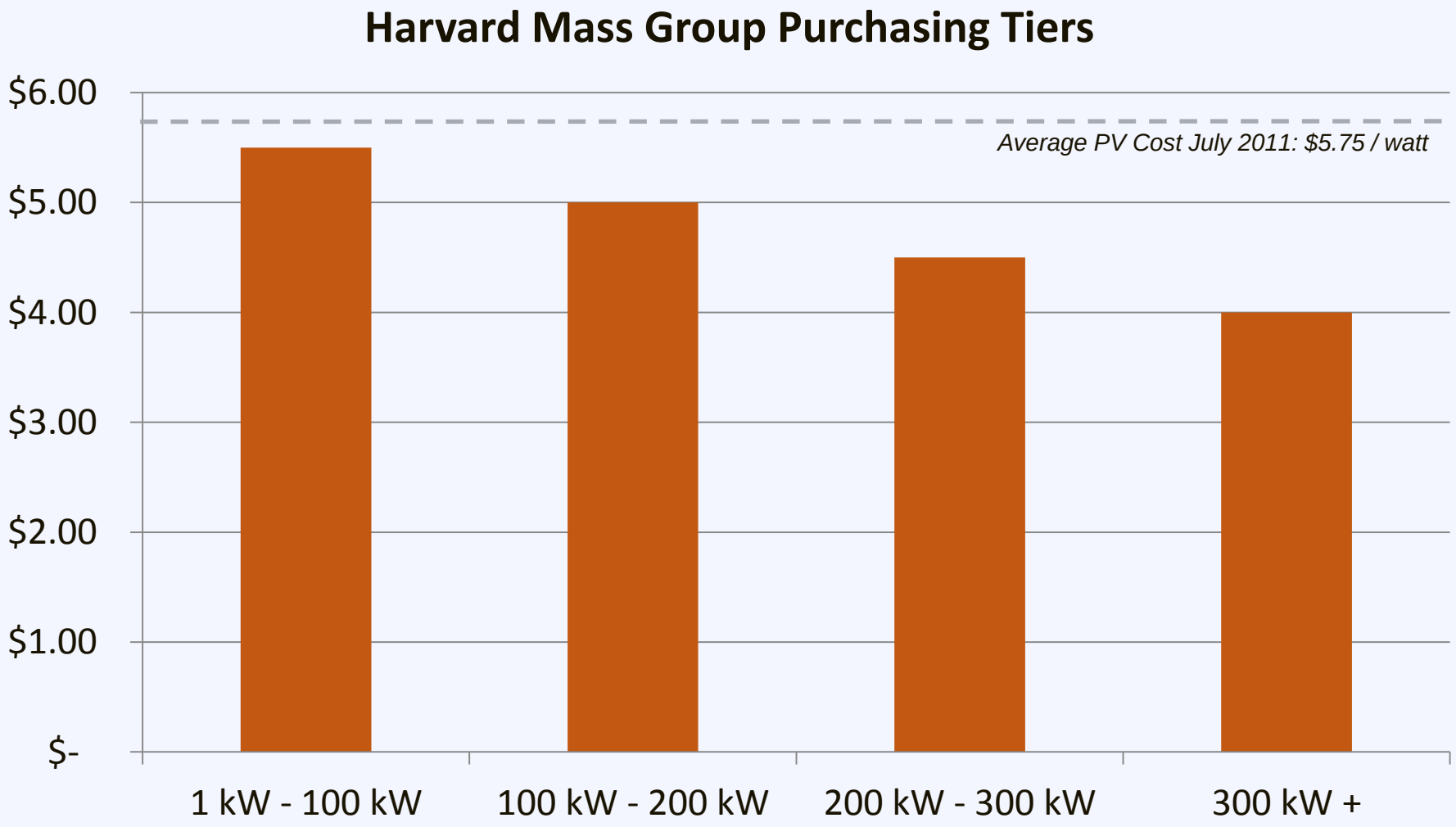
Powered by SunShot
U.S. Department of Energy

Source: Wikipedia

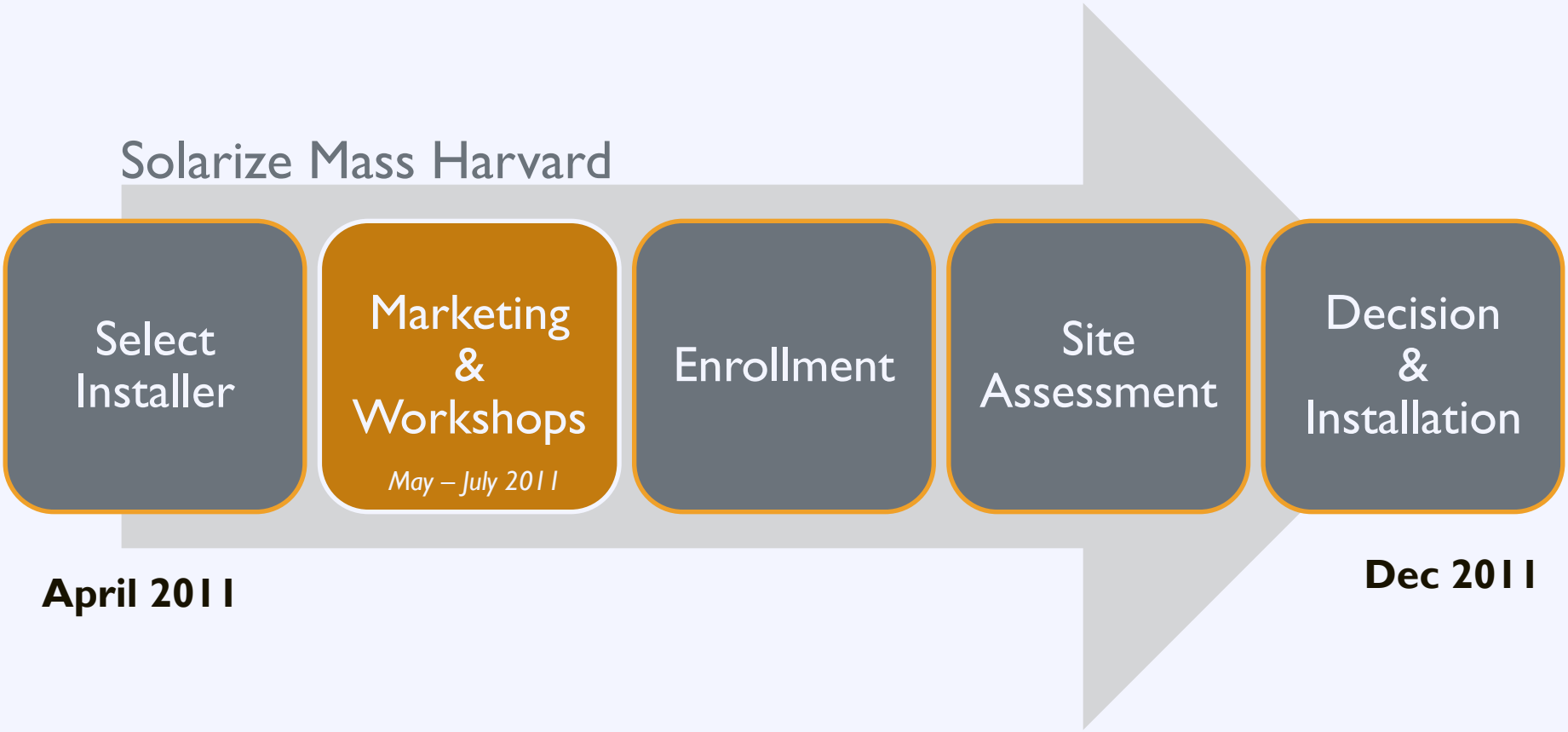
Solarize: Case Study



Group Purchasing



Solarize: Case Study



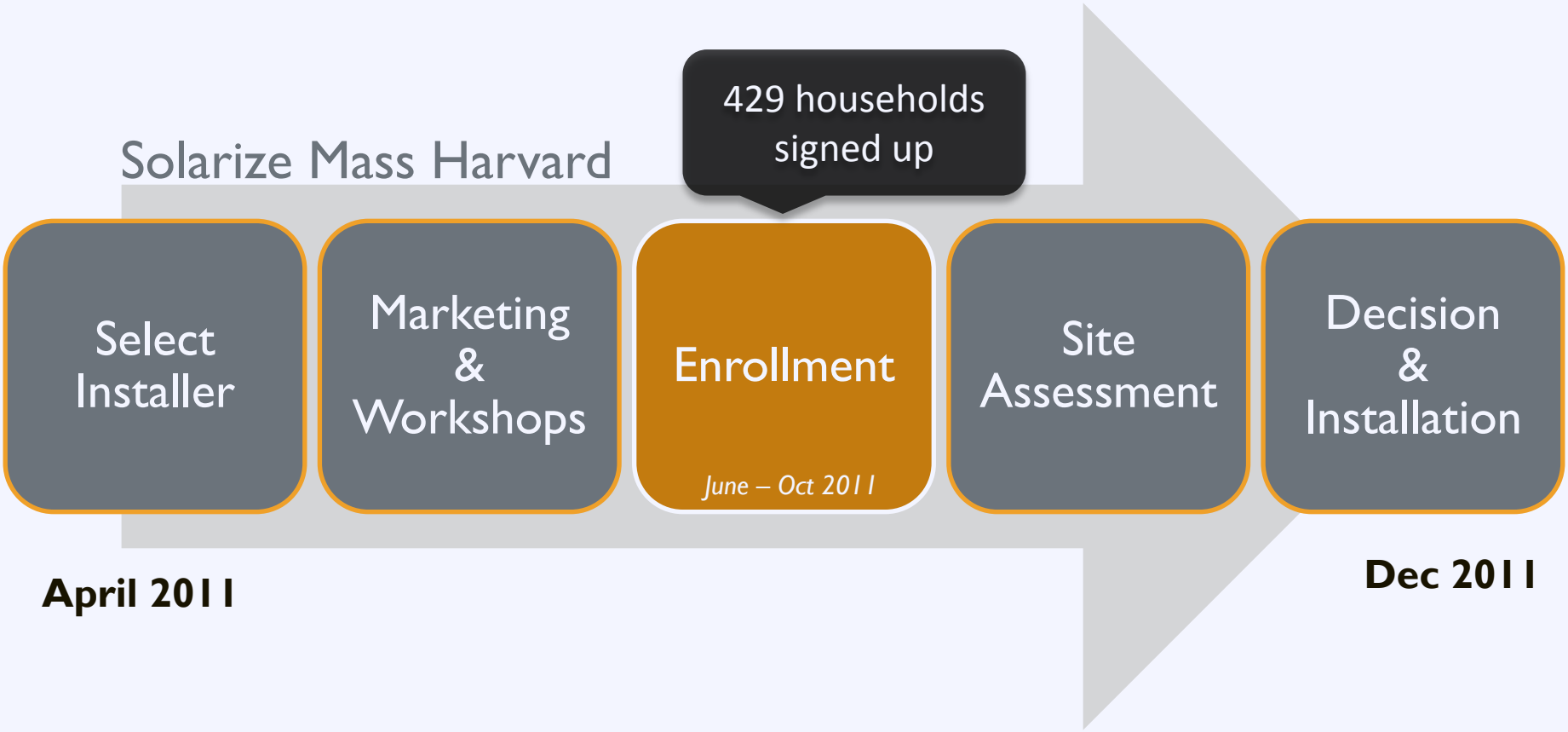
Solarize: Case Study

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



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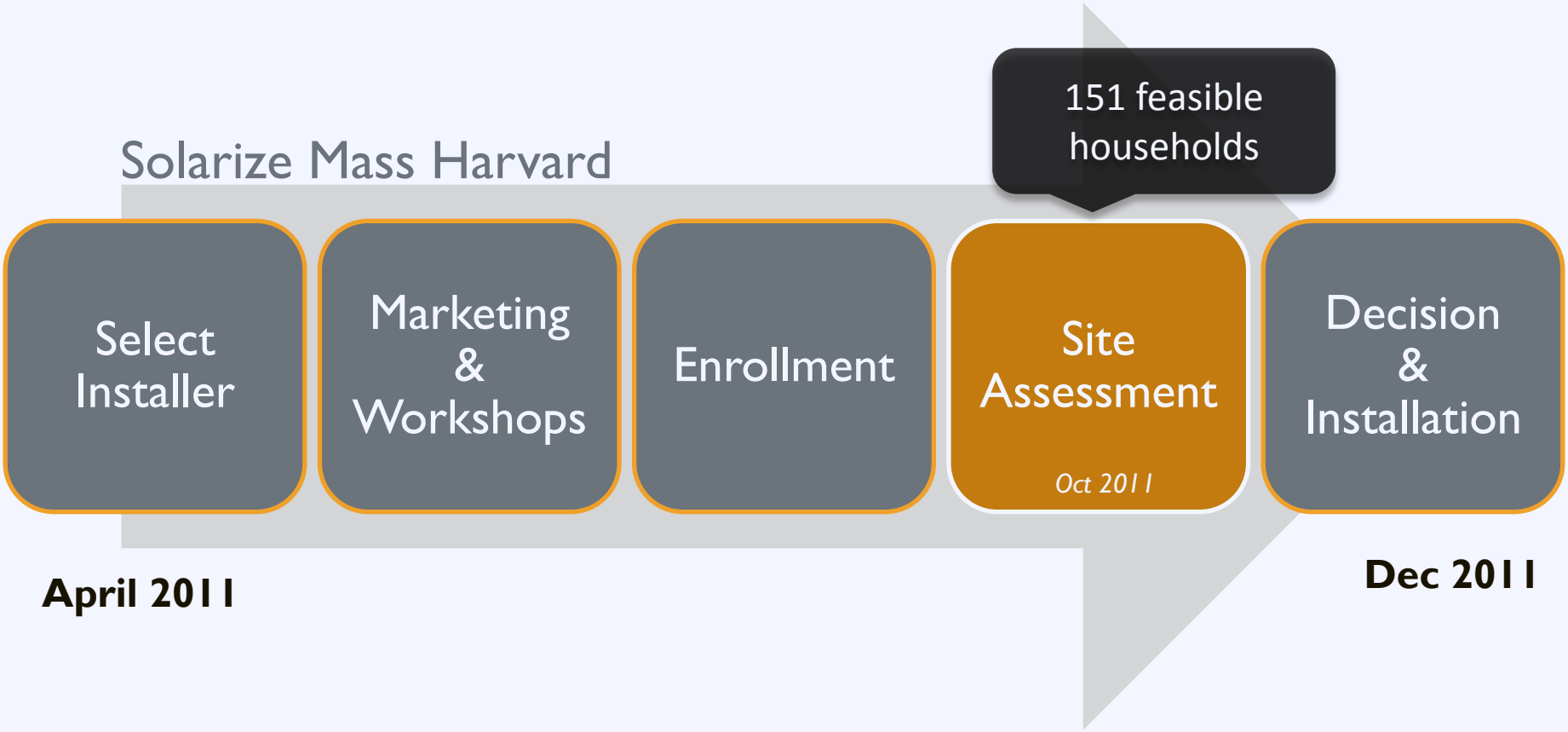

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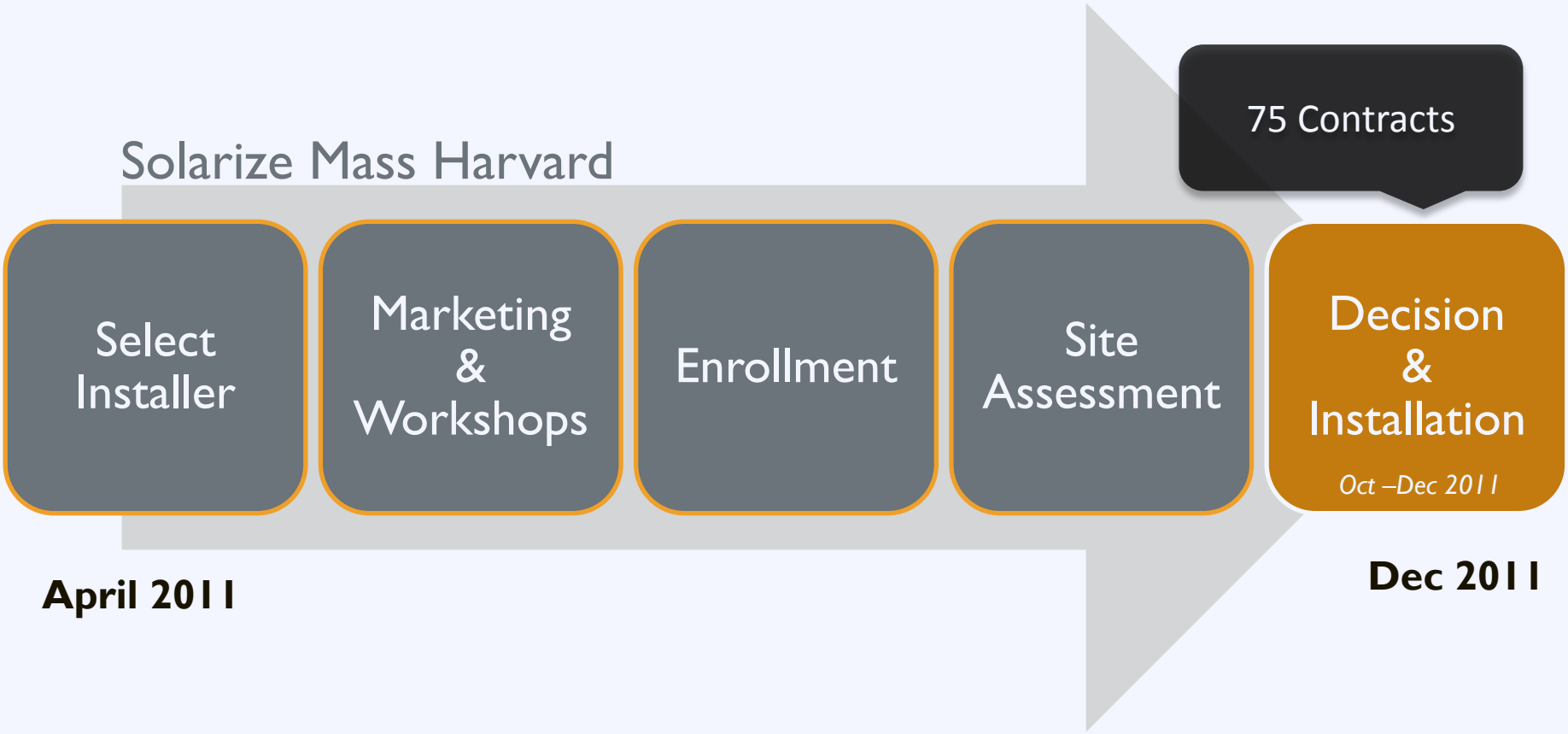

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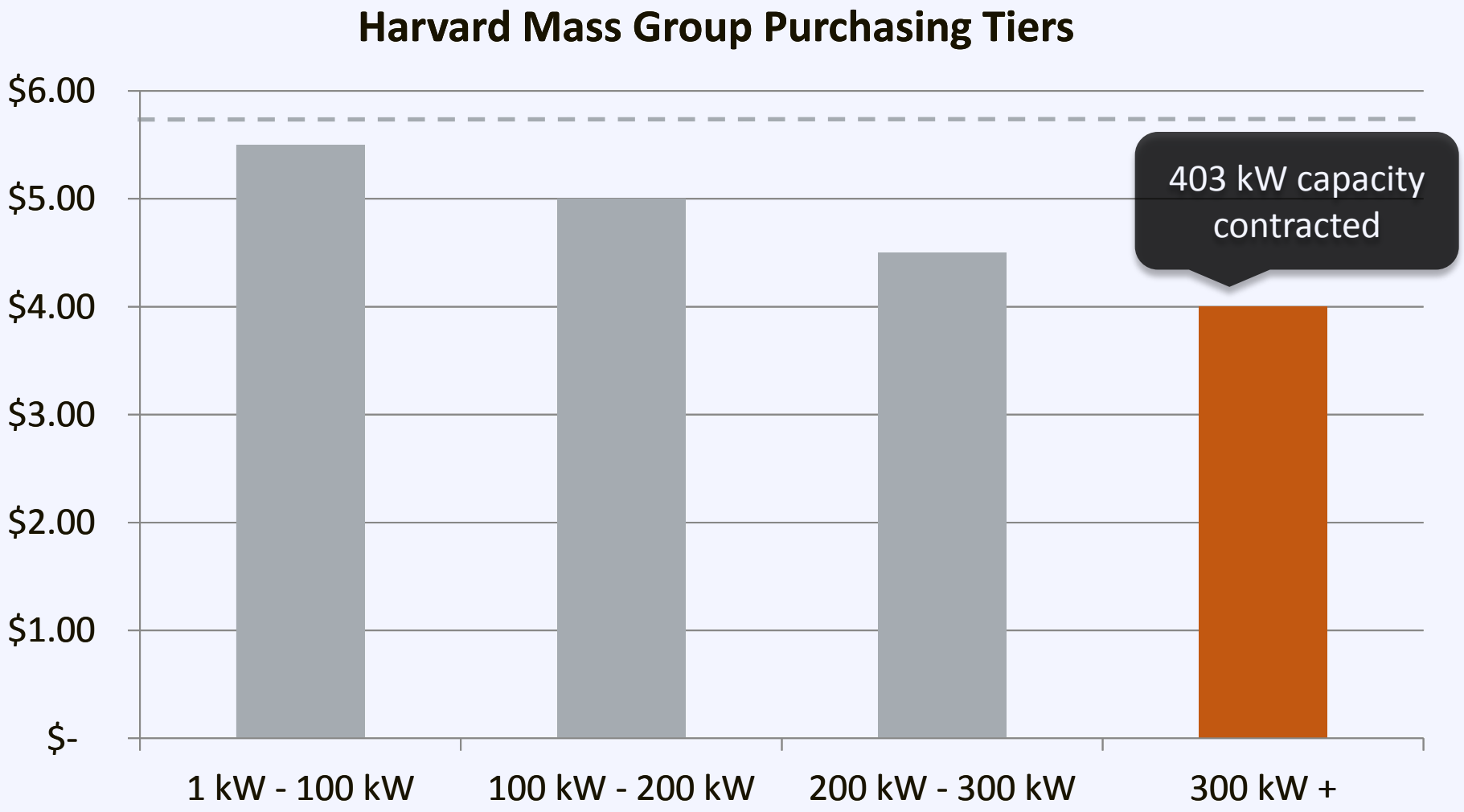


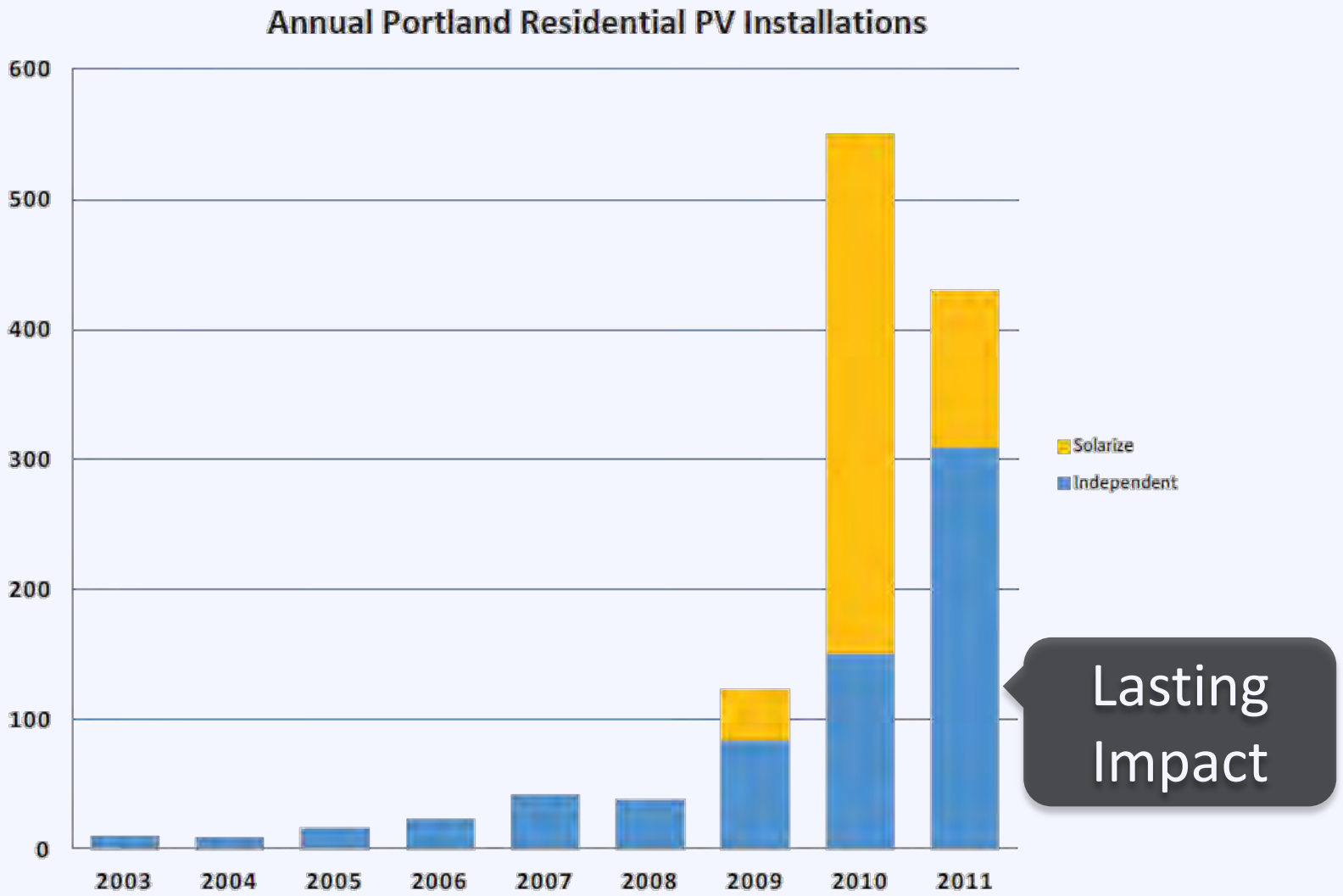
Solarize: Case Study

75 new installations totaling 403 kW

30% reduction in installation costs

575% increase in residential installations

Solarize: Lasting Impact



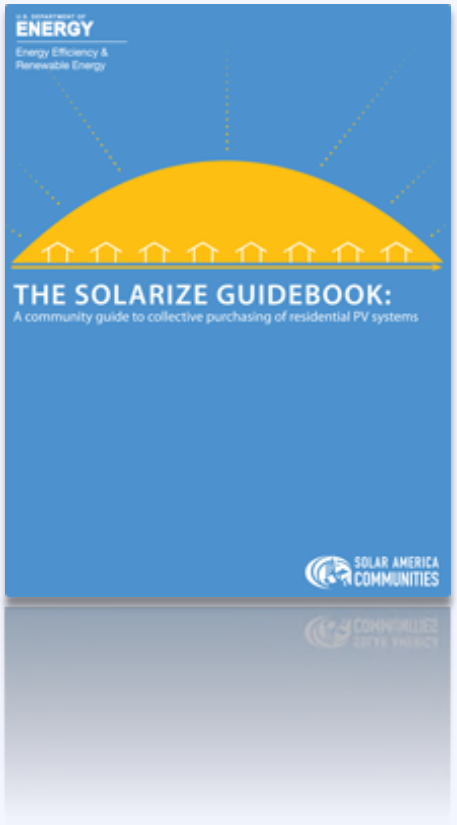
Source: NREL

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



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08:40 – 09:00	Solar 101
09:00 – 09:20	Creating a Regulatory Landscape for Solar
09:20 – 09:50	Texas Policy Environment
09:50 – 10:00	*Break*
10:00 – 10:20	Benefits and Barriers Activity
10:20 – 10:50	Strategies to Grow Your Solar Market
10:50 – 11:00	*Break*
11:00 – 12:00	Panel of Local Speakers
12:00 – 12:15	Wrap Up and Closing Remarks

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U.S. Department of Energy

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