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

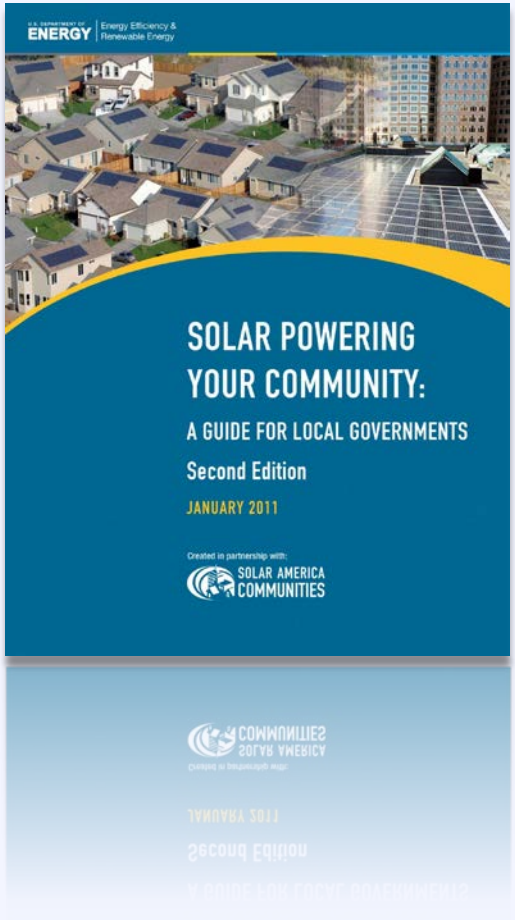
- Increase installed capacity of solar electricity in U.S. communities
- Streamline and standardize permitting and interconnection processes
- Improve planning and zoning codes/regulations for solar electric technologies
- Increase access to solar financing options

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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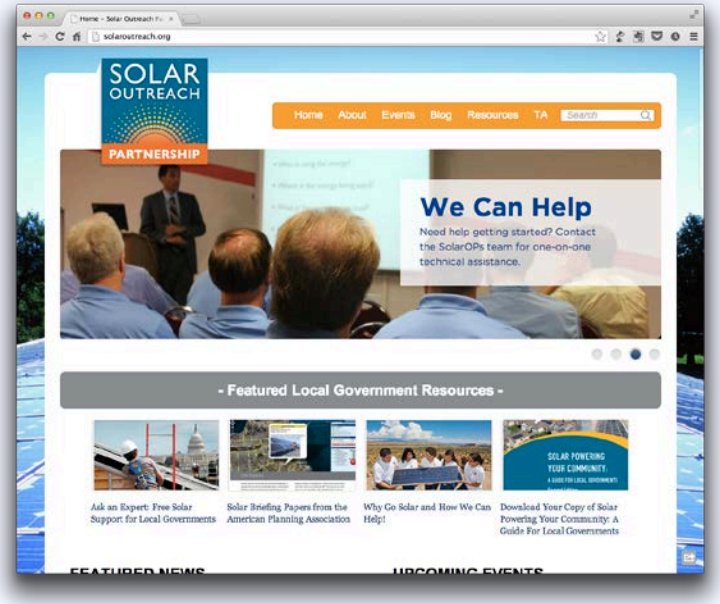
About the SunShot Solar Outreach Partnership

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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Poll

Who's in the room?

Poll

What is your experience with solar?

Solar Technologies

Solar Photovoltaic (PV)

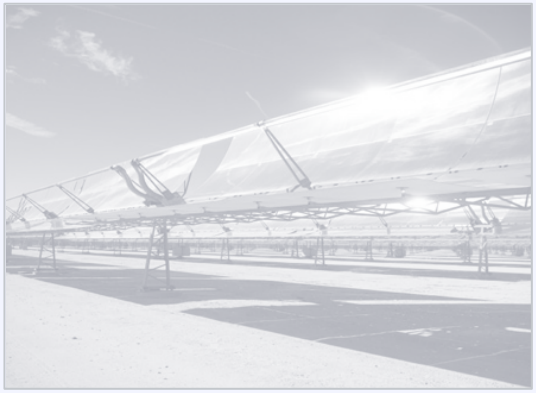
Solar Hot Water

Concentrated Solar Power

Solar Technologies

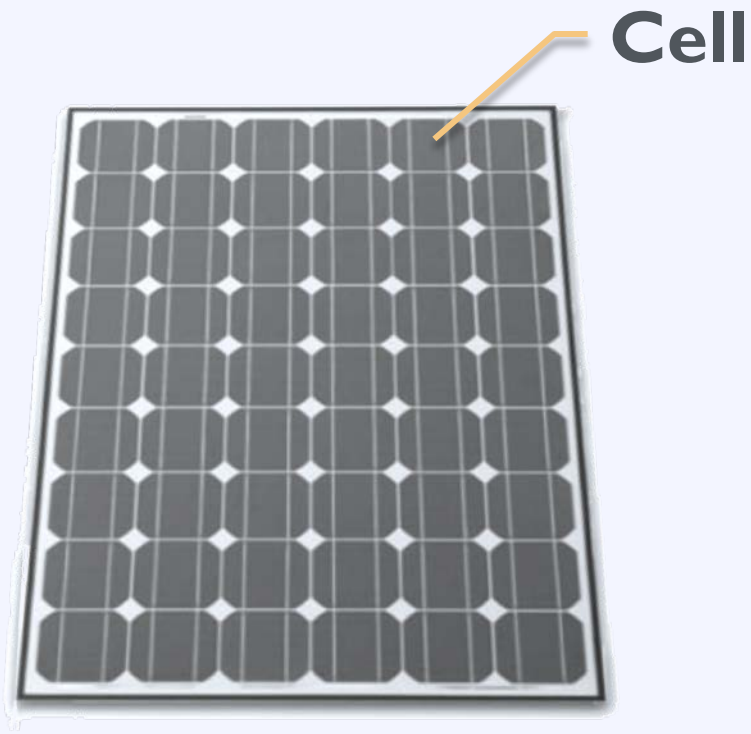
Solar Photovoltaic (PV)

Solar Hot Water



Concentrated Solar Power

Some Basic Terminology



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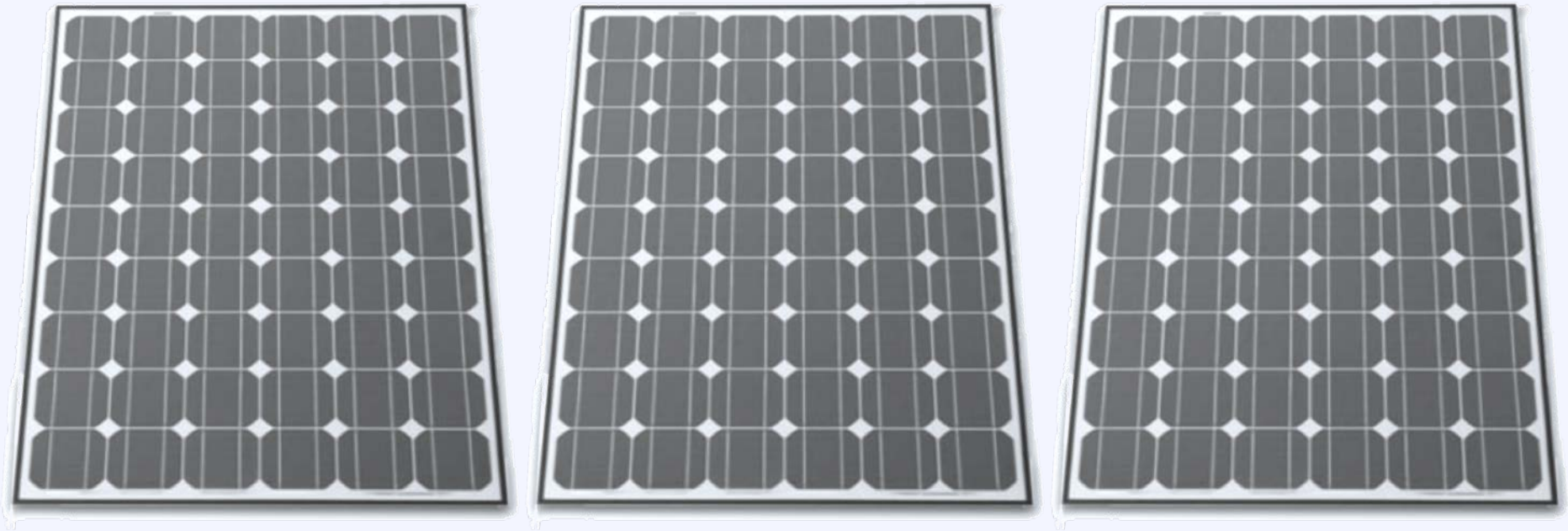
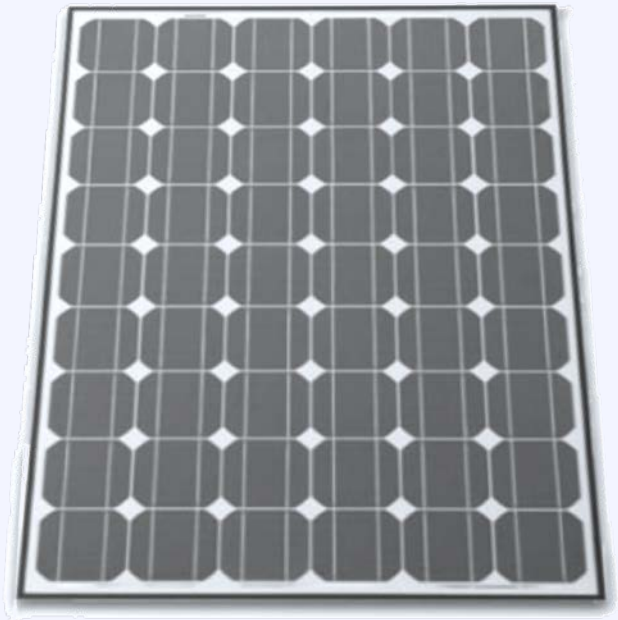


Array

Some Basic Terminology



Capacity / Power

kilowatt (kW)

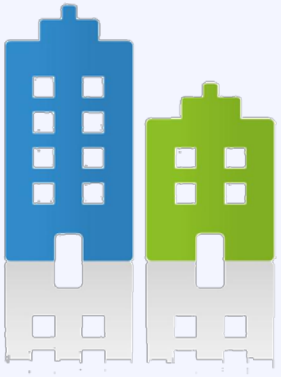
Production

Kilowatt-hour (kWh)

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

Agenda

08:50 – 09:00	Benefits and Barriers Activity
09:00 – 09:30	Memphis Region Solar Policy Environment
09:30 – 09:50	Planning & Zoning for Solar
09:50 – 10:00	*Break*
10:00 – 10:10	Benefits and Barriers Activity
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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

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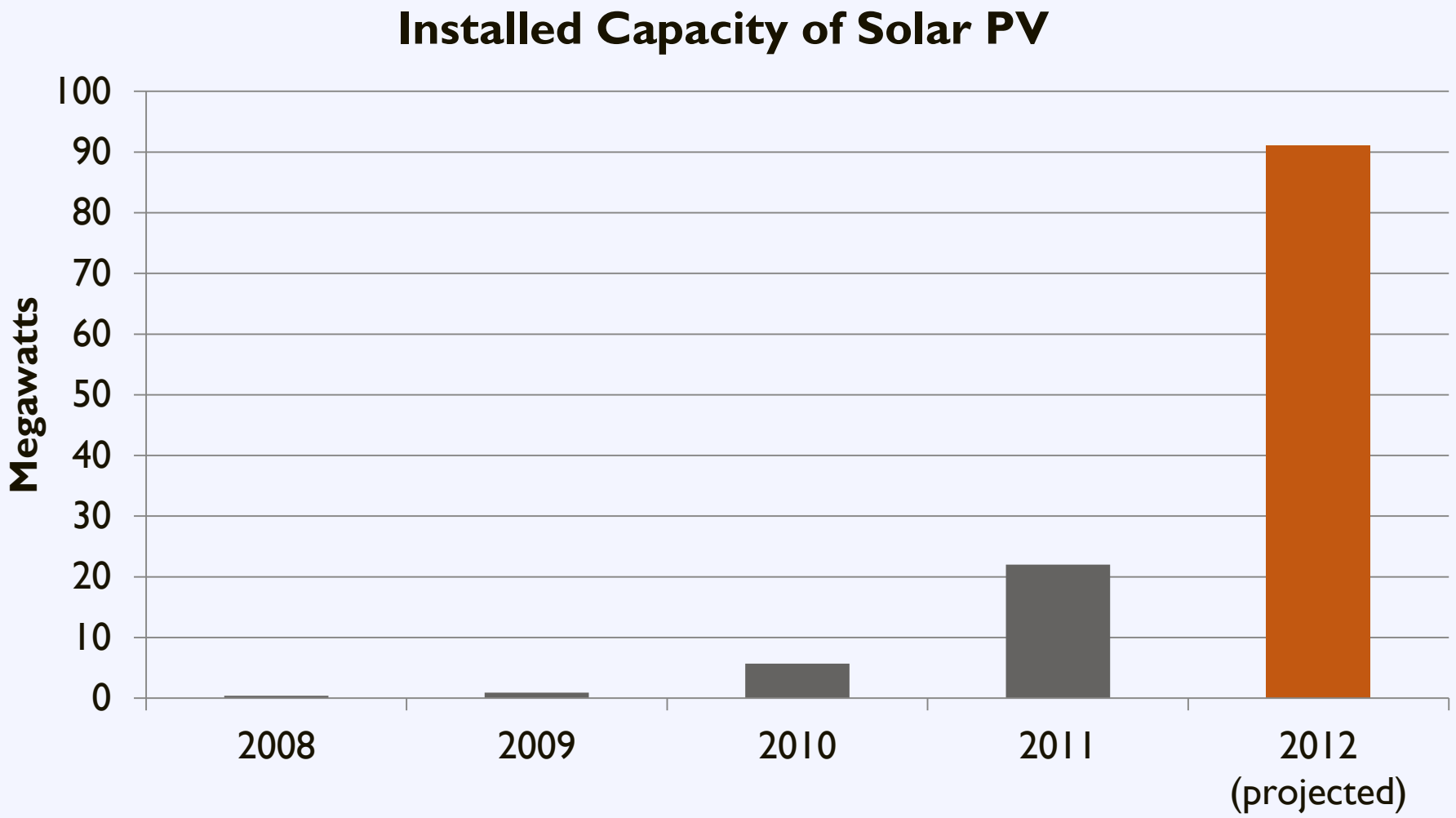
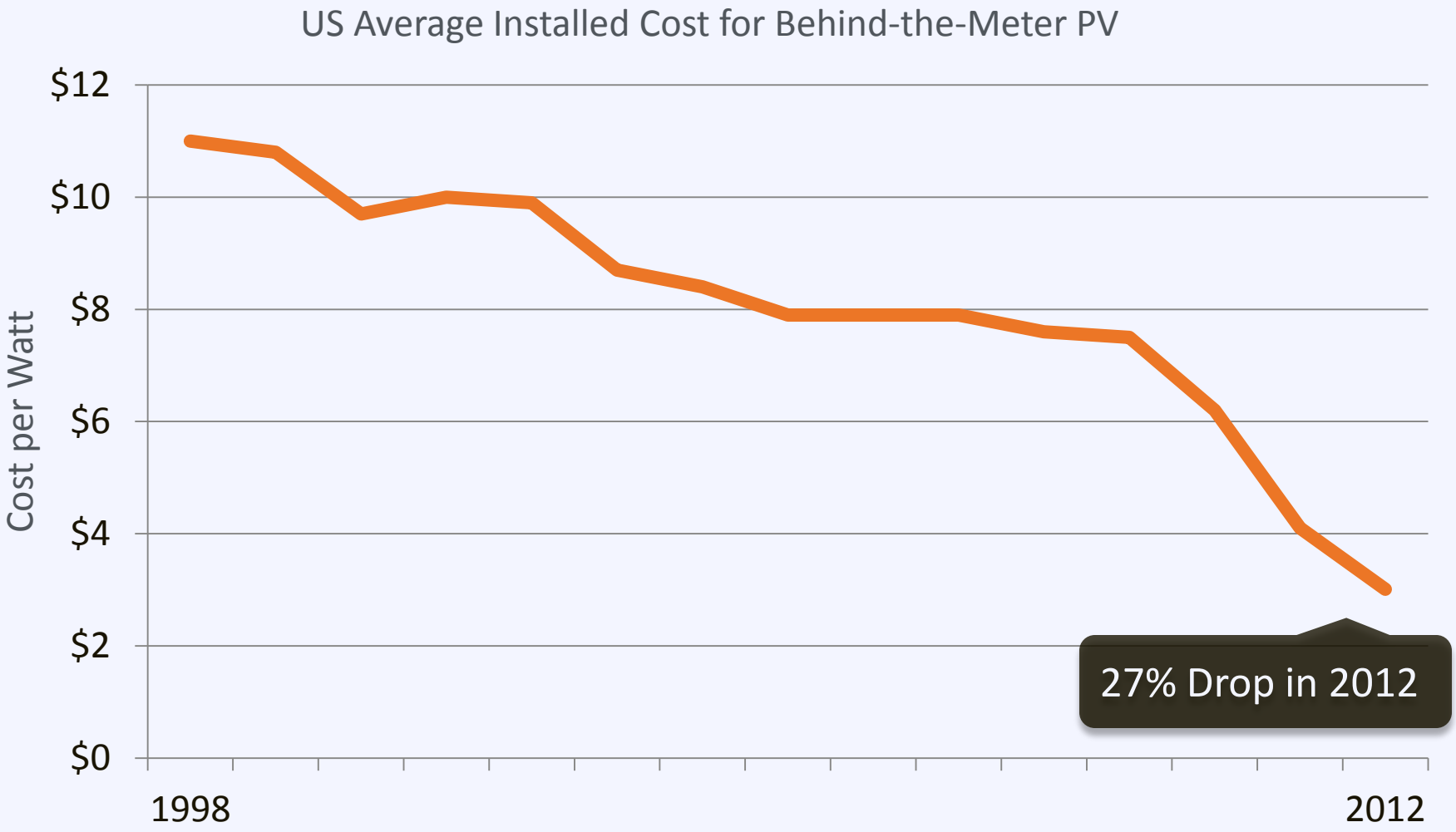
Tennessee Solar PV Market



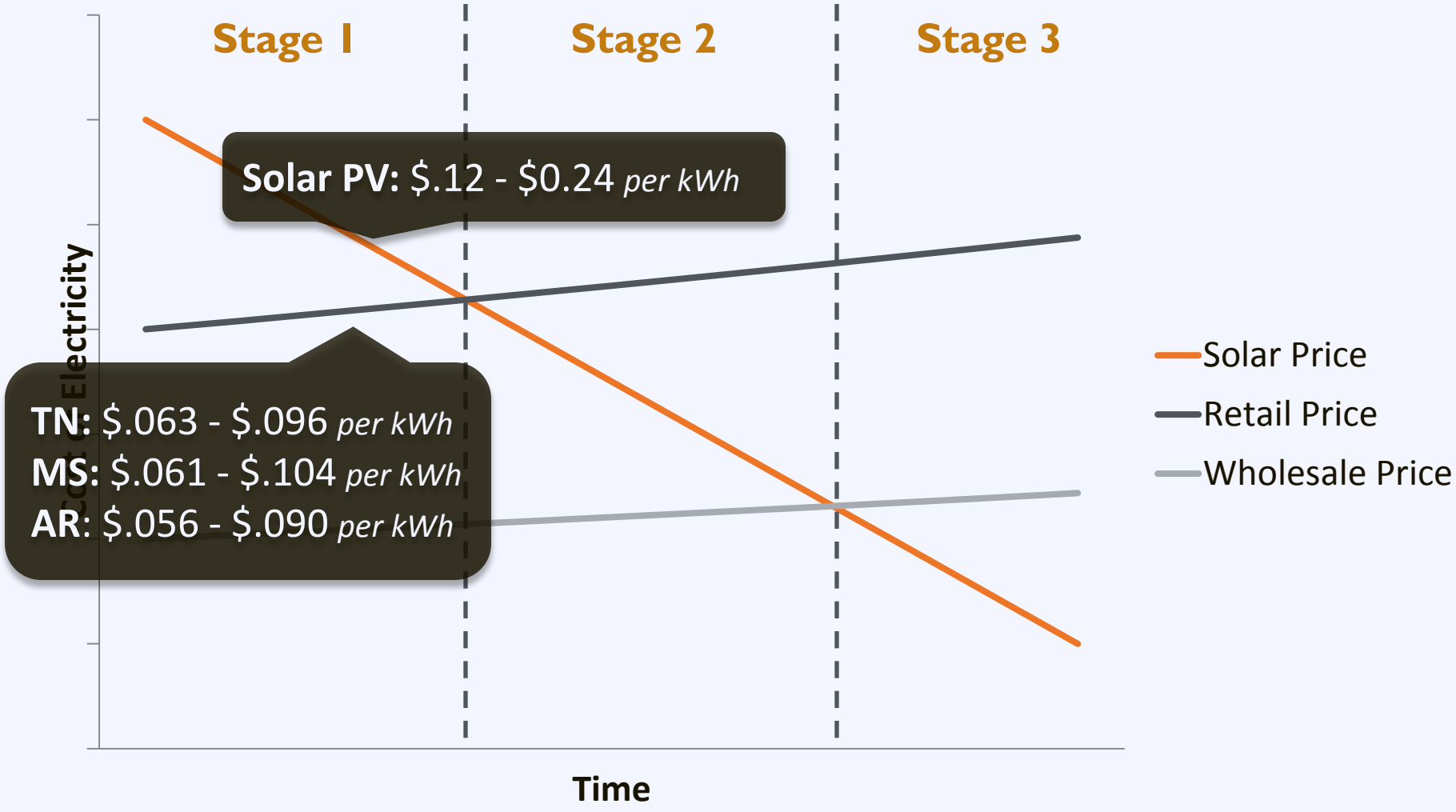
Source: IREC, Photon Magazine

Solar Market



Tracking the Sun V: The Installed Cost of Photovoltaics in the US from 1998-2011 (LBNL), SEIA/GTM Research. 2013. *Solar Market Insight 2012 Year-in-Review.*

Solar Market: Stages



Source: Solar Electric Power Association

Who Regulates What?

State

- Utility Regulation
- Solar Access
- Property Taxes

Local

- Planning
- Zoning
- Permitting

Who Regulates What?

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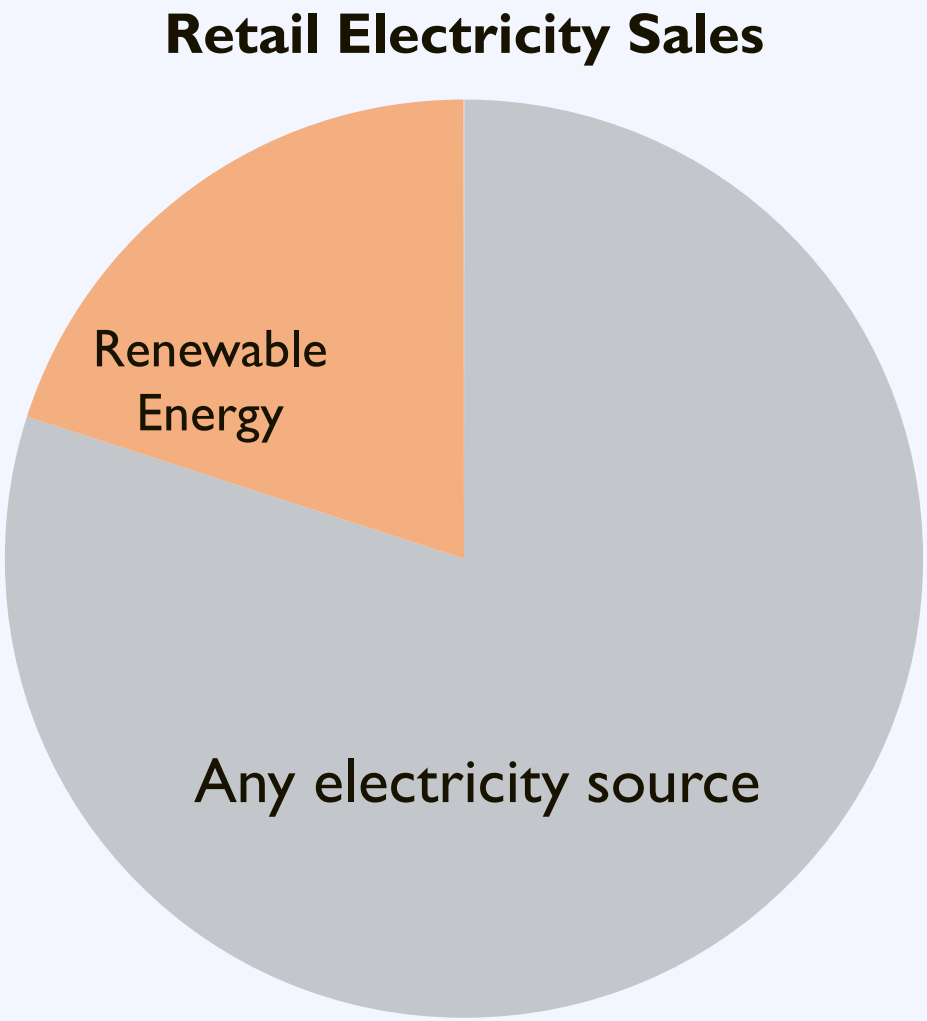
A Traditional Solar Market

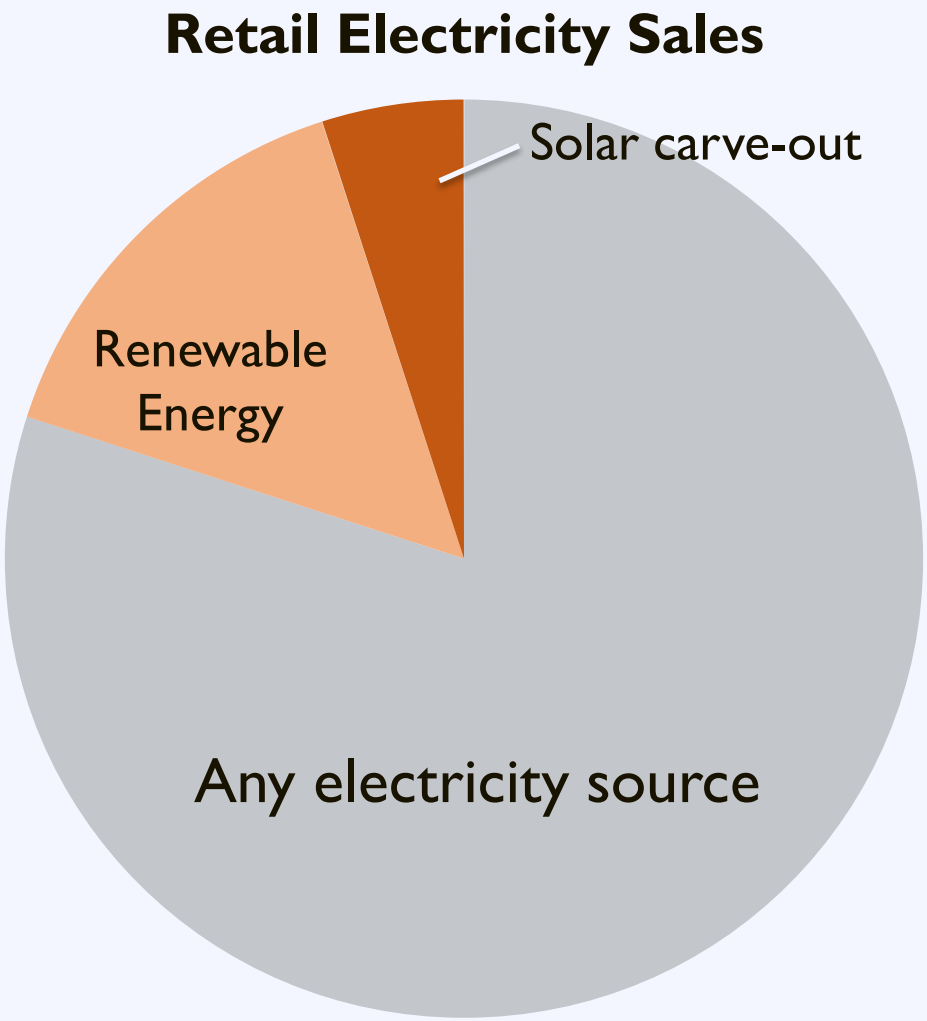
Typical State Solar Policies:

- Renewable Portfolio Standard
- Renewable Energy Credits
- Net Metering
- Interconnection Standards

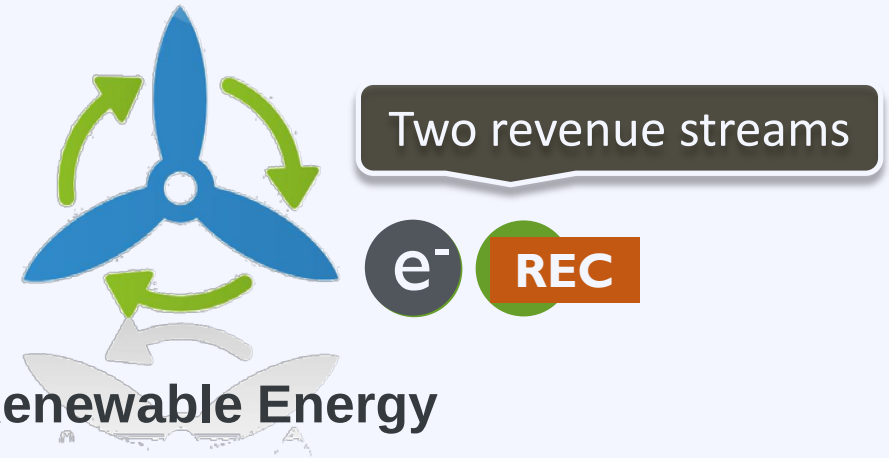
Renewable Portfolio Standard



Renewable Portfolio Standard

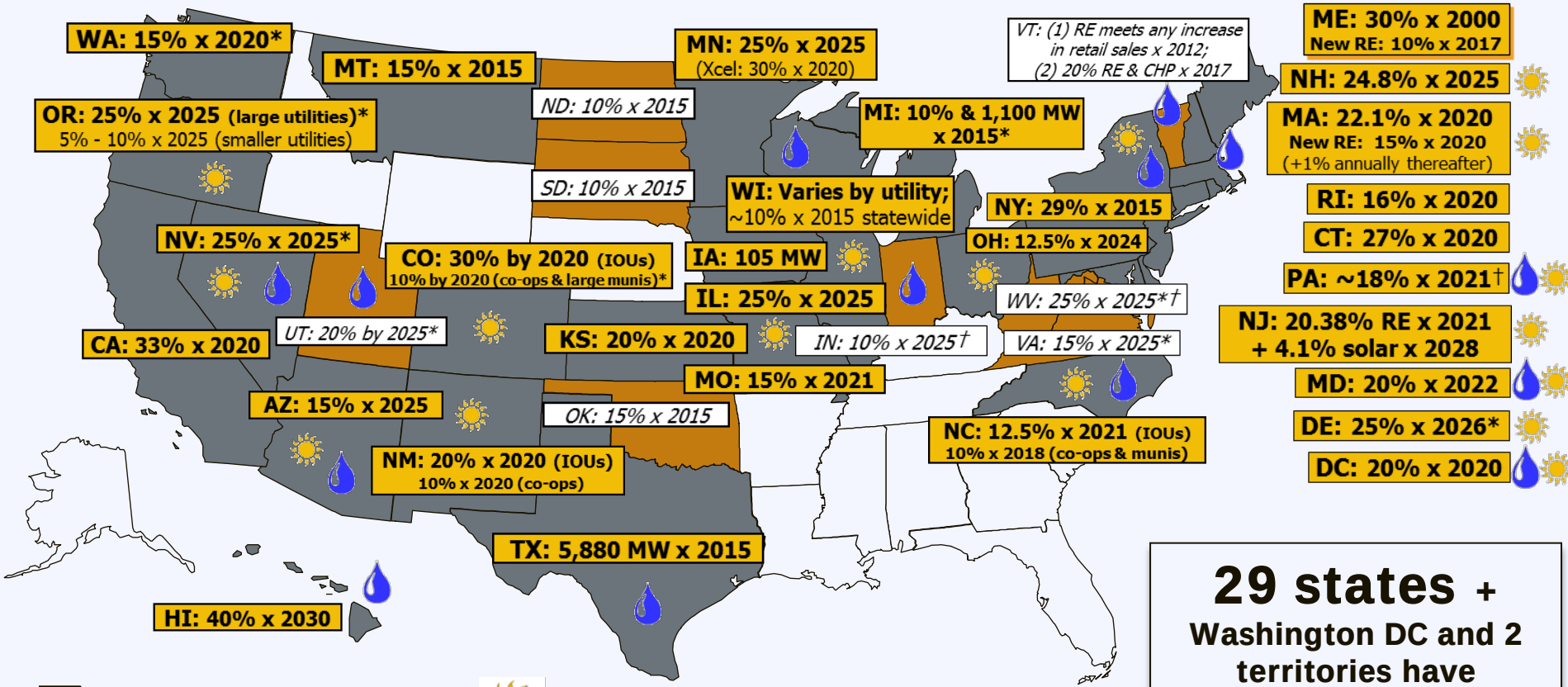


Renewable Portfolio Standard



Renewable Portfolio Standard

www.dsireusa.org / August 2012



Renewable portfolio standard

Renewable portfolio goal

Solar water heating eligible

Minimum solar or customer-sited requirement

* Extra credit for solar or customer-sited renewables

† Includes non-renewable alternative resources

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

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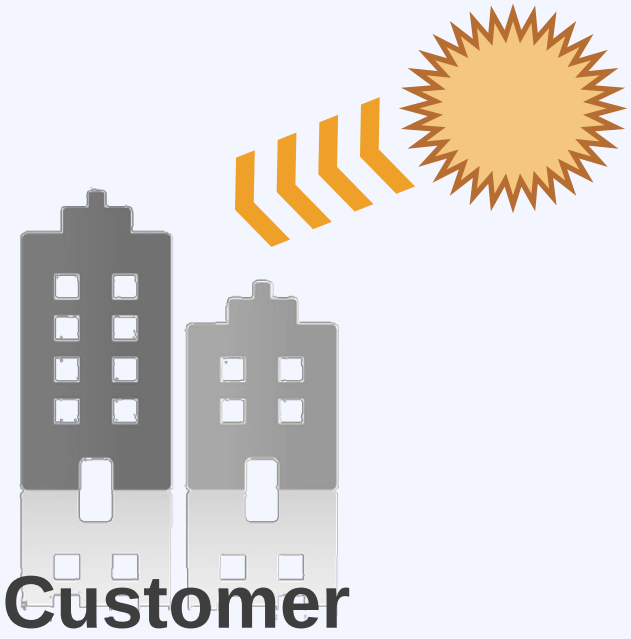
Net Metering

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

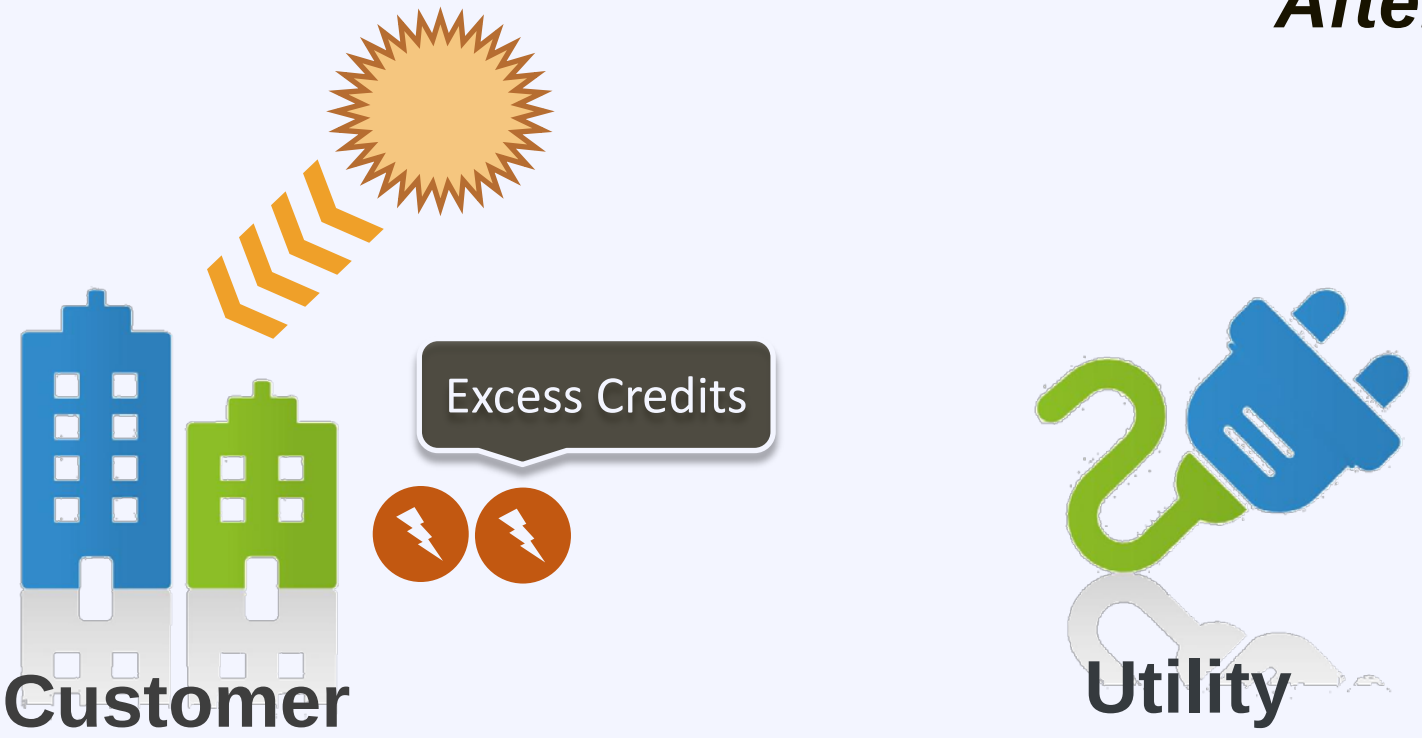
Net Metering: Overview

Morning



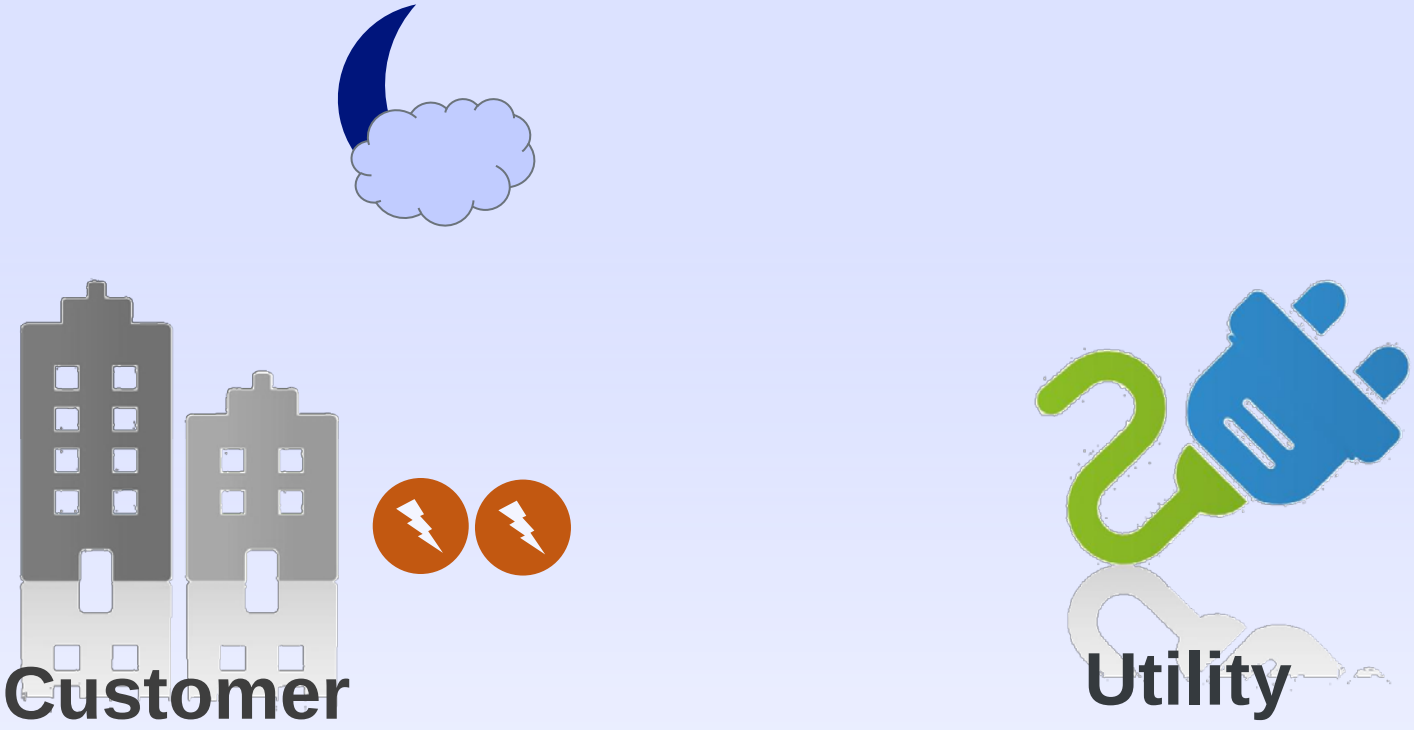
Net Metering: Overview

Afternoon



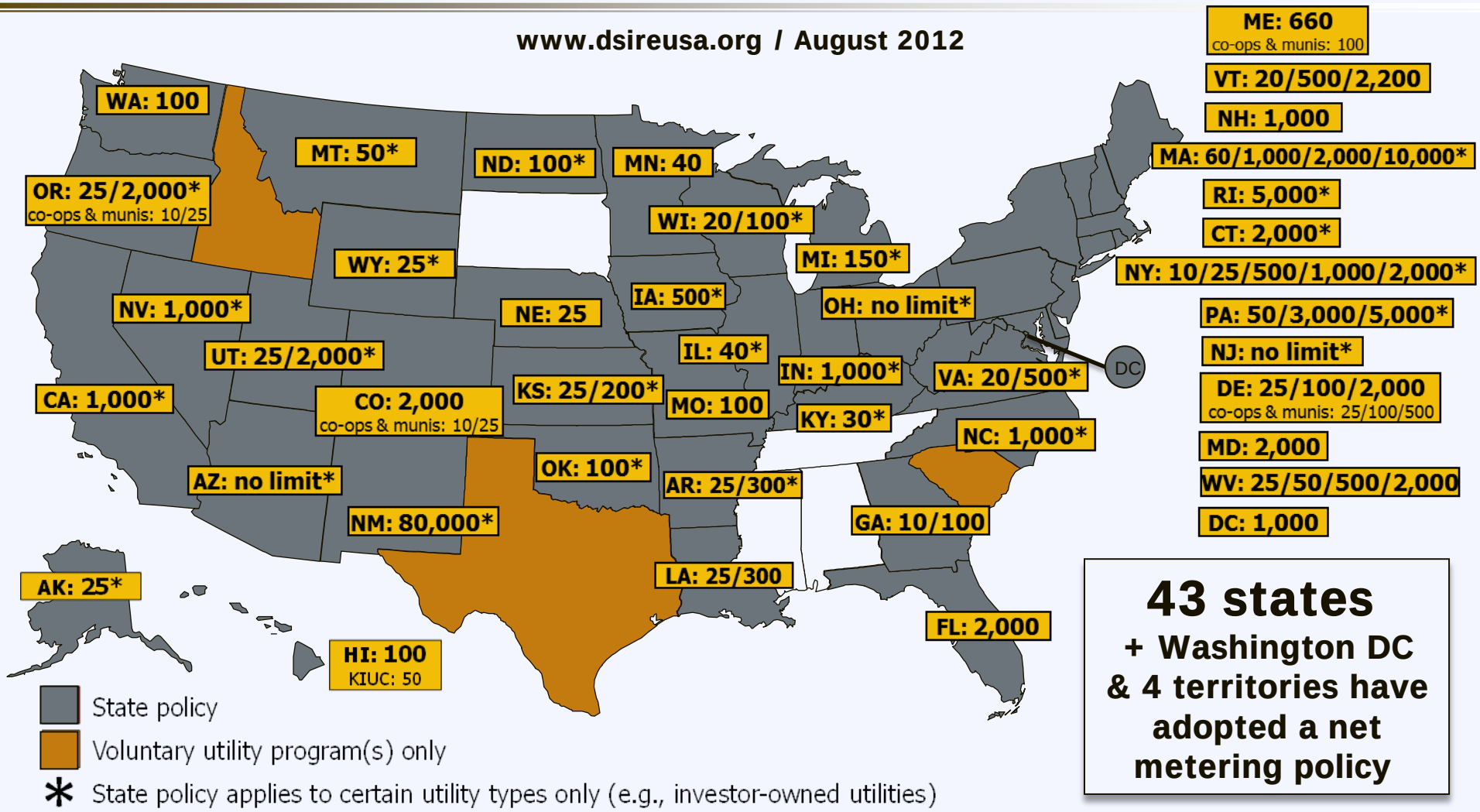
Net Metering: Overview

Night



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

Net Metering: 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: Market Share

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

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

A Traditional Solar Market

Typical State Solar Policies:

- Renewable Portfolio Standard
- Renewable Energy Credits
- Net Metering
- Interconnection Standards

As a federal entity, TVA is not regulated by the state

TVA: Renewable Energy Goals

1,500 to 2,500 MW by 2020

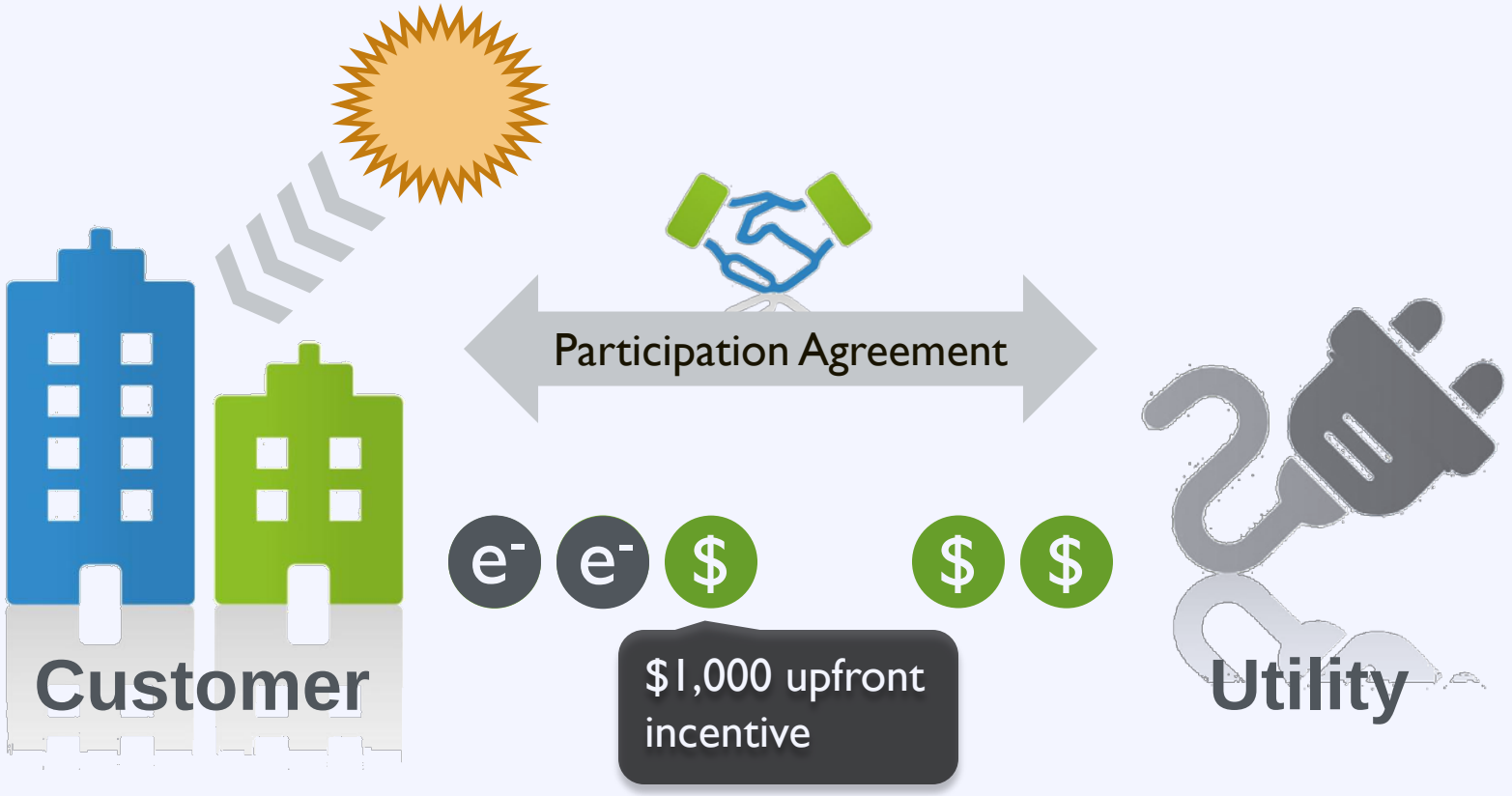
Solar 47.5+ MW	Wind	Hydro
Landfill Gas	Wastewater Gas	

TVA: Renewable Energy Programs

500 W – 50 kW Green Power Providers

50 kW – 20 MW Standard Offer Program

TVA: Green Power Providers



TVA: Standard Offer Program

TVA: Green Power Providers

Compliance requirements:

- Load requirement for 10 kW+ System

Cannot Exceed 100% of the customer's projected annual usage (kWh)

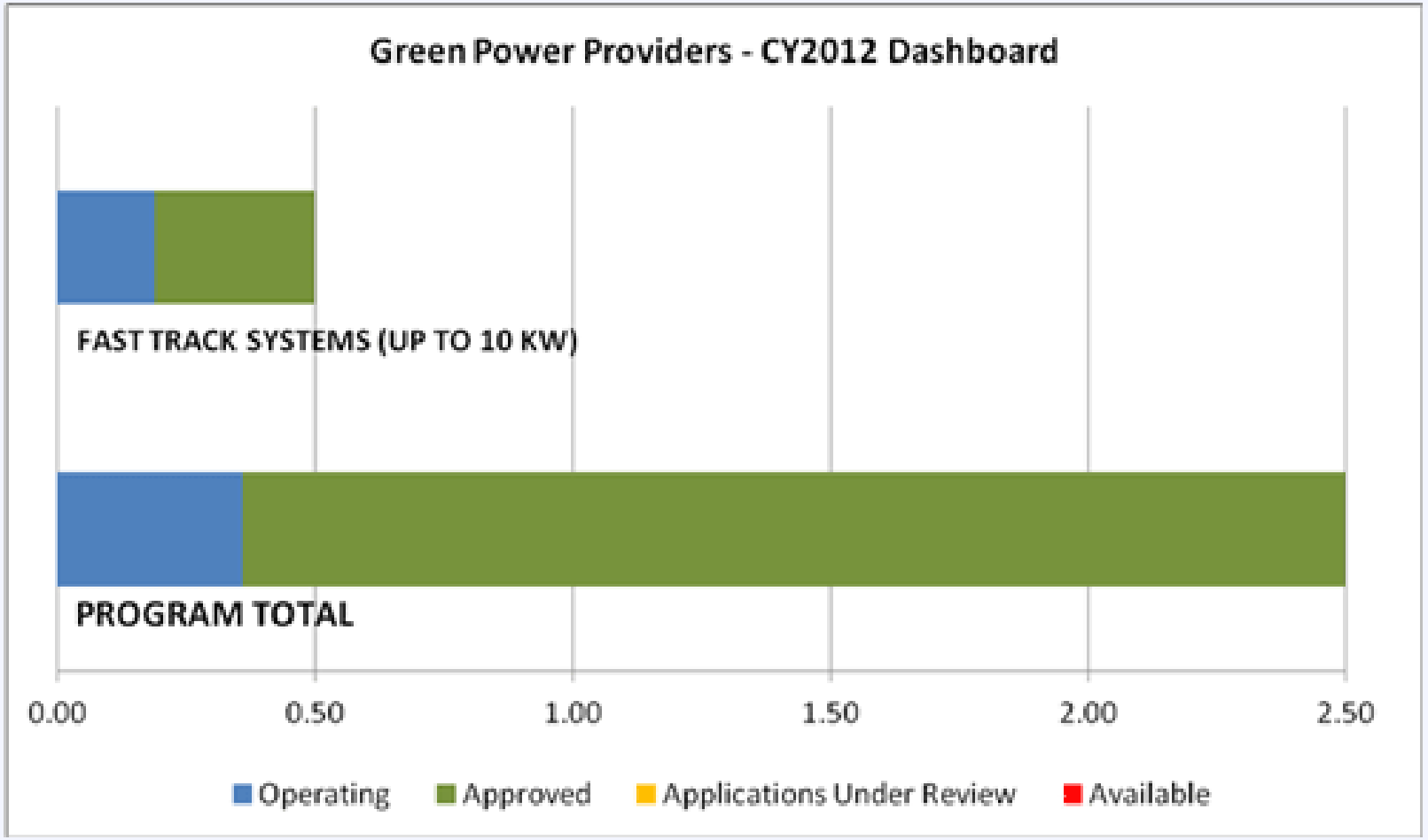
Projected System Production (kWh) = Capacity (kW) x 15% x 8,760 hours

TVA: Green Power Providers

Compliance requirements:

- Load requirement for 10 kW+ System
- Must be online within 180 days of agreement
- Dual meters
- External disconnect switch
- Grid-tied
- Validated under interconnection agreement

TVA: Green Power Providers



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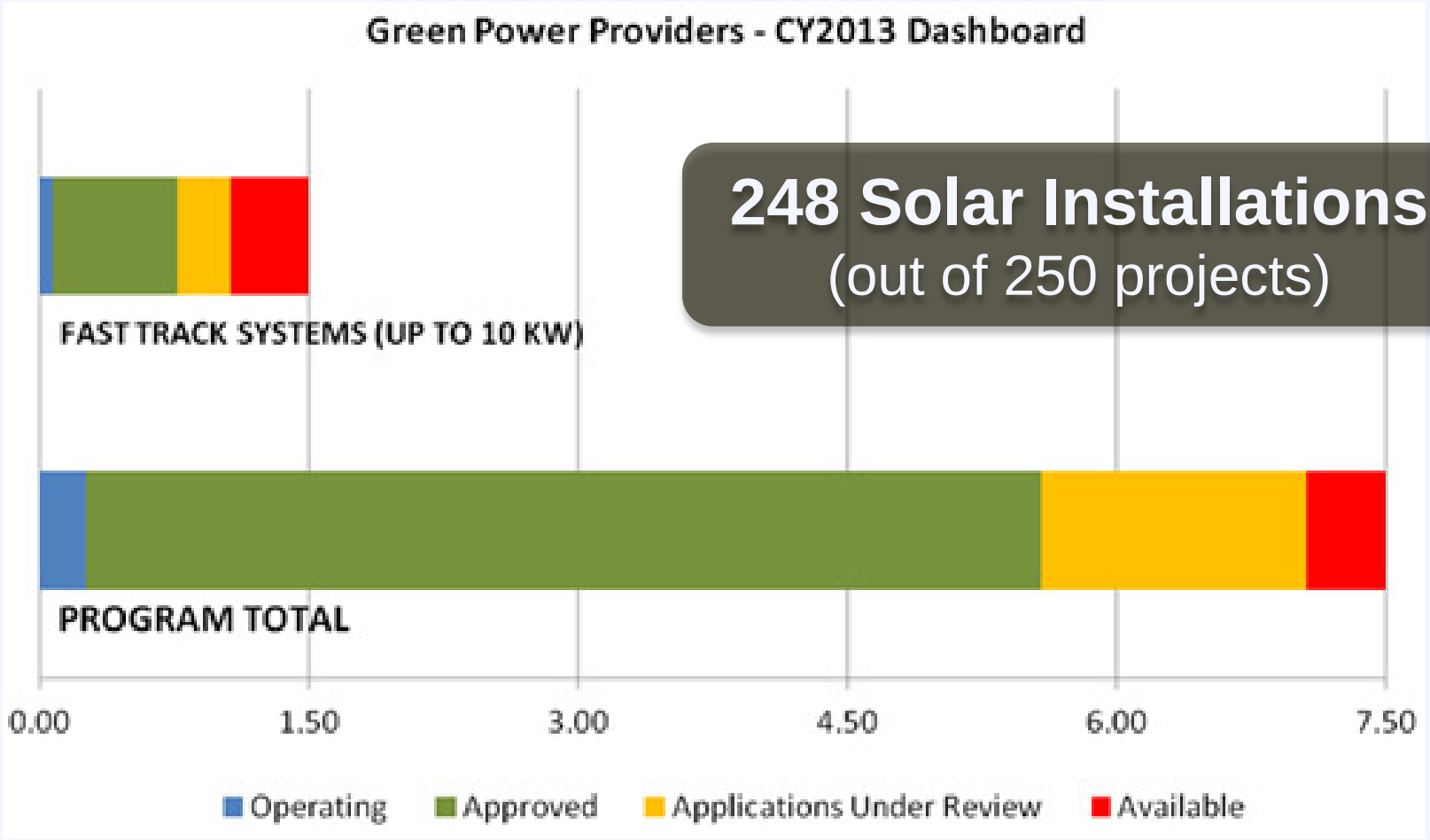
U.S. Department of Energy

Source:

TVA: Green Power Providers



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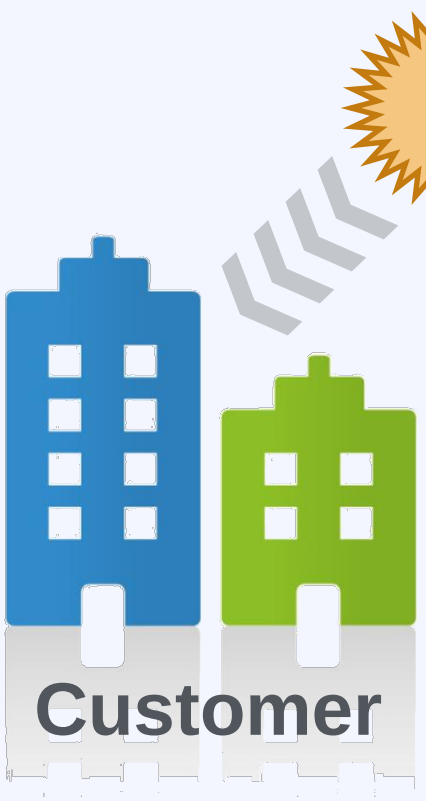
Source: http://www.tva.com/news/releases/aprjun13/2013_renewable.html

TVA: Standard Offer Program

TVA: Standard Offer Program



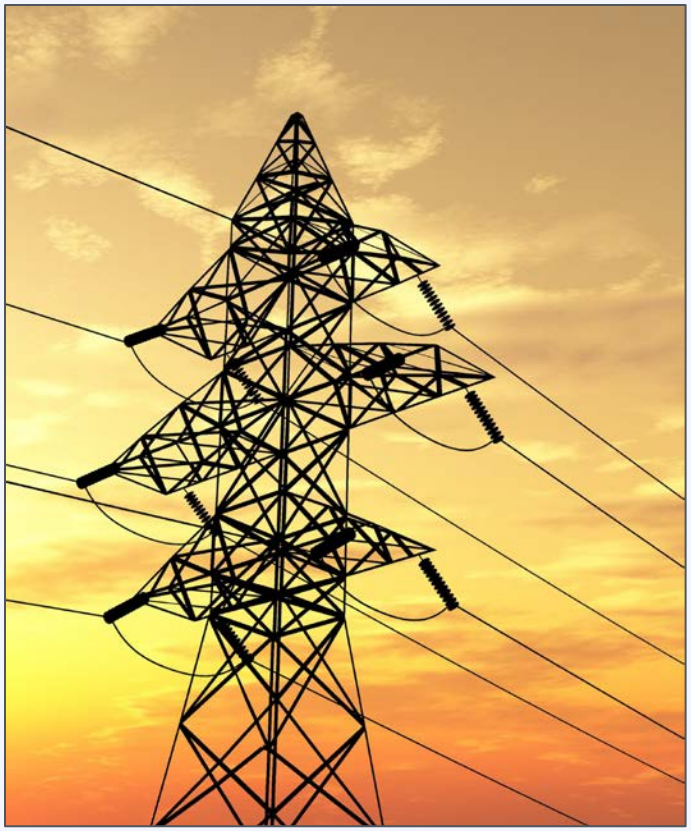
- Time of Use Pricing
- $0.029/kWh to $0.082/kWh
- Average: $0.037/kWh
- 5% increase per year
- Can be changed up to 1% per year
- 100 MW Capacity for 2013

Month	Time of Day	Base Price (Cents per kWh)
July & August	Mon-Fri 12 PM – 8PM	8.286
	Mon – Fri 6 am – 12 pm and 8 pm – 12 am, Sat & Sun 6 am – 12 am	4.571
	Everyday 12 am – 6 am	3.071
June & September	Mon – Fri 12 pm – 8 pm	4.759
	Mon – Fri 6 am – 12 pm and 8 pm – 12 am; Sat & Sun 6 am – 12 am	3.528
	Everyday 12 am – 6 am	2.964
January & February	Mon – Fri 6 am – 10 pm	4.086
	Mon – Fri 10 pm – 12 am; Sat & Sun 6 am – 12 am	3.398
	Everyday 12 am – 6 am	3.115
December & March	Mon – Fri 6 am – 10 pm	3.632
	Mon – Fri 10 pm – 12 am; Sat & Sun 6 am – 12 am	3.391
	Everyday 12 am – 6 am	3.115
April, May, October, & November	Mon – Fri 6 am – 10 pm	3.520
	Mon – Fri 10 pm – 12 am; Sat & Sun 6 am – 12 am	3.151
	Everyday 12 am – 6 am	2.985

TVA: Standard Offer Program

Power Producer is Responsible For:

- Interconnection
- Performance assurance
- Application costs
- Meter equipment costs
- Environmental review



TVA: Standard Offer Program

7.2 MW
October 2010 – April 2012

Source: http://www.tva.com/news/keytopics/renewable_energy.htm

TVA: Solar Solutions Initiative Pilot

An extra incentive for Solar projects between 50 kW and 1 MW capacity

TVA: Solar Solutions Initiative Pilot

TVA: Standard Offer Program

Requirements and Limitations

- Solar PV project 50 kW – 1 MW
- No developer can apply for more than 2 MW
- No more than one project per site/property
- Installer must be NABCEP certified
- Installer must be located in TVA territory

TVA: Solar Solutions Initiative Pilot

No plans to extend program

Who Regulates What?

State

- Utility Regulation
- Solar Access
- Property Taxes

Local

- Planning
- Zoning
- Permitting

Solar Access

Solar Access Laws:

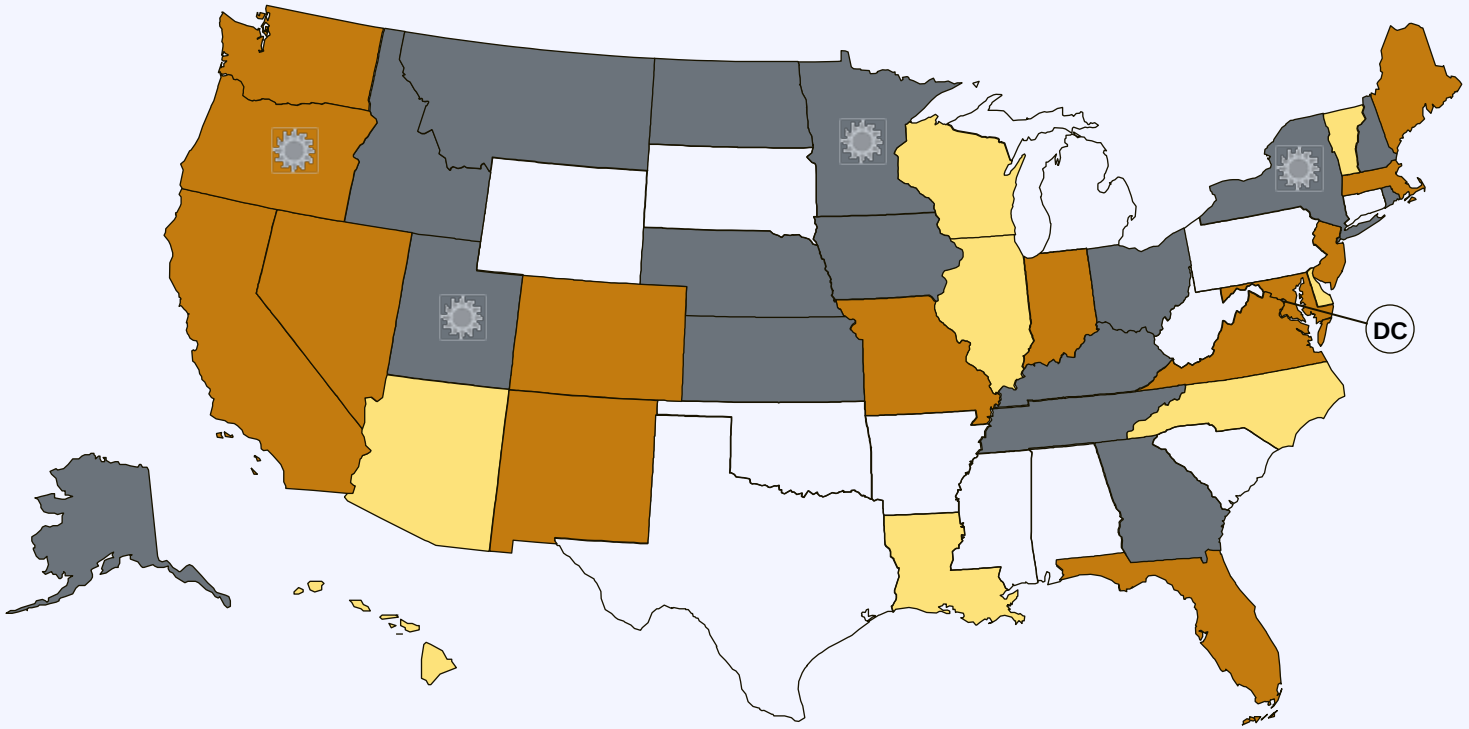
1. Increase the likelihood that properties will receive sunlight
2. Protect the rights of property owners to install solar
3. Reduce the risk that systems will be shaded after installation

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

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Source: DSIRE

Solar Easements: Tennessee

Tenn. Code § 66-9-201 (1979)

Solar easements may be established to allow the owner of a sole energy system to negotiate for assurance of continued access to sunlight.

Solar Easements: Tennessee

Tenn. Code § 66-9-201 (1979)

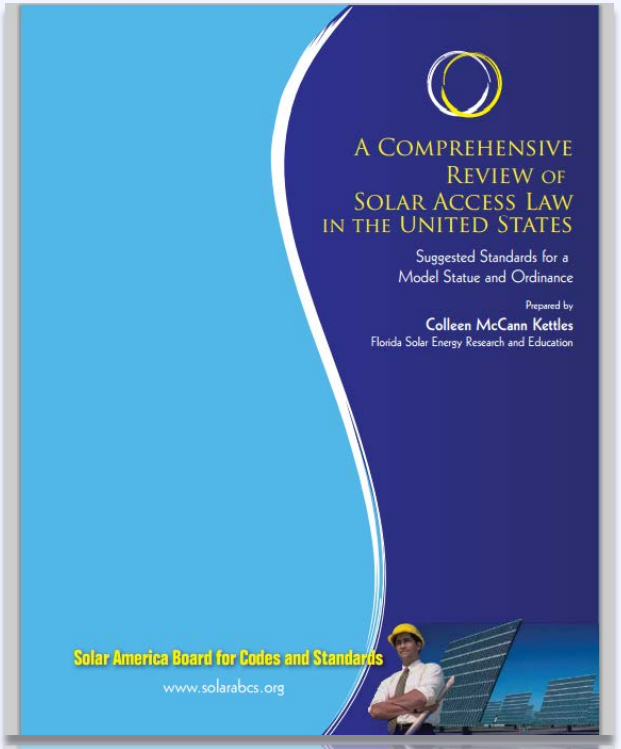
"Encouragement and protection of solar energy systems is a valid objective which counties and municipalities may consider in promulgating zoning regulations."

Solar Access

Resource **Solar ABCs**

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

www.solarabcs.org



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Property Tax Law

Nov 12: Attorney General ruled that this treatment violates Tennessee constitution

Tenn. Code § 67-5-604:

Limits the assessed value of a "pollution control facility" to the salvage value (0.5% of the acquisition value of the facility)

Property Tax Law

Proposed Legislation:

Limits the initial assessed value of green energy production facilities to 33.3% of total installed costs.

April 13: Amended to 12.5%

Property Tax Law

Appraised Value *x* Assessment Ratio *x* Local Tax Rate

12.5%

Residential: **25%**

Commercial: **30 – 40%**

Utility: **55%**

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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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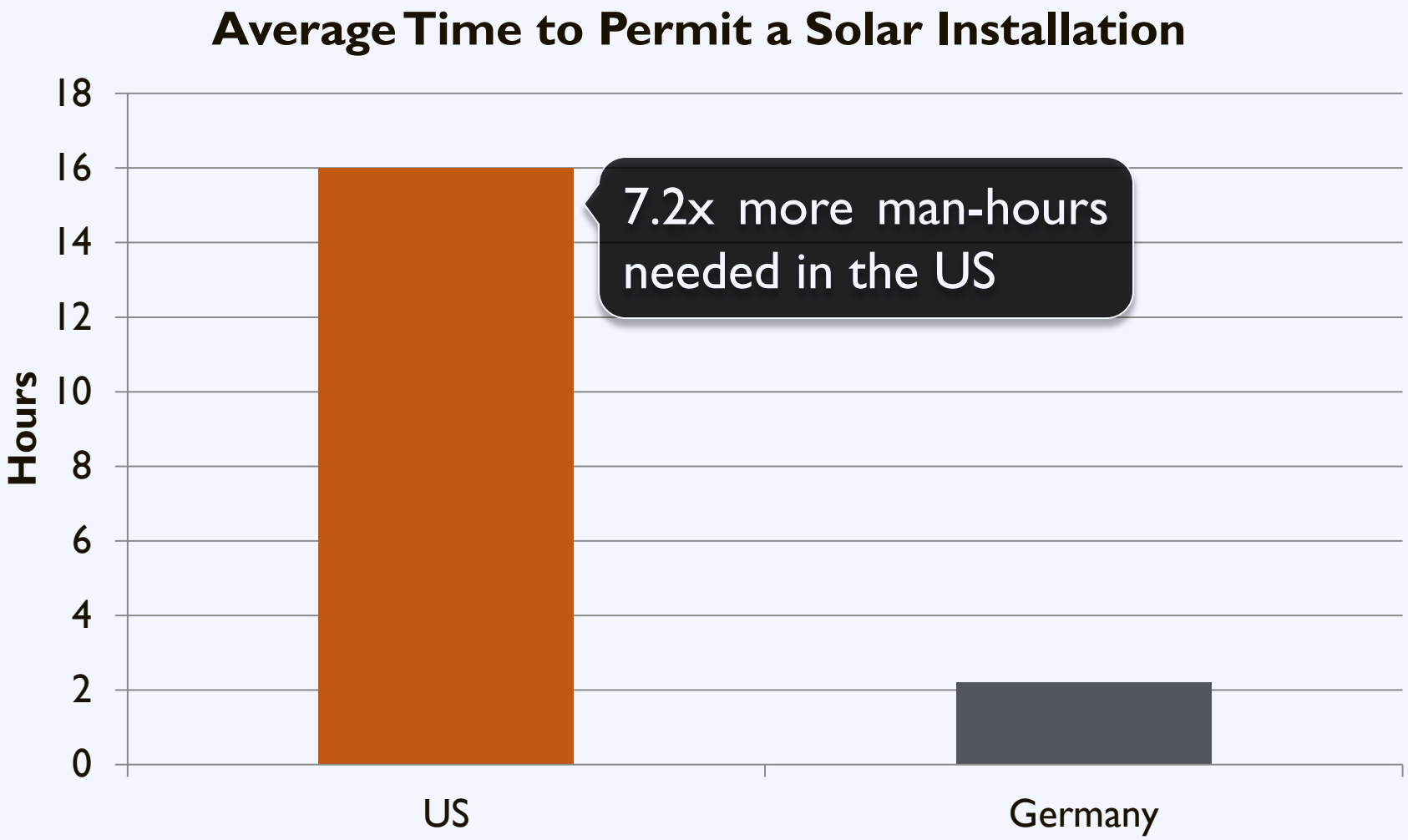
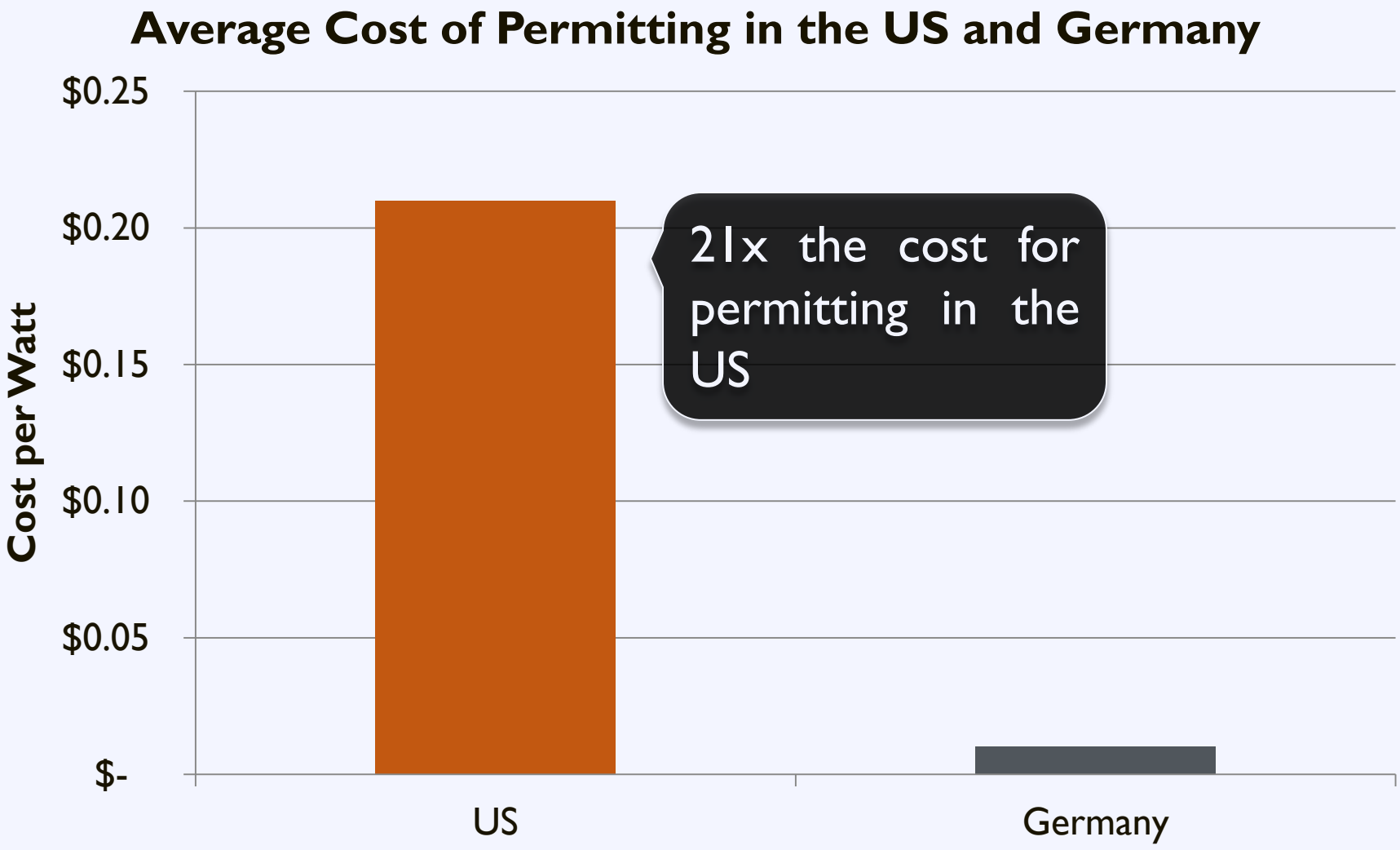
Photon Magazine

Time to Installation



Permitting Costs



Source: NREL, LBNL

Germany's Success

Consistency and Transparency

through

Standardized Processes

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
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

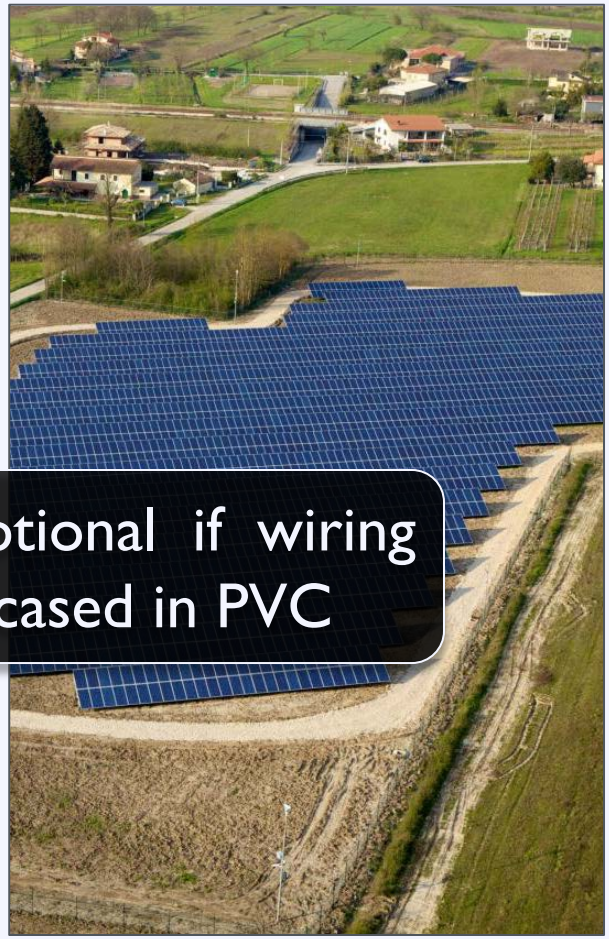
Typical Requirements:

- 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

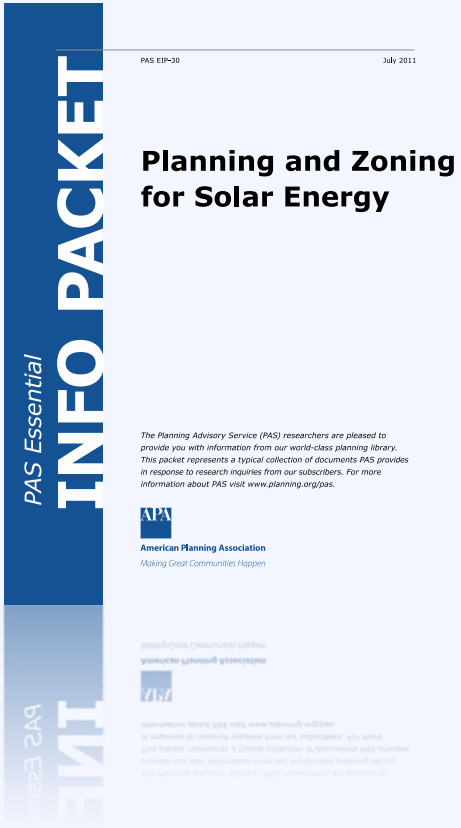


Zoning Code: Large Scale Solar

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

Powered by SunShot
U.S. Department of Energy

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

Powered by SunShot
U.S. Department of Energy

Source: Vote Solar

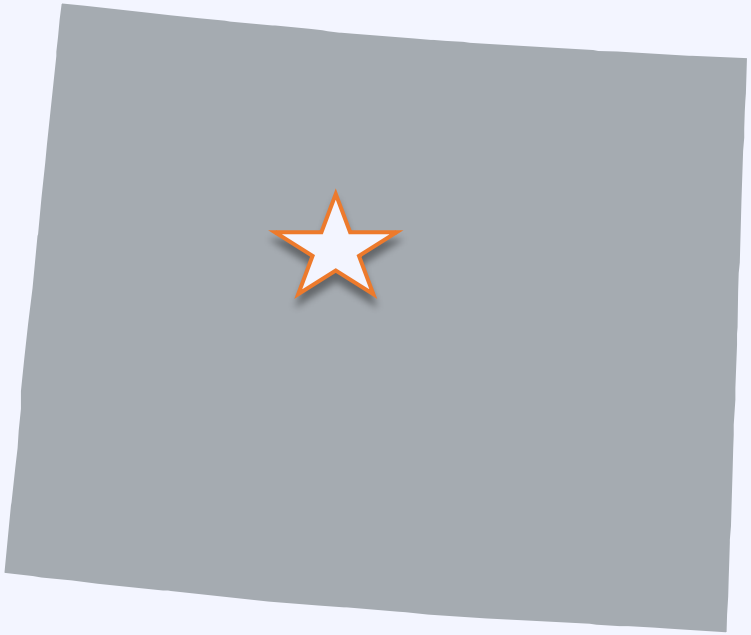
Expedited Permitting

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: Case Study



Breckenridge, Colorado

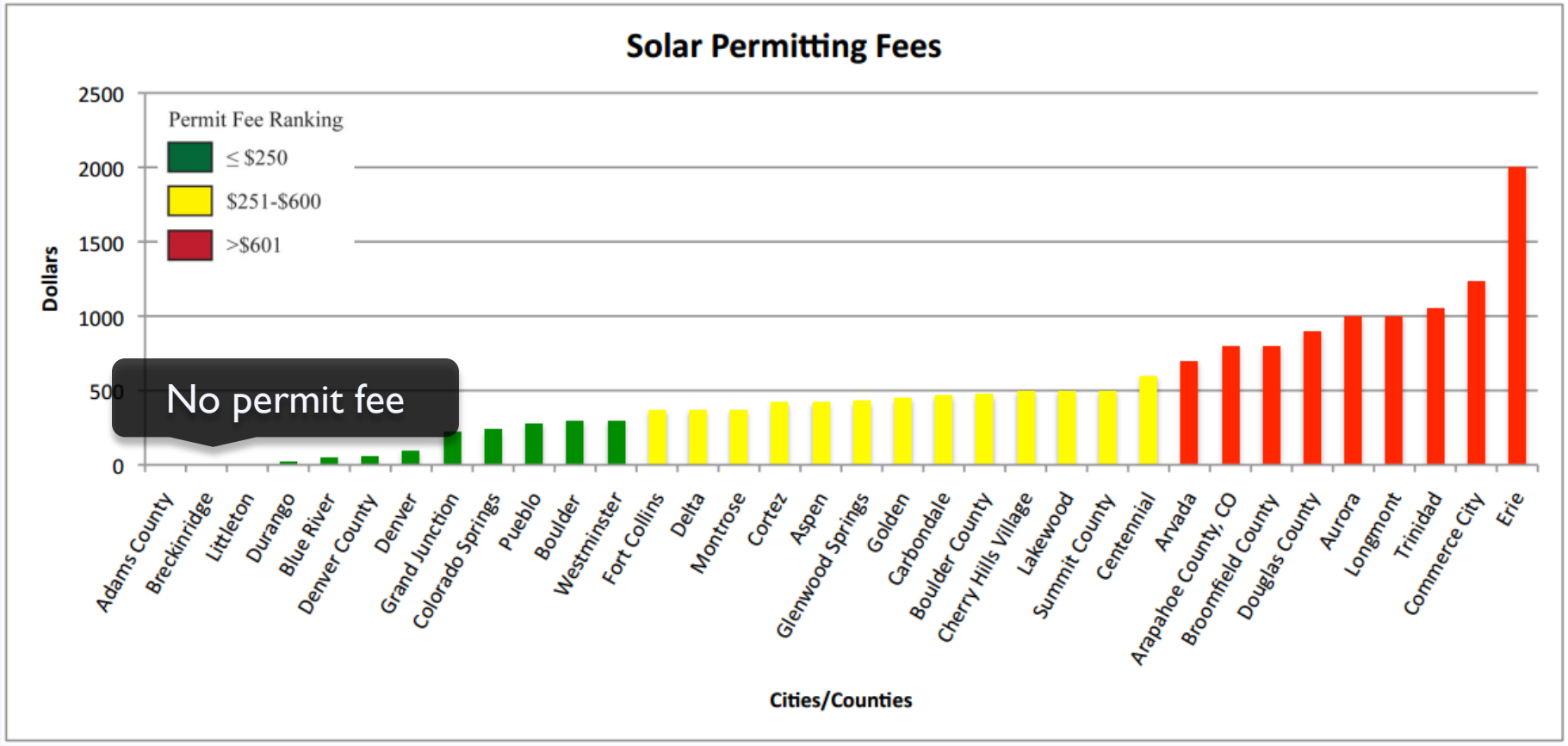
Population: 4,540

Powered by SunShot
U.S. Department of Energy

Source: Wikipedia

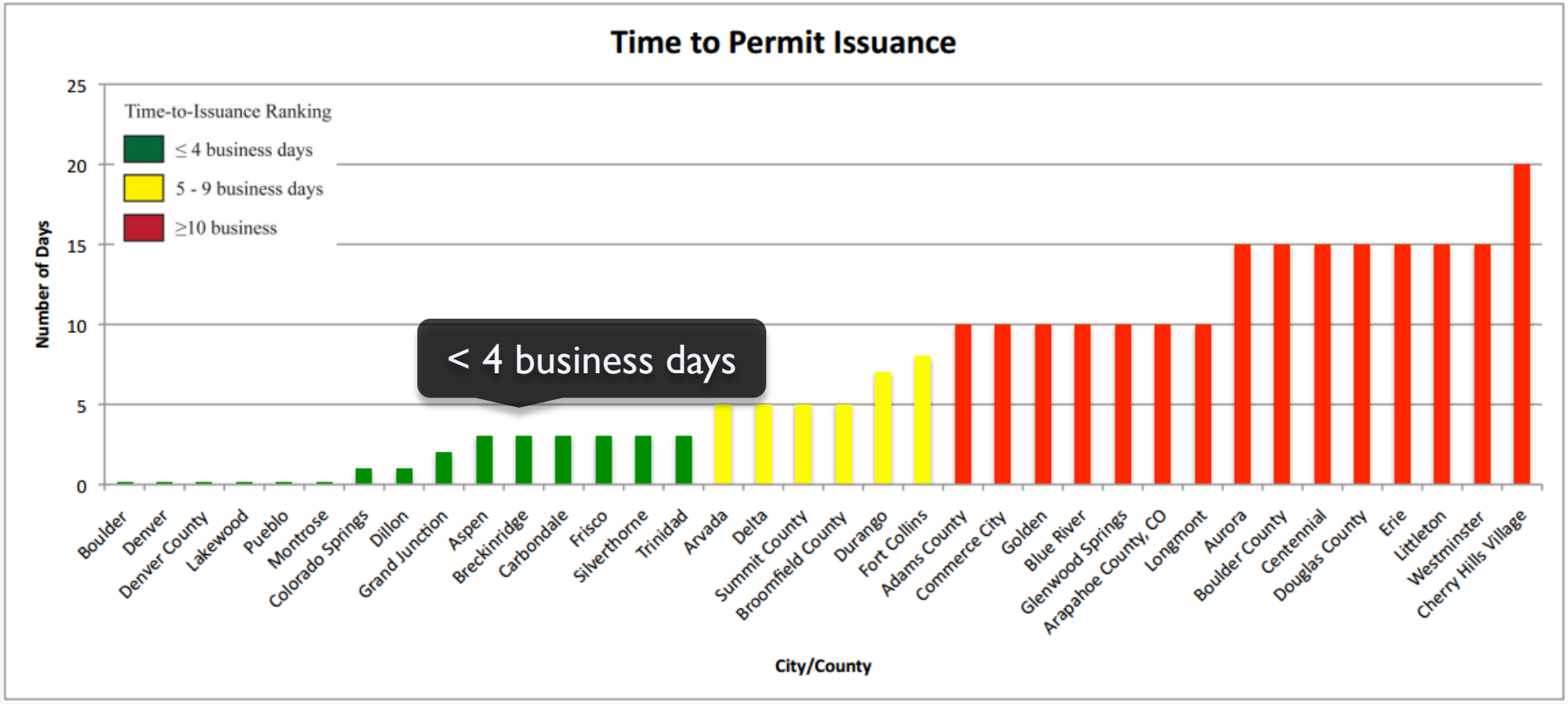
Expedited Permitting: Case Study

Breckenridge charges no fees to file for a solar permit



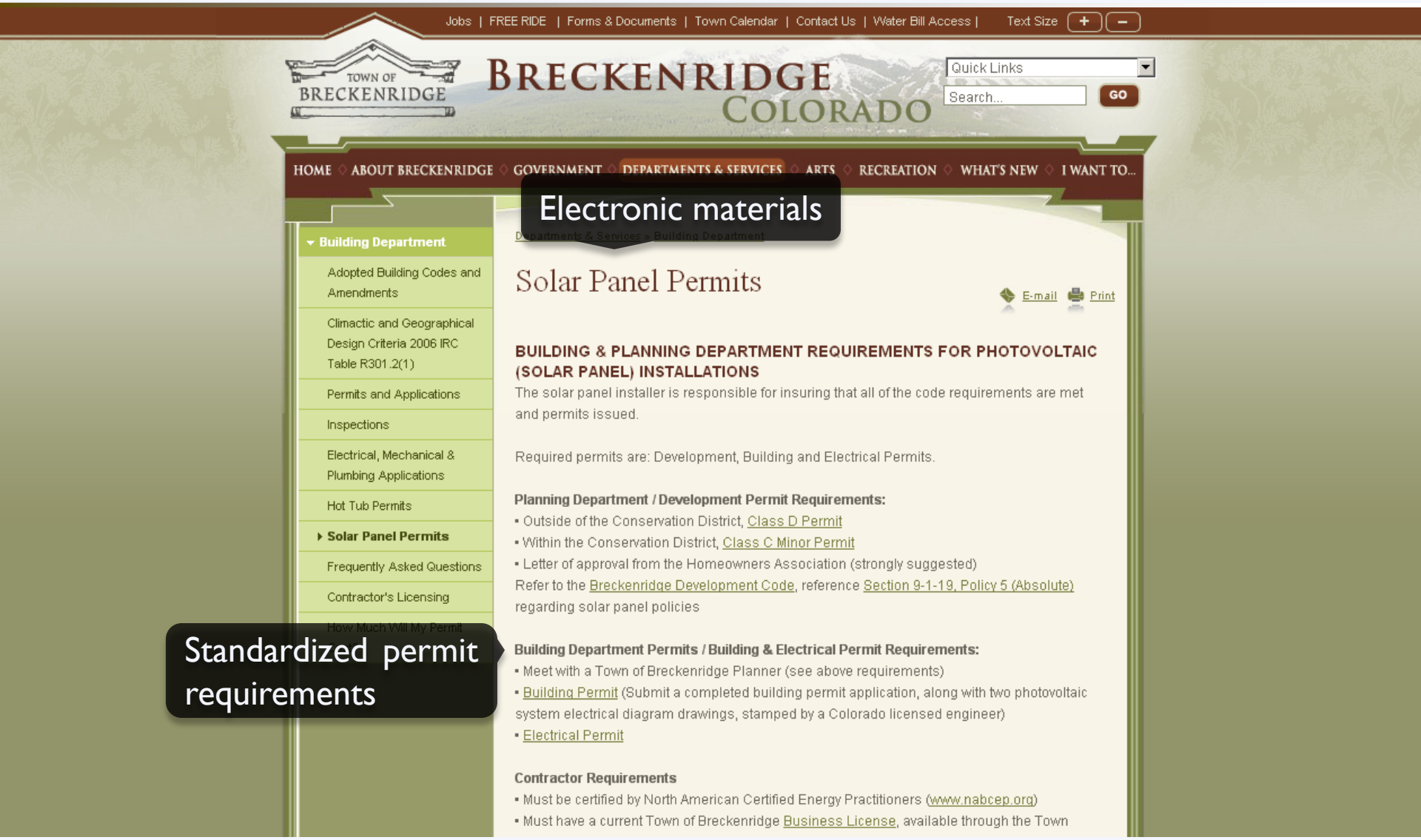
Expedited Permitting: Case Study

Breckenridge offers a short turn around time for solar permits



Source:Vote Solar (http://votesolar.org/wp-content/uploads/2011/03/COPermitReport.pdf)

Expedited Permitting: Case Study



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U.S. Department of Energy

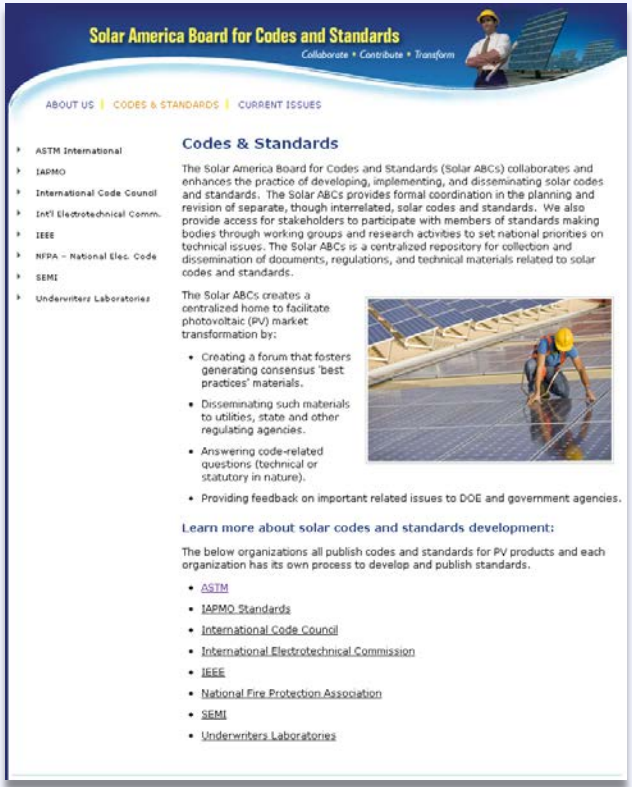
Source: Breckenridge, CO (http://www.townofbreckenridge.com/index.aspx?page=694)

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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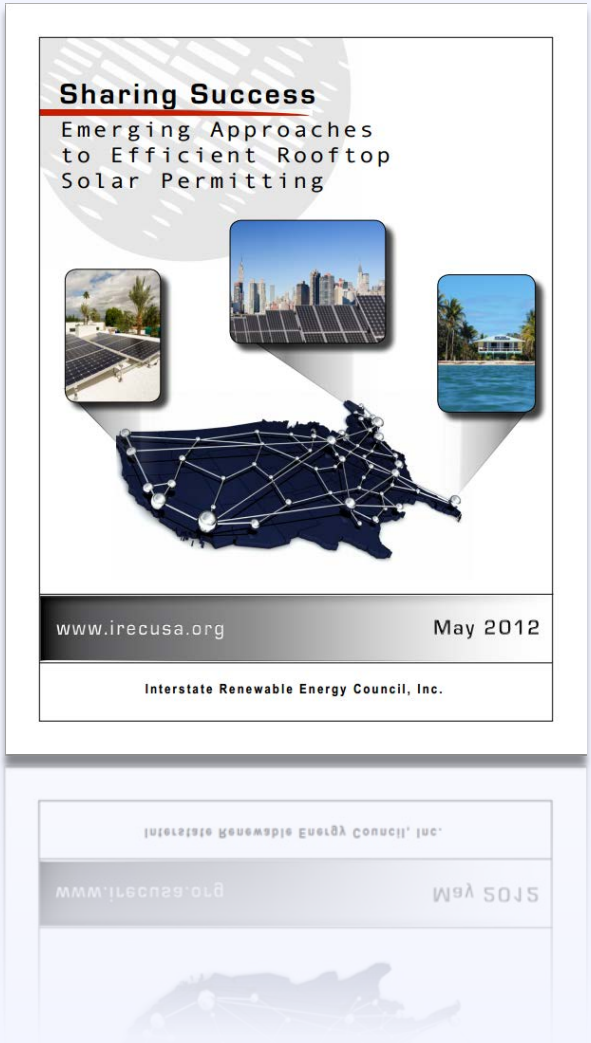
U.S. Department of Energy

Expedited Permitting

Resource **Interstate Renewable Energy Council**

Outlines emerging approaches to efficient rooftop solar permitting

www.irecusa.org



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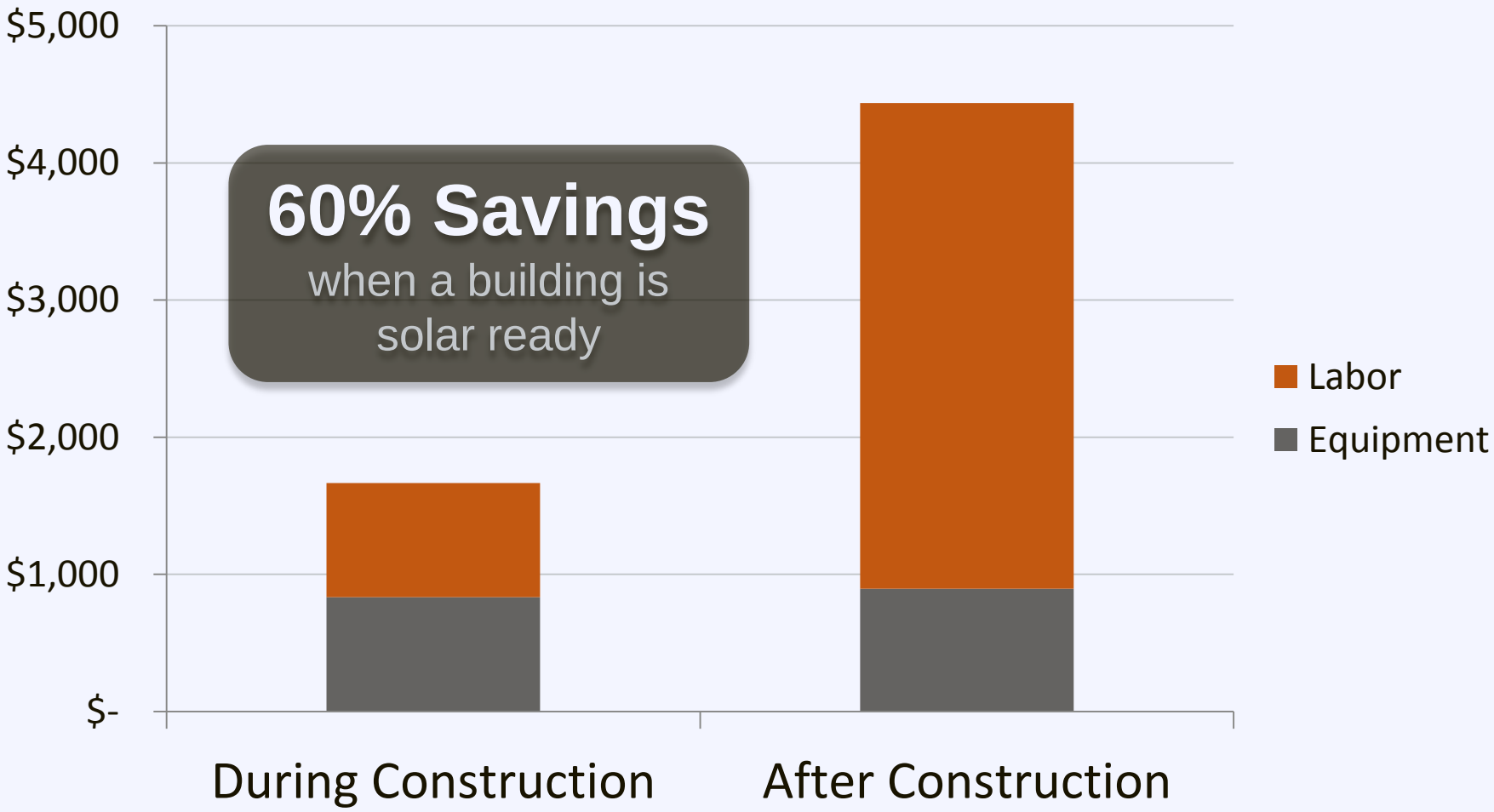
Solar Readiness

Creating solar-ready guidelines and promoting energy efficiency at the outset can help make future solar installations easier and more cost effective.

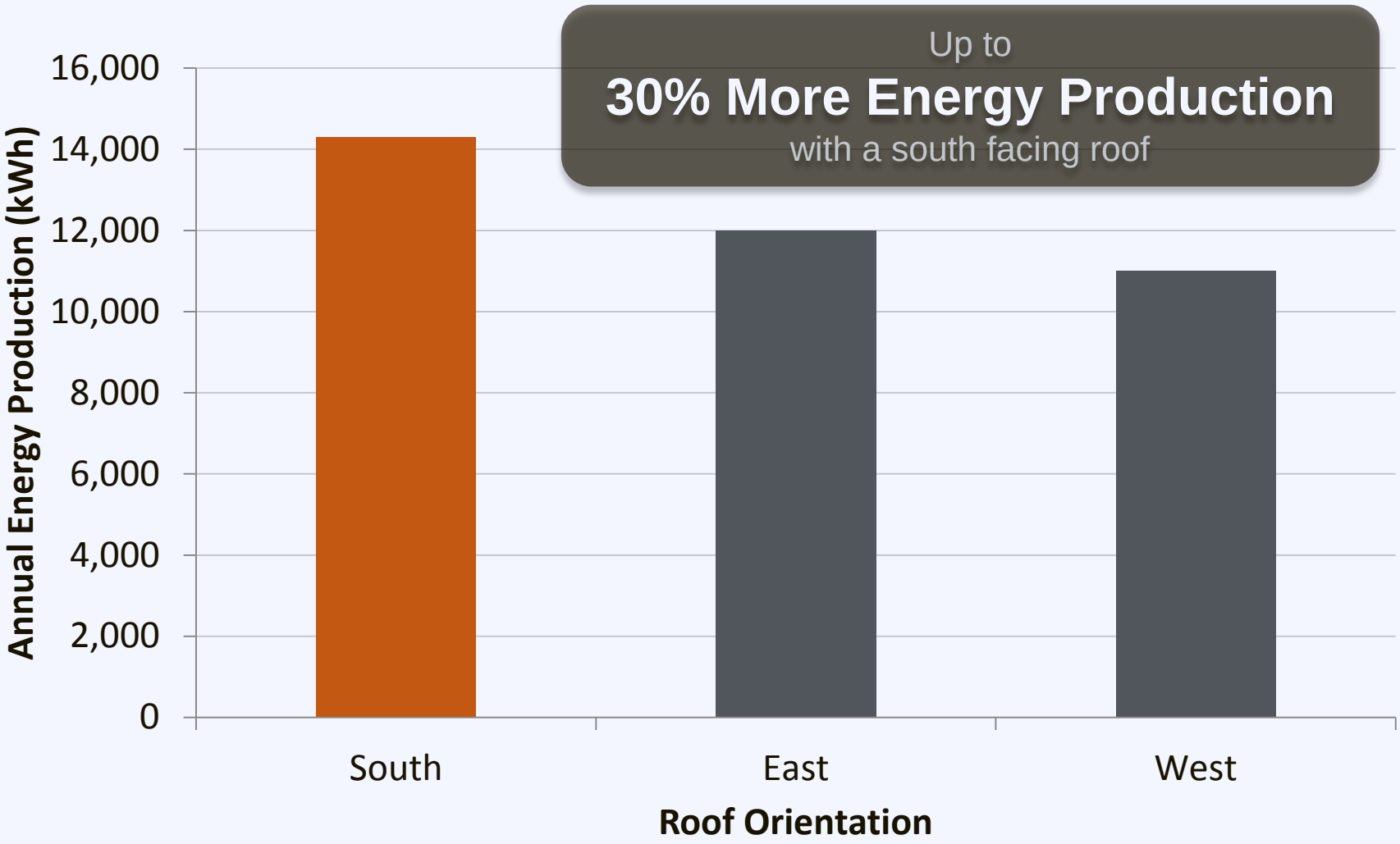
Solar Readiness



Powered by SunShot U.S. Department of Energy

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

Solar Readiness



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U.S. Department of Energy

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

Solar Readiness

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

Solar Readiness: Case Study

Oro Valley, Arizona

Population: 40,195

Powered by SunShot
U.S. Department of Energy

Source: Wikipedia

Solar Readiness: Case Study

Oro Valley Requirements:

- Installation of conduit or sleeve for wiring
- A space near the service equipment to mount additional PV equipment
- Installation of a circuit breaker that can be back-fed from a PV system

Source: http://cms3.tucsonaz.gov/files/dsd/PV_Prep.pdf

Solar Readiness

Resource **NREL**

Creating a solar ready guide for buildings:

- Legislation
- Certification programs
- Stakeholder Education

www.nrel.gov

Powered by SunShot U.S. Department of Energy

Source: NREL

Agenda

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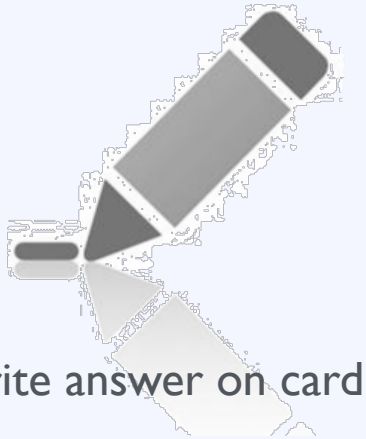
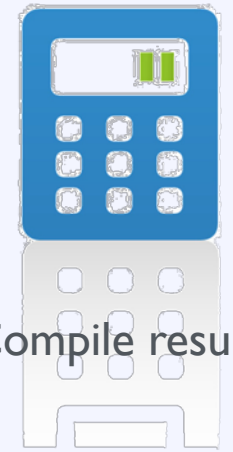
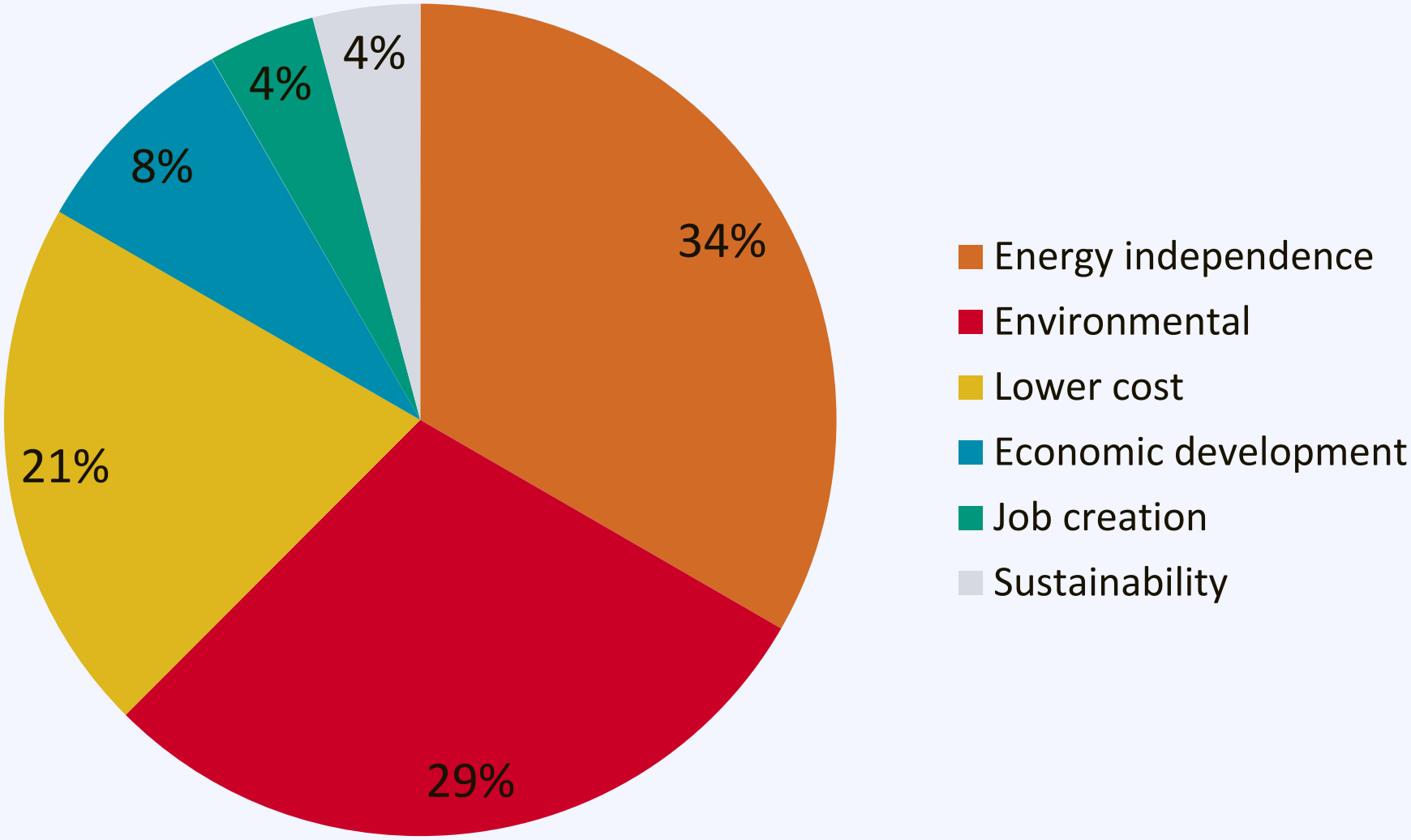
Activity: Identifying Benefits

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



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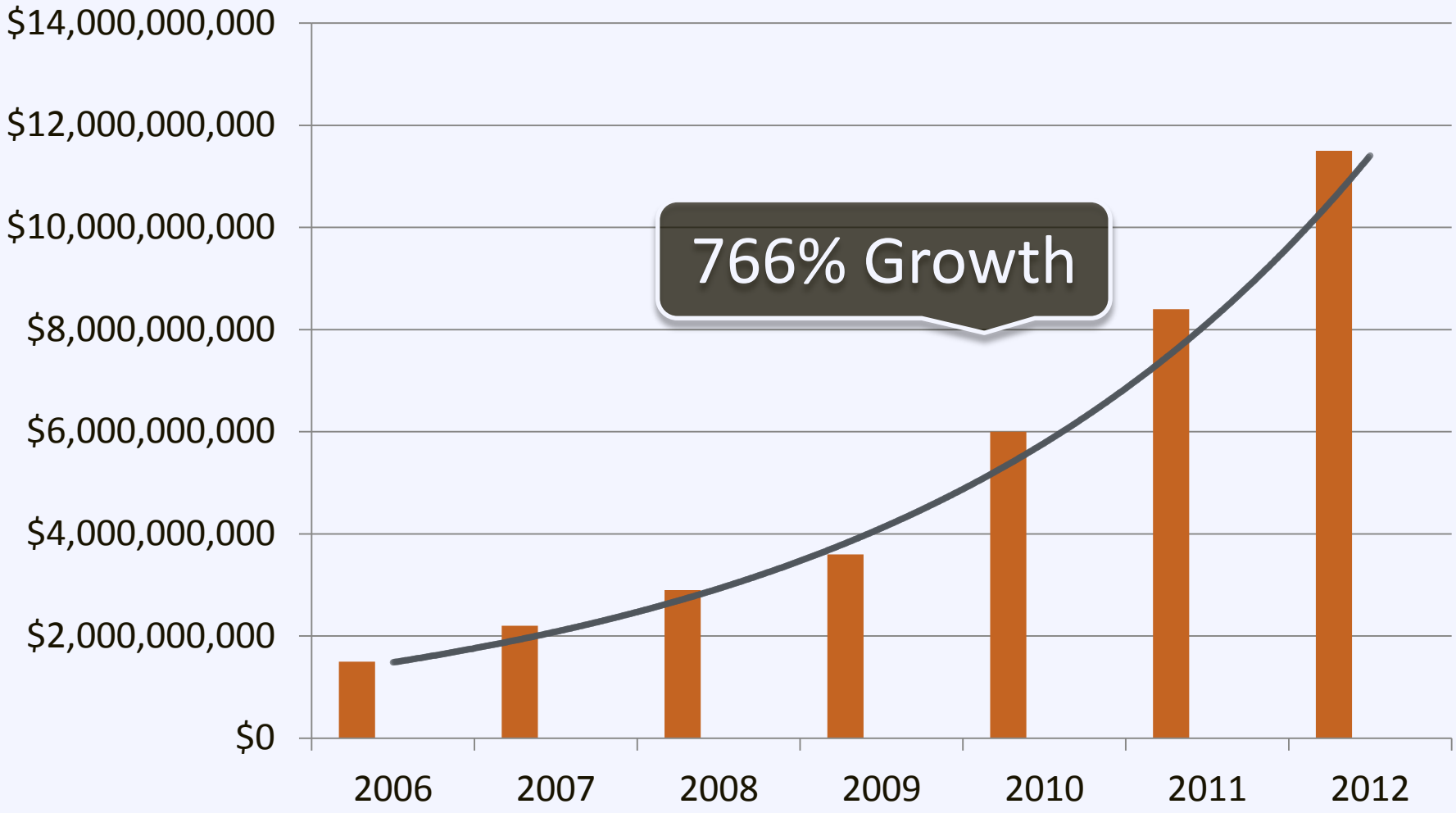
U.S. Department of Energy

Benefits of Solar Energy

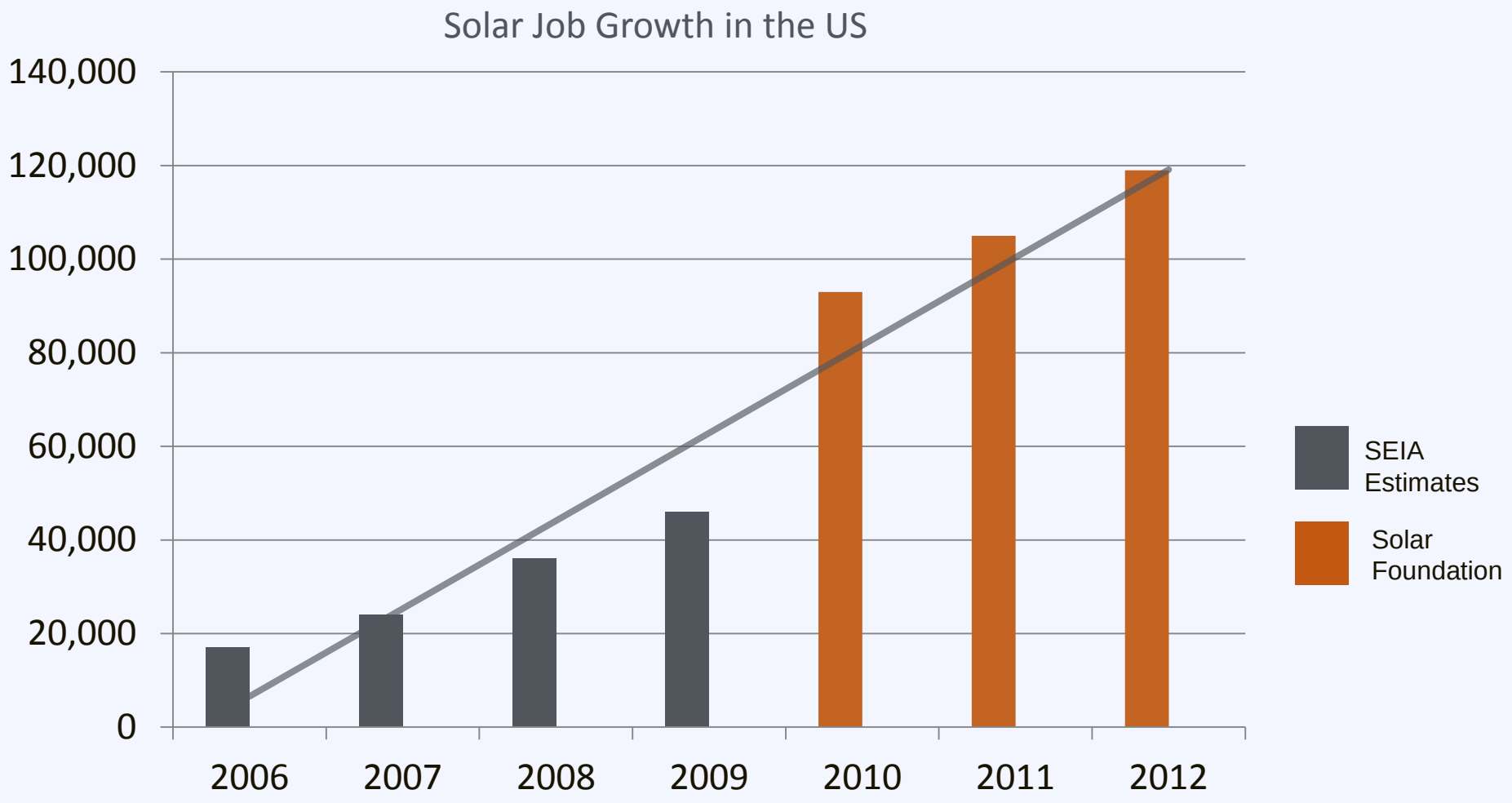
- Local economy growth
- Local jobs
- Energy independence
- Stabilizes price volatility
- Valuable to utilities
- Smart investment

Benefit: Economic Growth



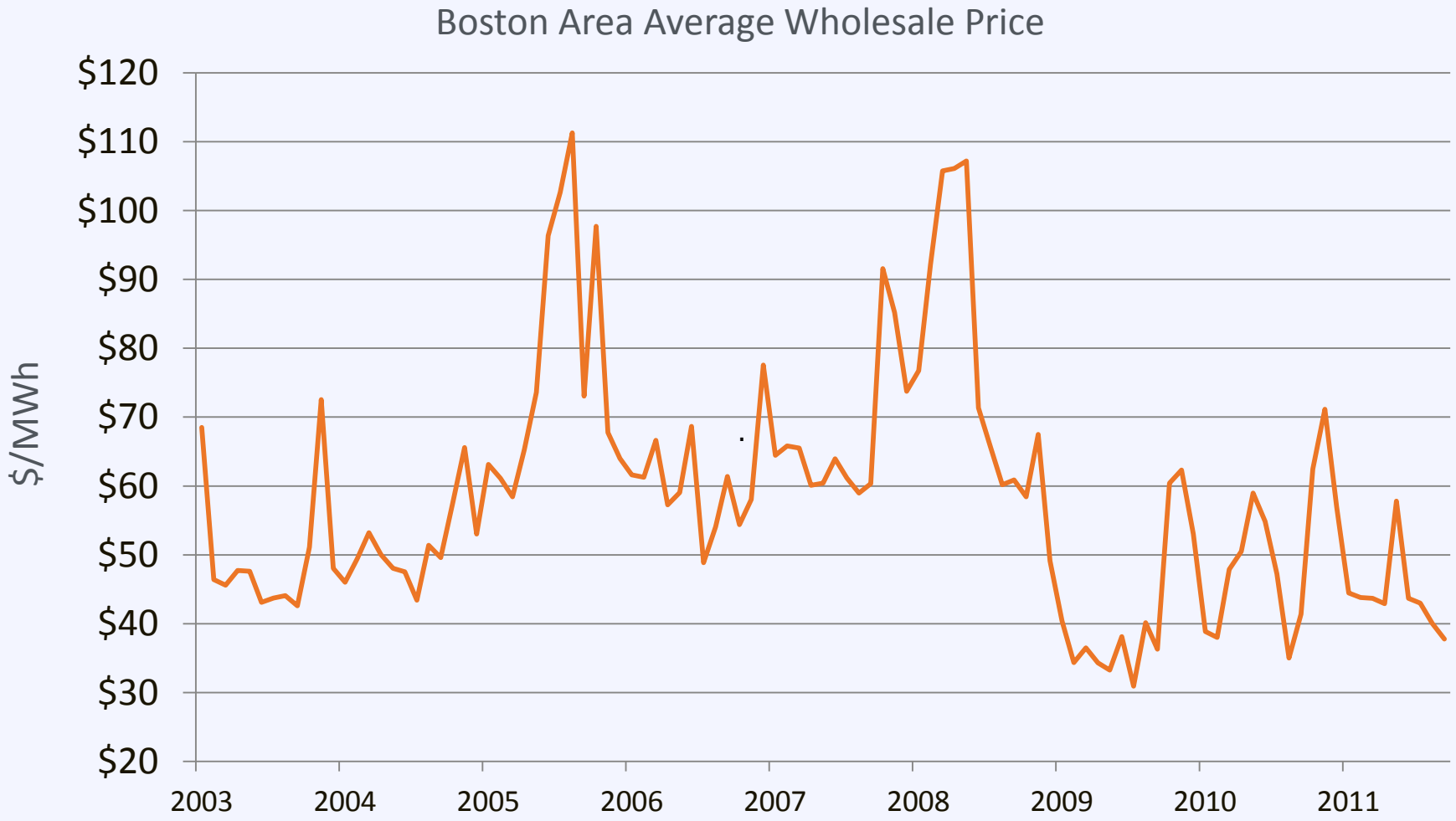
Source: SEIA/GTM Research – 2009/2010/2011/2012 Year in Review Report
http://www.seia.org/research-resources/us-solar-market-insight

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).

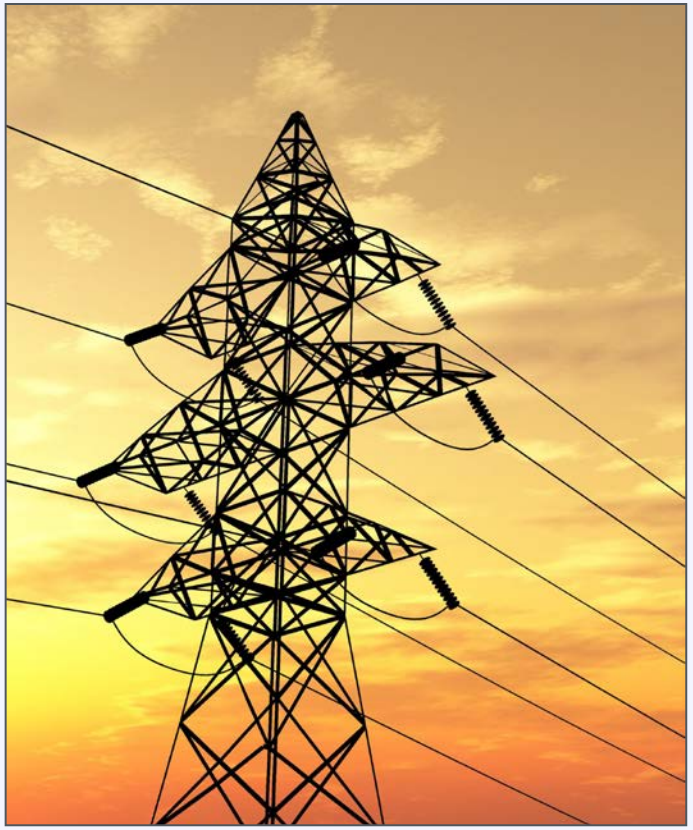
Benefit: Stabilize Energy Prices



Source: NEPOOL

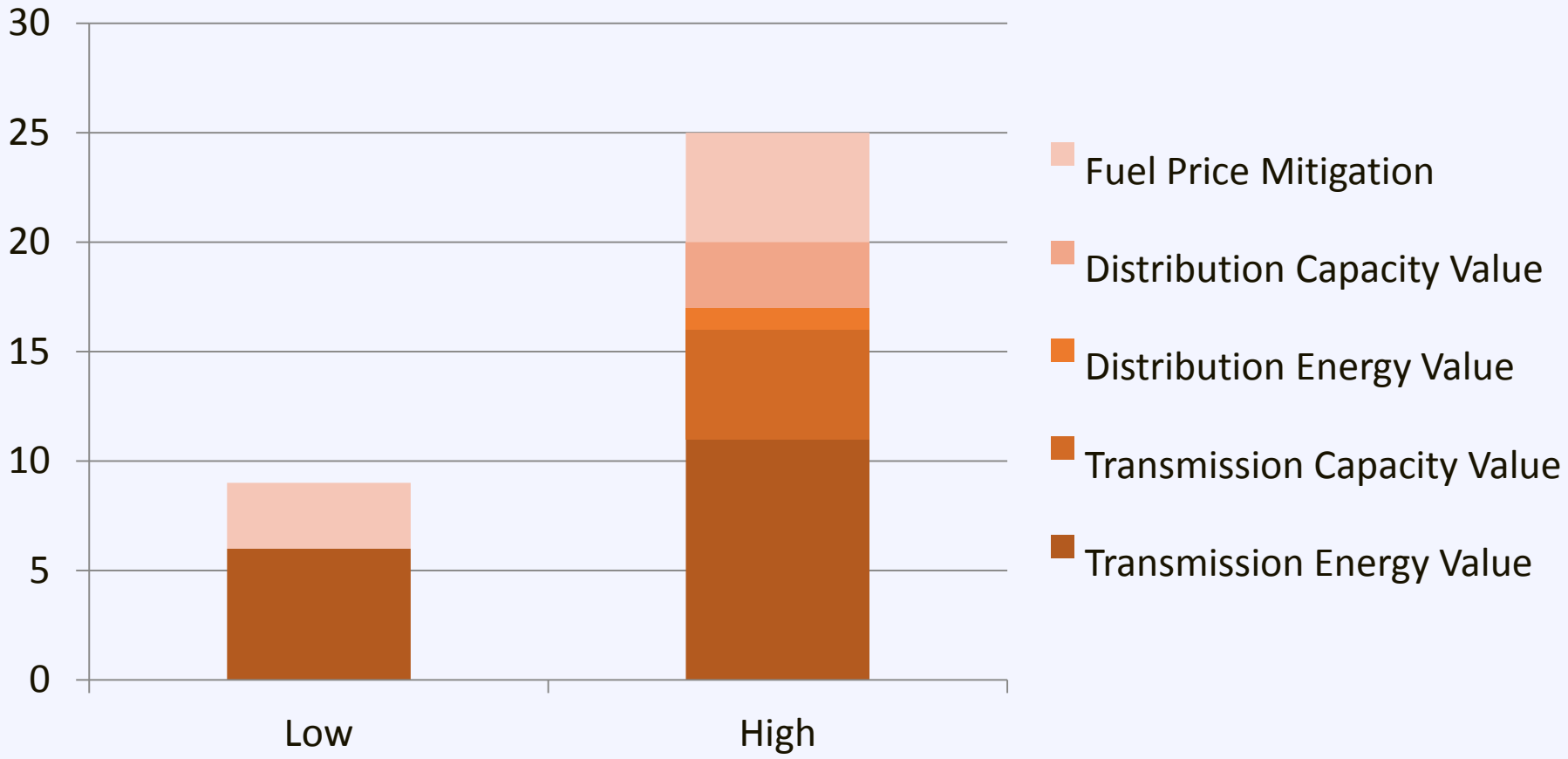
Benefits: Valuable to Utilities

- 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

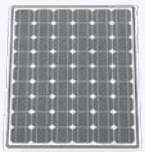
in surveyed California subdivisions

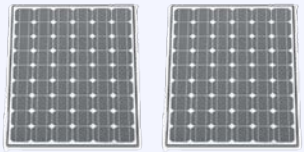
Powered by SunShot
U.S. Department of Energy

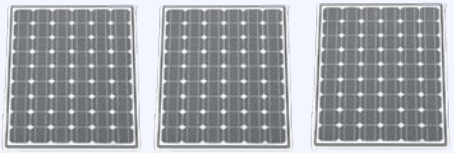
Source: http://www.nrel.gov/docs/fy07osti/38304-01.pdf

Benefit: Smart Investment for Homes

From SunRun:

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

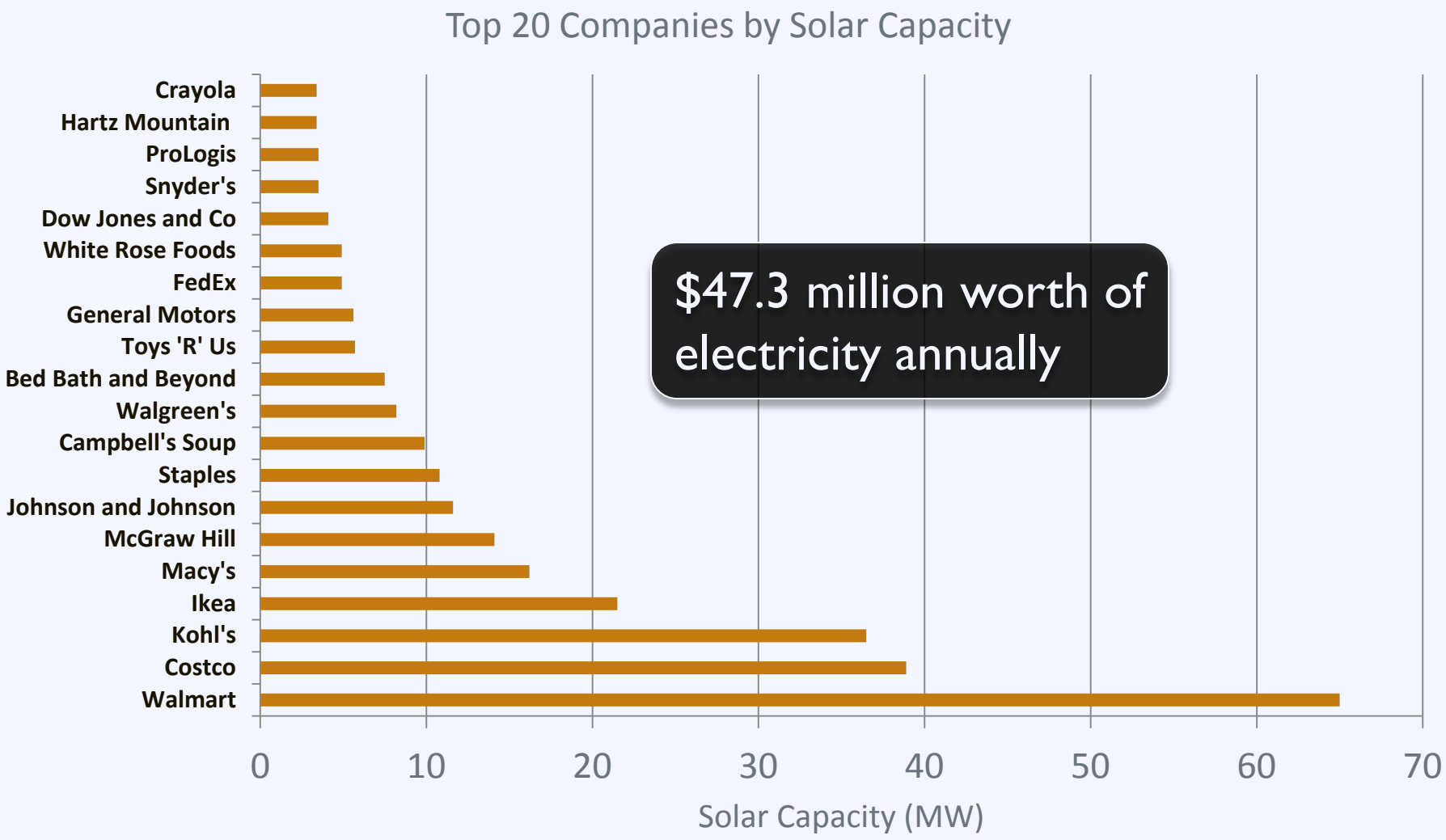
6 kW  = **$ 33,000** *added sale premium*

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

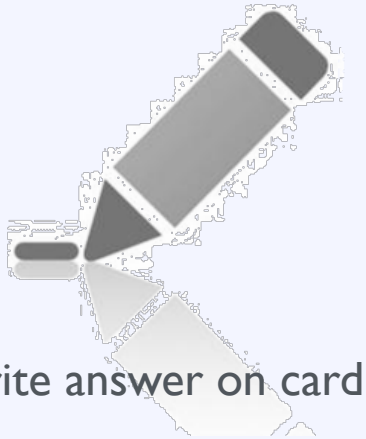
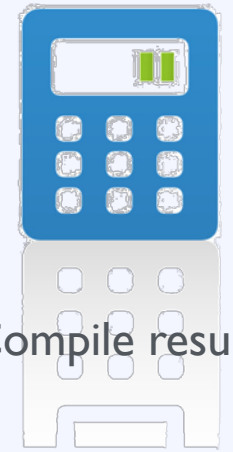
Source: Solar Energy Industries Association

Benefit: Smart Investment for Government

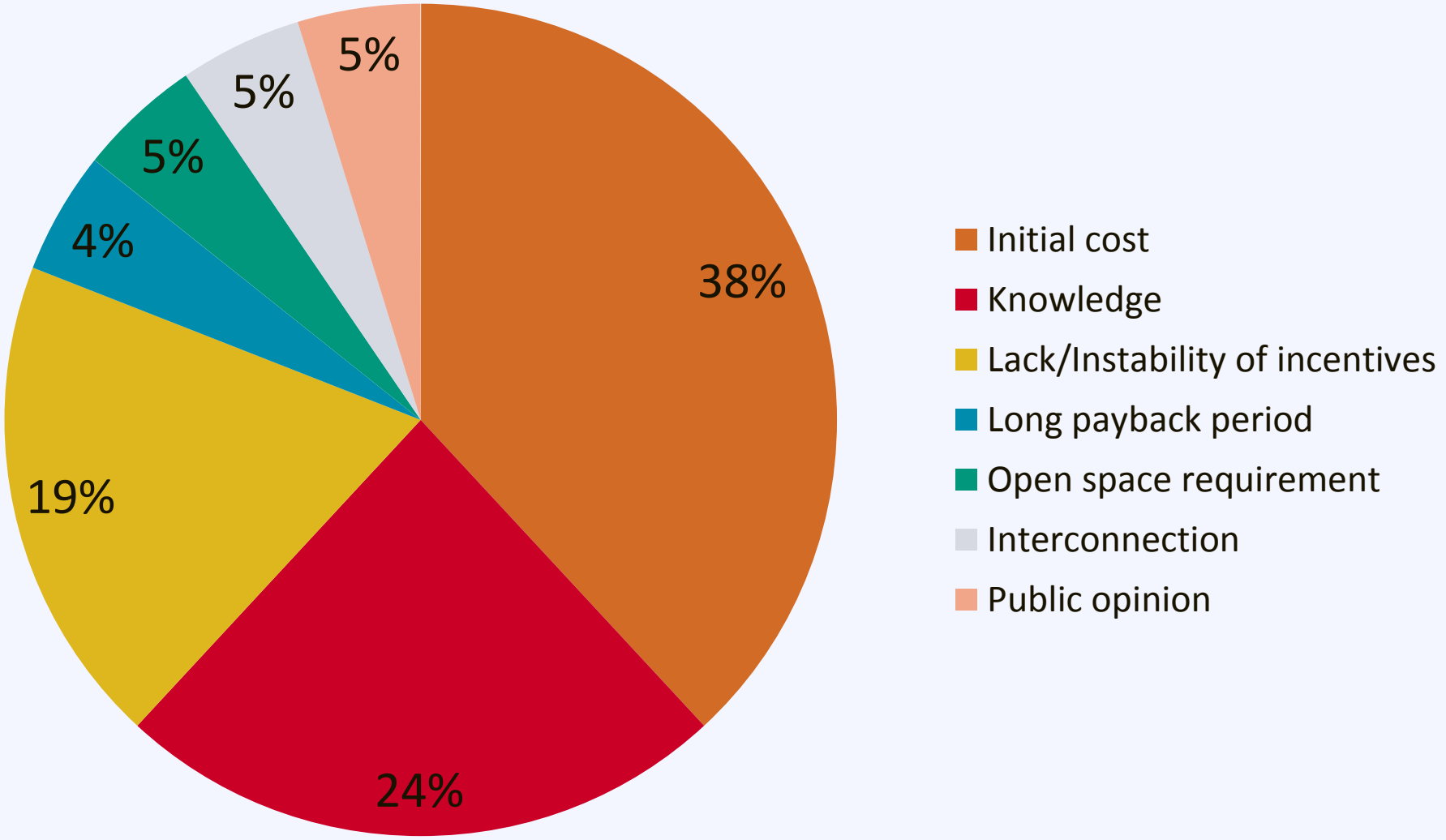
Source: Borrego Solar

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



Some things you may hear…

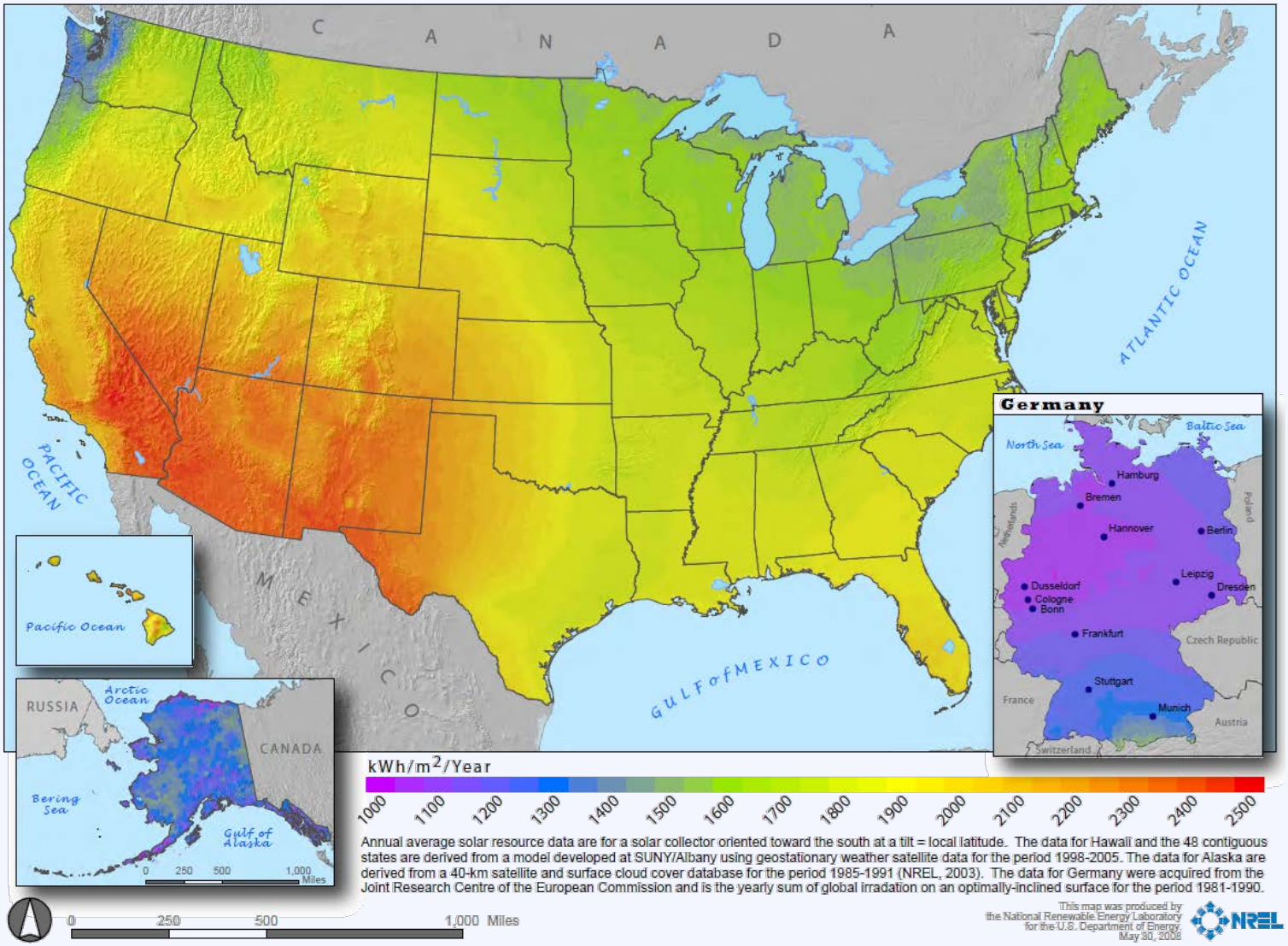
My area isn't sunny enough for solar

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

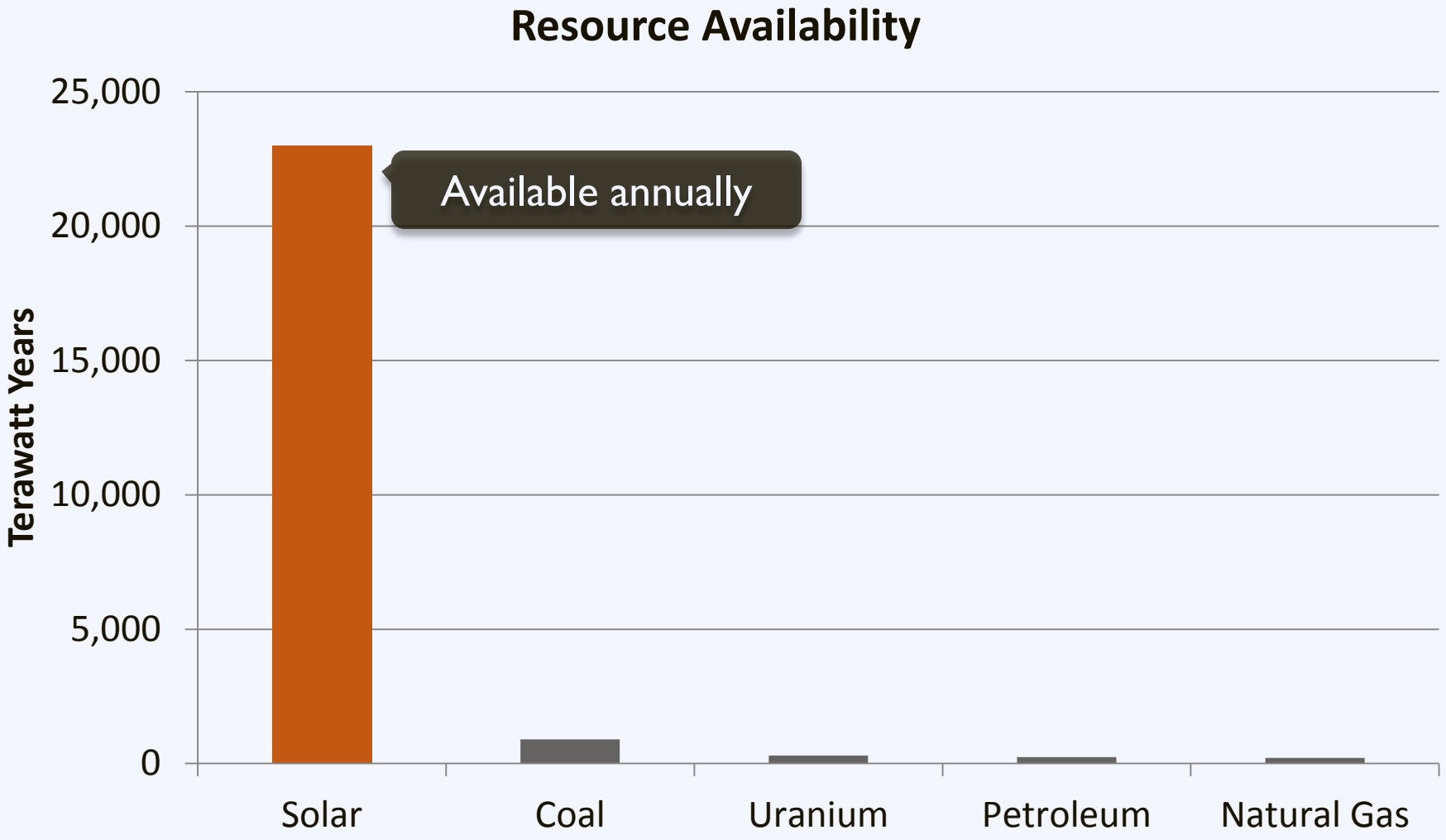


Annual average solar resource data are for a solar collector oriented toward the south at a tilt = local latitude. The data for Hawaii and the 48 contiguous states are derived from a model developed at SUNY/Albany using geostationary weather satellite data for the period 1998-2005. The data for Alaska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

Powered by SunShot U.S. Department of Energy

Source: National Renewable Energy Laboratory

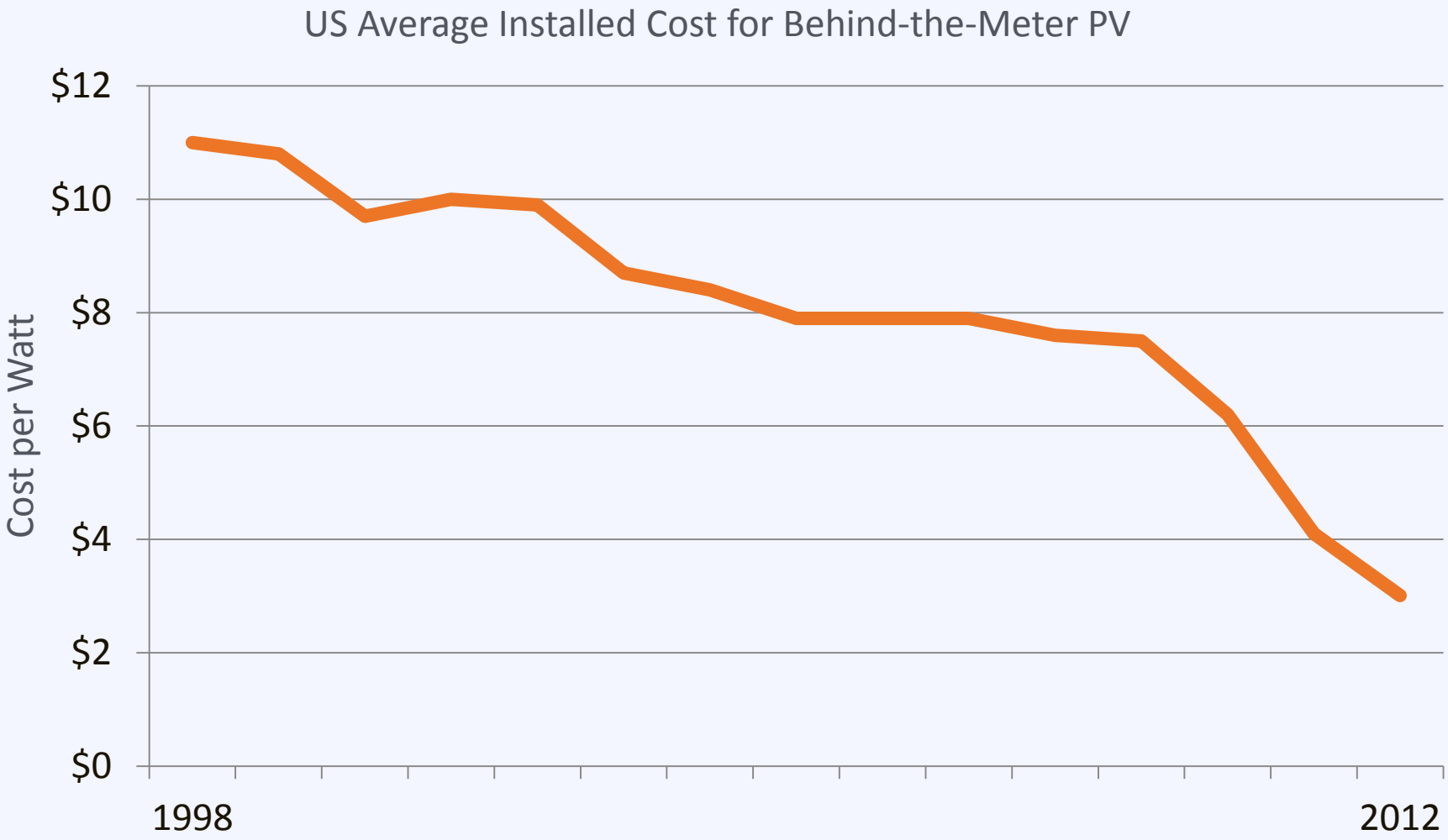
Fact: Solar is a ubiquitous resource



Powered by SunShot
U.S. Department of Energy

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

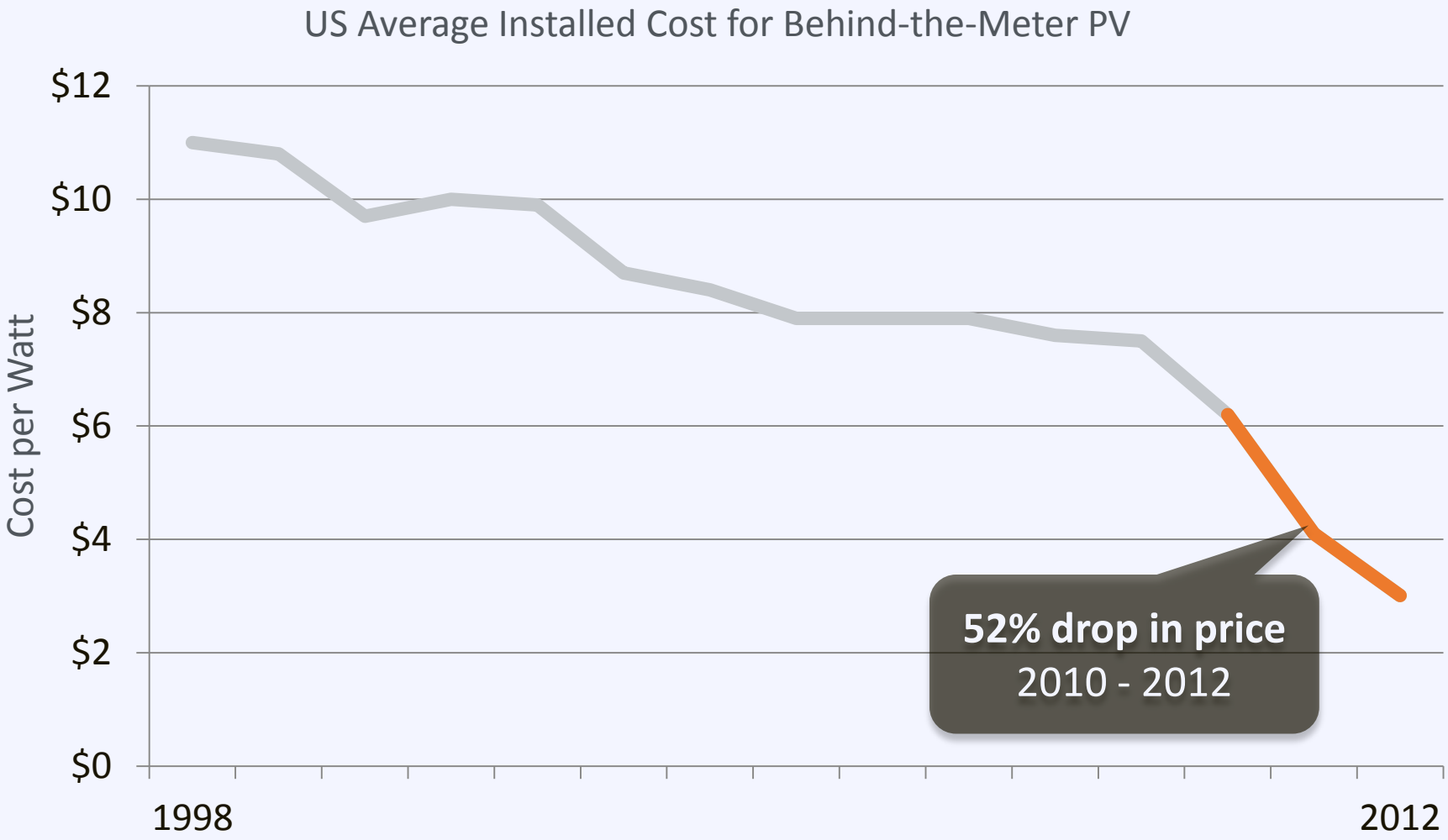
Fact: Solar is cost competitive



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



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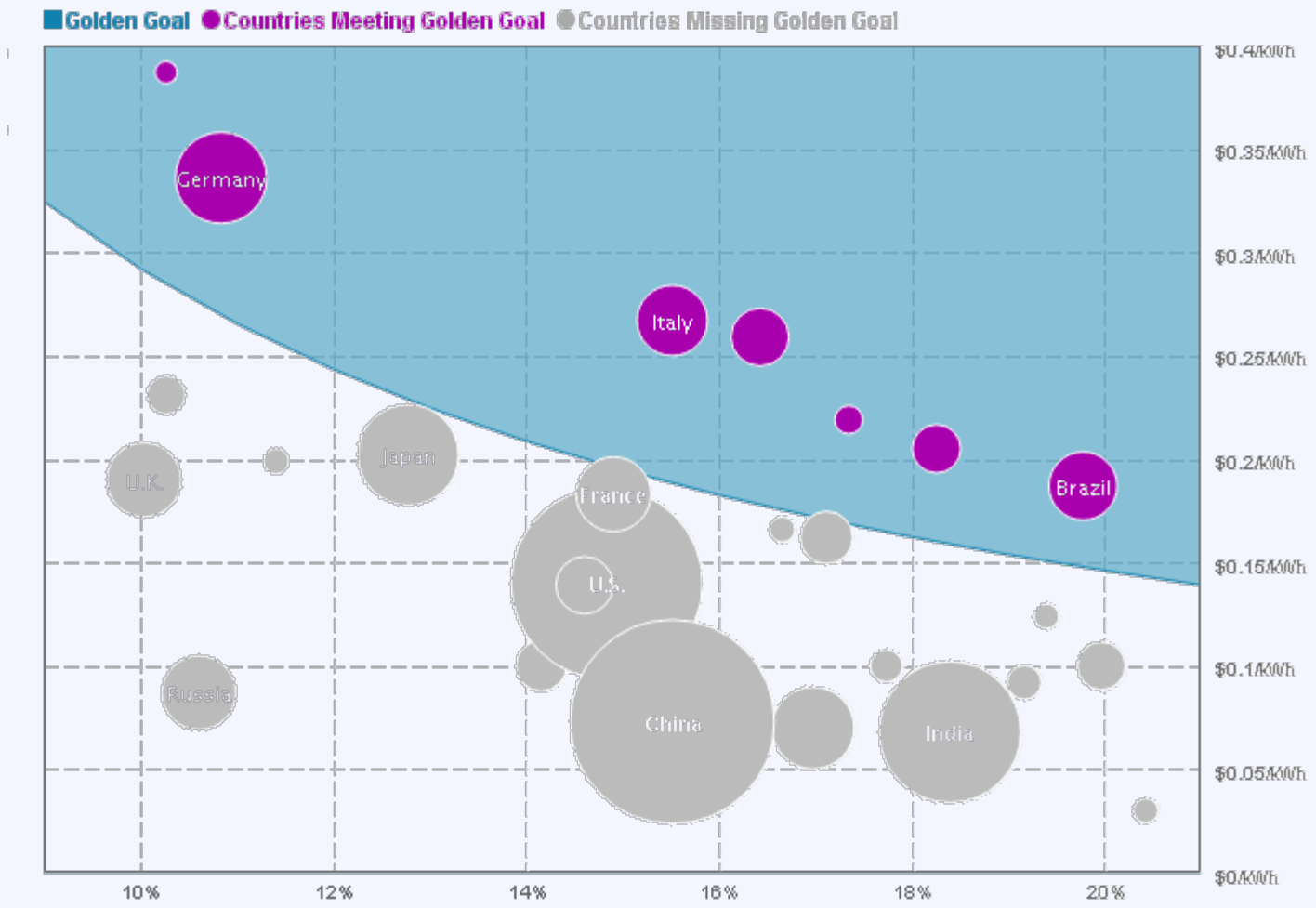
Powered by SunShot U.S. Department of Energy

Fact: Solar is cost competitive

2012



Source: Bloomberg

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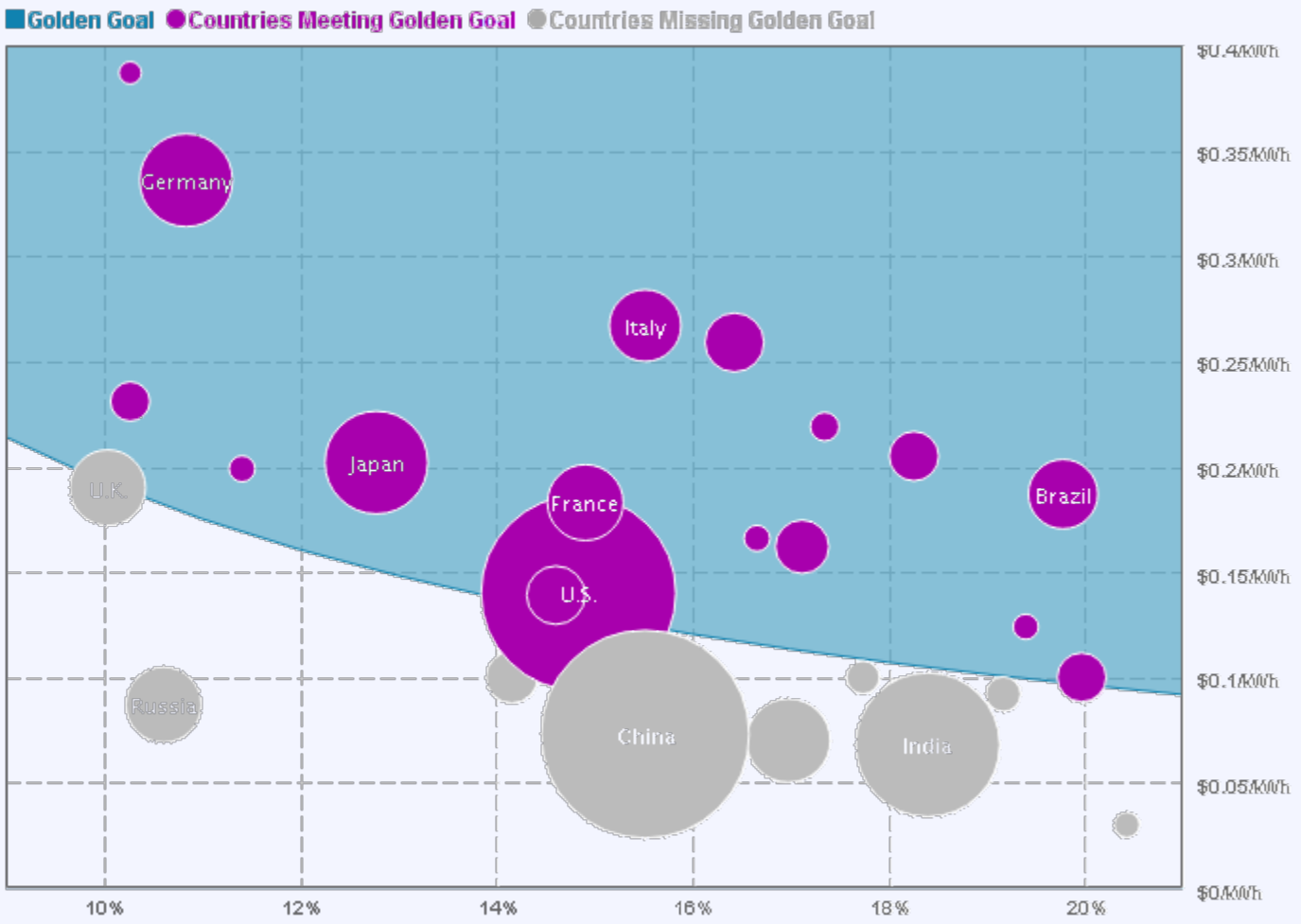
U.S. Department of Energy

Fact: Solar is cost competitive

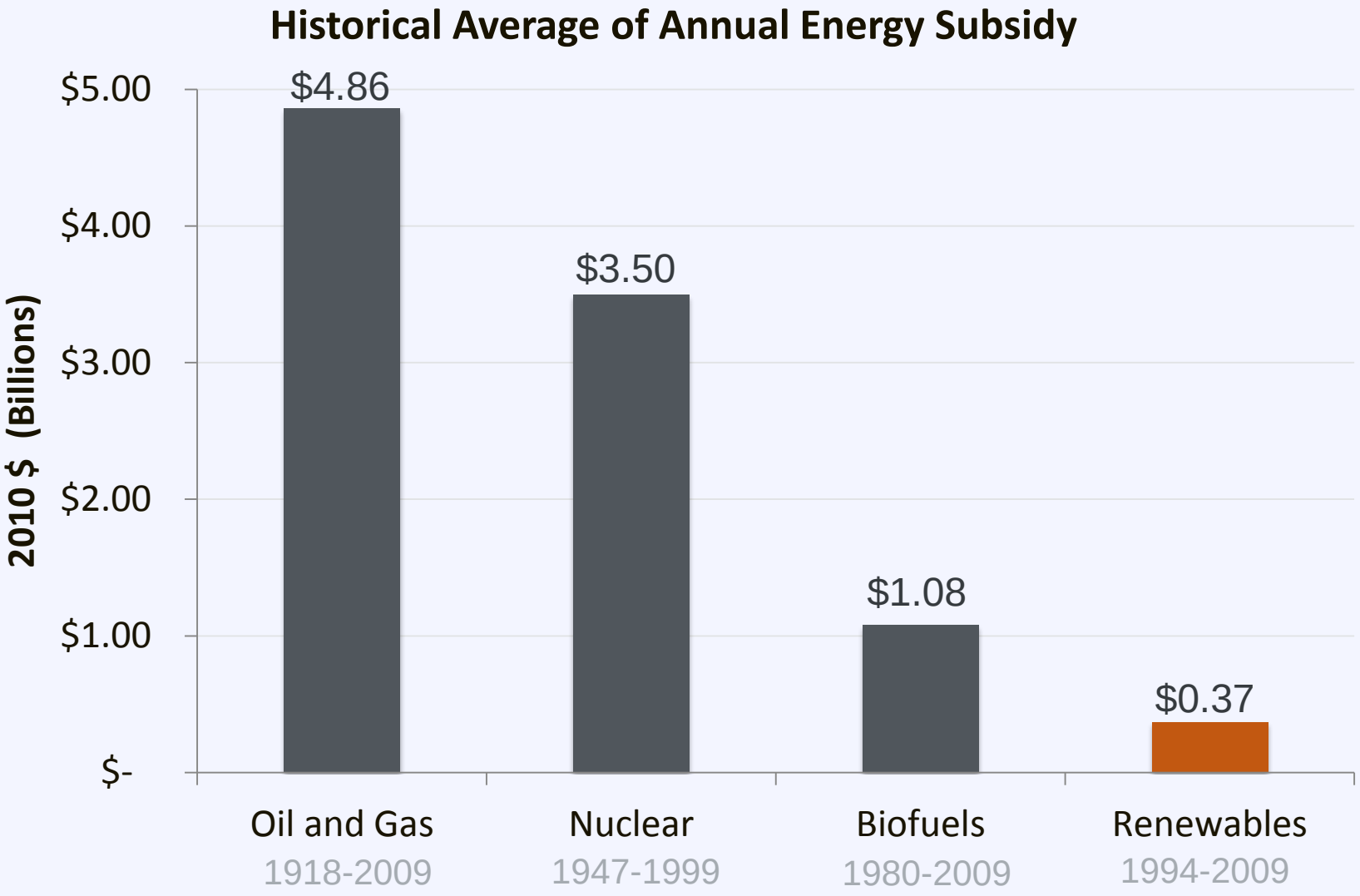
2020



Powered by SunShot
U.S. Department of Energy

Source: Bloomberg

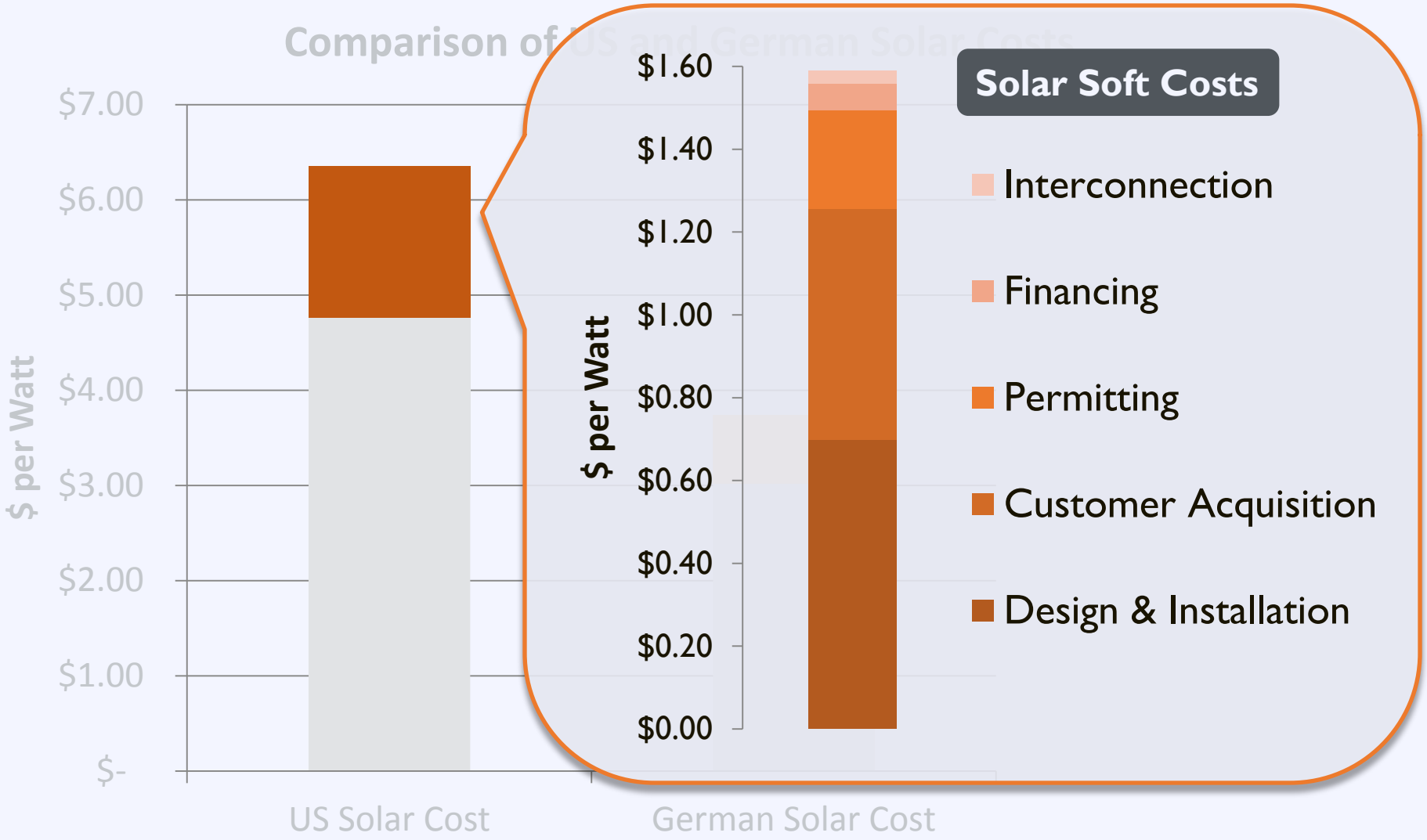
Fact: All energy is subsidized



Sources: DBL Investors

Powered by SunShot
U.S. Department of Energy

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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10:50 – 11:00	*Break*
11:00 – 12:00	Panel of Local Speakers
12:00 – 12:15	Closing Remarks

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
State	Tax Credits	Clean Tennessee Energy Grant
Utility	**TVA** Green Power Provider	**TVA** Renewable Standard Offer

Incentives

Federal	Investment Tax Credit	Accelerated Depreciation
State	Tax Credits	Clean Tennessee Energy Grant
Utility	TVA Green Power Provider	TVA Renewable Standard Offer

Investment Tax Credit

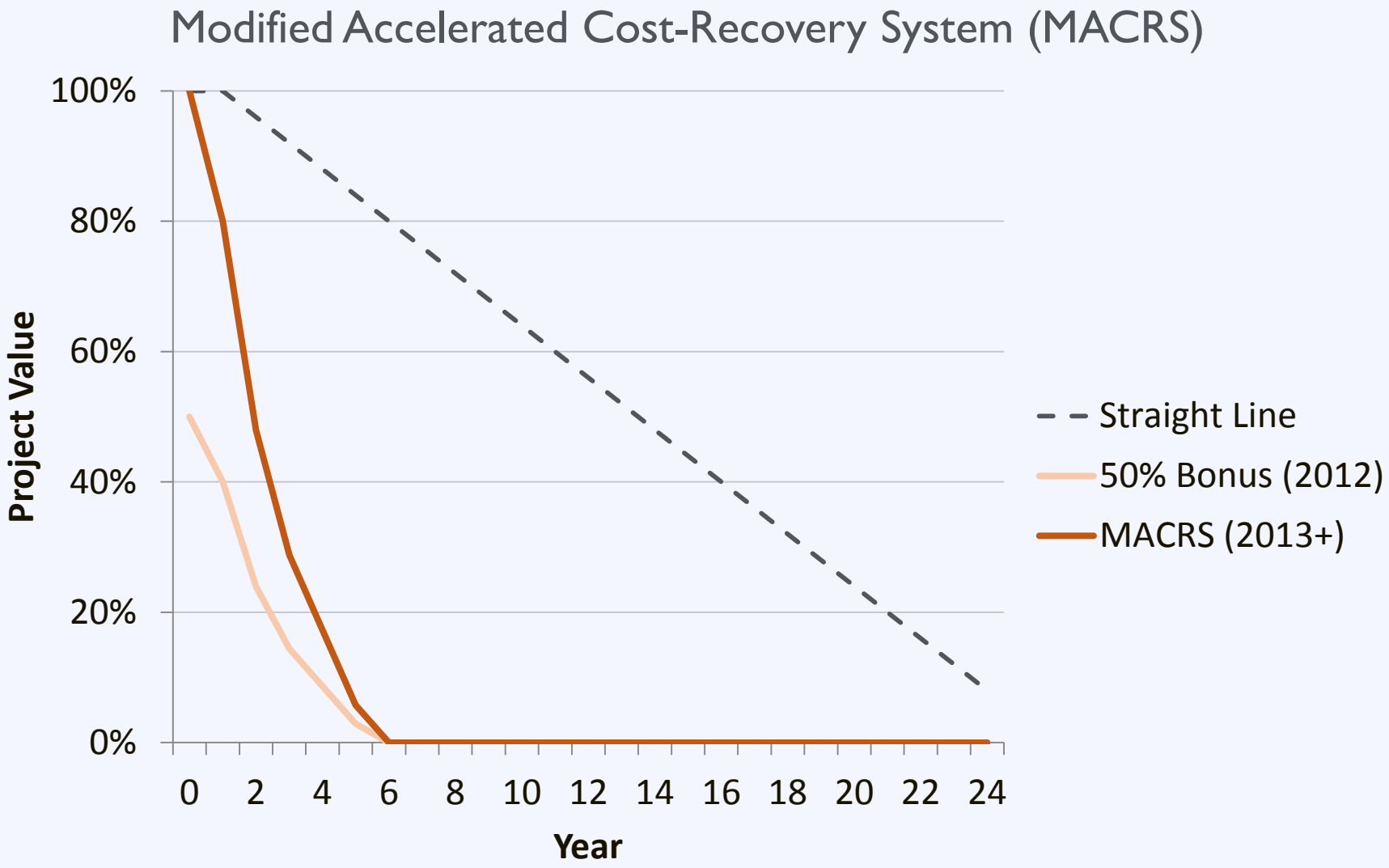
Type: Tax Credit

Eligibility: For-Profit Organization

Value: 30% of the installation cost

Availability: Through 2016

Accelerated Depreciation



Incentives

Federal	Investment Tax Credit	Accelerated Depreciation
State	Sales Tax Incentive	Clean Tennessee Energy Grant
Utility	TVA Green Power Provider	TVA Renewable Standard Offer

Sales Tax Incentive

Type: Tax Credit or Refund

Eligibility: For-Profit Organization

Value: 100% of the sales tax

Prerequisite: Certified green energy facility

Clean TN Energy Grant

A federal court settlement regarding compliance the Clean Air Act resulted in a $26.4 million fund for environmental mitigation projects

Clean TN Energy Grant

Grant Details

- Started in 2012
- Funds paid over 5 years
- Public and private entities
- Includes projects in:
  - Renewable energy
  - Energy efficiency
  - Air quality improvement

Powered by SunShot
U.S. Department of Energy

Source: www.pathwaylending.org

Solar Financing Options

Solar Financing Options

Direct Ownership

Third Party Ownership

Direct Ownership

Direct Ownership: Debt

Pathway Lending Fund:

- $50 million fund
- 10 year loan
- 5% interest
- Partners: TVA, Pinnacle Bank, State of Tennessee

Source: www.pathwaylending.org

Direct Ownership

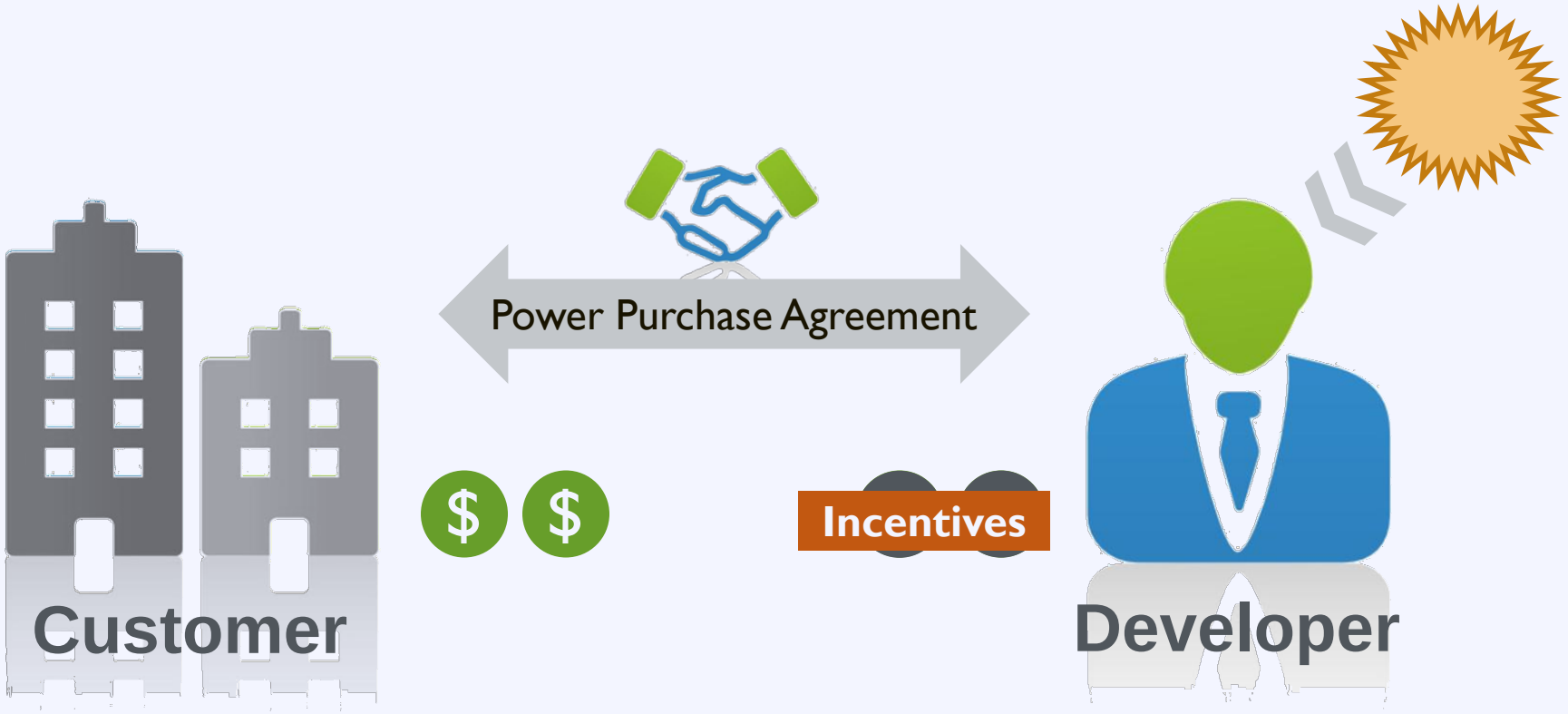
Pros

- Low – cost electricity
- REC revenue
- Full ownership

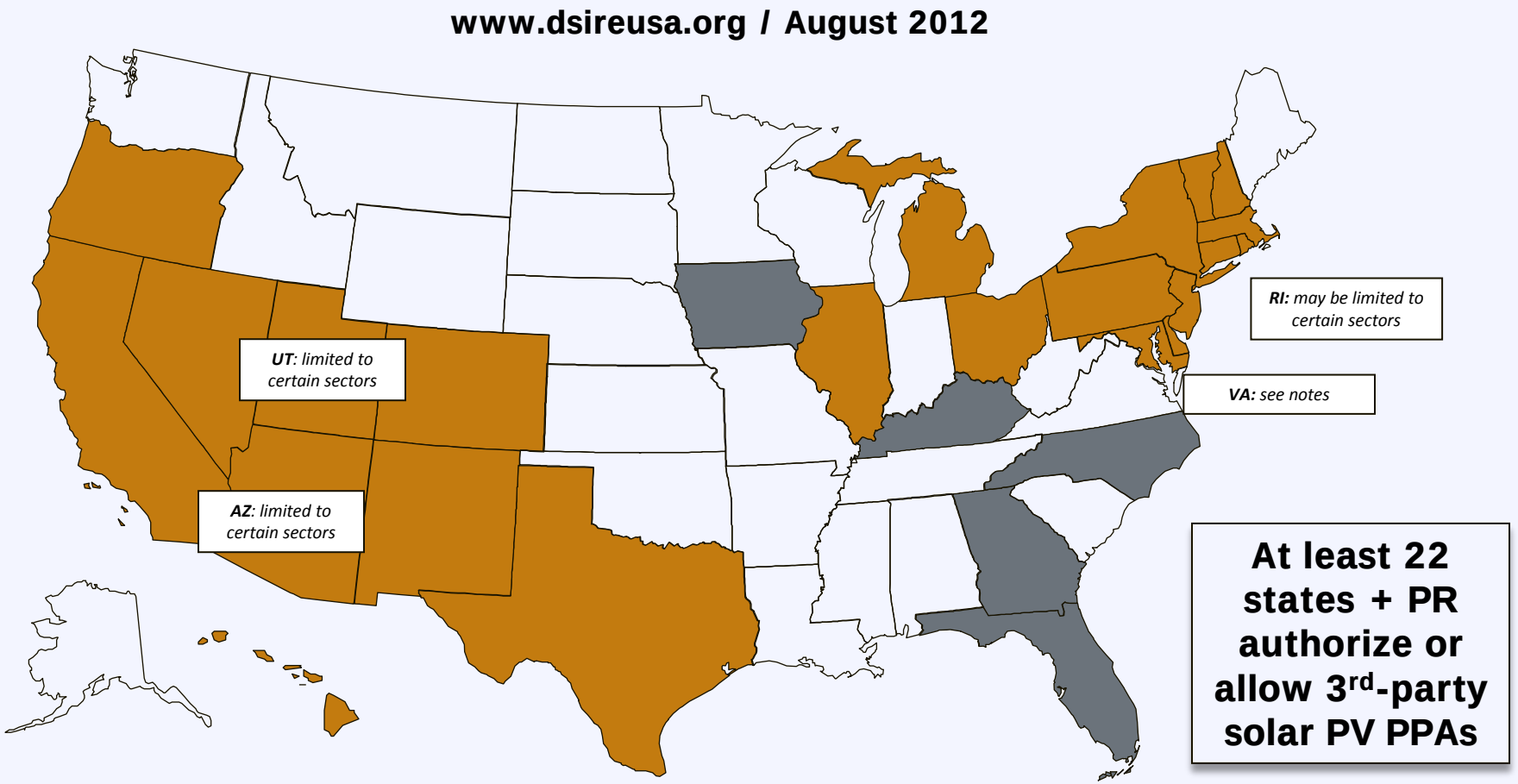
Cons

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

Third Party Ownership: PPA



Third Party Ownership: PPA



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

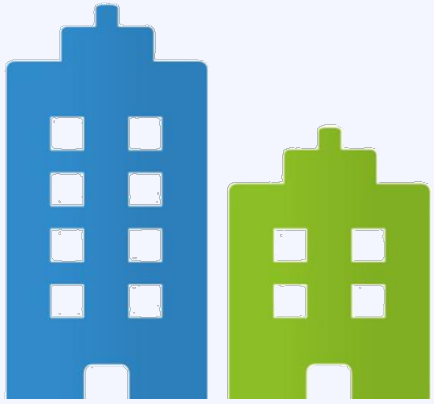
- No upfront cost
- No O&M costs
- Low risk
- Predictable payments
- Keep incentives

Cons

- Can't take tax benefits

Solar Financing Options

Direct Ownership



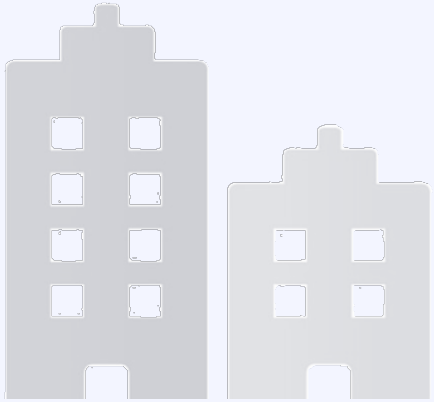
Direct Ownership

Third Party Lease

Direct Ownership

Options for Solar Programs

Solarize



QECB's

Solarize

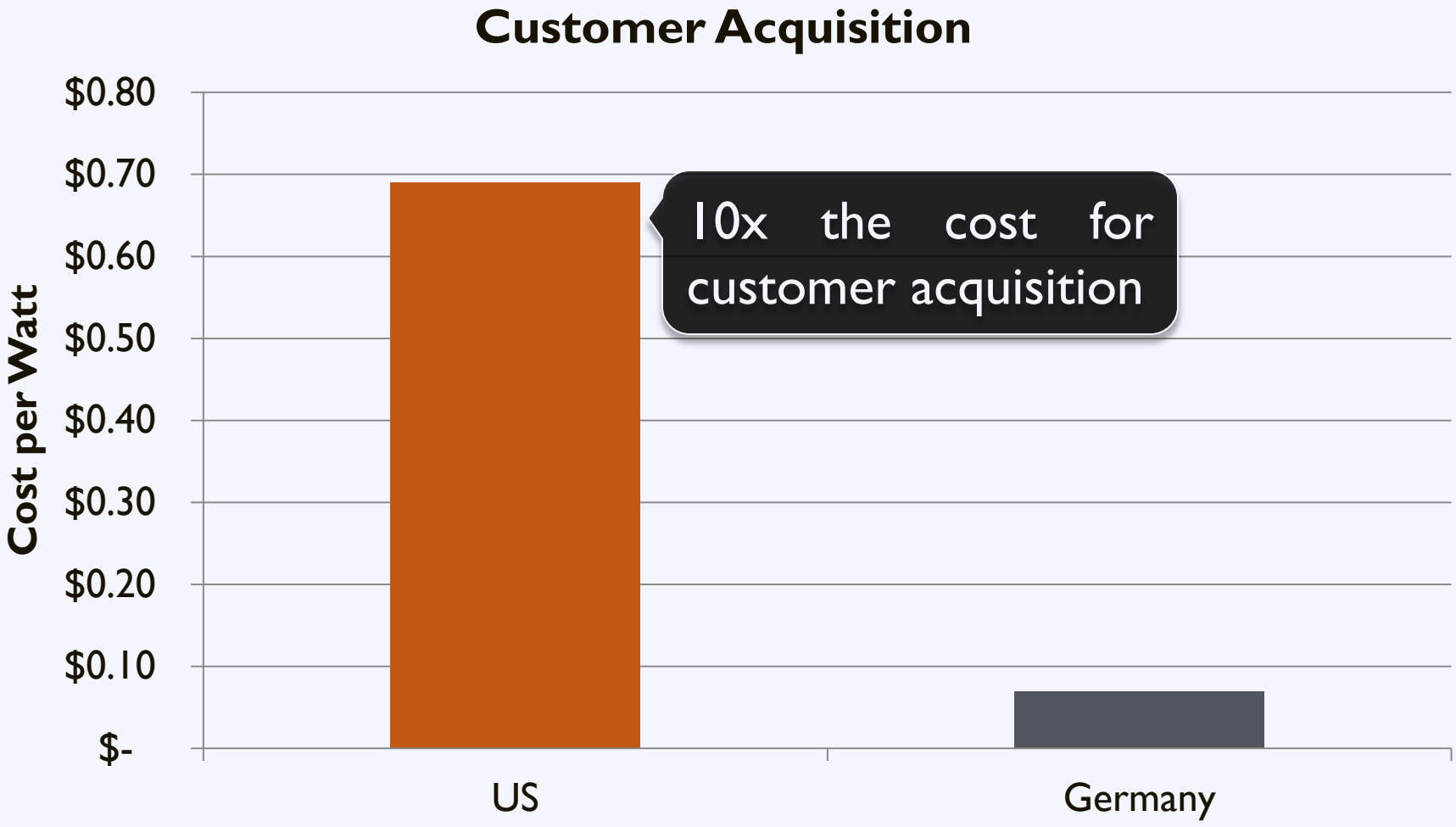
Solarize

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

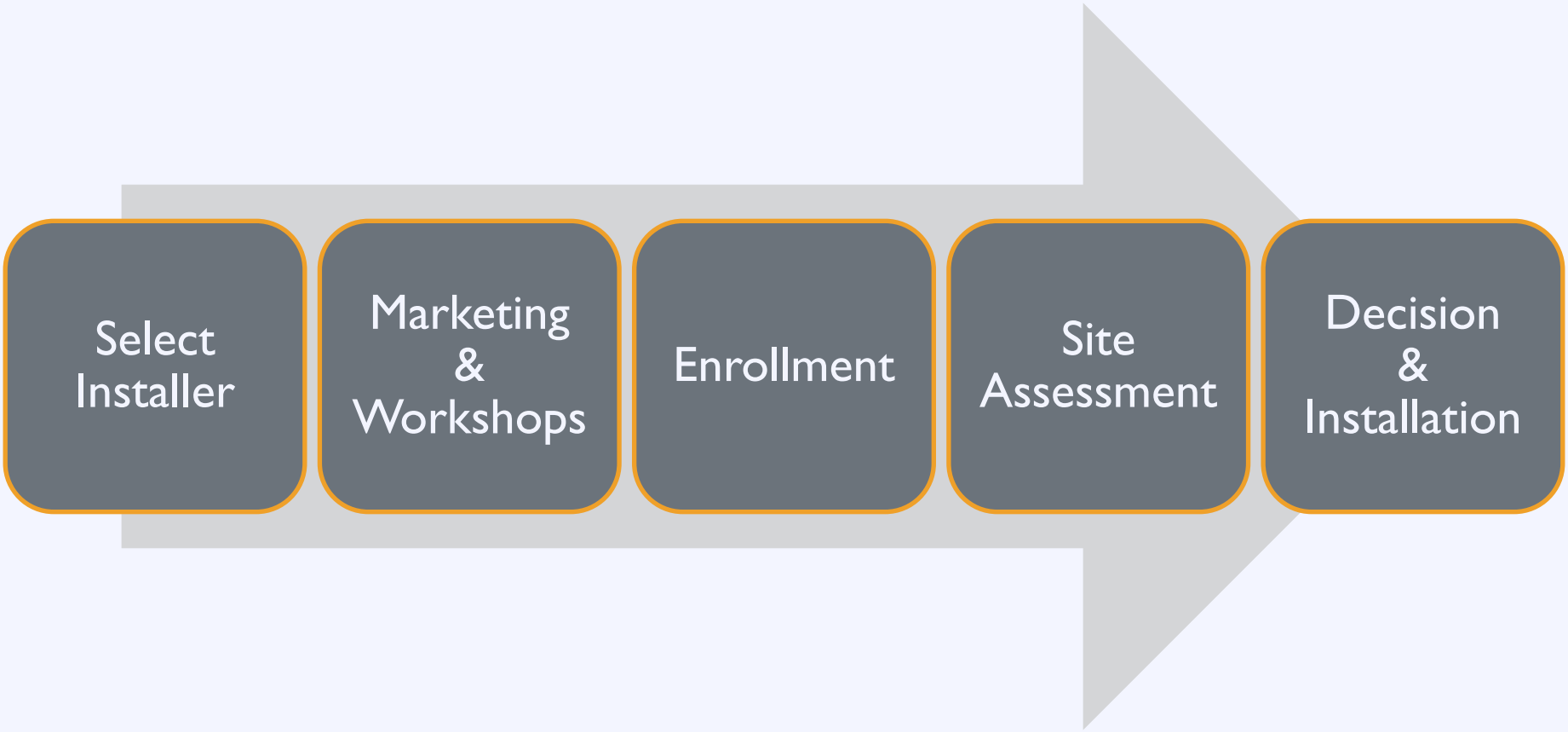
Benefits to Local Government:

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

Quick turn-around: 9 Months

Long-term impact: Sustainable ecosystem

Solarize: Process



Solarize: Case Study

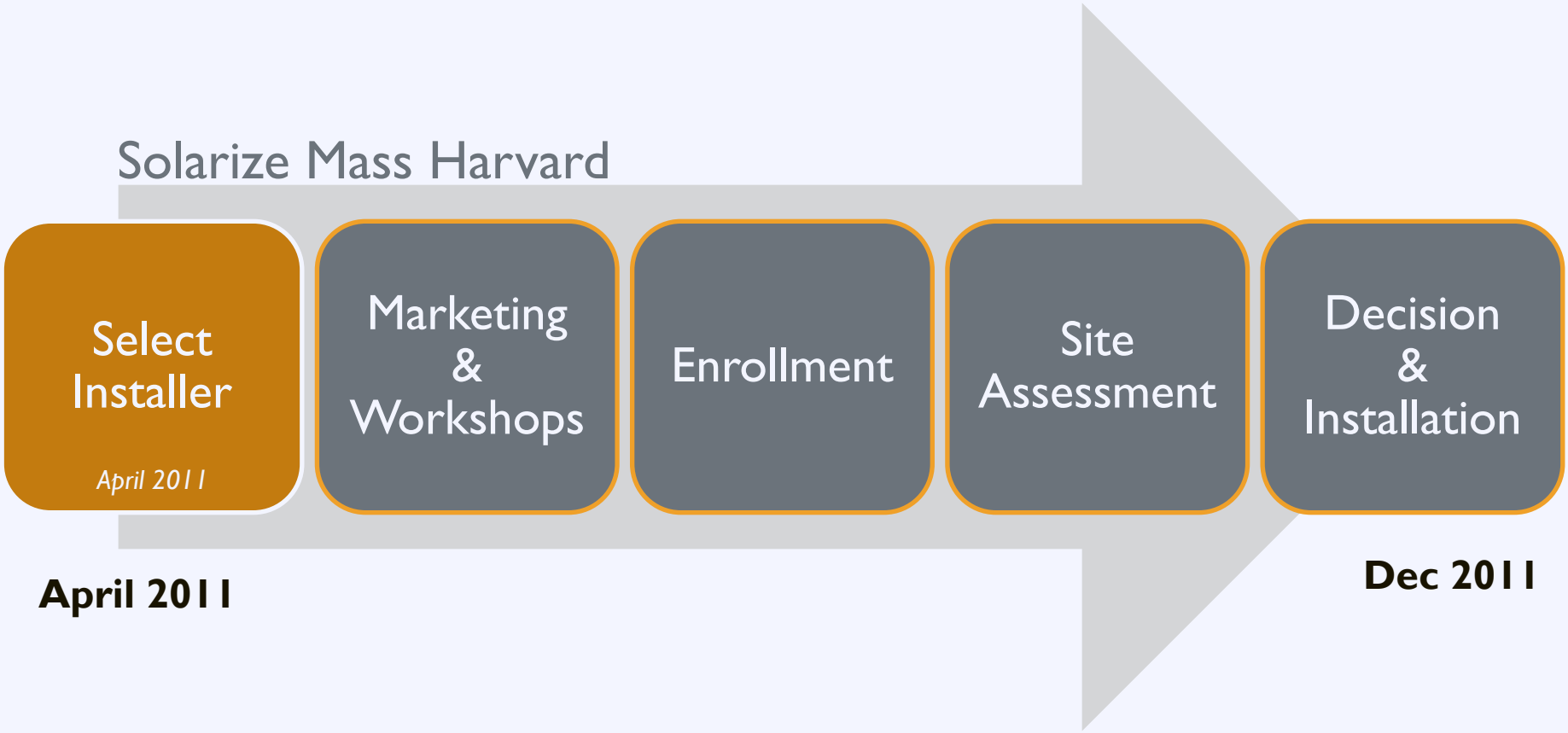
Harvard, Massachusetts

Population: 6,520

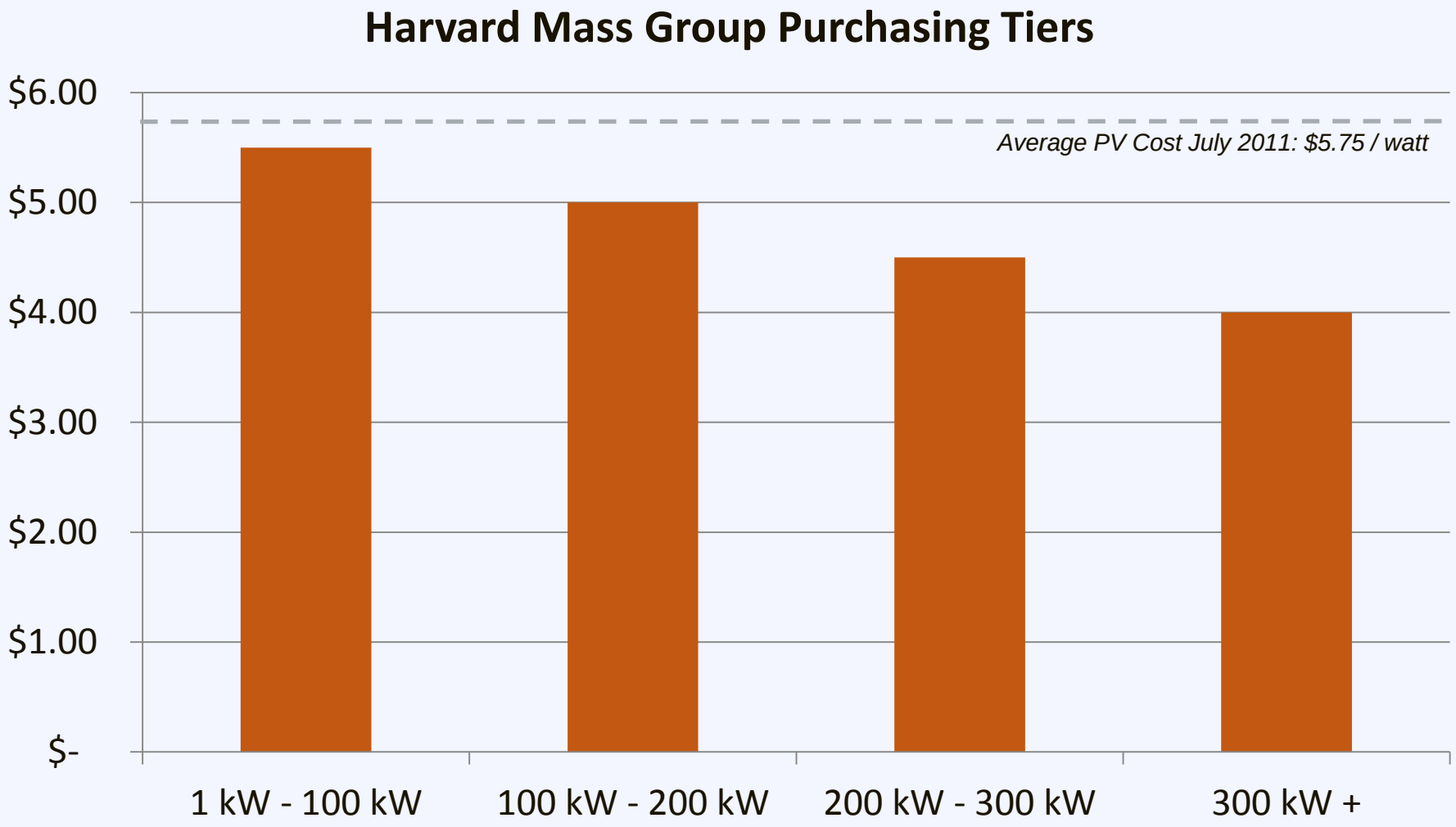
Powered by SunShot
U.S. Department of Energy

Source: Wikipedia

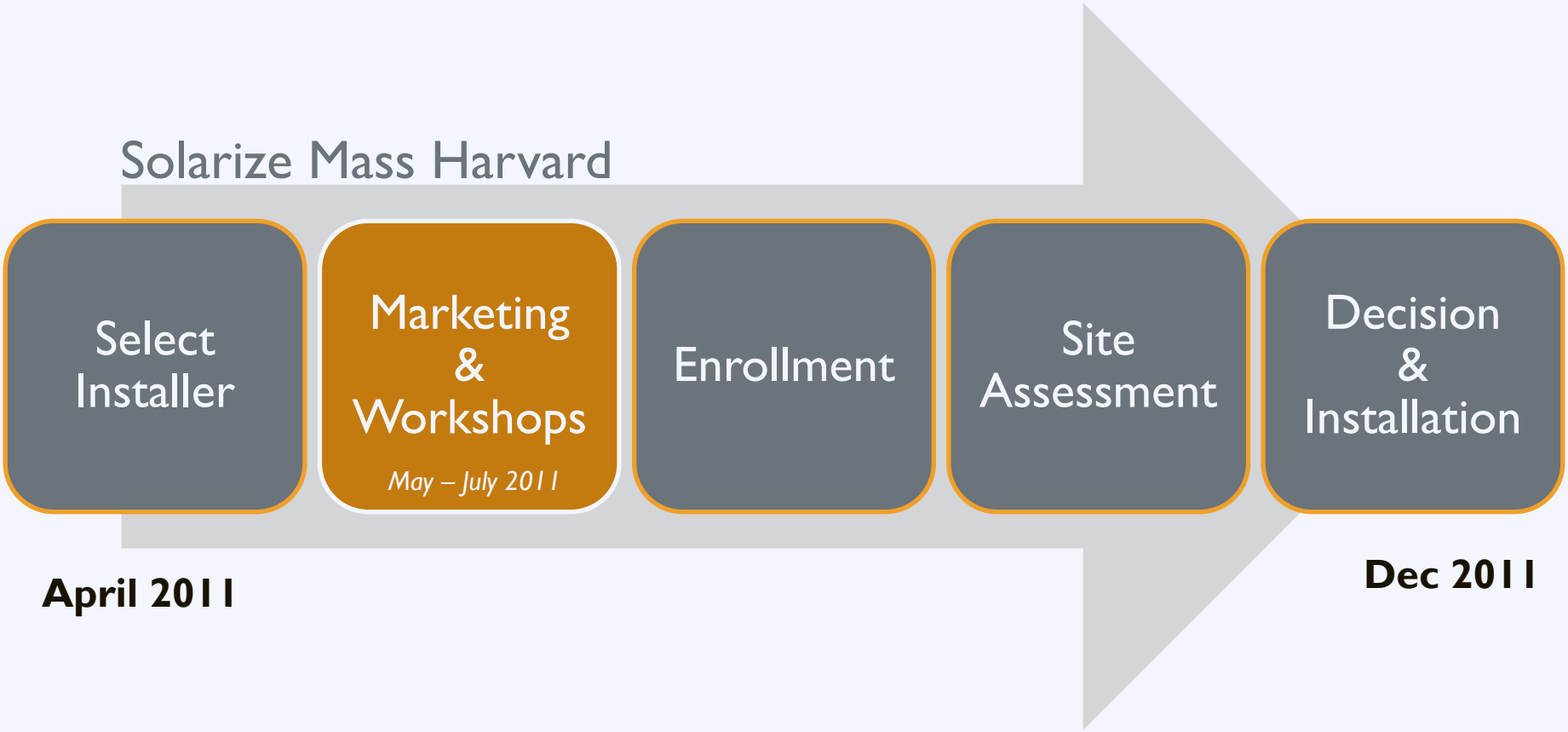
Solarize: Case Study



Group Purchasing



Solarize: Case Study



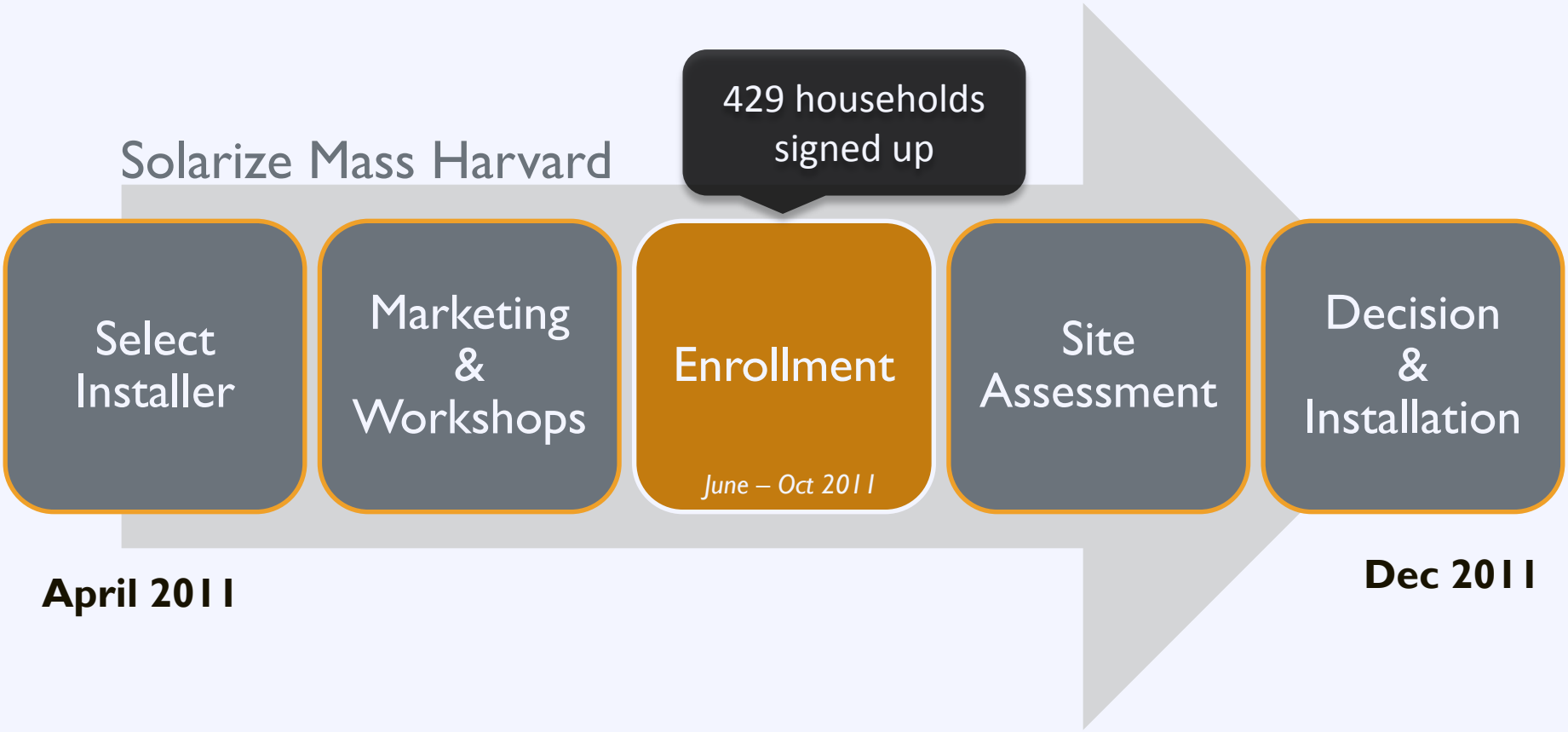
Solarize: Case Study

Marketing Strategy:

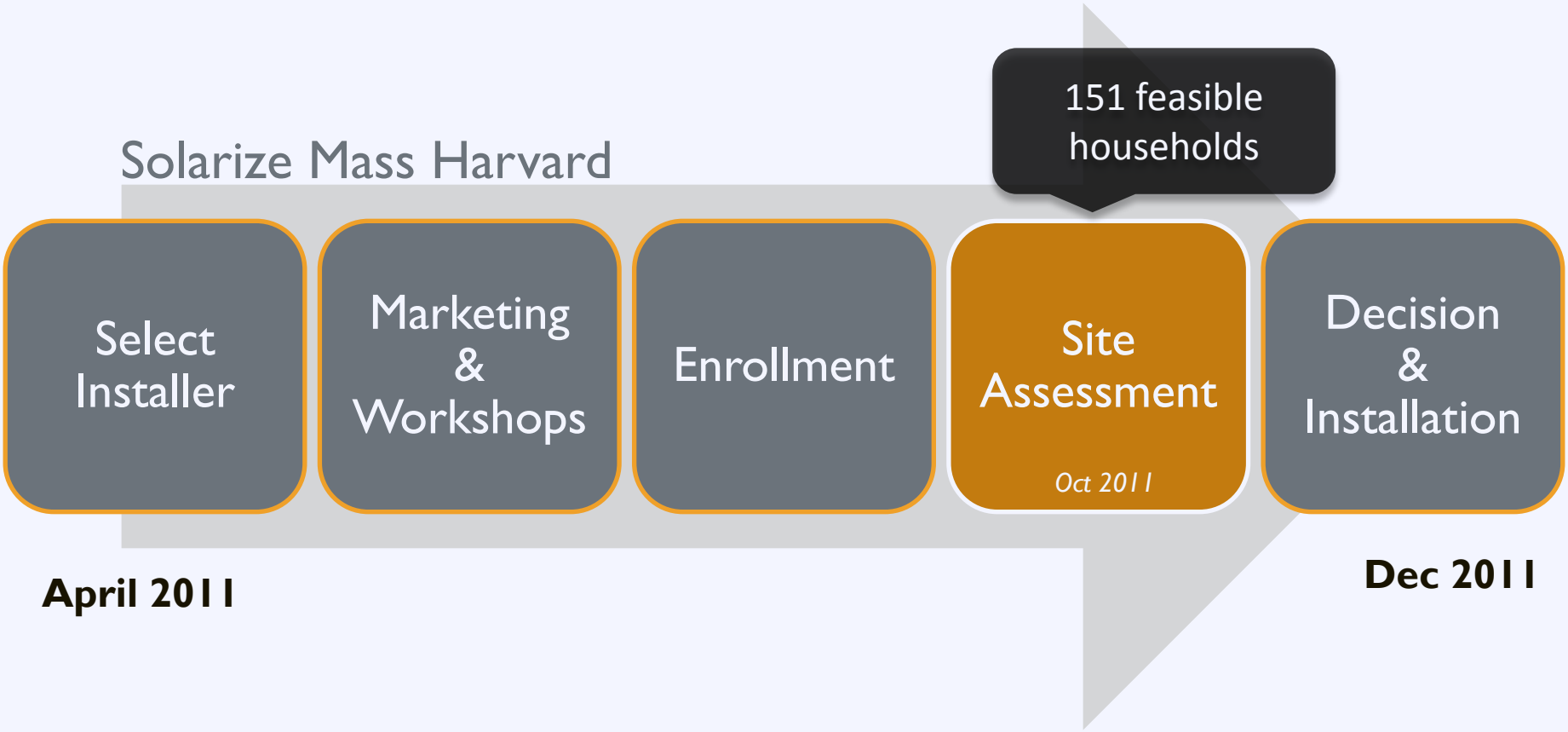
- Electronic survey of 1,100 households
- Email newsletters and direct mailings
- Float in July 4 parade
- Articles and advertisements in local newspaper
- Facebook page and online discussion board

Source: Vote Solar

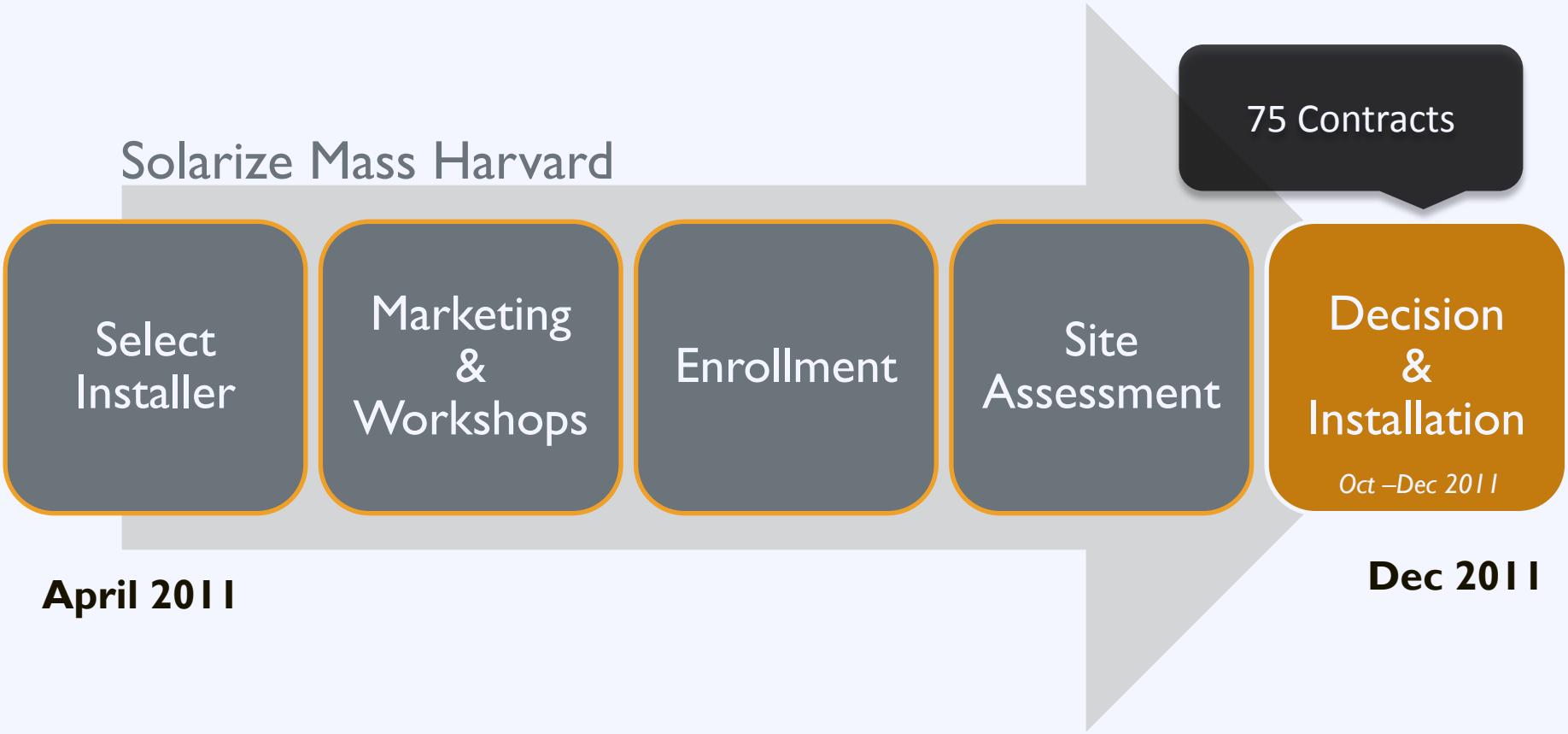
Solarize: Case Study



Solarize: Case Study



Solarize: Case Study



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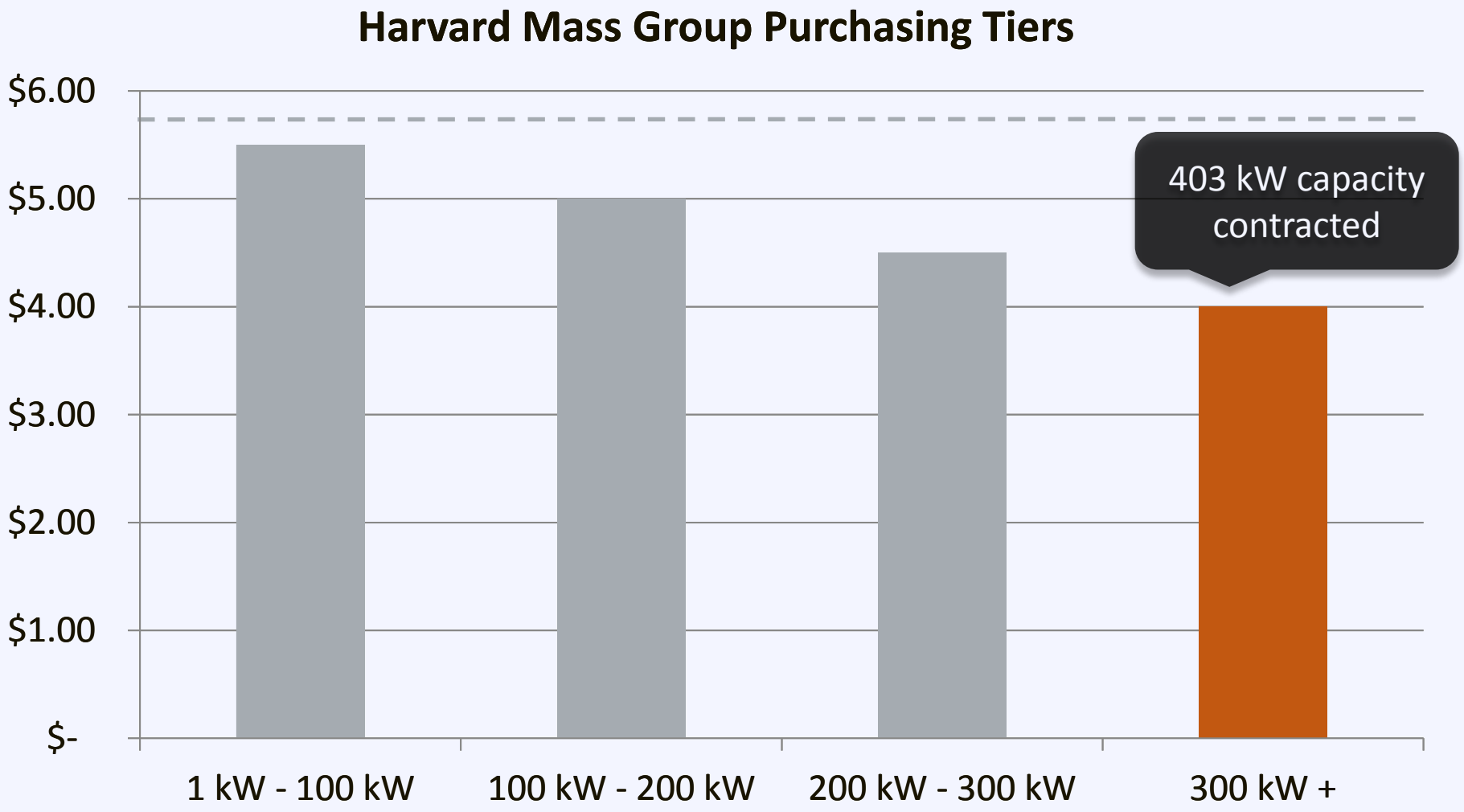


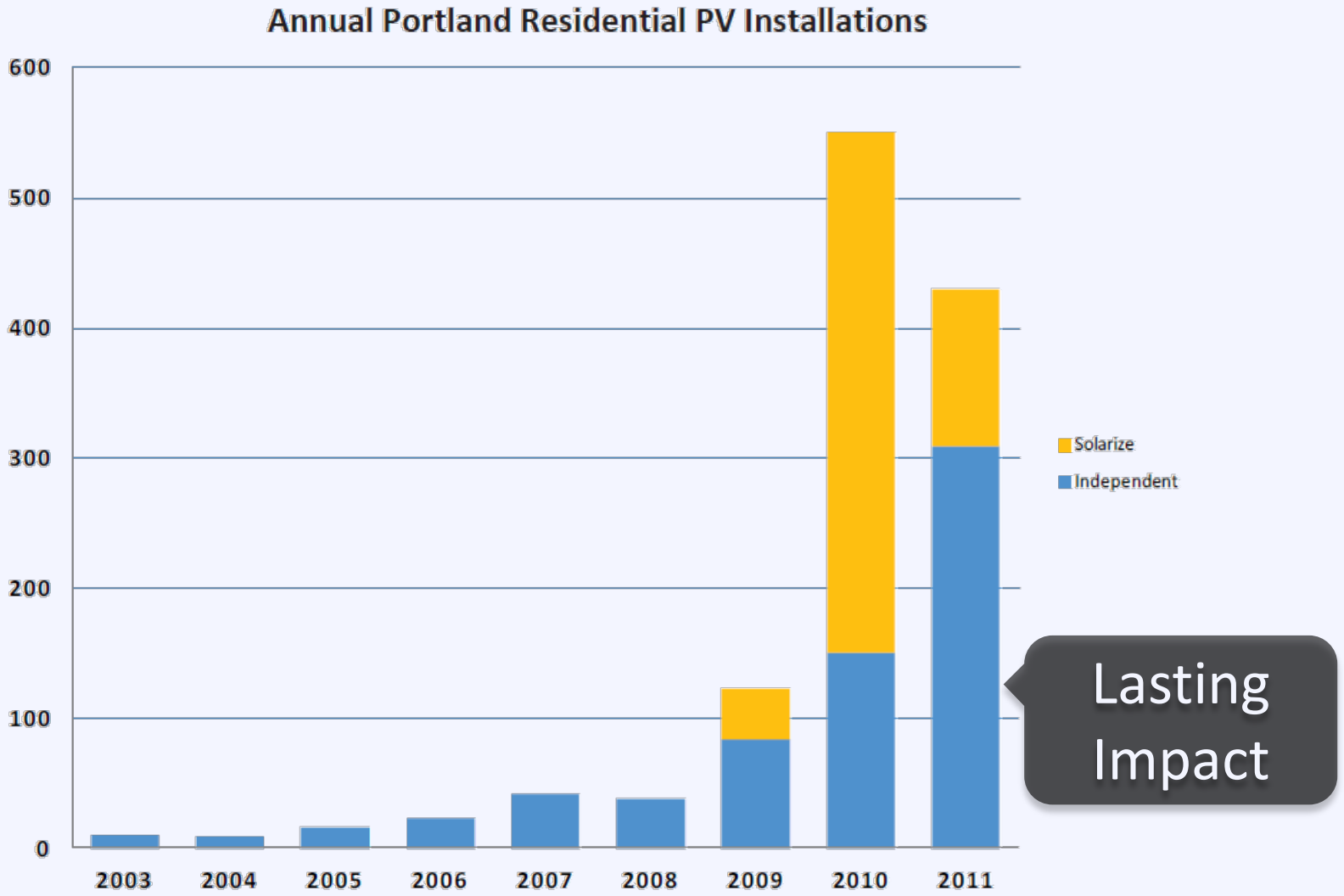
Solarize: Case Study

75 new installations totaling 403 kW

30% reduction in installation costs

575% increase in residential installations

Solarize: Lasting Impact



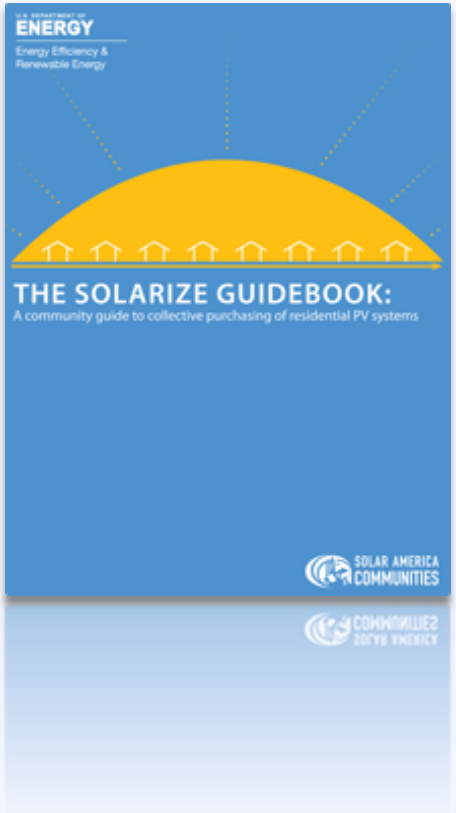
Source: NREL

Solarize: Resources

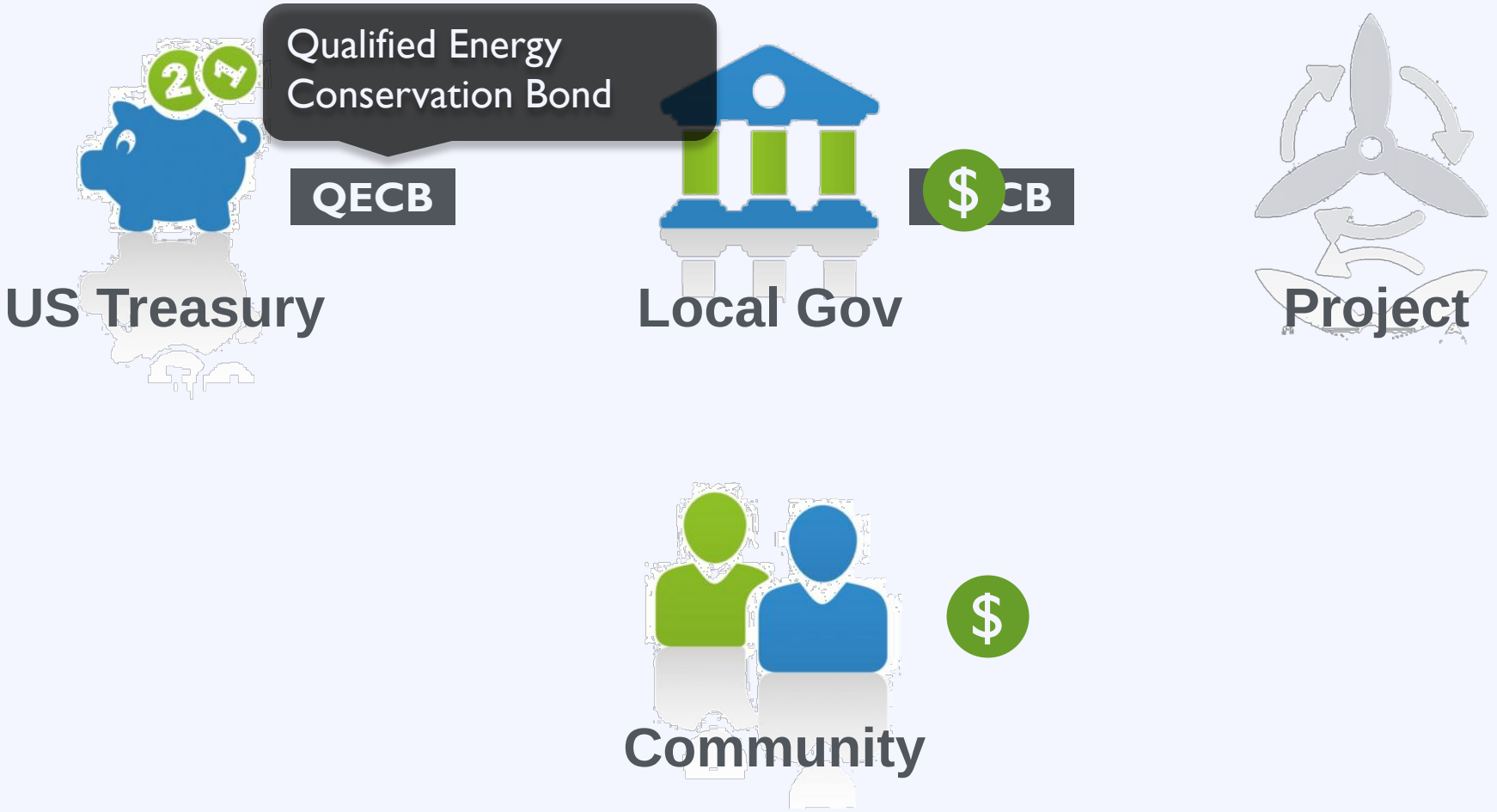
Resource **The Solarize Guidebook**

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

www.nrel.gov



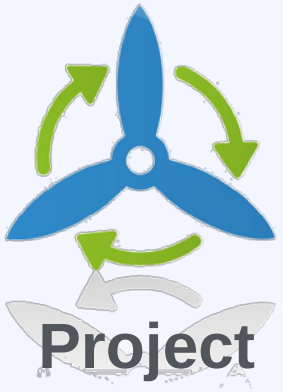
Qualified Energy Conservation Bond



Qualified Energy Conservation Bond

US Treasury

Local Gov



Project

QECB

Community

Q & A

Agenda

08:50 – 09:00	Benefits and Barriers Activity
09:00 – 09:40	Memphis Region Solar Policy Environment
09:40 – 10:00	Planning & Zoning for Solar
10:00 – 10:10	*Break*
10:10 – 10:20	Benefits and Barriers Activity
10:20 – 10:50	Solar Financing Strategies in the Region
10:50 – 11:00	*Break*
11:00 – 12:00	Panel of Local Speakers
12:00 – 12:15	Closing Remarks

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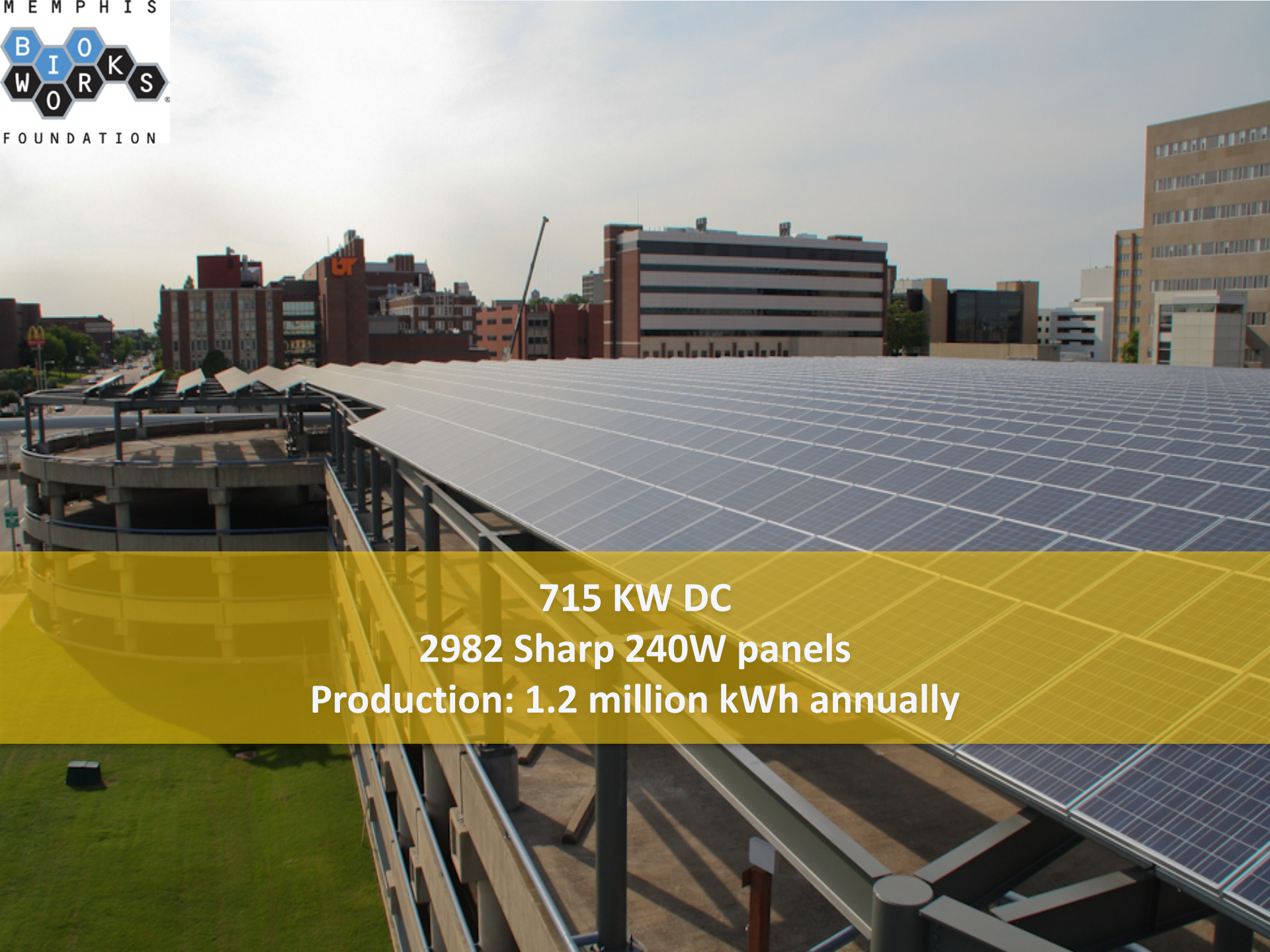
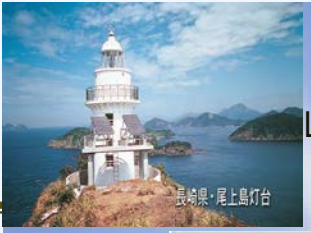

715 KW DC
2982 Sharp 240W panels
Production: 1.2 million kWh annually

olar Generation Statistics

- Generation Partners/Green Power Providers projects:
  - Completed: 52 totaling 3,206 kW
  - Approved & Underway: 9 totaling 96 kW
  - Cancelled: 13 totaling 1,806 kW
- Renewable Standard Offer projects:
  - Completed: 2 totaling 207 kW
  - Underway: 1 totaling 200 kW
- www.mlgw.com/greenpower





Lighthouse

SHARP®

Large Commercial

Satellite

How Can Solar Energy Supply Your Needs ?

Small Commercial

Roof Mount

Residential

Ground Mount

PathWay Lighting

Emergency / Portable

Agricultural

SHARP Manufacturing Company of America **901.795.6510**

inmansolar

Nat Youngblood

Facilitator

Inman Solar

(901)826-5373

Nat@Inmansolar.com

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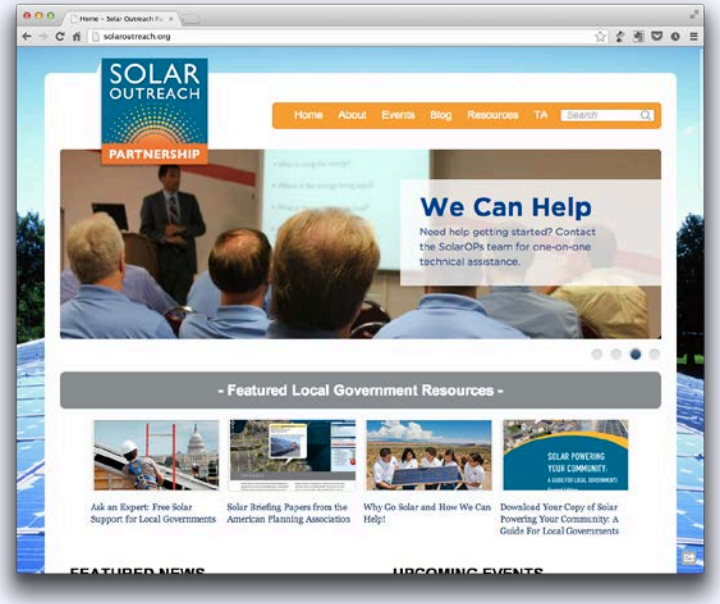
Activity: Next Steps

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

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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U.S. Department of Energy

Powered by SunShot

U.S. Department of Energy

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The Solar Foundation

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(202) 540-5348

Appendix

Interconnection

5,000+ utilities

with unique interconnection procedures

Powered by SunShot
U.S. Department of Energy

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