

# **SOLAR READY NORTHWEST INDIANA**

---

**Kathy Luther**

**Northwestern Indiana Regional Planning Commission**

**April 2014**

# U.S Department Of Energy SunShot Initiative Rooftop Solar Challenge



# U.S Department of Energy SunShot Initiative

The U.S. Department of Energy SunShot Initiative is a collaborative national effort that aggressively drives innovation to **make solar energy fully cost-competitive** with traditional energy sources before the end of the decade. Through SunShot, DOE supports efforts by private companies, academia, and national laboratories to drive down **the cost of solar electricity to \$0.06 per kilowatt-hour.**

# U.S. Department of Energy SunShot Initiative Rooftop Solar Challenge

The U.S. Department of Energy SunShot Initiative Rooftop Solar Challenge incentivizes regional awardee teams to **make it easier and more affordable for Americans to go solar**. By streamlining permit processes, updating planning and zoning codes, improving standards for connecting solar power to the electric grid, and increasing access to financing, teams will clear a path for rapid expansion of solar energy and serve as models for other communities across the nation.

# Solar Ready II

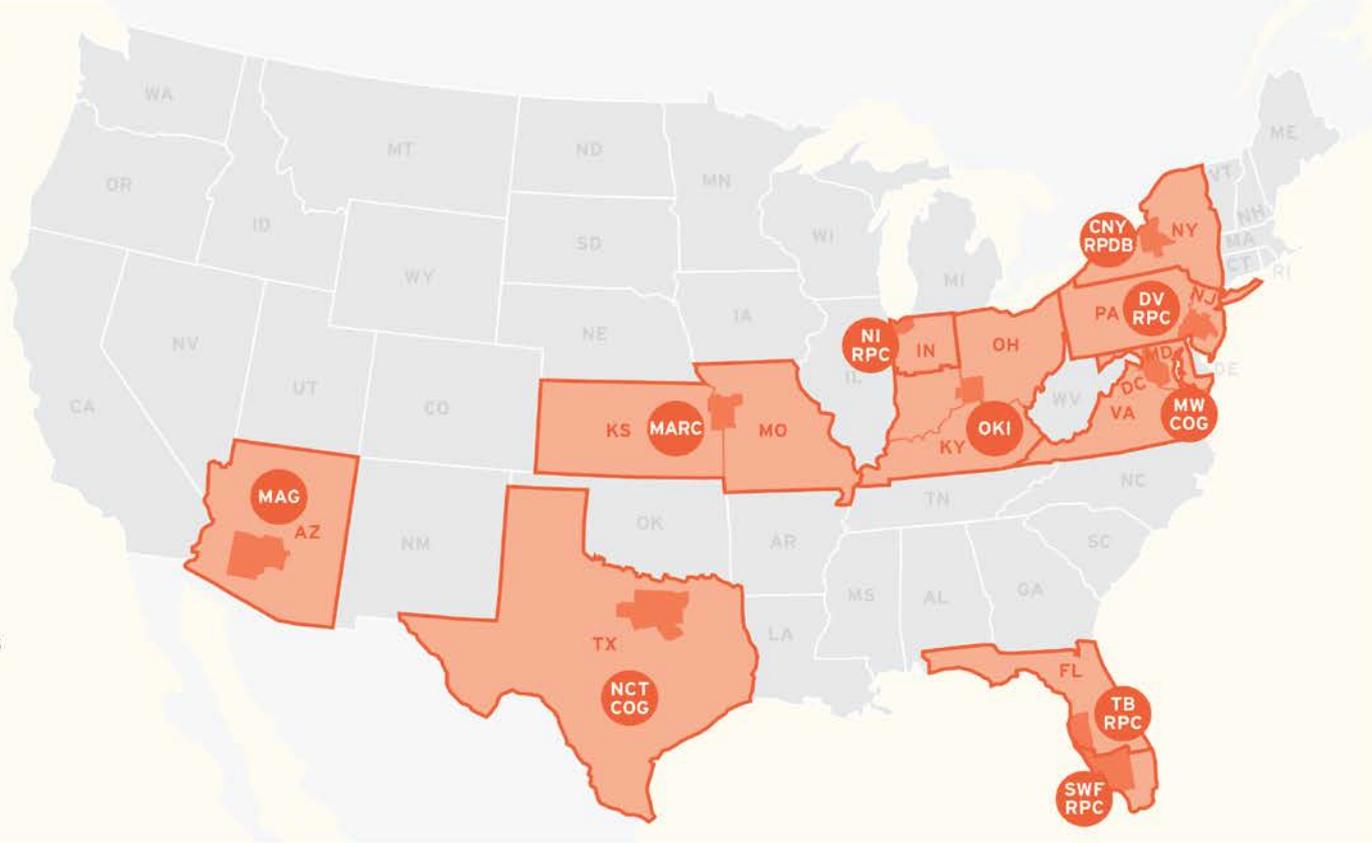
Partnering with **Mid-America Regional Council (MARC)**, **National Association of Regional Councils (NARC)**, **Meister Consultants Group (MCG)**, and **Council of State Governments (CSG)**.

Goals are to implement solar best management practices, training materials and methods, and other proven implementation strategies previously established by MARC's 2012 Solar Ready KC Initiative.

Ultimately will result in more streamlined and standardized solar practices, and will achieve measurable improvements in solar market conditions and access for ten million people across the US.

# SOLAR READY II REGIONAL PARTNERS

-  **CNY RPDB** Central New York Regional Planning and Development Board
-  **DV RPC** Delaware Valley Regional Planning Commission
-  **MAG** Maricopa Association of Governments
-  **MW COG** Metropolitan Washington Council of Governments
-  **MARC** Mid-America Regional Council
-  **NCT COG** North Central Texas Council of Governments
-  **NI RPC** Northwestern Indiana Regional Planning Commission
-  **OKI** Ohio-Kentucky-Indiana Regional Council of Governments
-  **SWF RPC** Southwest Florida Regional Planning Council
-  **TB RPC** Tampa Bay Regional Planning Council



# Goals of the Solar Ready II (SRII) Program

Reduce costs  
through  
regulatory  
reform

Increase access  
to financing

Promote solar  
adoption

# Grant Details

## National Partners

- Mid-America Regional Council (MARC)
- National Association of Regional Councils (NARC)
- Meister Consultants Group
- Council of State Governments

# Grant Details

## Regional Participants

- Central New York Regional Planning & Development Board (CNYRPDB)
- Delaware Valley Regional Planning Commission (DVRPC)
- Maricopa Association of Governments (MAG)
- Metropolitan Washington Council of Governments (MWCOCG)
- North Central Texas Council of Governments (NCTCOG)
- Northwestern Indiana Regional Planning Commission (NIRPC)
- Ohio Kentucky Indiana Regional Council of Governments (OKI)
- Southwestern Florida Regional Planning Commission (SWFRPC)
- Tampa Bay Regional Planning Commission (TBRPC)

# Grant Details

## Major Goals:

Implement Solar Best Management Practices that could

- Streamline the permitting process
- Update planning and zoning codes
- Reduce overall barriers to solar implementation
- Improve our Solar Market Maturity Model Metrics

## Local Partner:



## Funding Amount

\$90,000 Federal from DOE (\$75,000 plus \$15,000 if goals are met)  
\$40,000 Local Match (through In-kind Participation)

## Timeframe

18 to 30 months (depending on accomplishments met)

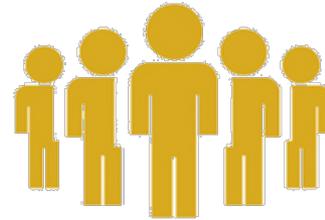
# 2014 Deliverables and Milestones

Task	Target Date
Engage stakeholders including local government officials, planners, utility representatives, etc.	February 2014
Convene Working Group Evaluate existing processes/policies Select NWI priority Best Management Practices	March 31, 2014
Submit Baseline Jurisdiction Questionnaires	March 2014 – April 2014
Engage 10-30 local governments as committed participants	March 2014 and ongoing
Identify local subject matter experts to: <ul style="list-style-type: none"> <li>• provide qualitative and quantitative data to verify market maturity</li> <li>• Supplement MCG training opportunities</li> </ul>	June 2014
Schedule BMP Trainings	June 2014 – October 2014
Hold Trainings One – on- One Community Technical Support	April 2014 – Dec 2014.

# Stakeholders



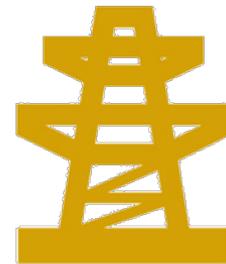
Elected  
Officials



Local  
Constituents



Business &  
Industry



Regional  
Utilities

# Solar Ready NWI

## Project Outcome and Goals

Solar Market Maturity Metrics (SM<sub>3</sub>s)

Create our own Solar Road Map

- Planning and Zoning BMPs
- Permitting/Process BMPs
- Financing Tools

10-30 LPAs adopt or implement a BMP

# Goals of Today's Session

**By the end of today's session we would like to:**

1. Establish “baseline” opinions on the current solar market;
2. Prioritize best management practices for our region;
3. Establish solar needs and goals of NWI; and
4. Create/finalize a stakeholder working group to execute program objectives.

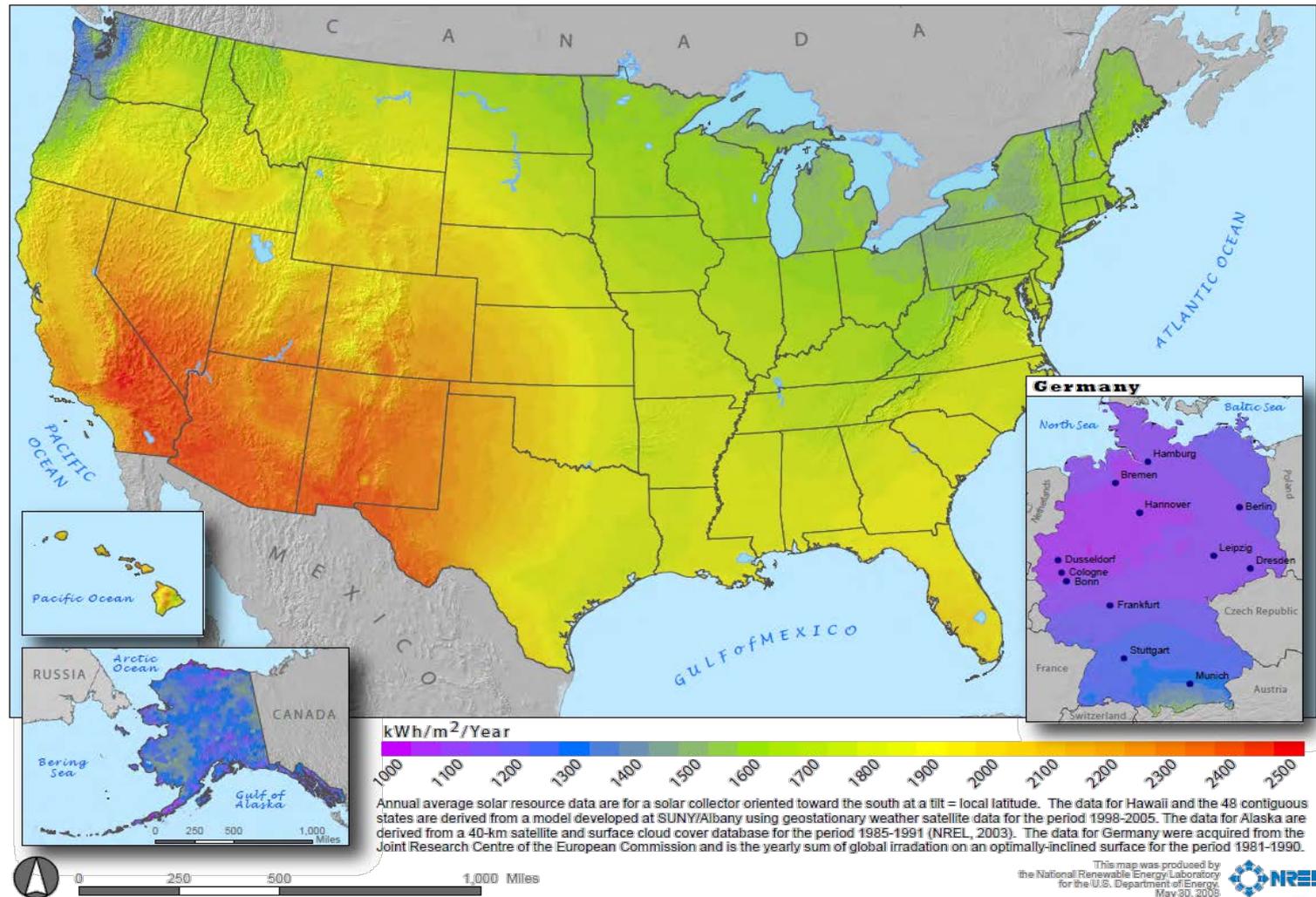
# Questions so far?

# SOLAR ENERGY

---

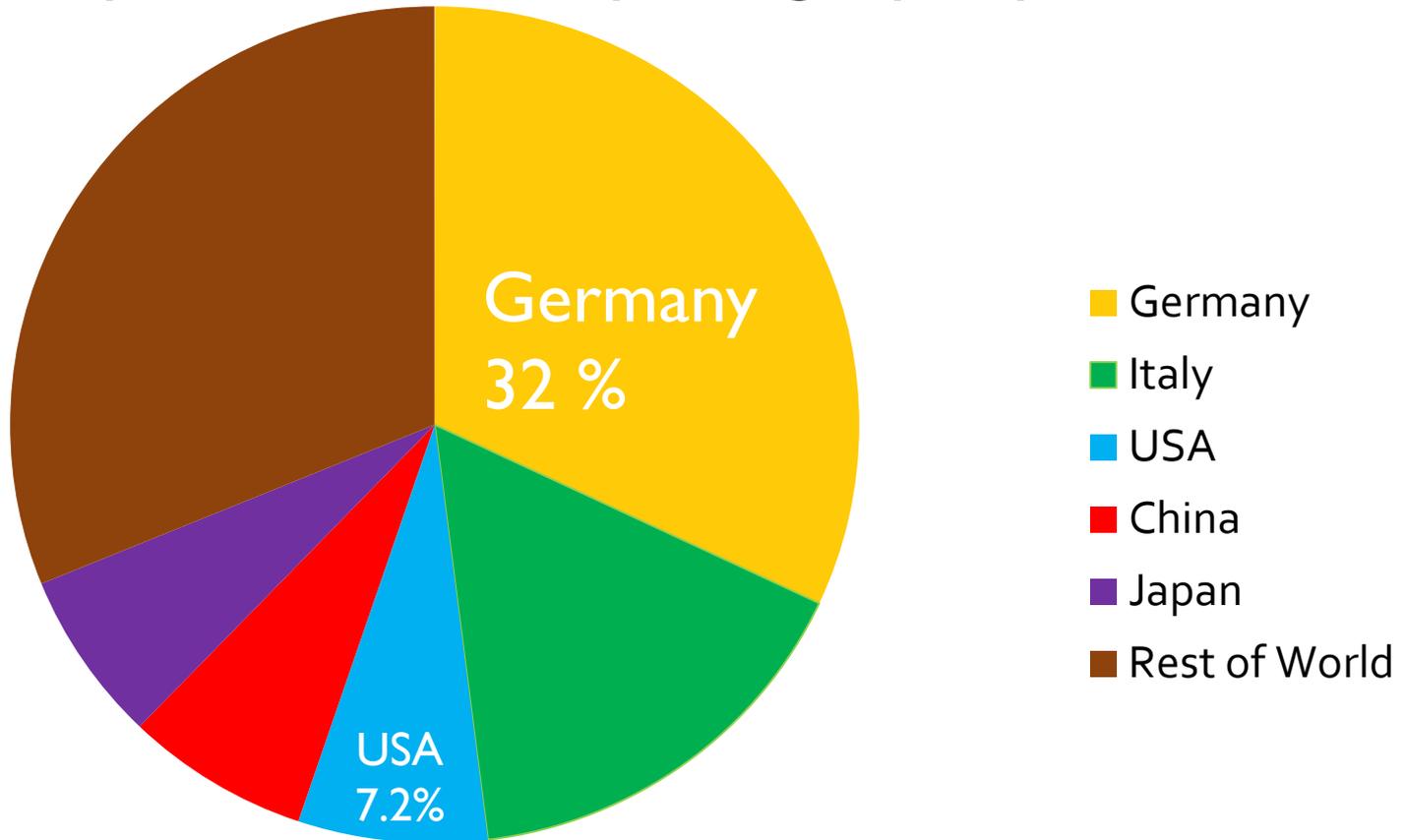
## Myths, Benefits, and Barriers

# Myth: It's not sunny enough where I live



# Installed Capacity

## Top 5 Countries Solar Operating Capacity (2012)



Source: REN 21

# Installed Capacity

Total installed solar capacity in the US

7.7 GW

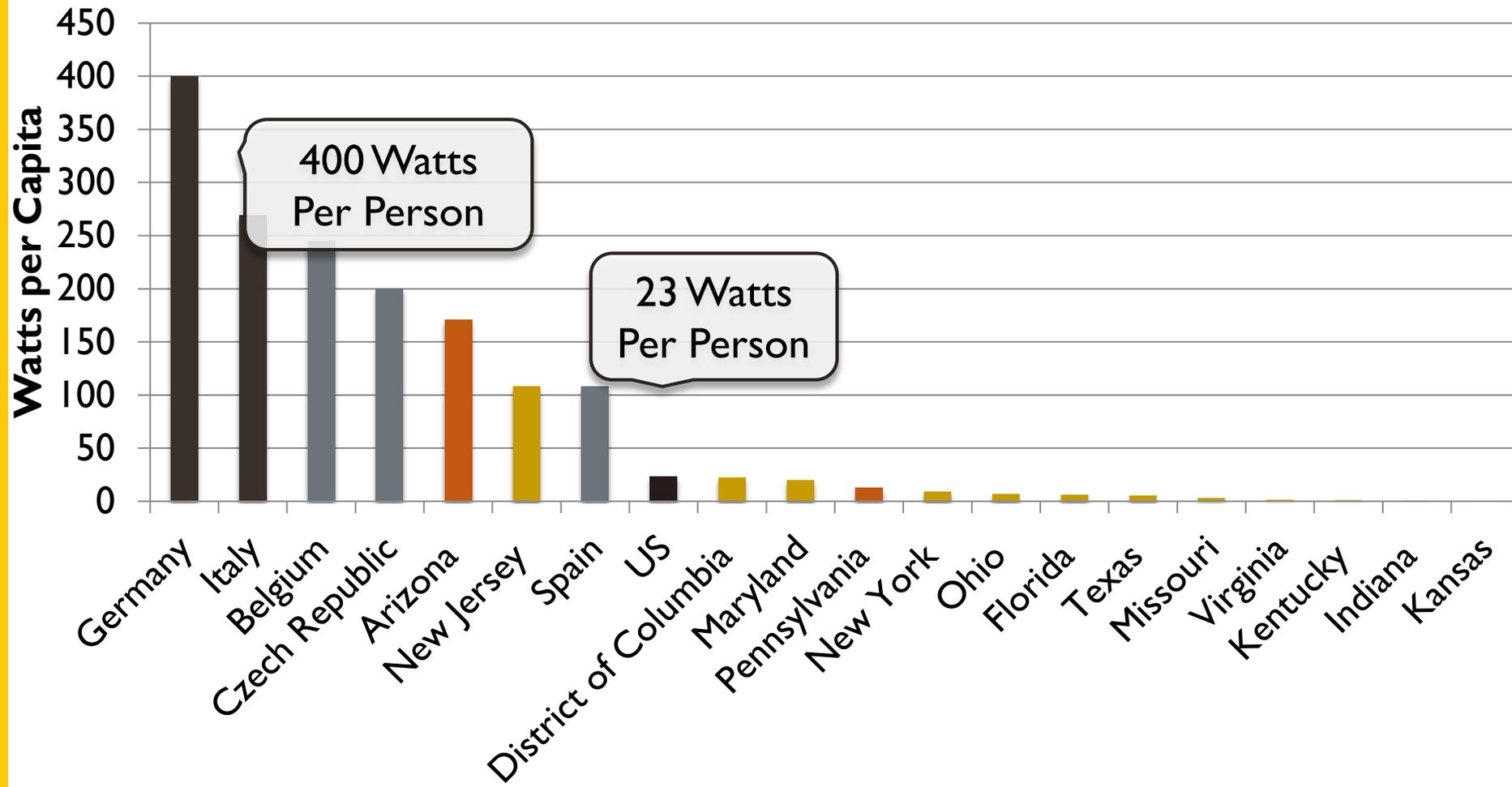
Capacity installed in Germany in 2012 alone

7.6 GW

Source: (1) GTM Research/ Solar Energy Industries Association. *U.S. Solar Market Insight Report 2012 Year-in-Review*;

(2) [www.erneuerbare-energien.de/fileadmin/Daten\\_EE/Dokumente\\_PDFs\\_/20130328\\_hgp\\_e\\_ppt\\_2012\\_fin\\_bf.pdf](http://www.erneuerbare-energien.de/fileadmin/Daten_EE/Dokumente_PDFs_/20130328_hgp_e_ppt_2012_fin_bf.pdf)

# Installed Capacity per Capita

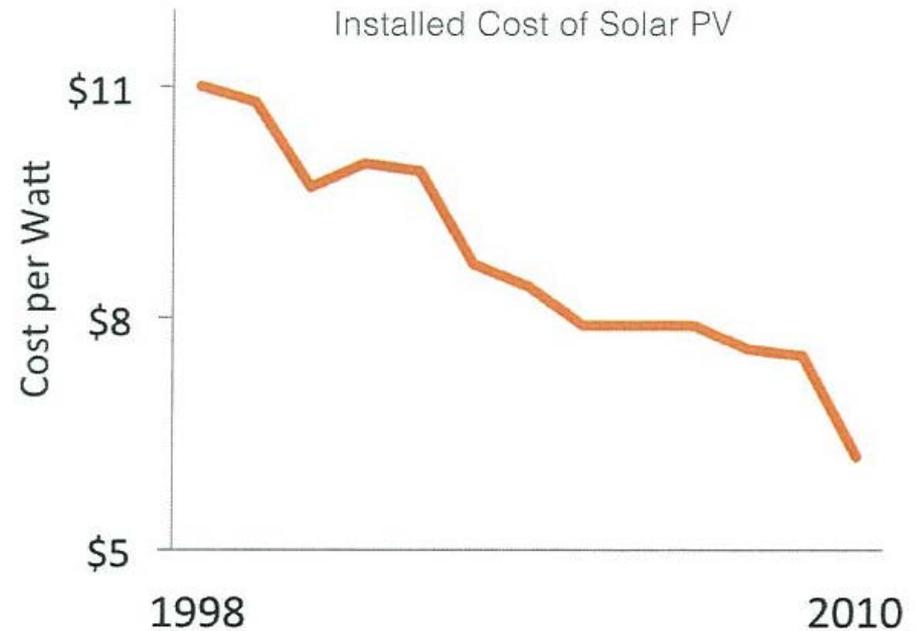
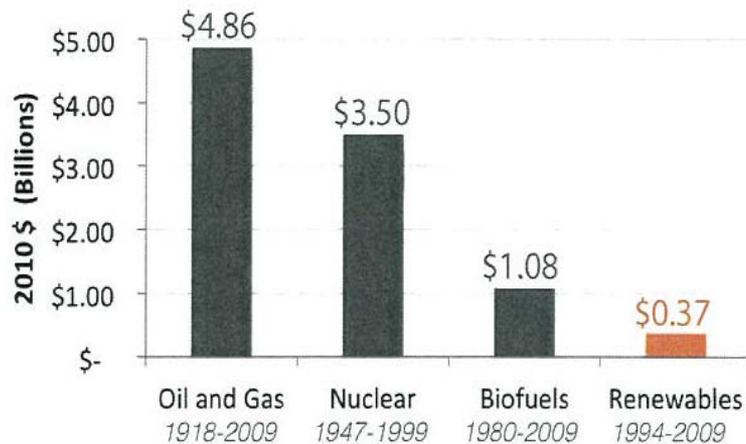


Source: REN 21, World Bank, Interstate Renewable Energy Council



# Myth: Solar Costs Too Much and is heavily subsidized

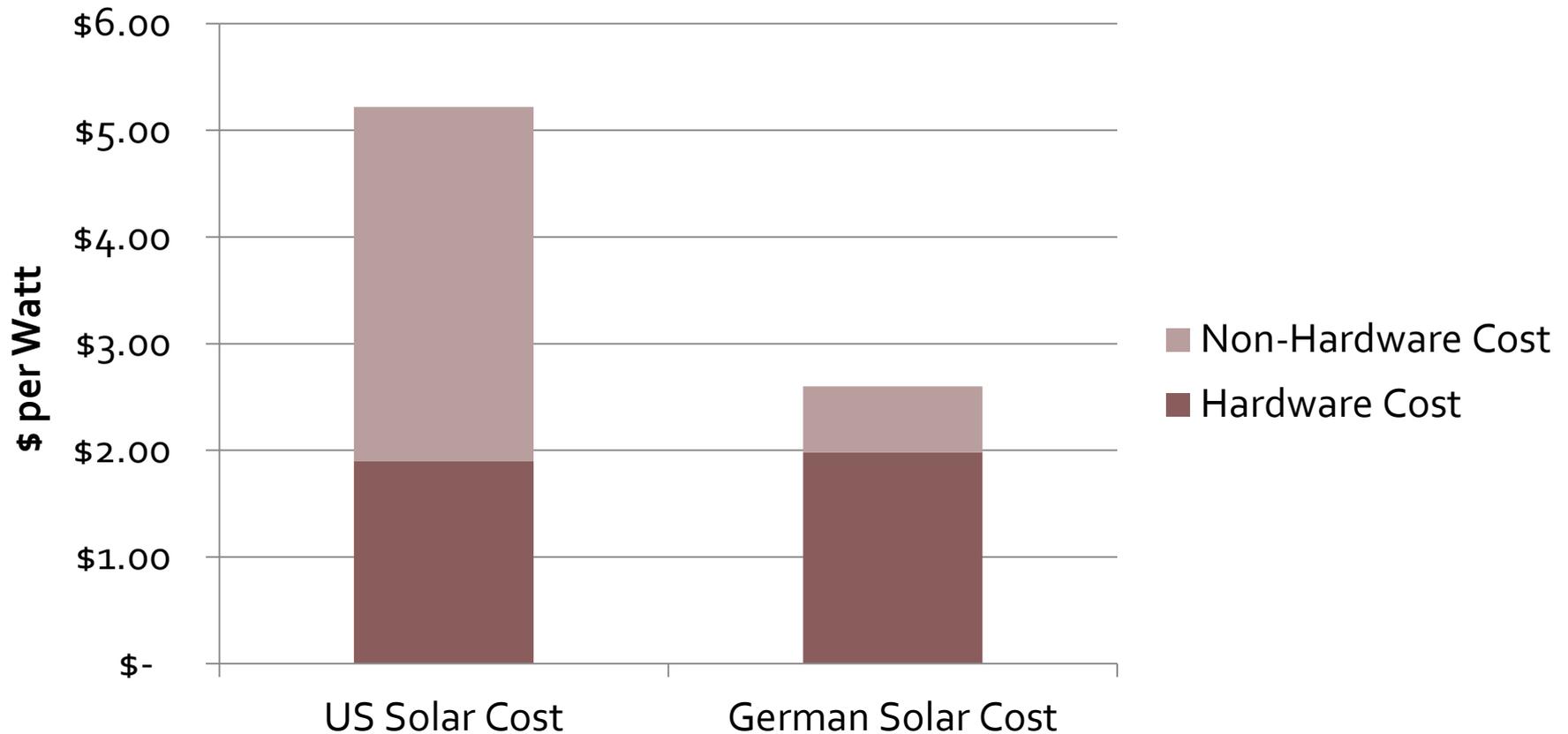
- Globally solar energy costs have gone down 36% between 2009 and 2011
- Current technology solar is cost competitive with NG peaking plants. Should compete with coal within 5 years.



Source: National Renewable Energy Laboratory

# The Cost of Solar in the US

## Comparison of US and German Solar Costs

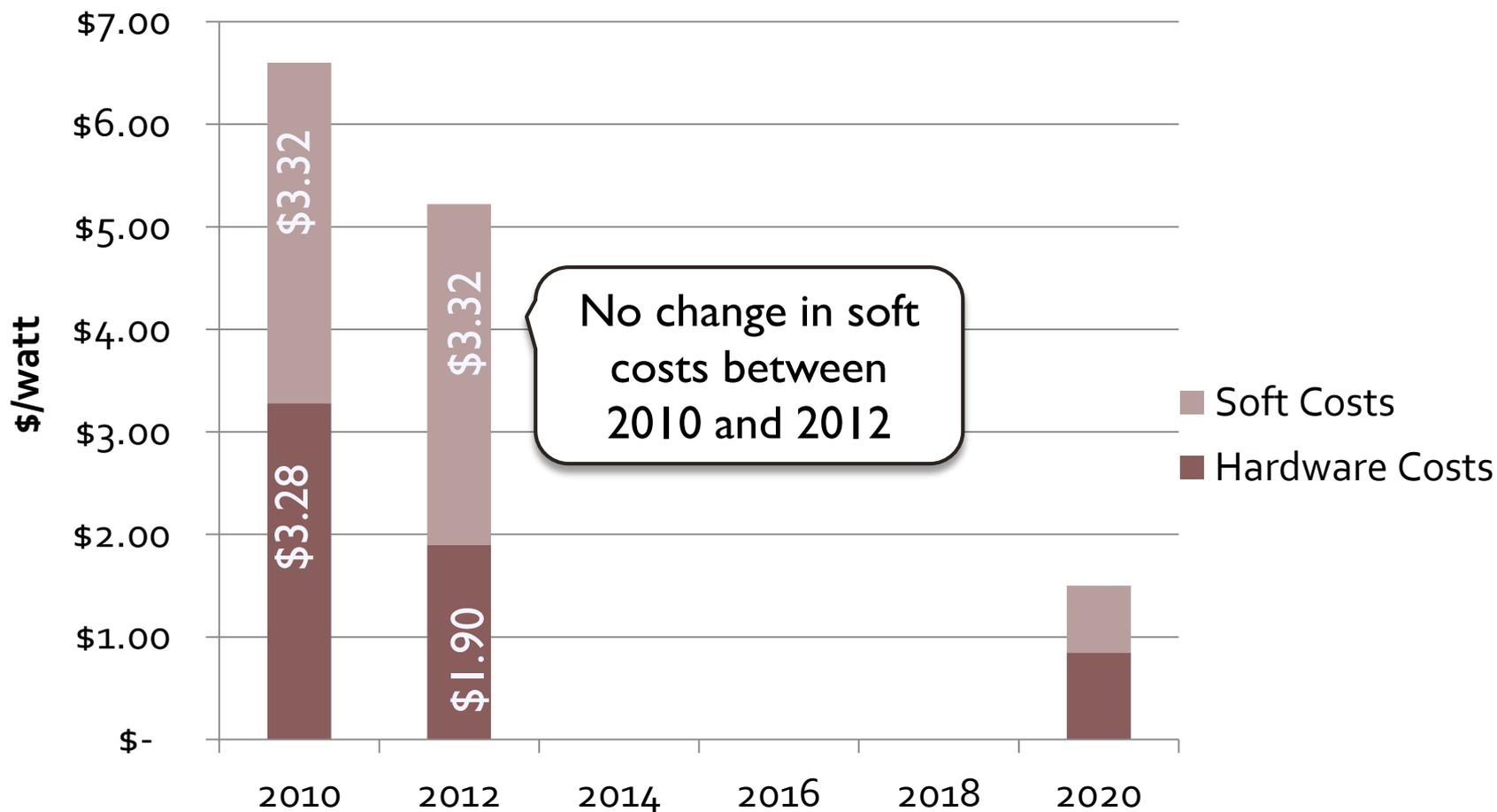


Source: NREL (<http://www.nrel.gov/docs/fy14osti/60412.pdf>)

LBNL (<http://emp.lbl.gov/sites/all/files/lbnl-6350e.pdf>) ([http://www1.eere.energy.gov/solar/pdfs/sunshot\\_webinar\\_20130226.pdf](http://www1.eere.energy.gov/solar/pdfs/sunshot_webinar_20130226.pdf))

# The Cost of Solar in the US

## Change in Soft Costs and Hardware Costs Over Time



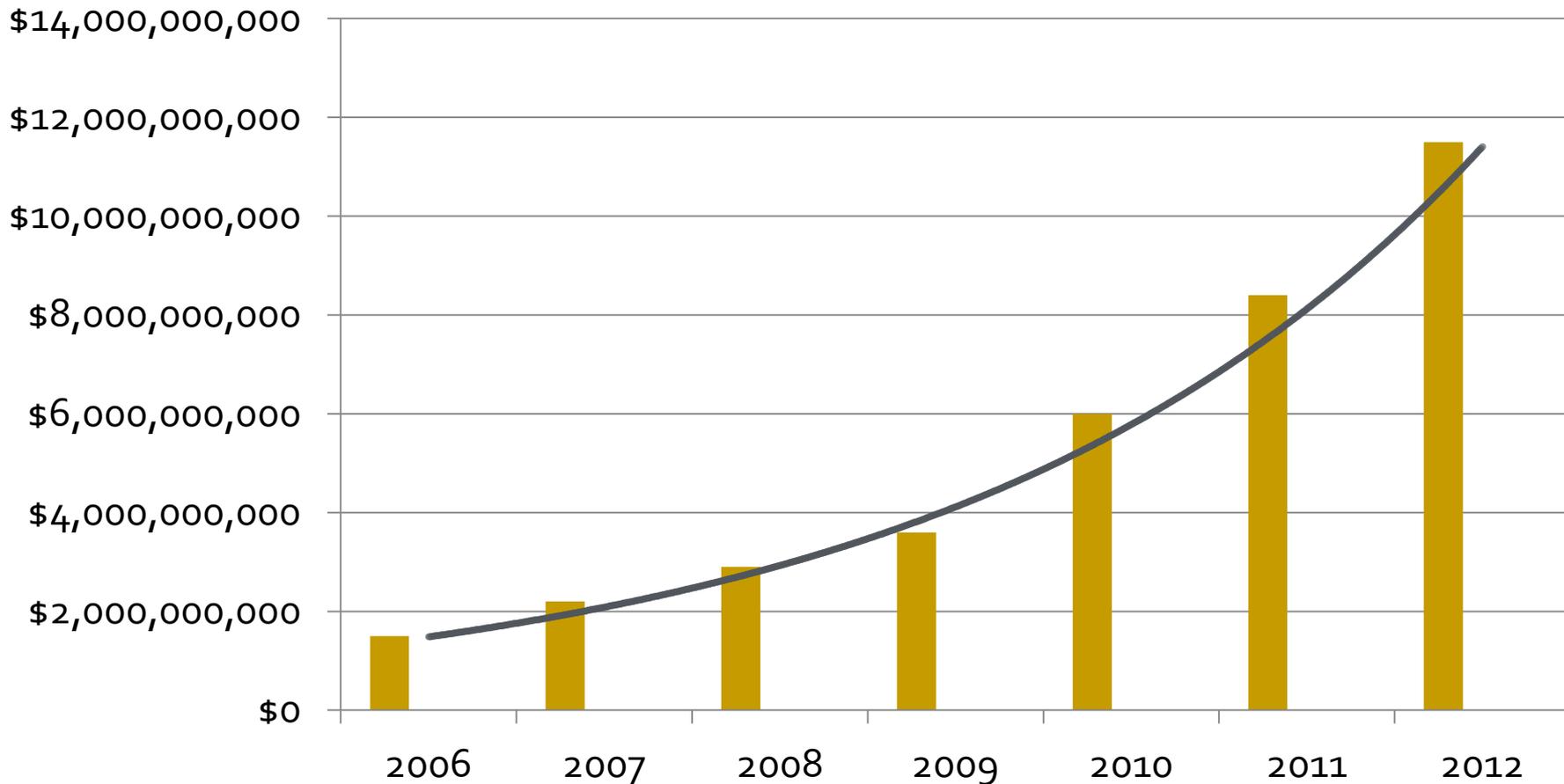
# Discussion:

## Are there other important misunderstandings about solar in NWI?

# Benefits and Barriers to Solar Adoption



# Economic Growth

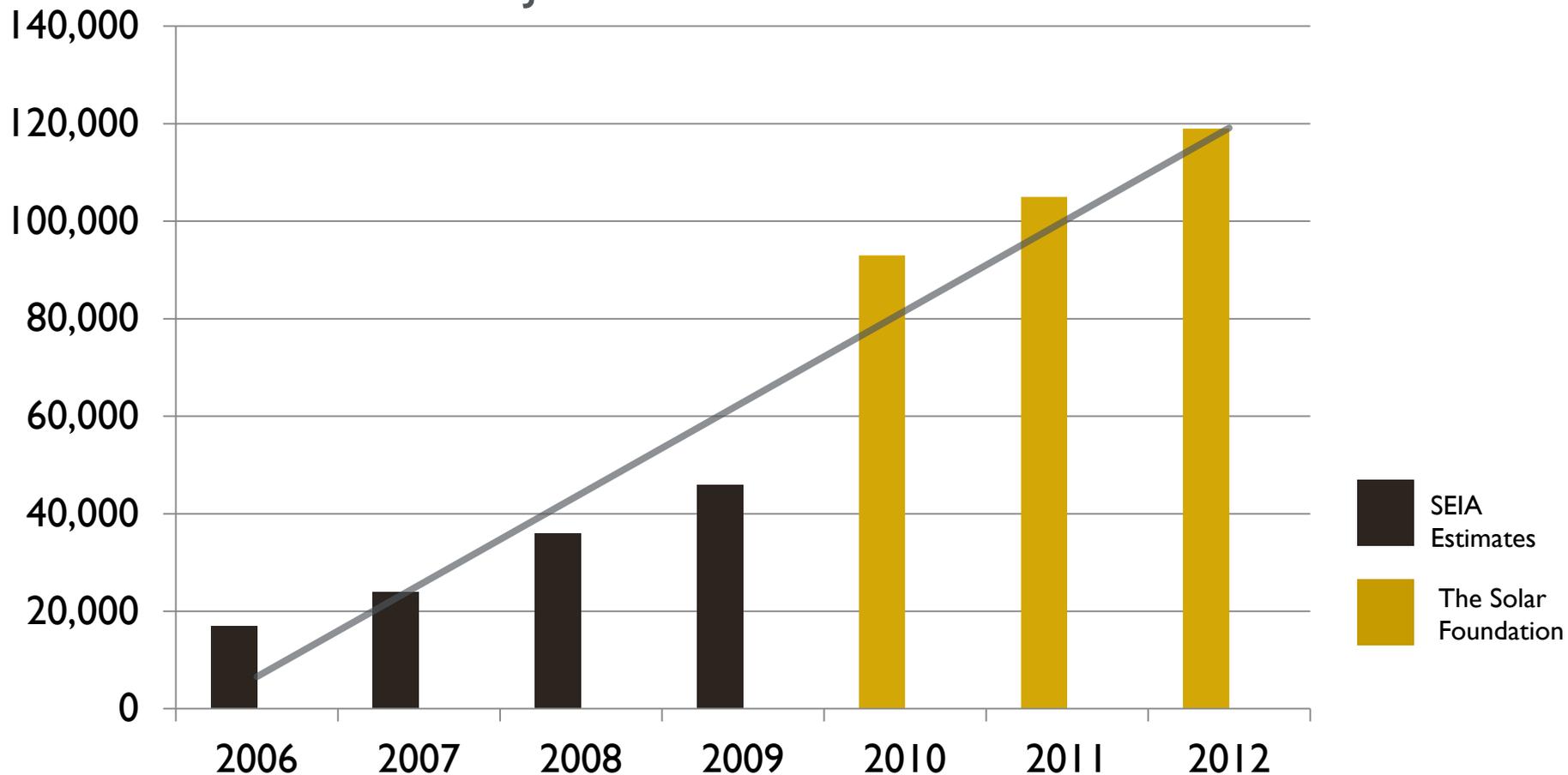


Source: SEIA/GTM Research – 2009/2010/2011/2012 Year in Review Report <http://www.seia.org/research-resources/us-solar-market-insight>

# Job Creation



## Solar Job Growth in the US

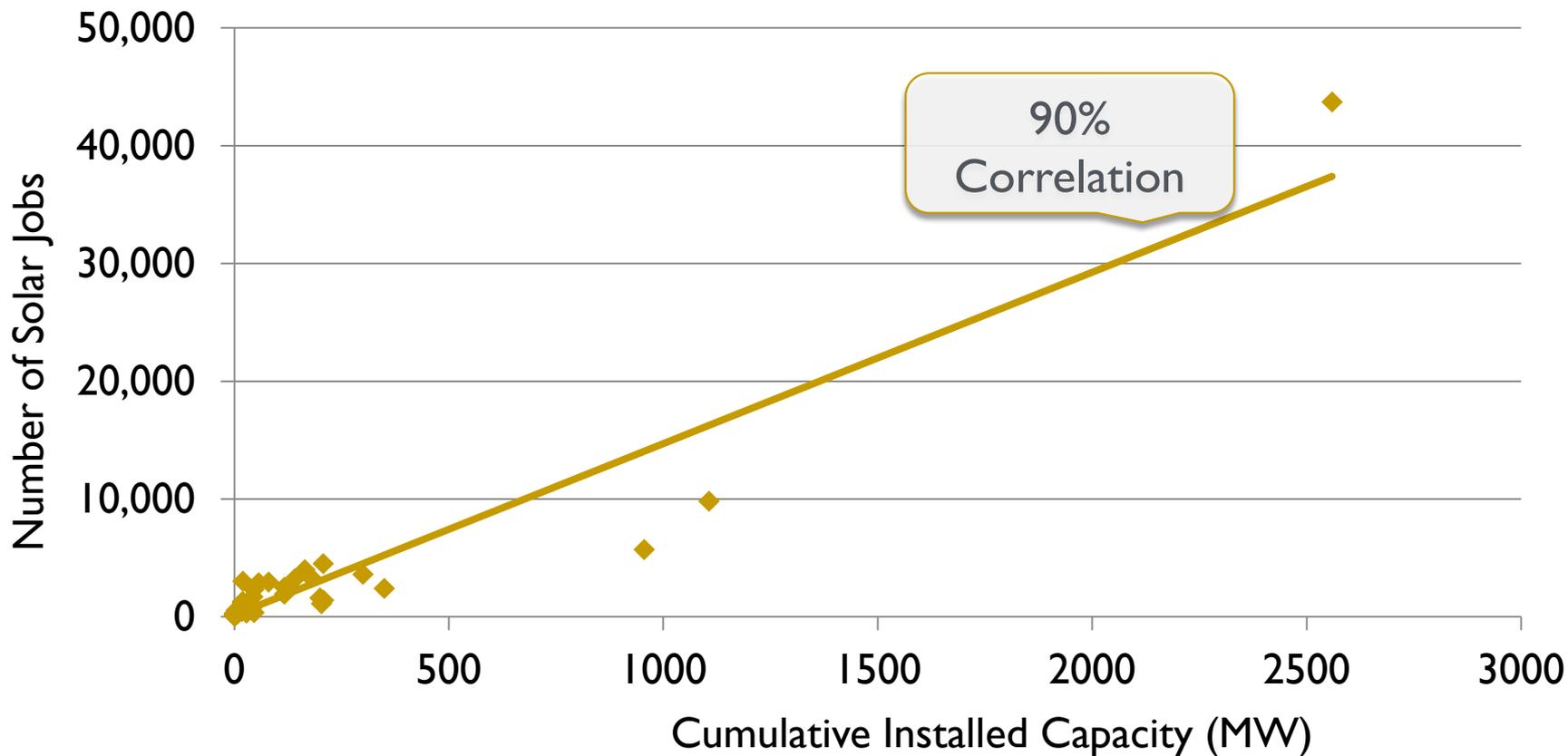


Source: SEIA Estimates (2006-2009), The Solar Foundation's National Solar Jobs Census 2010 (2010), The Solar Foundation's National Solar Jobs Census 2012 (2011-2012).

# Job Creation



## Correlation of Market Size & Jobs in Each State



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

# Solar Job Creation in NWI

## Why promote solar in your community?

- **Solar creates economic value** - It is a \$12 billion industry in the U.S.
- **Solar creates jobs** - As of November 2013, there were more than 142,000 solar jobs in the US. This is nearly a 20% increase since the 2012 census. During this time period, solar created jobs at a rate that was ten times faster than the overall economy's employment growth. (Solar Foundation)
- **Solar is flexible** - It can add economic value to currently underutilized rooftops, brownfields, and landfills.

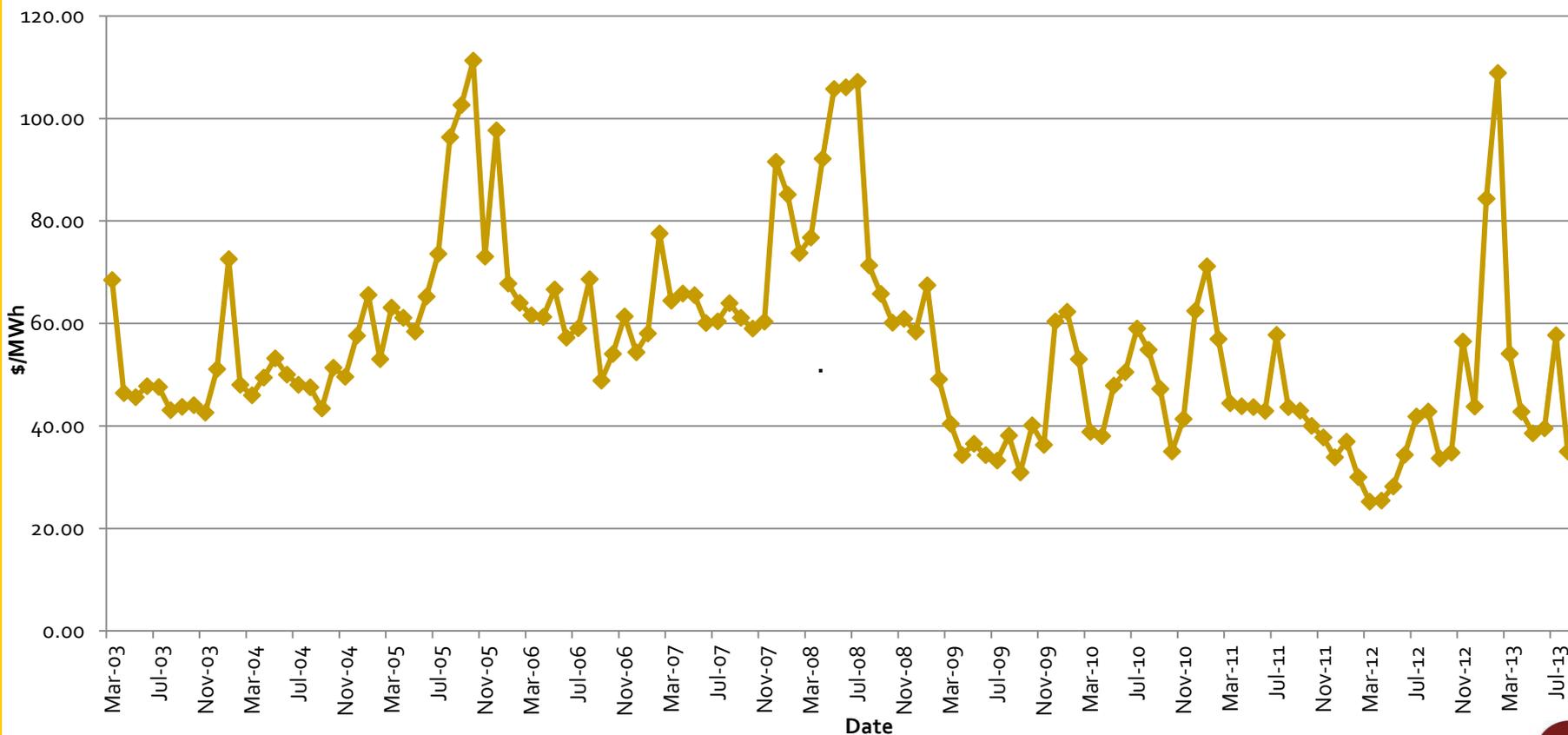
## Quick Facts:

- A new job is created for every 4 residential solar installations in NWI.
- Each new residential solar installation creates \$29.16 in economic value in NWI.

# Price Stability



## Boston-Area Historic Average Wholesale Electricity Price



Source: ISO New England, Inc.

# Smart Investment for Homes



From NREL:

Solar homes sold

**20% faster**

and for

**17% more**

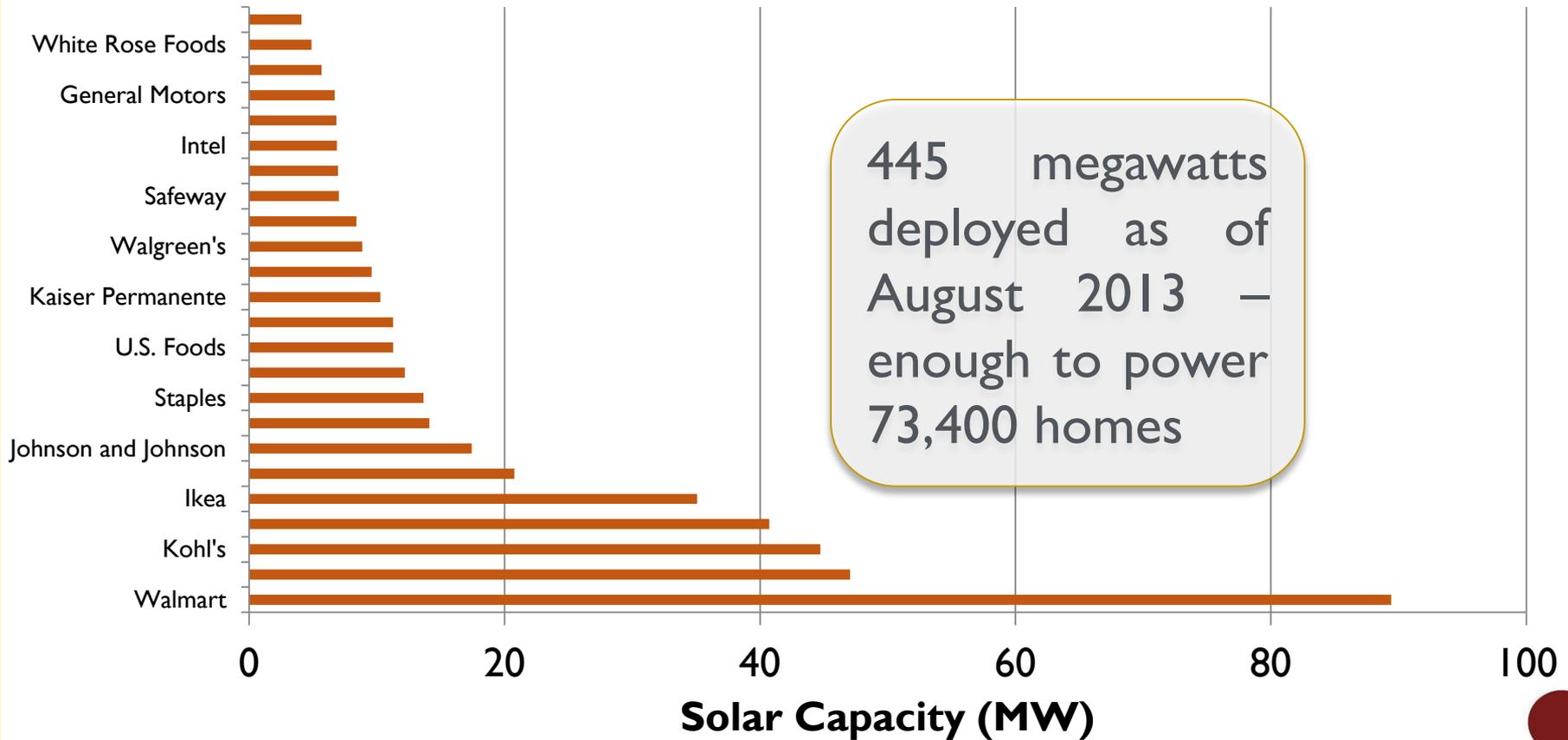
than the equivalent non-solar homes  
in surveyed California subdivisions

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

# Smart Investment for Business



## Top 20 Companies by Solar Capacity



Source: [Solar Energy Industries Association](#)

# Smart Investment for Gov't



Source: Borrego Solar

# Valuable to Utilities



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



## **Discussion:**

**Which of these benefits will resonate best in NWI?**

**What additional materials / data would be useful?**

# Barriers to Solar Adoption

# Challenge: Inconsistency

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

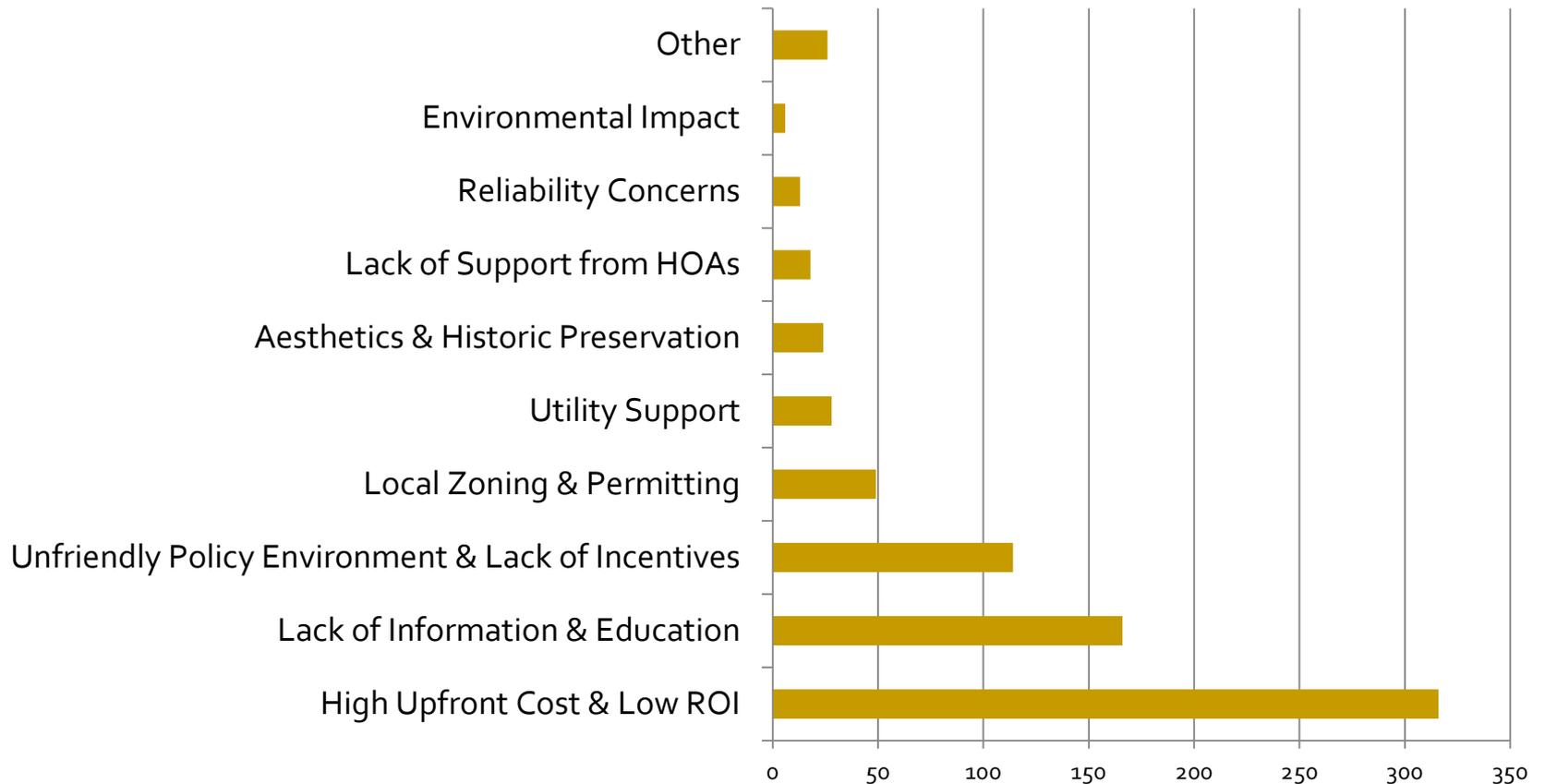
Source: Benchmarking Soft Costs for PV Systems, National Renewable Energy Laboratory

# Challenge: Inconsistency

**5,000+** utilities  
with unique interconnection requirements

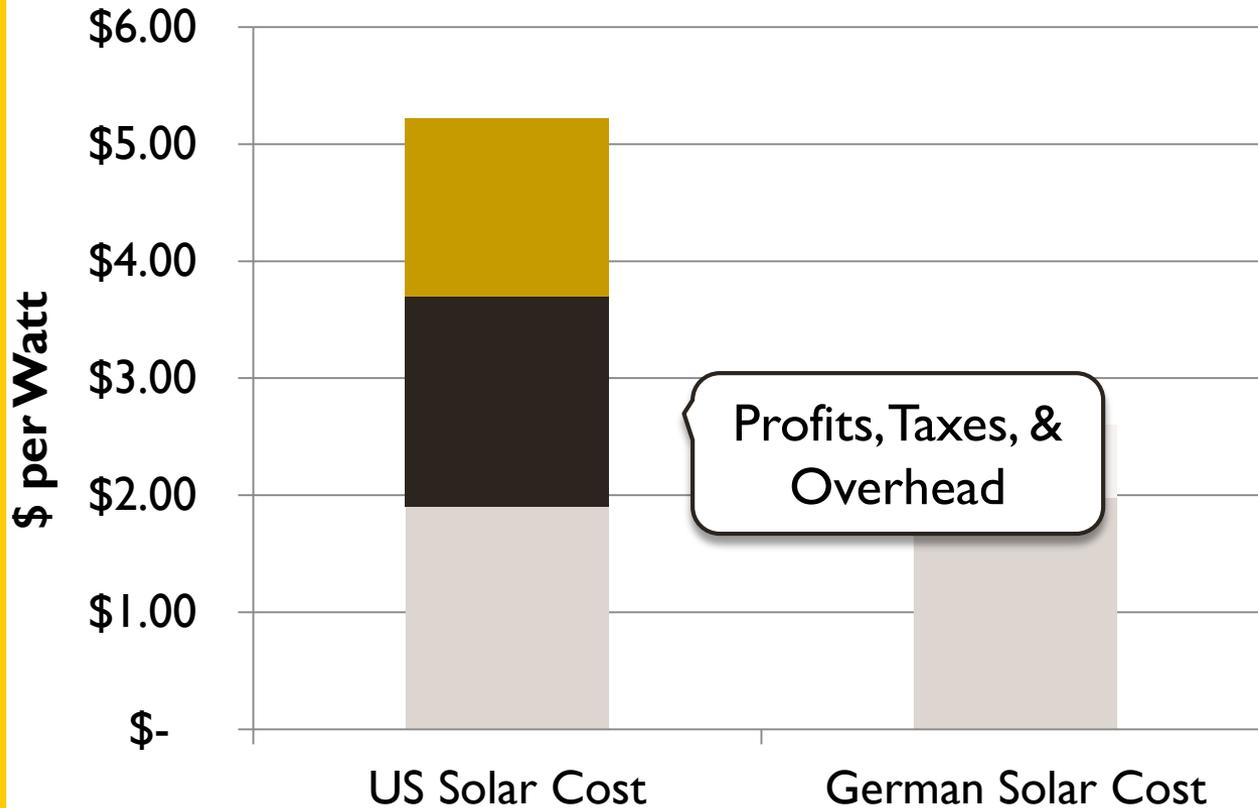
Source: Benchmarking Soft Costs for PV Systems, National Renewable Energy Laboratory

# Survey Results: Barriers



# The Cost of Solar in the US

## Comparison of US and German Solar Costs

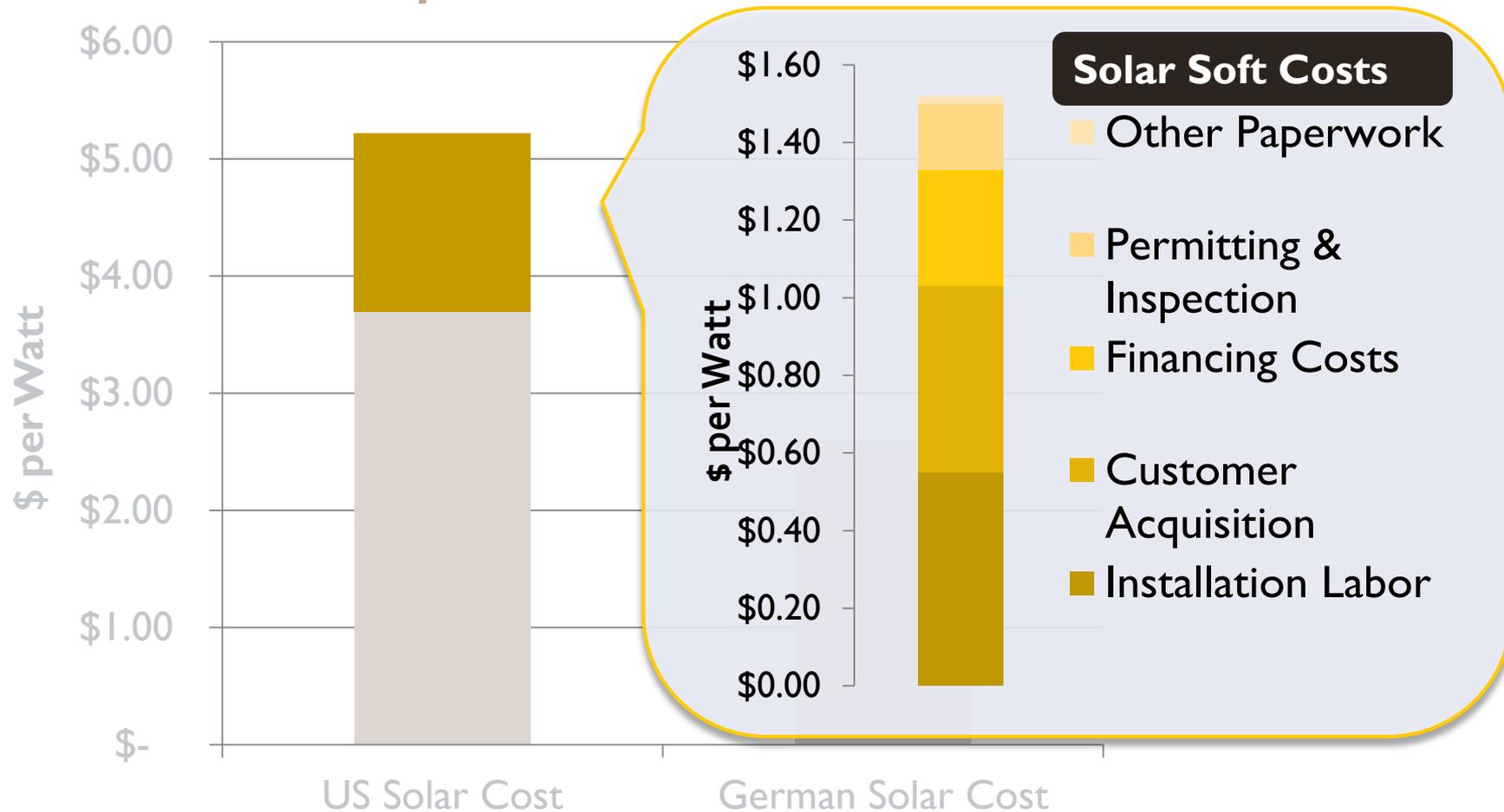


Source: NREL (<http://www.nrel.gov/docs/fy14osti/60412.pdf>)

LBNL (<http://emp.lbl.gov/sites/all/files/lbnl-6350e.pdf>)([http://www1.eere.energy.gov/solar/pdfs/sunshot\\_webinar\\_20130226.pdf](http://www1.eere.energy.gov/solar/pdfs/sunshot_webinar_20130226.pdf))

# The Cost of Solar in the US

## Comparison of US and German Solar Costs

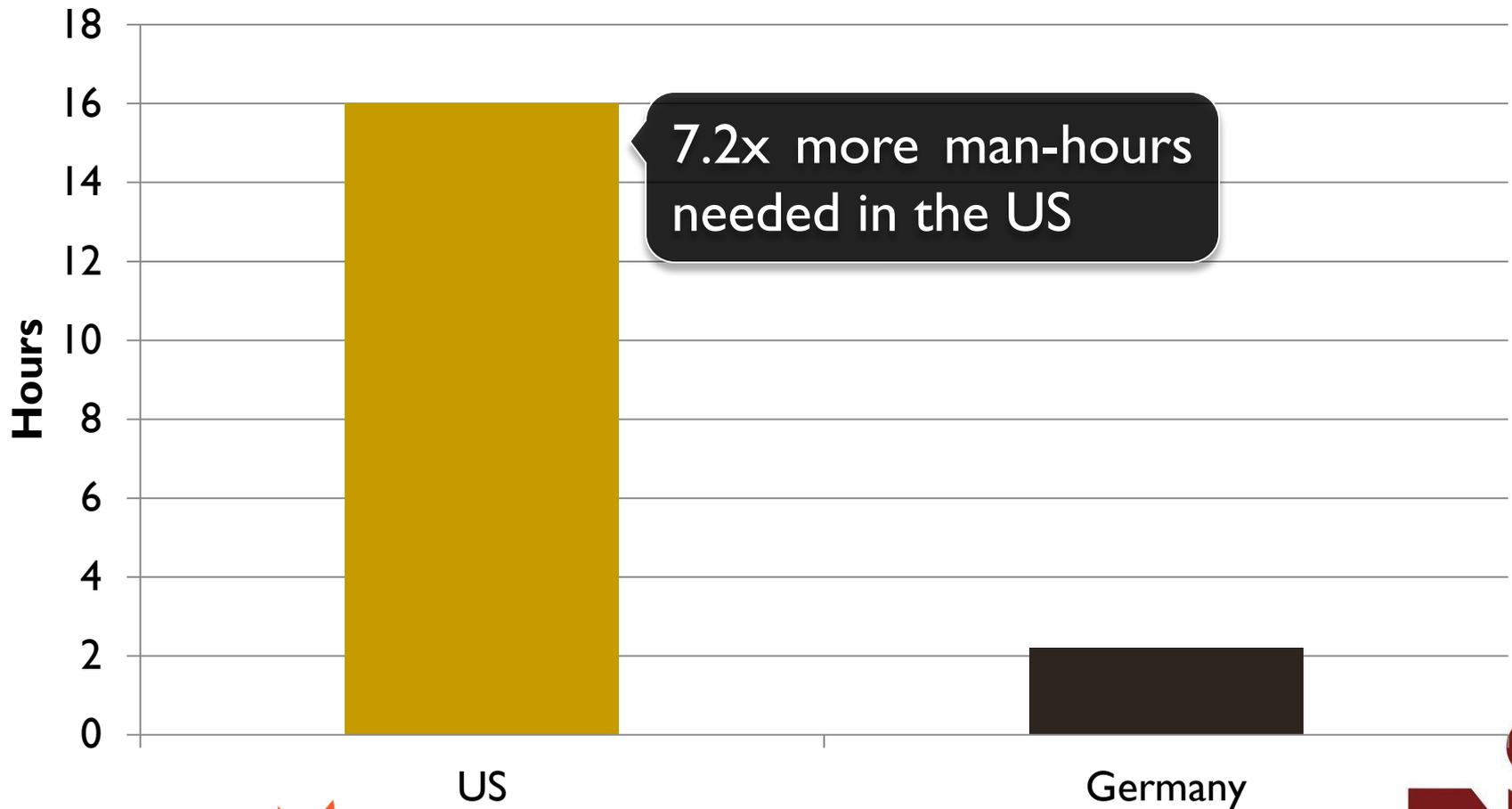


Source: NREL (<http://www.nrel.gov/docs/fy14osti/60412.pdf>)

LBNL (<http://emp.lbl.gov/sites/all/files/lbnl-6350e.pdf>) ([http://www1.eere.energy.gov/solar/pdfs/sunshot\\_webinar\\_20130226.pdf](http://www1.eere.energy.gov/solar/pdfs/sunshot_webinar_20130226.pdf))

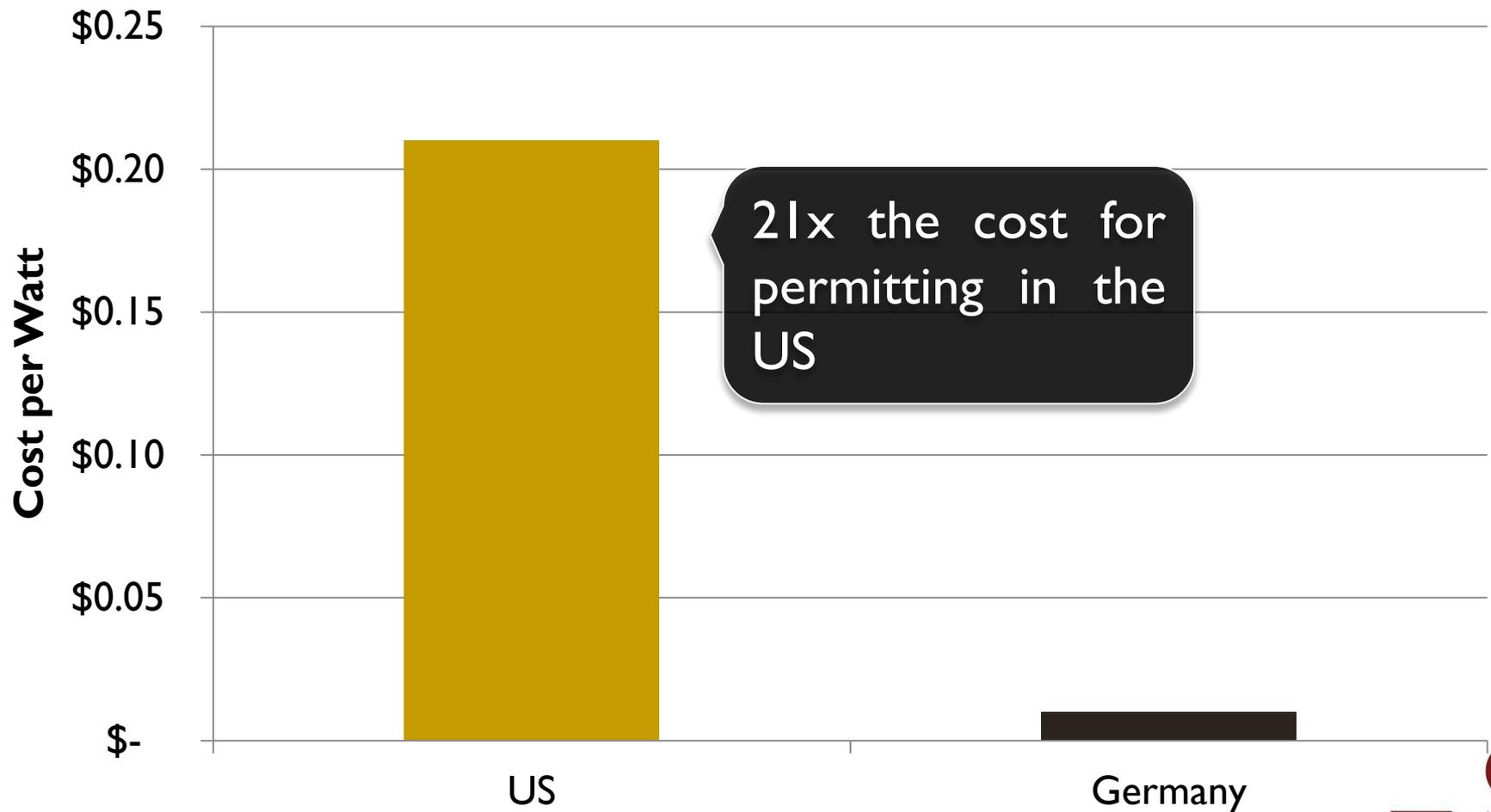
# Time to Installation

## Average Time to Permit a Solar Installation

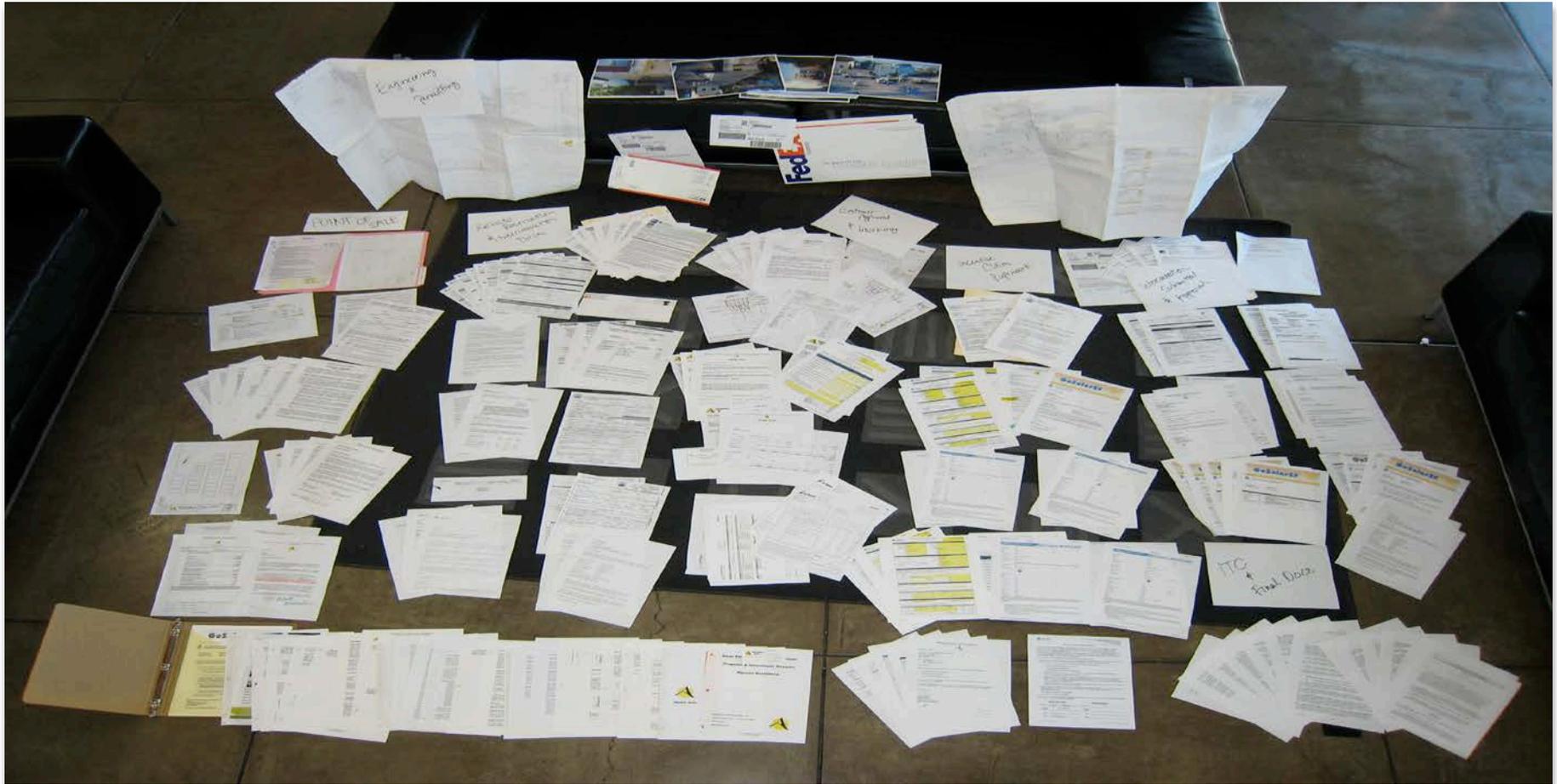


# Permitting Costs

## Average Cost of Permitting in the US and Germany



# Consumer Challenges

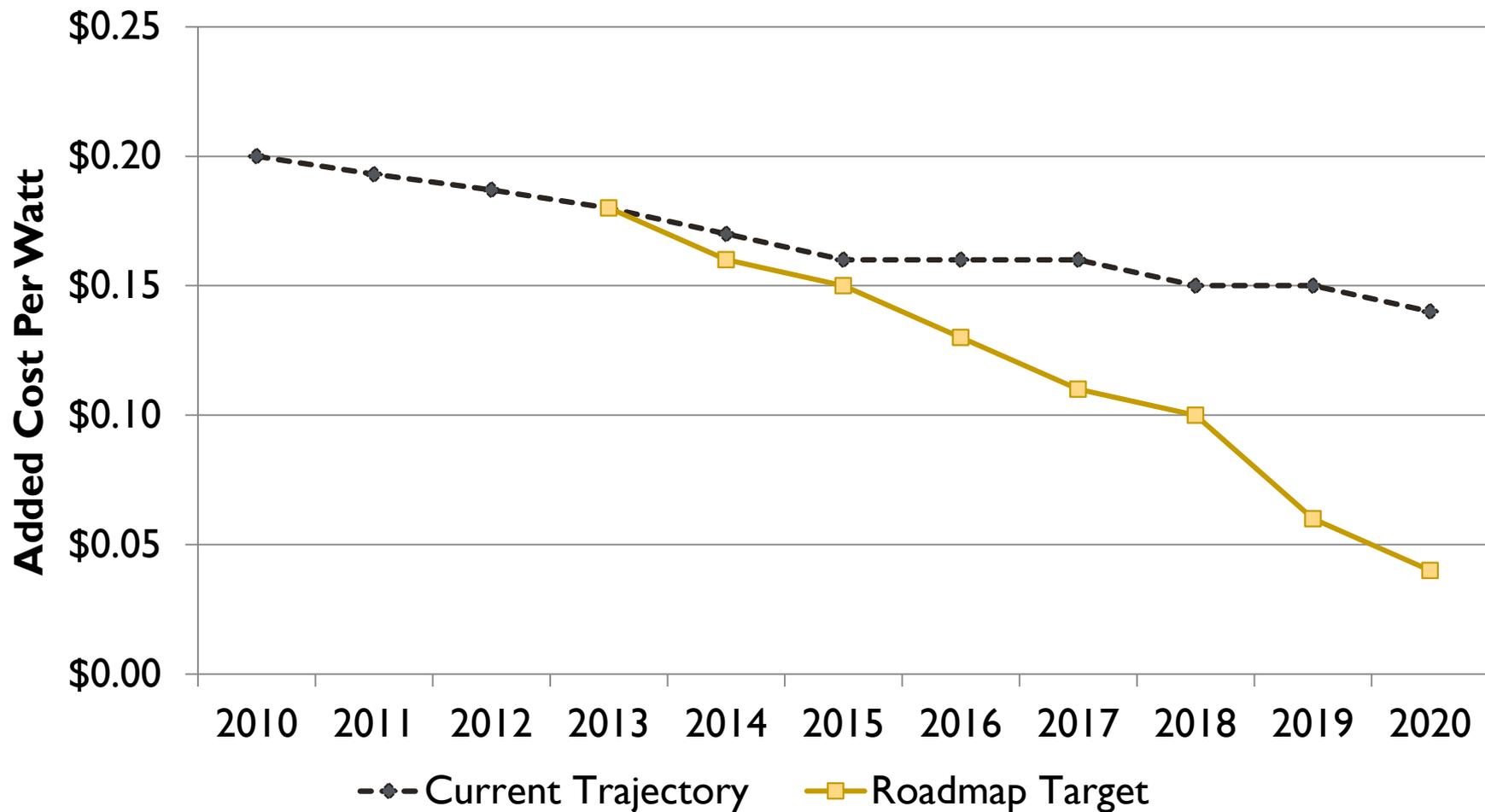


Source: Forbes

# Regulatory Barriers



# Planning & Permitting Roadmap



# Regulatory Opportunities

Communities in CA with favorable permitting practices saw

**4 - 12%** lower costs

and

**25%** shorter development time

as compared to standard communities

Source: Lawrence Berkley National Laboratory  
(<http://emp.lbl.gov/sites/all/files/lbnl-6140e.pdf>)

# NWI SOLAR MARKET MATURITY

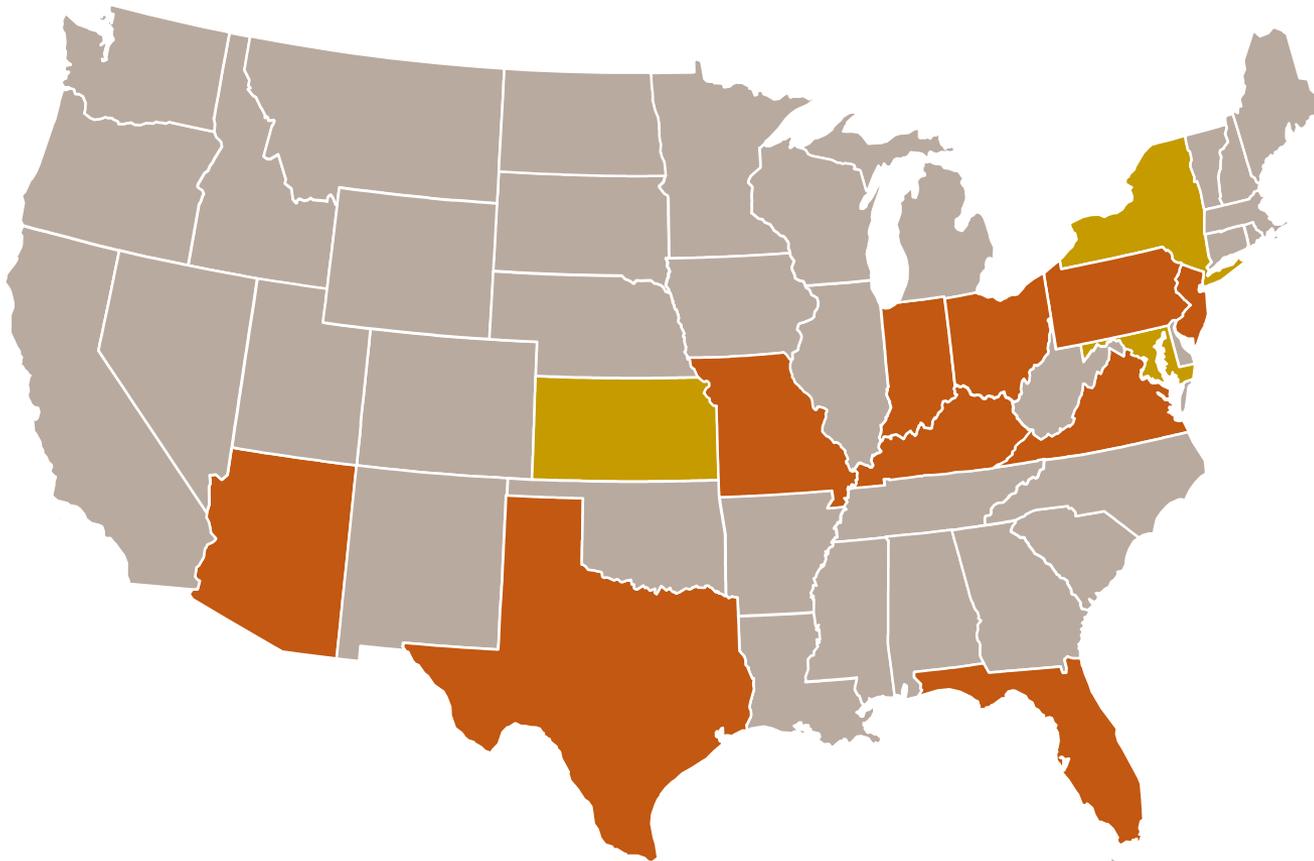
---

**Where Are We Now?**

Thinking about the solar market across the country, how do you think the NWI compares in terms of regulations that impact solar implementation?

- A. Much more solar friendly
- B. Slightly more solar friendly
- C. About average
- D. Slightly less solar friendly
- E. Much less solar friendly

# Installed Capacity: Project States



13 States + DC

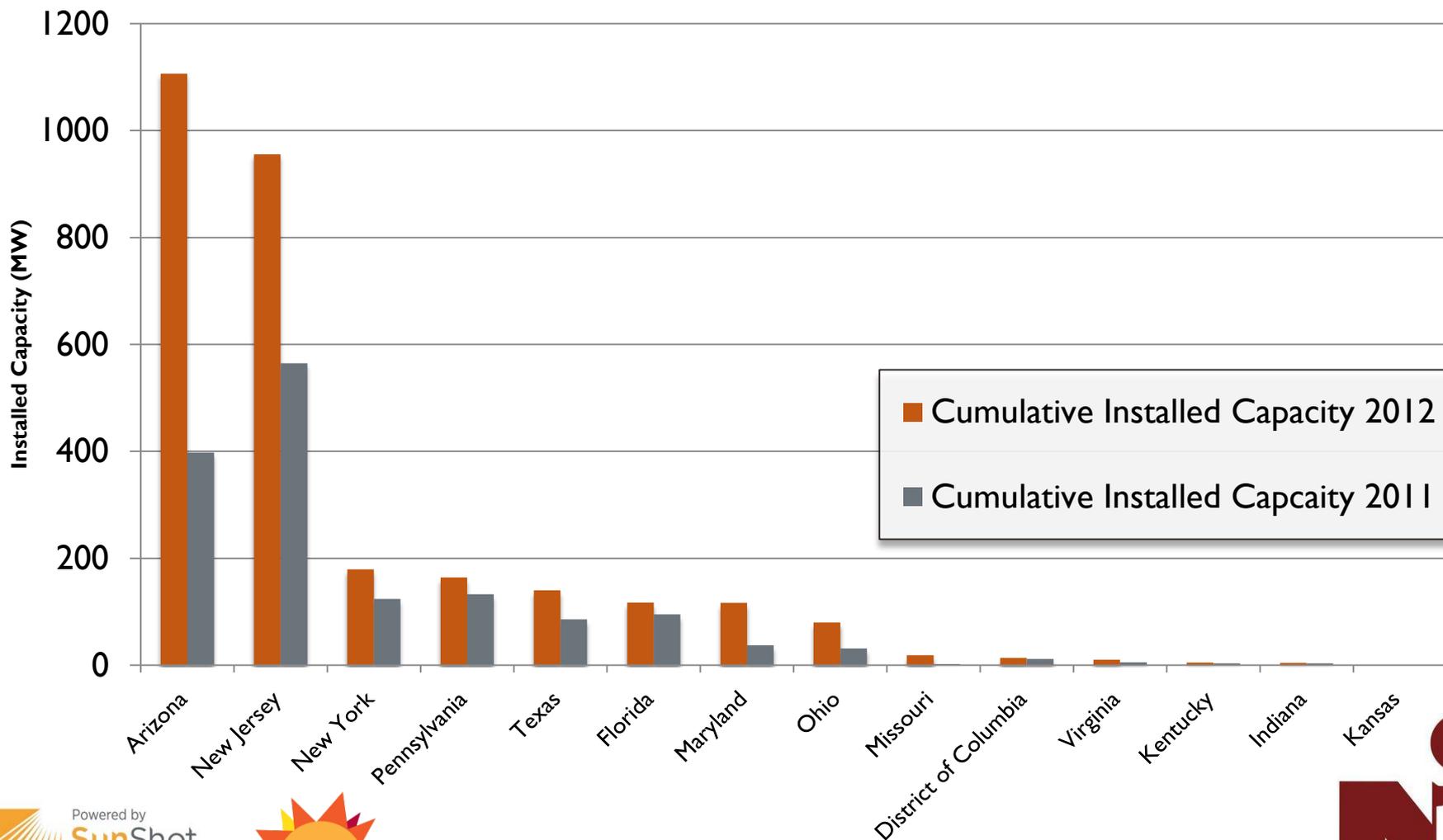
2.9 GW

38% of US Cap.

44% of Population

# Installed Capacity: Your Markets

## Cumulative Installed Capacity (2011 - 2012)



# NWI Solar Market Maturity Model

Input from Meister Consultant Group: (4 Surveys Received)

- ☀️ Unclear or High Permit Fees, consider fixed “solar” fee
- ☀️ Eliminate Zoning Review by making rooftop solar by-right
- ☀️ Streamline or Minimize Department Reviews
- ☀️ Consider single comprehensive inspection
- ☀️ Simplify Permit applications

# Improving SM3s Sounds like Good Business

## REDUCE SOFT COSTS

Permit fees, online systems

*“Benefits for both sides of the Counter”*

## INCREASE CERTAINTY

Increased Certainty = Lower Costs

## BE A FRIENDLY MARKET

Make your community a place where solar companies want to do business

# Utility Readiness

## Quick Facts:

- There are over 5,000+ utilities with unique interconnection procedures in the U.S.
- 43 States & DC have adopted interconnection standards.
- 26 states received a grade of C or lower on their interconnection policy based on the 2013 report, *Freeing the Grid*.

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

- Net metering allows for a customer-sited solar system to cover 100% of the customer's load by crediting excess generation during the day to usage at night.
- 43 states, Washington DC, and 4 territories have adopted some form of net metering policy.
- 20%-40% of power generated from solar energy systems goes back to the grid. (SEIA)

**Region Specific:  
Interconnection  
Policies = B  
Net Metering = B**

# BUILDING OUR SOLAR READY ROAD MAP

---

# Solar Ready KC Roadmap

	Step 1	Step 2	Step 3
Planning			
Process			
Financing & Adoption			

# Best Management Practices

## Planning Improvements

Improve Solar Access

Educate Developers

Educate Home-owners

Improve Solar Read-iness

Engage HOAs

## Process Improvements

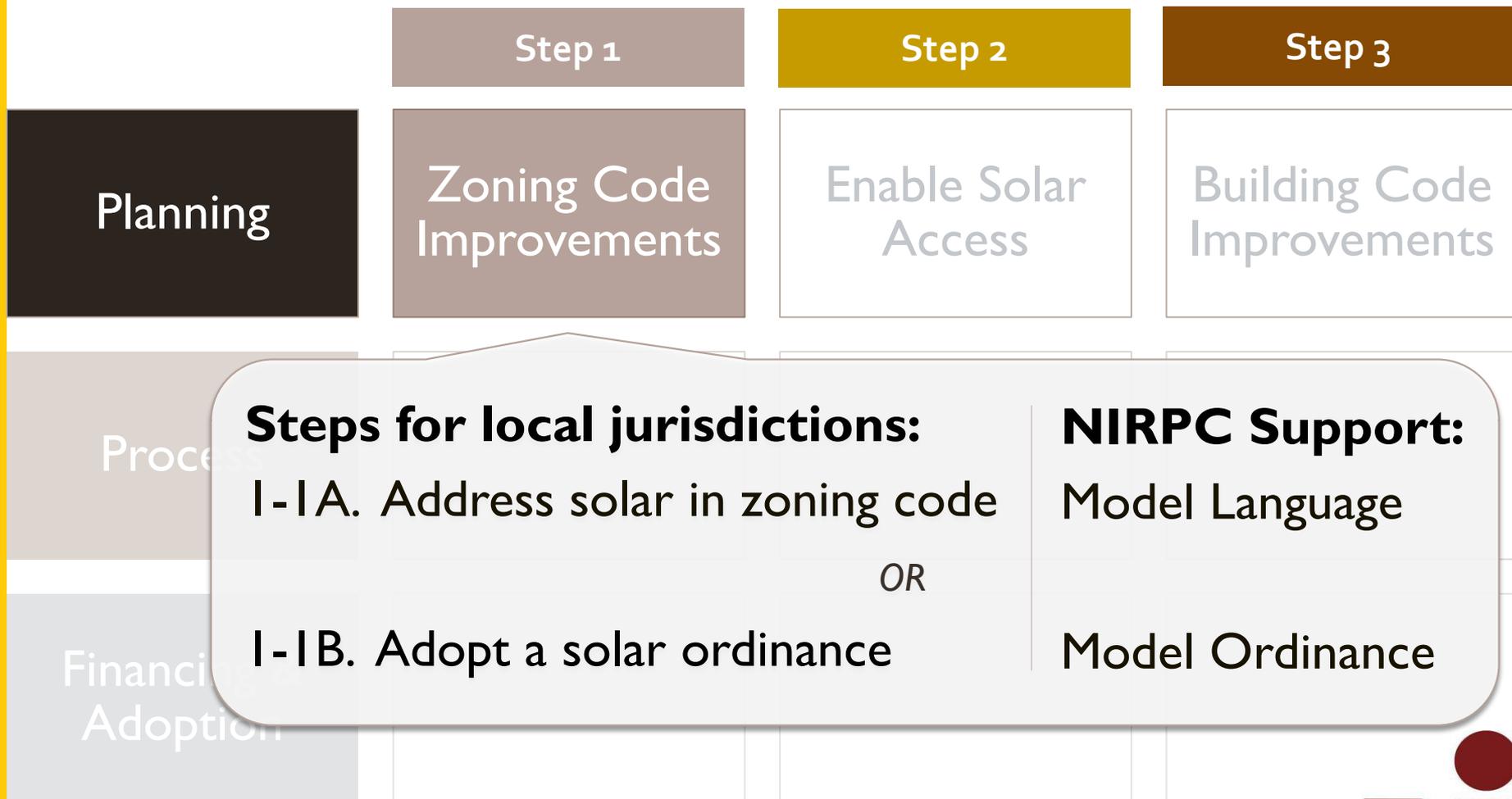
Standardize Permit Fees

Pre-Qualify Plans and Installers

Streamline Permits

Notify Utility

# Solar Ready Roadmap



# Solar Ready Roadmap

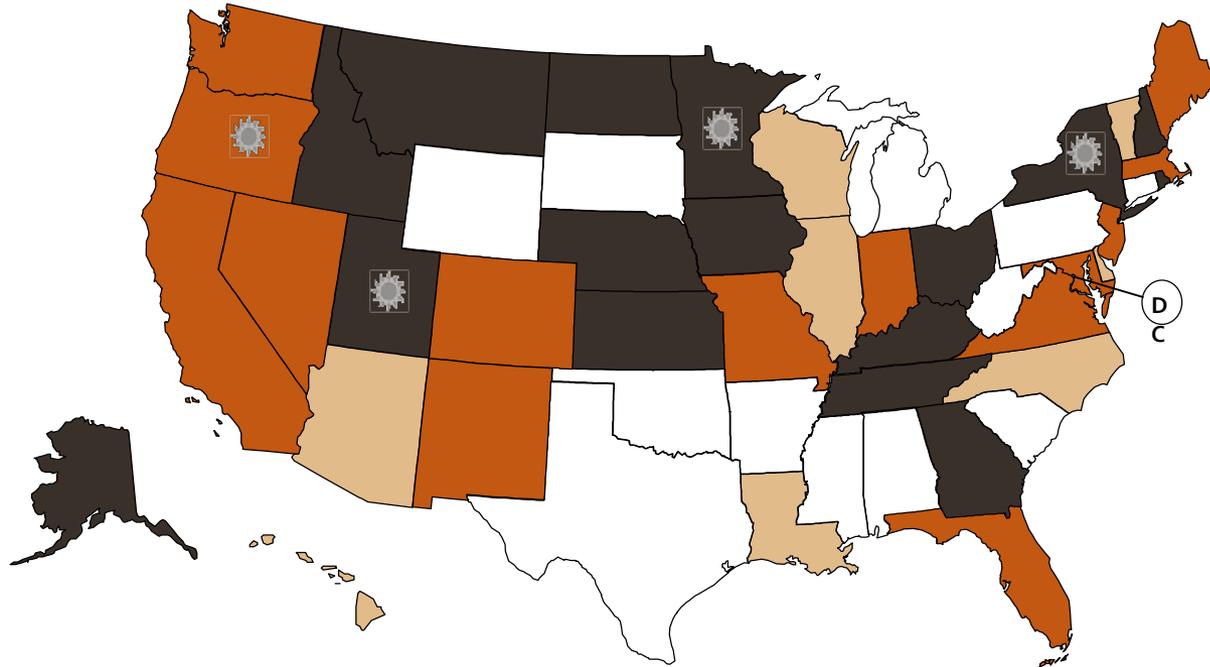
	Step 1	Step 2	Step 3
Planning	Zoning Code Improvements	Enable Solar Access	Building Code Improvements
Process			
Financing & Adoption			

# Step 2: 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

# Step 2: Solar Access



■ Solar Easements Provision

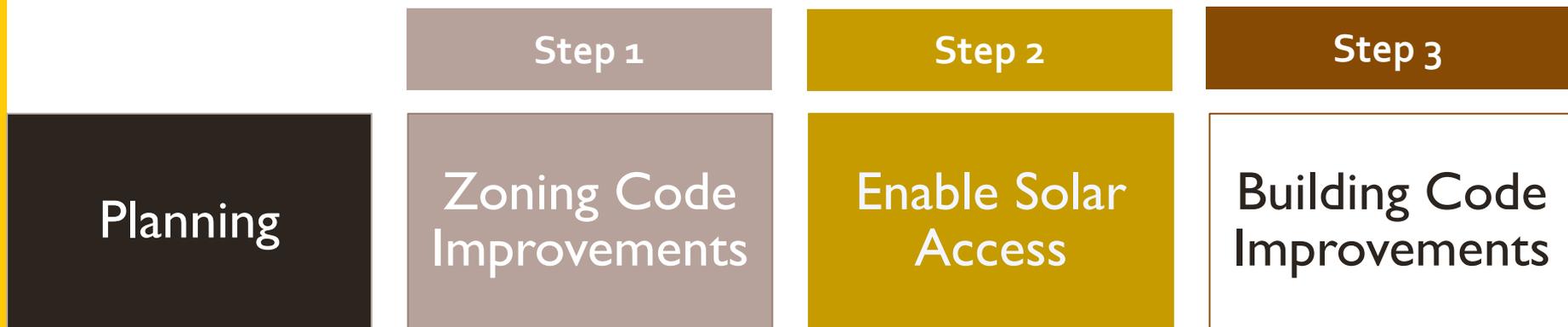
■ Solar Rights Provision

■ Solar Easements and Solar Rights Provisions

● U.S. Virgin Islands

⚙ Local option to create solar rights provision

# Solar Ready Roadmap



## Steps for local jurisdictions:

- 2-1. Adopt a Solar Access Ordinance
- 2-2. Engage homeowner's associations

## NIRPC Support:

- Model Guidelines
- Sample Language

Financing & Adoption

## 2-2. Engage HOAs

### 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

## 3-2. Engage HOAs

- Source: A Beautiful Day in the Neighborhood: Encouraging Solar Development through Community Association Policies and Processes, The Solar Foundation

Community Associations represent over

# 25 Million Homes

If 5% of homes invested in solar, this would equal

# 3.3 GW

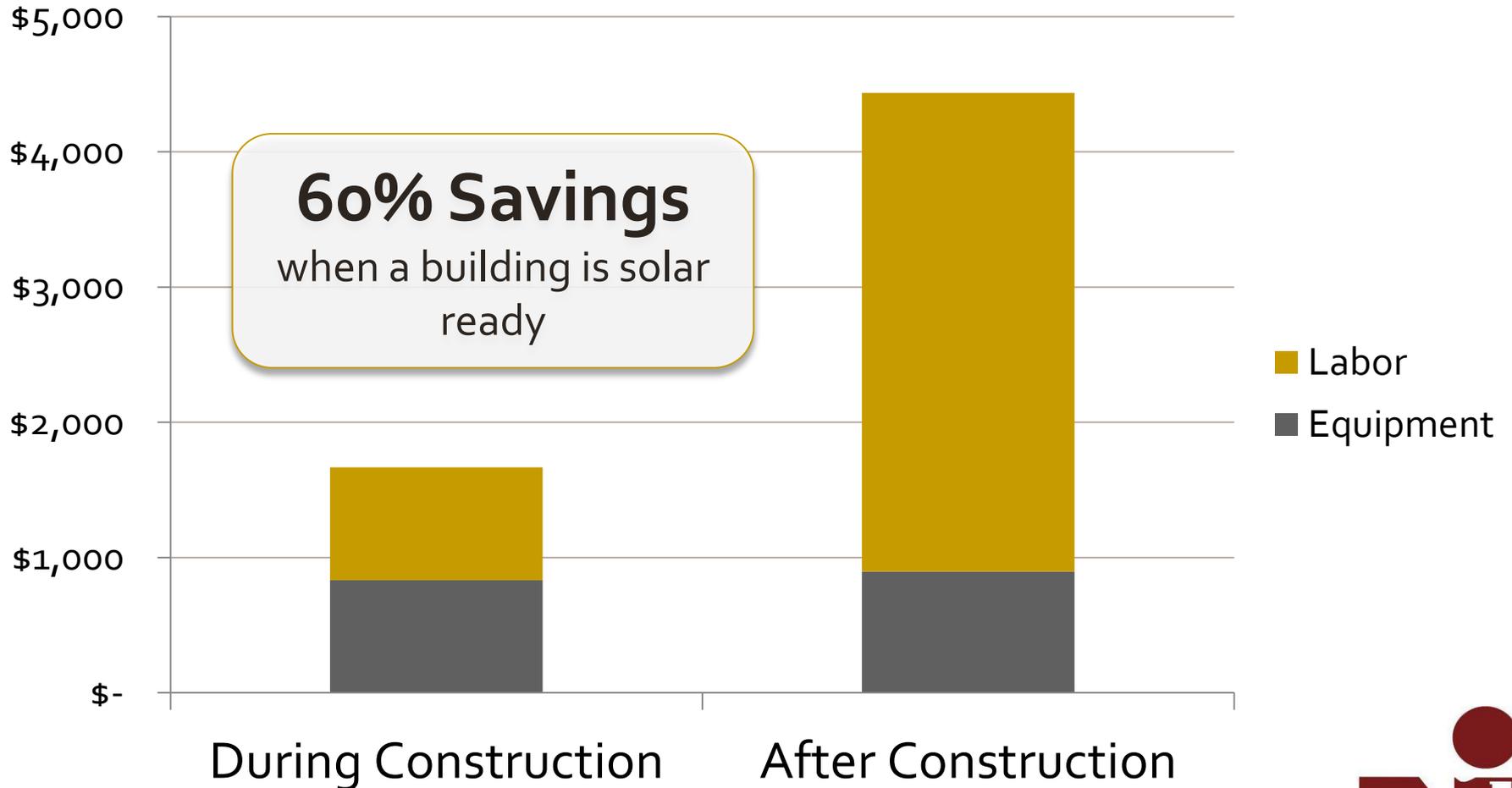
in new solar development

# Step 3: Building Code

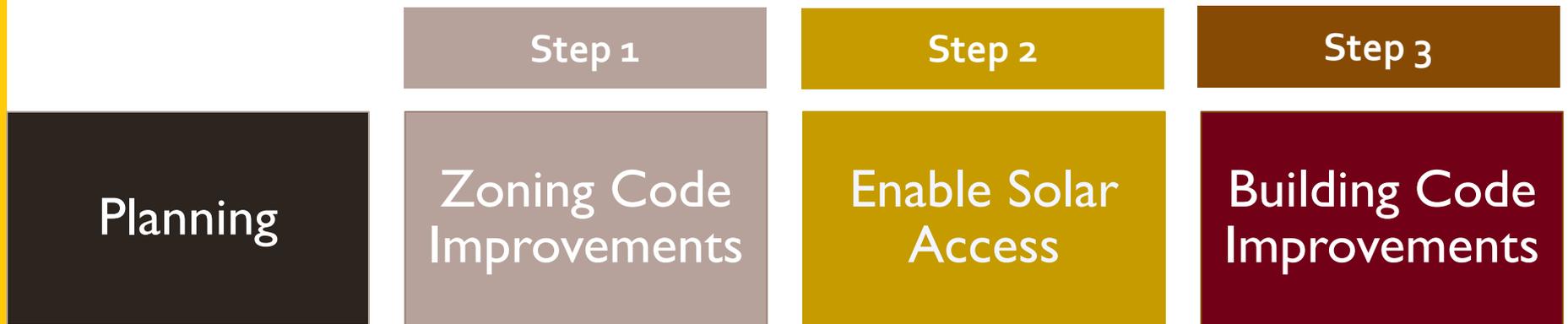
## Solar Ready Construction:

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

# Step 3: Building Code



# Solar Ready Roadmap



## Steps for local jurisdictions:

3- I A. Develop solar ready guidelines

3- I B. Adopt solar ready ordinance

## NIRPC Support:

Model Guidelines

Model Ordinance

OR

# Planning Improvements

## Improve Solar Access

- Adopt “solar by right”
- Incorporate solar access priorities into comprehensive plan
- Adopt a solar access ordinance

## Educate Developers

- Provide tools for new developments

## Educate Homeowners

- Provide homeowners and HOA’s with recommended strategies

## Improve Solar Readiness

- Develop solar ready buildings checklist for new construction
- Adopt new ordinances/building codes to promote solar ready construction

## Engage Homeowners Associations

- Create incentives (tax breaks/credits, etc.) adoption of best practices

# Solar Ready KC Results

Efforts from Rooftop Solar Challenge I teams

*resulted in*

**12%** lower permitting costs

*and*

**40%** faster permitting time

# Solar Ready Roadmap

	Step 1	Step 2	Step 3
Planning	Zoning Code Improvements	Enable Solar Access	Building Code Improvements
Process	Permitting Process Improvements	Permit Fees	Prequalify Installers
Financing & Adoption			

# 1. Permit Process Improvements

*Depth of Review*



**No Permit**

Only interconnection agreement required

**Expedient**

Within established design parameters

Impacts are well understood

Quick, Easy, Cheap

**Thorough**

Outside of established design parameters

Review necessary to understand impacts

Flexible

# Solar Ready Roadmap

## Steps for Local Jurisdictions:

- I-1. Develop criteria for expedited process
- I-2. Create a permit checklist
- I-3. Provide a central information source

## NIRPC Support:

- Model Criteria
- Model Checklist

Process

Permitting  
Process  
Improvements

Permit Fees

Prequalify  
Installers

Financing &  
Adoption

# Solar Ready Roadmap

## Steps for Local Jurisdictions:

2-1. Residential: fixed fees

2-2. Commercial: fee calculator

## NIRPC Support:

Methodology

Model Calculator

Step 3

Building Code  
Improvements

Process

Permitting  
Process  
Improvements

Permit Fees

Prequalify  
Installers

Financing &  
Adoption

## 2-1. Residential: Flat Fees

$$\text{Fee} = (\text{Est. Staff Time} \times \text{Rate}) + \text{Additional Review}$$

Cover costs 80% of the time for review and inspection. Allow for one minor correction review.

Additional reviews or inspections incur additional fees

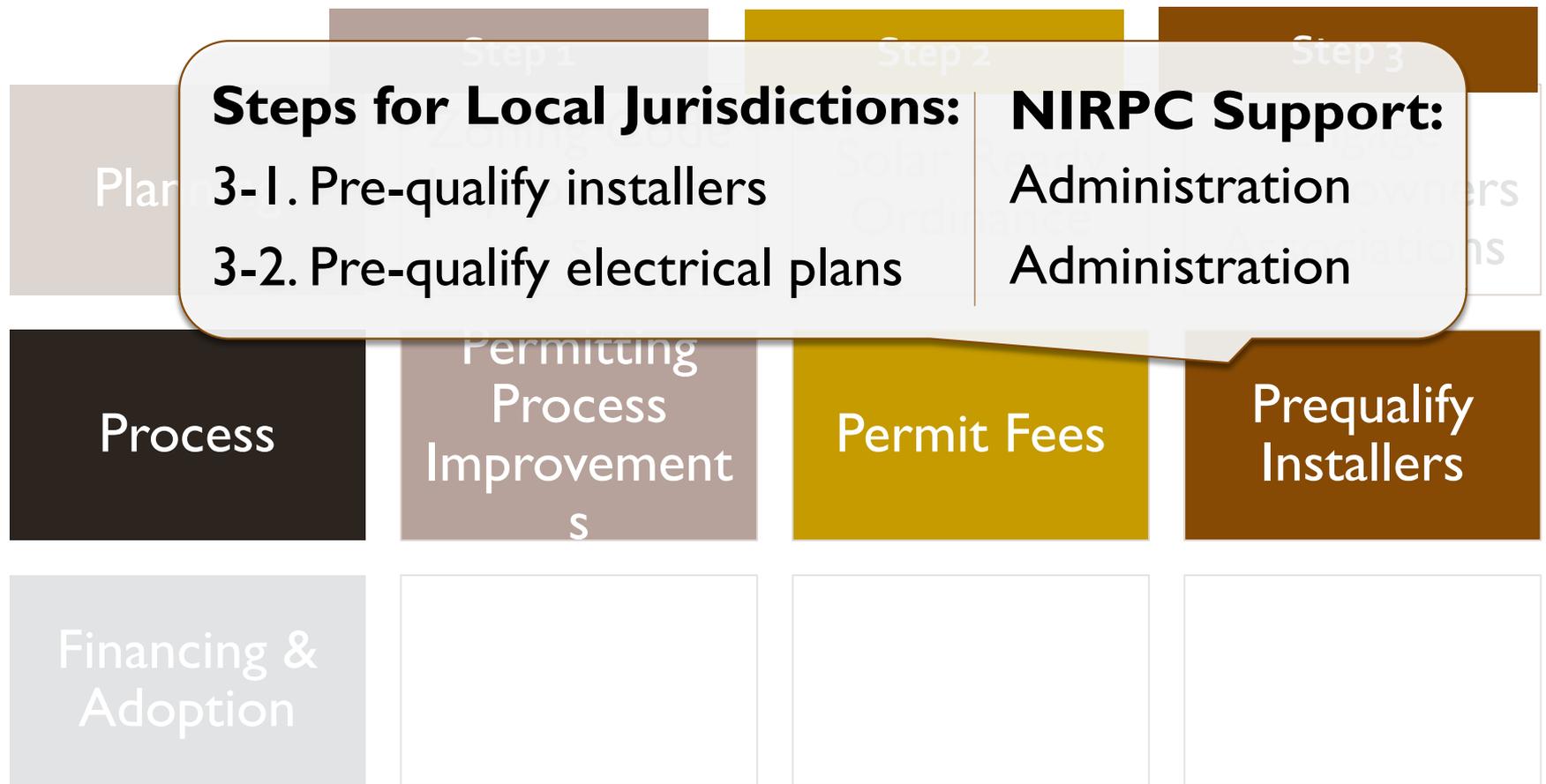
## 2-2. Commercial Fee Calculator

$$\text{Fee} = (\text{Plan Review Hours} + \text{Inspection Hours}) \times \text{Rate} + \text{Issuance Fee}$$

Example  
calculator  
output for 149  
kW system

TRUE

# Solar Ready Roadmap



# Process Improvements

## Streamline Permits

- Provide a central clearinghouse of solar info
- Create a permit checklist summarizing necessary regulatory steps
- Develop permit criteria outlining “standard” installations

## Standardize Permit Fees

- Establish fixed fee for residential permit applications
- Adopt the Permit Fee Calculator for commercial systems

## Notify Utility

- Alert when permit applications are received and inspections are complete
- Conduct joint inspections with utility and jurisdiction

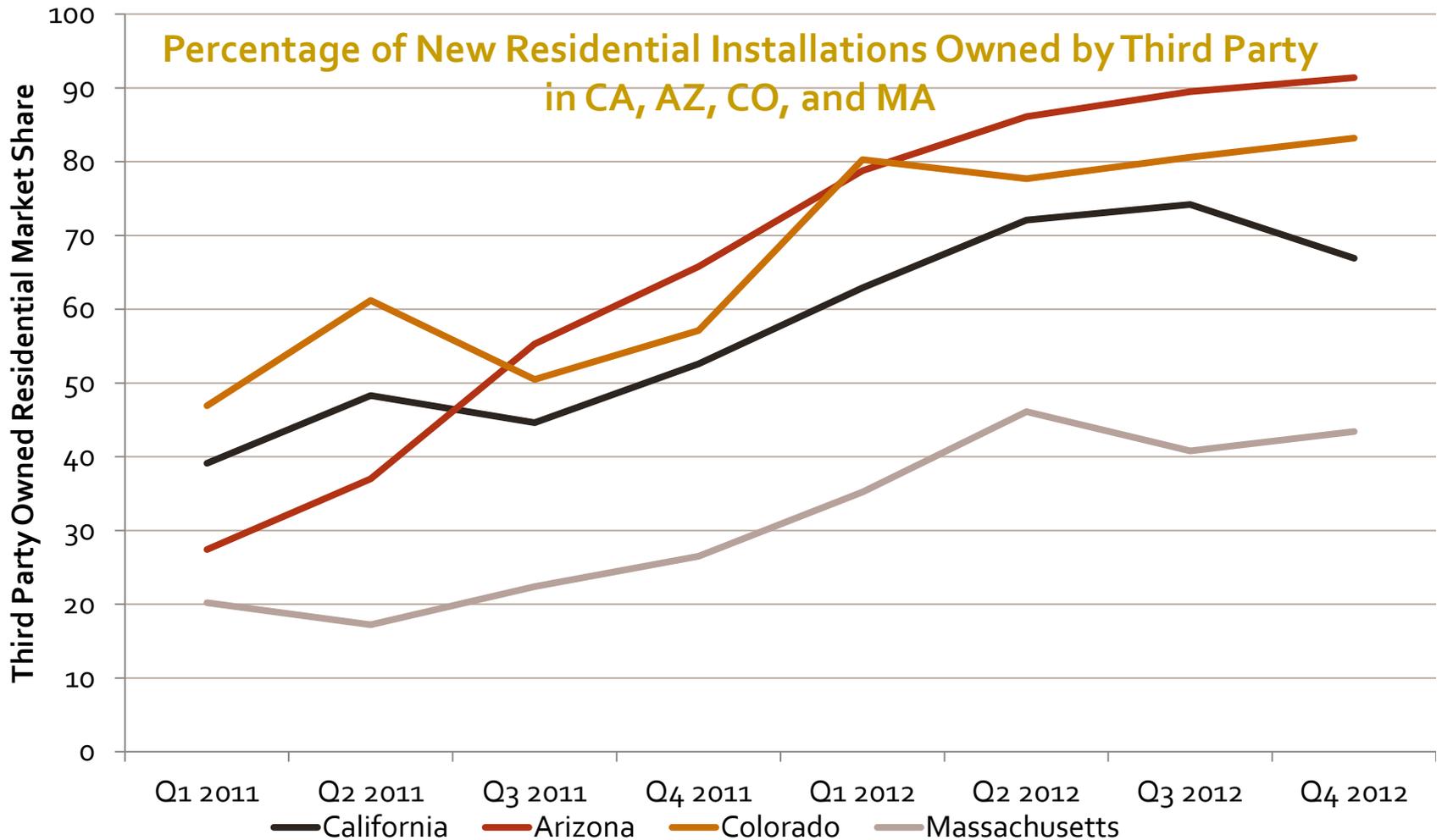
## Pre-Qualify Plans and Installers

- Develop process for pre-qualified “standard plans”
- Develop process for pre-qualification of installers

# Solar Ready Roadmap

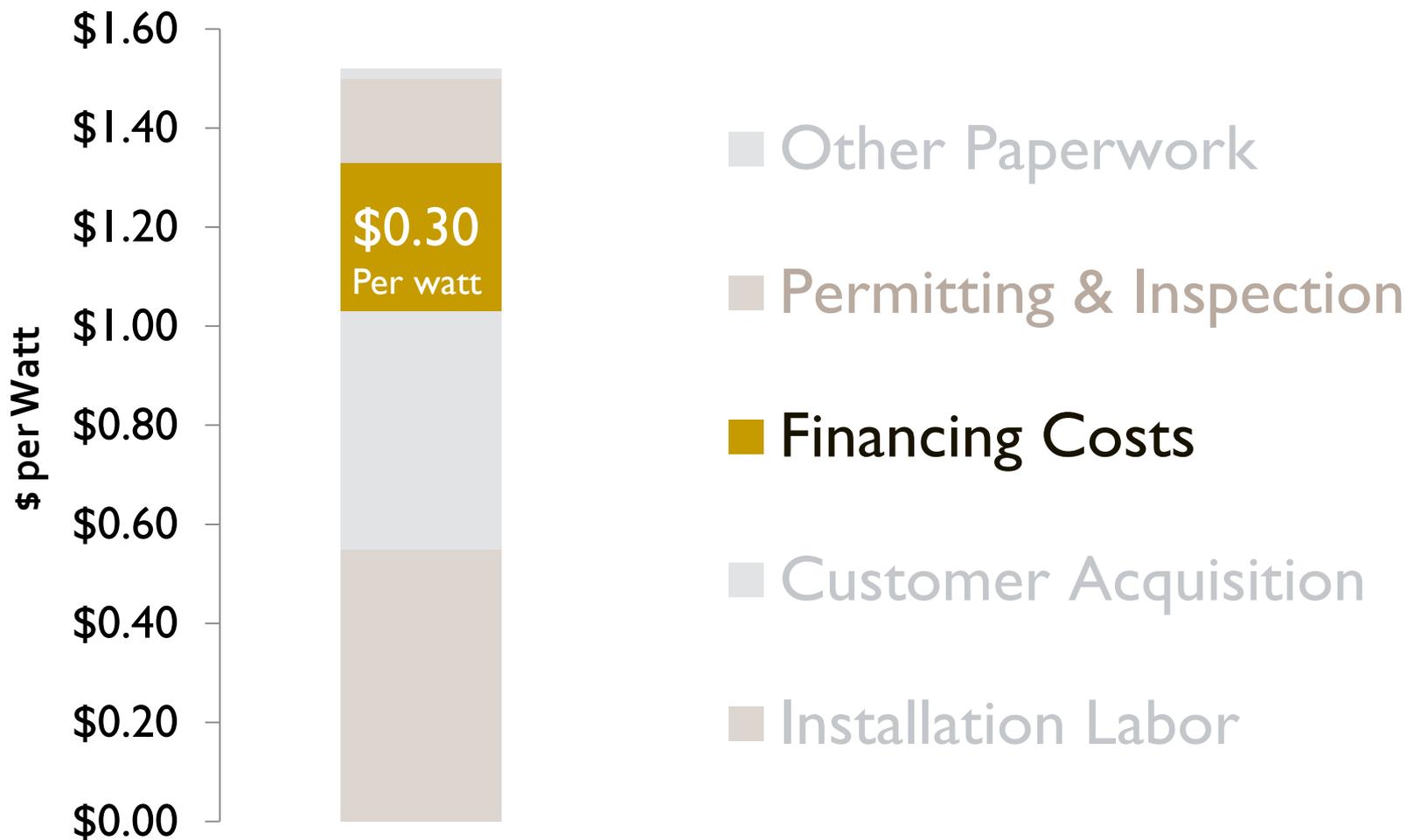
	Step 1	Step 2	Step 3
Planning	Zoning Code Improvements	Solar Ready Ordinance	Engage Homeowners Associations
Process	Permitting Process Improvements	Permit Fees	Prequalify Installers
Financing & Adoption	Distribute Cost Survey to Installers	Engage Local Lenders	Enact a Solarize Program

# 2. Engage Local Lenders



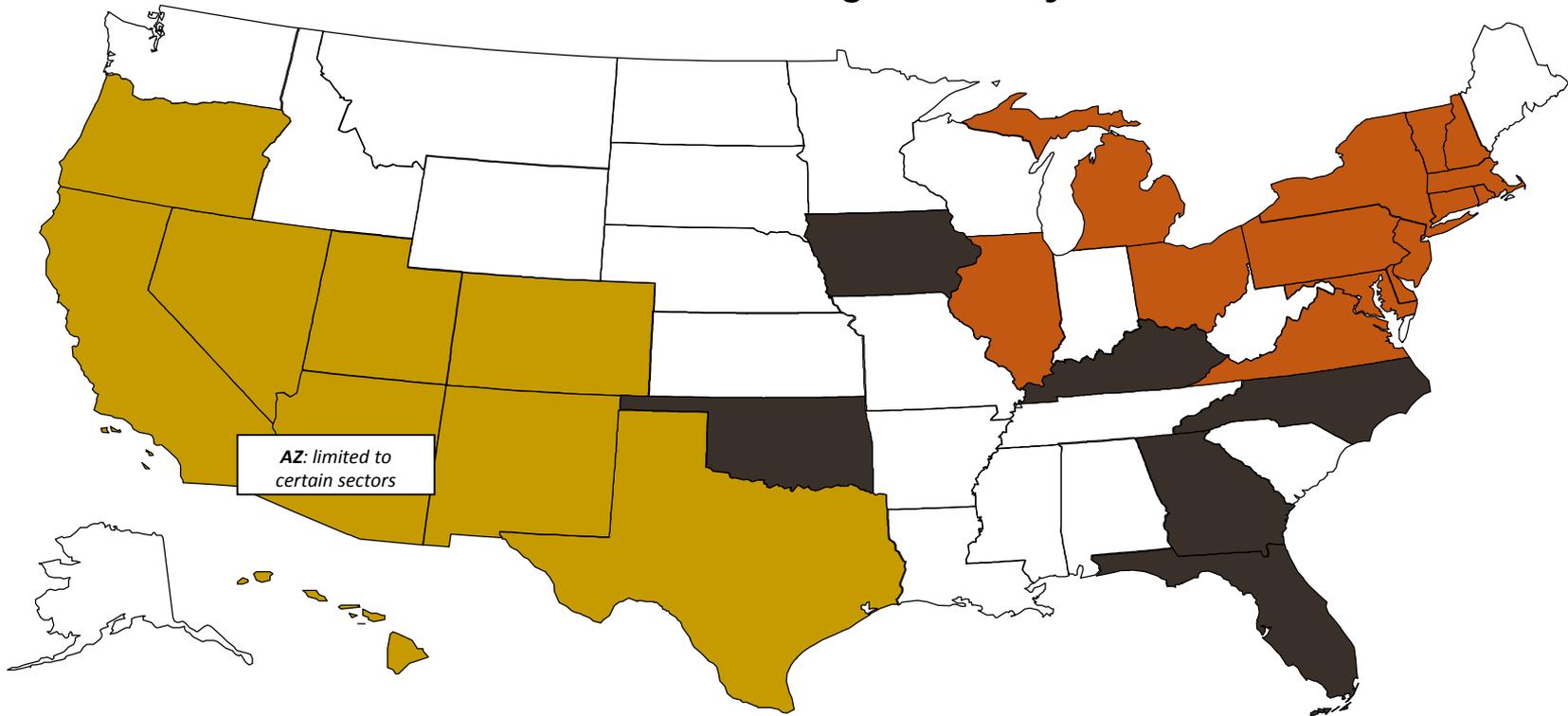
Source: GTM Research/ Solar Energy Industries Association, *U.S. Solar Market Insight 2012 Year-in-Review*

## 2. Engage Local Lenders



# 2. Engage Local Lenders

[www.dsireusa.org](http://www.dsireusa.org) / February 2013



-  Authorized by state or otherwise currently in use, at least in certain jurisdictions within in the state
-  Apparently disallowed by state or otherwise restricted by legal barriers
-  Status unclear or unknown

 Puerto Rico

*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.*

## 2. Engage Local Lenders

Fewer than **5%**

*of the*

**6,500 banks** in the US

*are*

actively financing solar PV projects

# Solar Ready Roadmap



# Solar Ready Roadmap



# 3-1. Enact a Solarize Program

**Solarize:** Group purchasing for residential solar PV projects



# 3-1. Enact a Solarize Program

## Barriers

High upfront cost



Complexity



Customer inertia



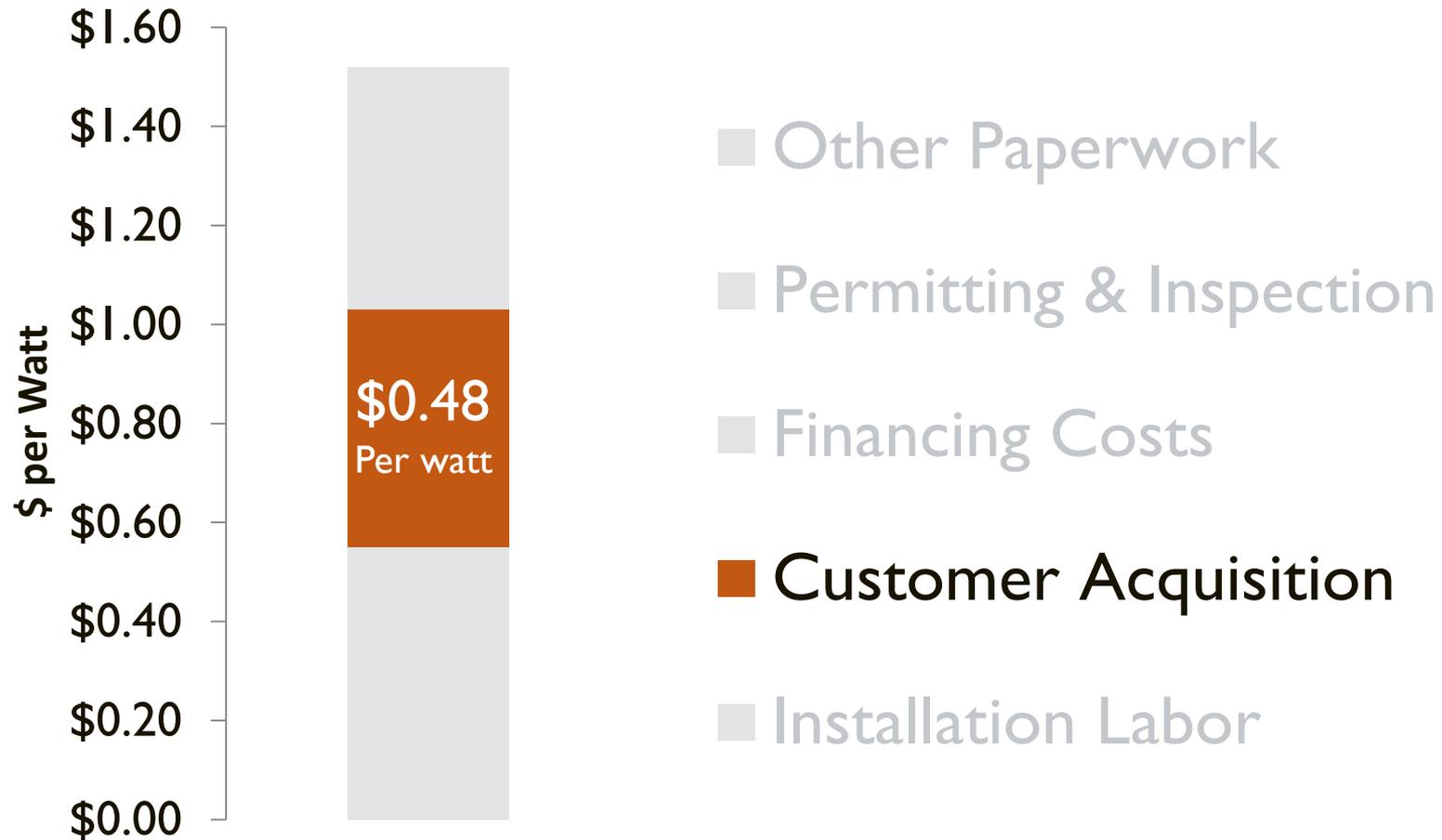
## Solutions

Group purchase

Community outreach

Limited-time offer

# 3-1. Enact a Solarize Program



Source: National Renewable Energy Laboratory

# Financing & Adoption

## Engage Local Lenders

## Enact a Solarize Program

- ☀️ Do we want a regional solarize program?
  - Solarize is collective PV purchasing Plano

## Property Assessed Clean Energy (PACE)

- ☀️ Commercial and industrial properties only
- ☀️ Potential impacts?

# Next Steps

Finalize Stakeholder Group

Schedule Future Meetings

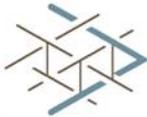
Complete jurisdictional SM3  
surveys

Schedule Training, etc.

# Finalize Stakeholder Group

## Requests & Responsibilities

1. Assist NIRPC staff with data gathering and statistics
2. Attend meetings on a regular basis (bi-monthly or quarterly?) to:
  - a) Discuss accomplishments/hurdles;
  - b) Review draft BMP documents; and
  - c) Discuss ongoing programs
3. Agree to have time and mileage valued for use as cost-share



# Kathy Luther

## Director of Environmental Programs

NIRPC

kluther@nirpc.org

(219) 763-6060 x 127

# Jack Eskin

## Regional Planner

NIRPC

jeskin@nirpc.org

(219) 763-6060

<http://www.eere.energy.gov/solarchallenge/index.htm>

[www.nirpc.org/environment/solar](http://www.nirpc.org/environment/solar)

Acknowledgment: This material is based upon work supported by the U.S. Department of Energy under Award Number DE-EE0006310

Disclaimer: This presentation was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

