



# Solar Market Introduction

June, 2016

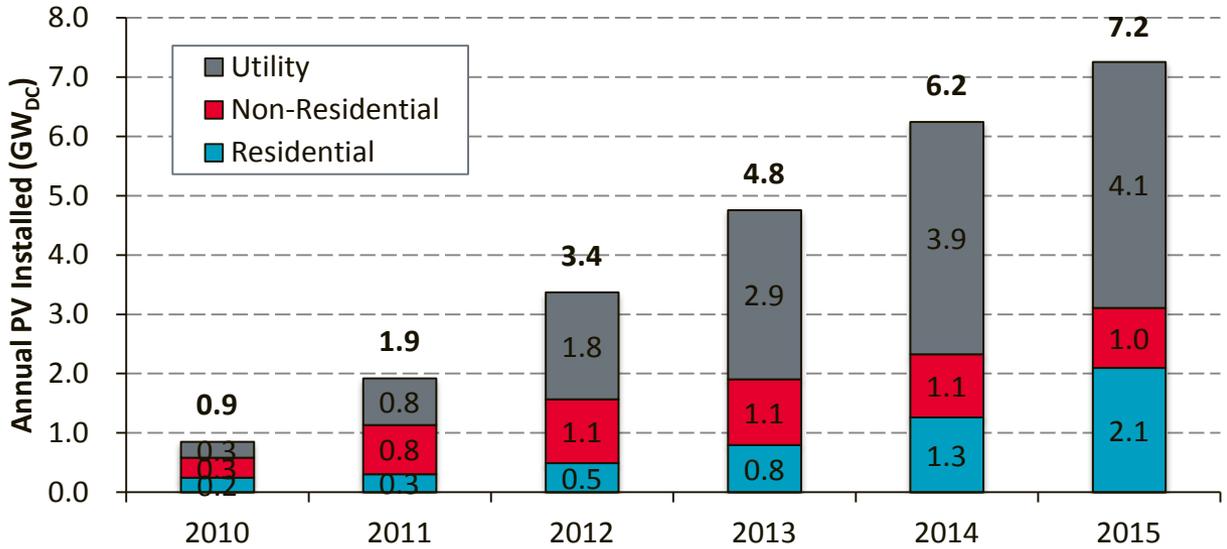
[energy.gov/sunshot](http://energy.gov/sunshot)

Elaine Ulrich, Ph.D

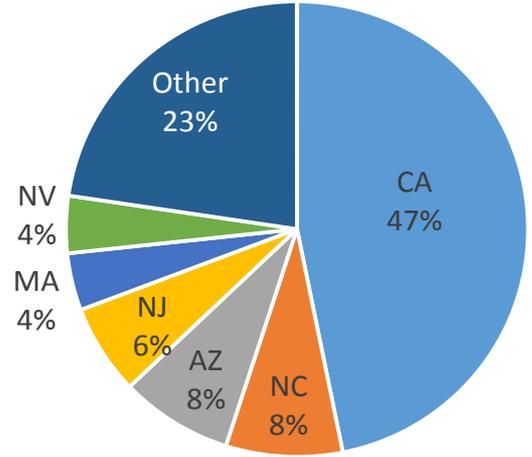
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# U.S. Installation Breakdown

U.S. Annual PV Installations by Market Segment



U.S. PV Market Share By State (Cumulative)

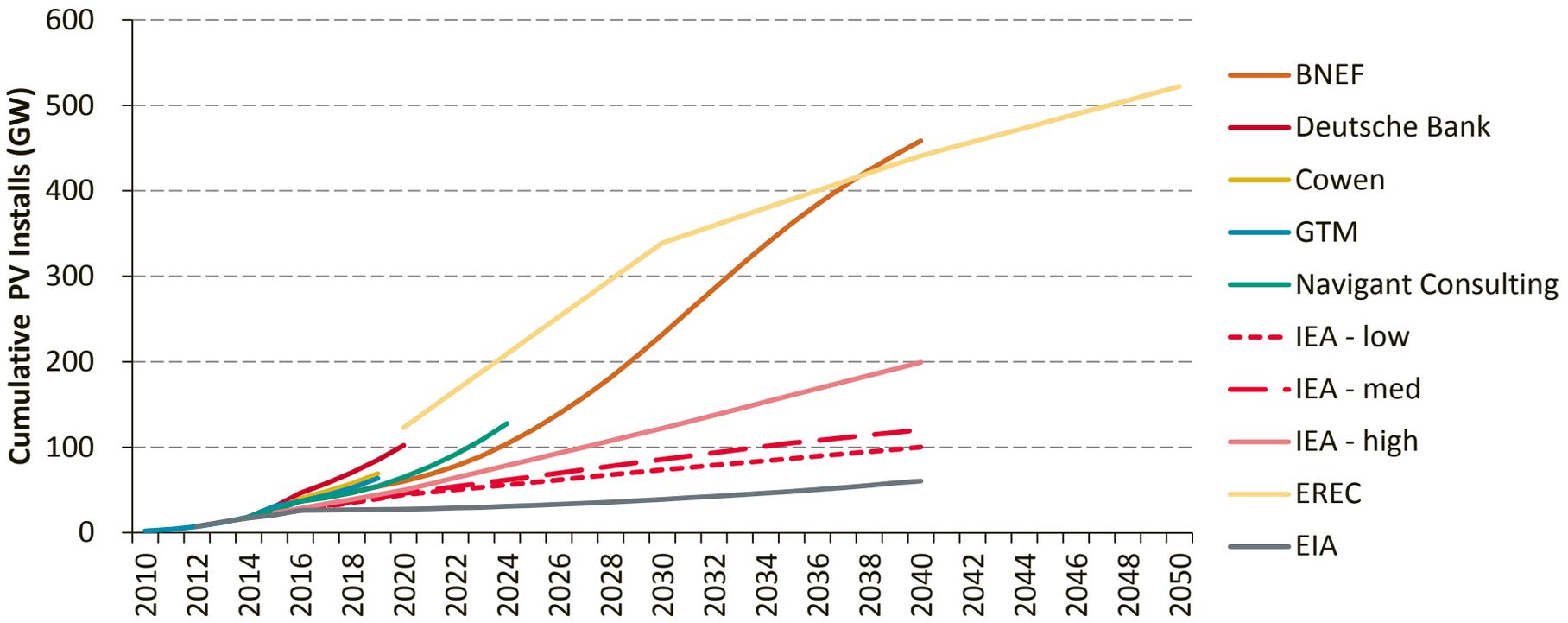


- U.S. Installed 7.3GW<sub>DC</sub> of PV in 2015, as of the end of 2015 there was 25.6 GW total of US Solar Capacity
- In 2015 top 5 states represented 72% of market, but 13 states installed more than 100 MW, in 2015, and 6 states have more than 1 GW of total PV capacity
  - California historically has been the largest market, but a growing number of states are beginning to install PV
  - The utility sector has emerged as the largest market for PV
- Solar is still only 1% of U.S. electricity generation



Source: GTM Research/SEIA : U.S. Solar Market Insight 2015 Year in Review.

# US System Projected Deployment



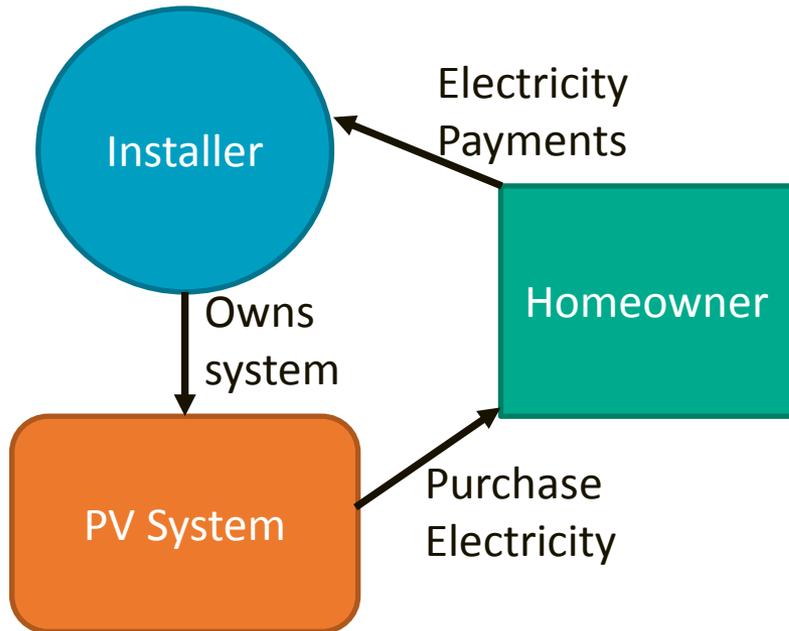
- US deployment projections vary substantially, with 2040 deployment projections ranging from 60 GW (EIA) to 460 GW (BNEF)
- Many projections show PV growing to 100-200 MW by the late 2030s
  - Under these scenarios, solar would represent 10-20% of total electric capacity, assuming there is not a substantial growth in capacity

# Major Solar Policies

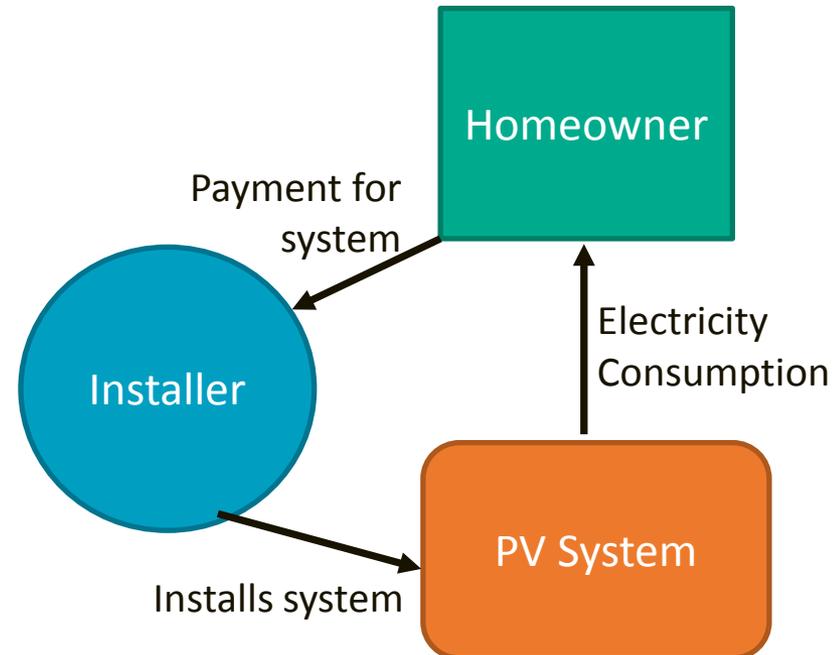
Federal	Investment Tax Credit (ITC)	A series of two federal income tax credits (Residential and Commercial) that allow owners of solar projects to deduct 30% of the project’s cost. This will begin to step down in 2020
State	Renewable Portfolio Standard (RPS)	A state requirement that electric utilities procure a certain amount of energy from renewable sources. 29 States, DC and Puerto Rico have RPSs. Requirements range from 10-100% of total electricity sales.
	Solar Renewable Energy Credits (SRECs)	A credit awarded to solar systems for each MWh of electricity they generate. Utilities can purchase SRECs to meet their RPS requirements; 9 states have SREC programs
	Net Metering	A utility billing mechanism that allows customers with distributed solar to sell unused electricity at retail rates
	Performance Based (Cash) Incentives	Historically some states have provided cash incentive to homeowners looking to finance PV. Recently, however, many performance based incentives (most notably California’s) have been discontinued due to the declining cost of solar

# Solar Ownership Models

## Third Party Ownership

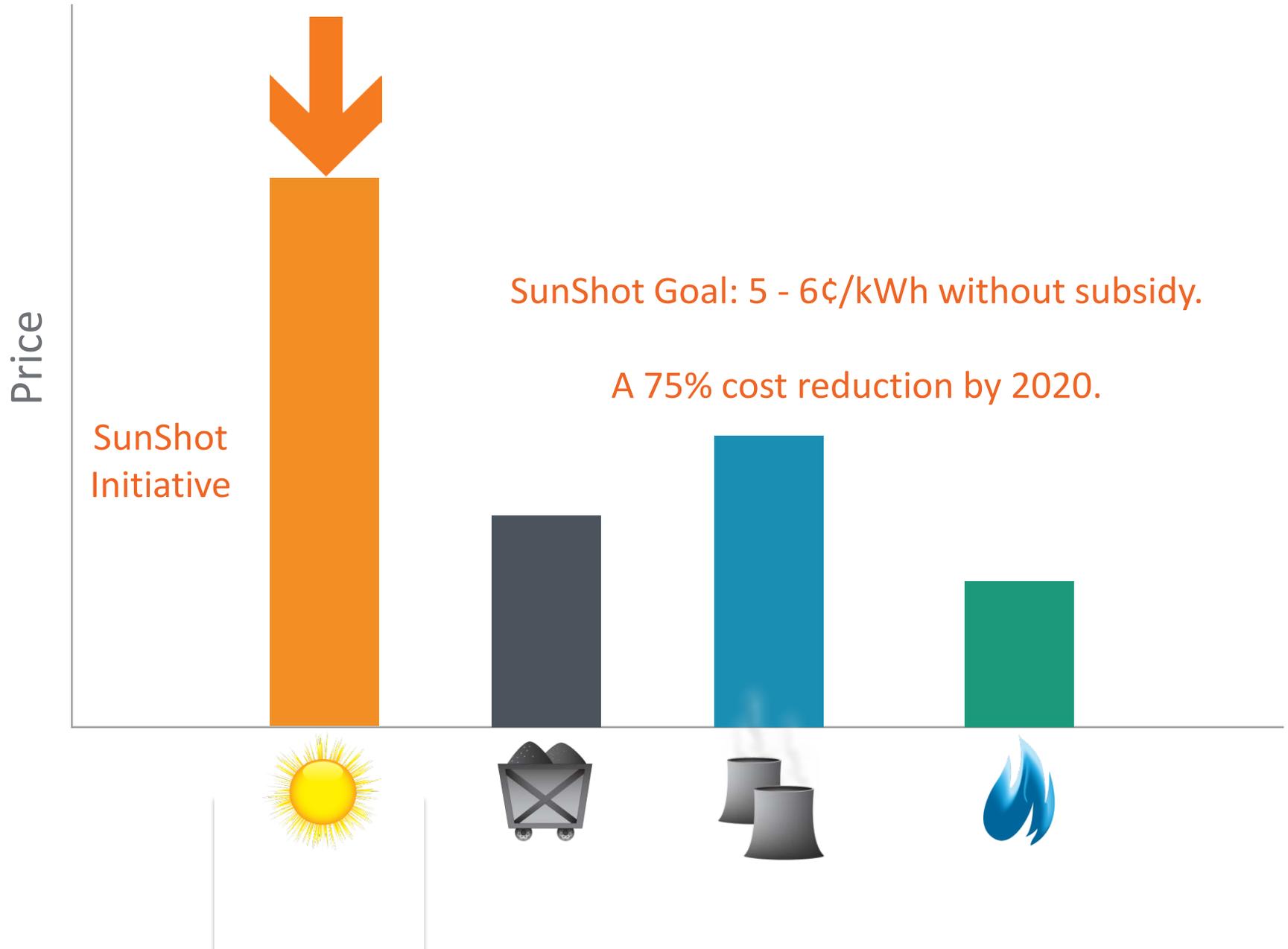


## Host Ownership

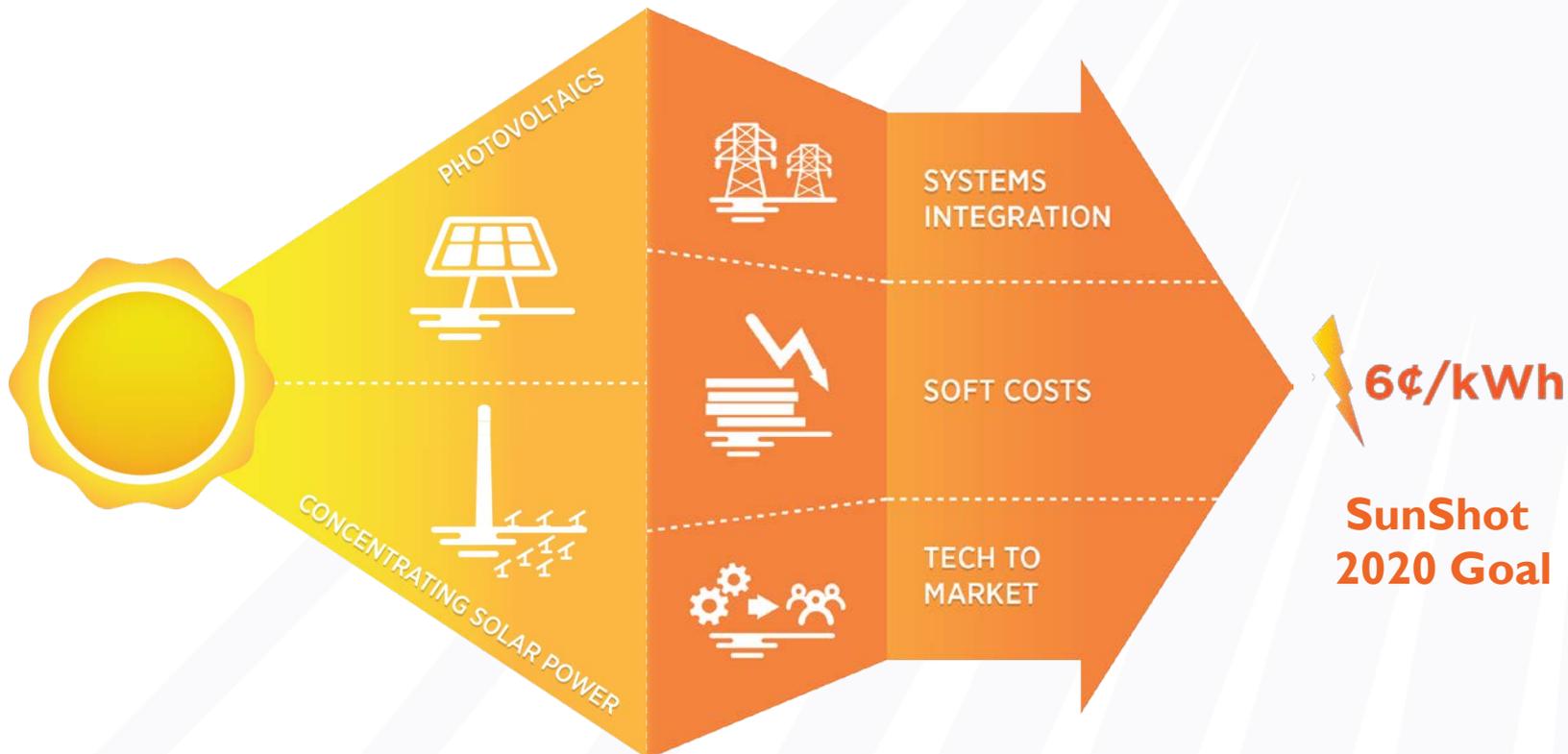


- Multiple ownership models exist for residential and commercial solar
- Under the most simple model, the home or property owner simply purchases the system (often with the assistance of a loan) and then receives the benefits of the electricity it generates
- Under a third party ownership model (which includes power purchase agreements and leases), the installer owns the system and the host agrees to purchase the electrical output at an agreed upon rate
  - Third party owned systems have accounted for as much as 90% of 2015 installations in some states

# Why DOE SunShot



# SunShot Program Structure



# SunShot Soft Costs Strategic Areas

## BUSINESS INNOVATION

Developing solar finance and business solutions to expand access to capital and accelerate market growth



## NETWORKING AND TECHNICAL ASSISTANCE

Empowering state and local decision-makers through timely and actionable resources, peer networks, and technical assistance



## DATA ANALYSIS

Harnessing big data analysis and technical solutions to support the many stakeholders involved in solar deployment



## TRAINING

Training an innovative solar workforce to enable the solar industry to meet growing demand

