



# California's Customer-Side Solar Programs

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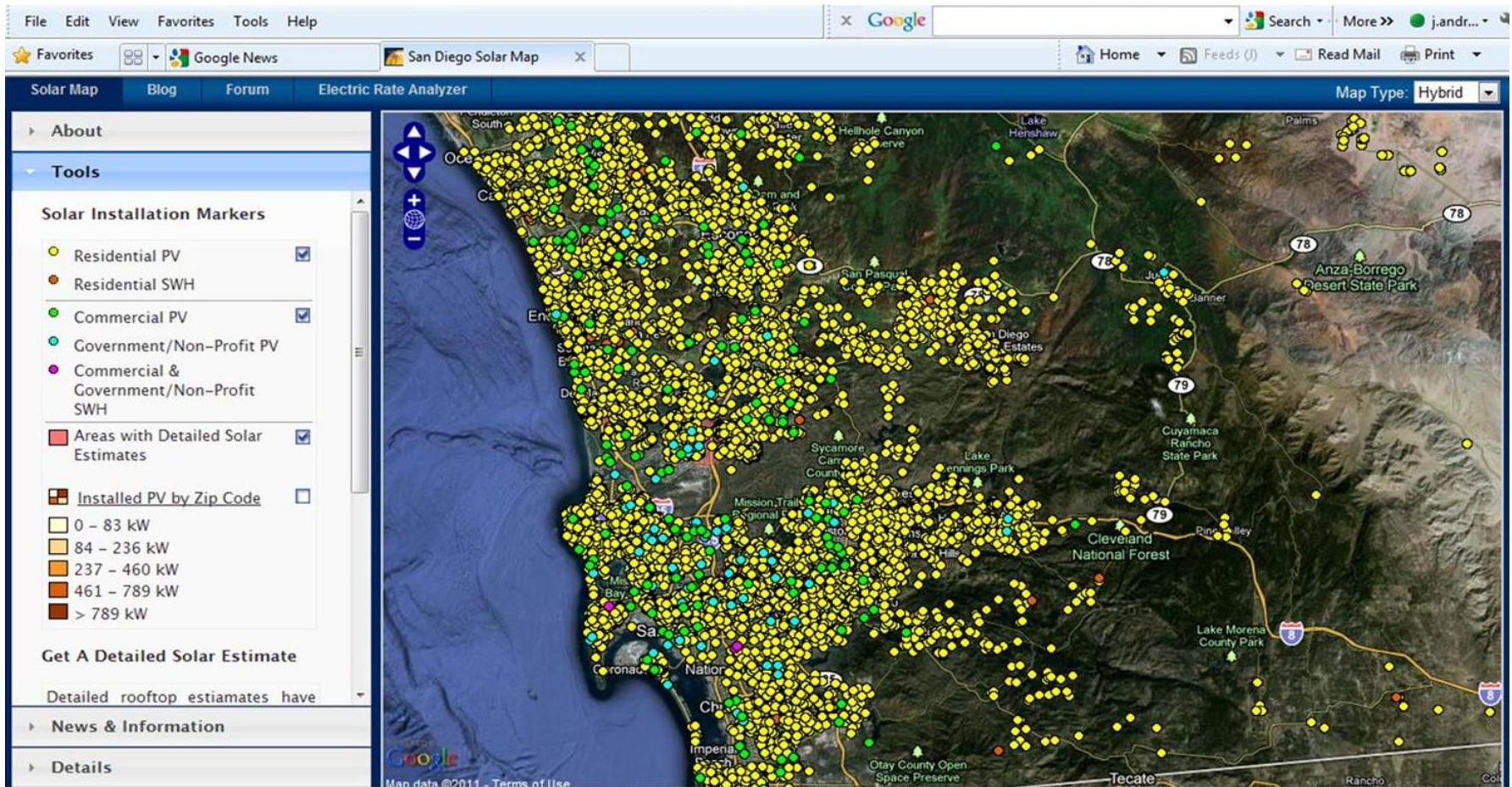
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# Distributed Solar in California: Growing, Evolving Markets



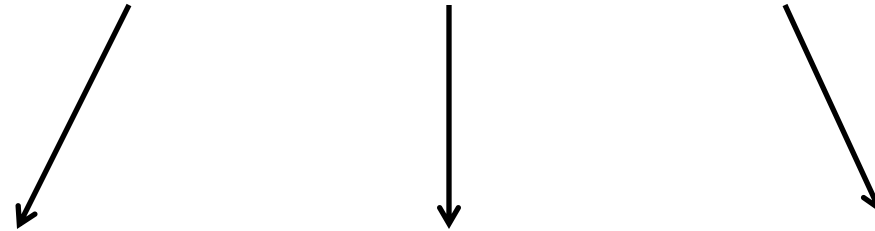


## California Solar Initiative

- Begun in 2006, CSI is by far the largest solar program of its kind in the country
- \$3.35 billion effort by California's Public Utilities Commission (CPUC), Energy Commission (CEC), and publicly owned utilities (POUs)
- Net-Metered installations - residential and nonresidential
- Emphasis on system performance and high-quality installs
- Overall Program Goals
  - 3,000 MW in customer-side solar-electric systems
  - Solar industry self-sufficient in 10 years
  - Solar on 50% of new homes



## California Solar Initiative (CSI): Funding and Goals



CPUC's  
California Solar  
Initiative

1,940 MW  
\$2,167 M

CEC's New Solar  
Homes Partnership

360 MW  
\$400 M

Publicly-Owned  
Utility Solar  
Programs

700 MW  
\$784 M

**Totals**  
**3000 MW**  
**\$3.35 B**



## Program Highlights

- In 2011, California became the first state in the U.S. to surpass the gigawatt (1,000 megawatts) mark for installed customer-sited solar capacity.
- 151,103 solar projects installed
- 1,565 MW installed
- Price declines significant and ongoing: 28 percent decrease in self-reported system costs since 2007
- <http://www.californiasolarstatistics.ca.gov>



## Program Highlights (Continued)

- Vastly increased consumer awareness and interest
- Over 25,000 California jobs; robust supply and installation ecosystem across the state
- Increase in solar projects in low and middle income markets
- Leasing and power-purchase models have greatly increased access and are moving solar into the mainstream
  - In 2012, 72% of residential systems were third party owned

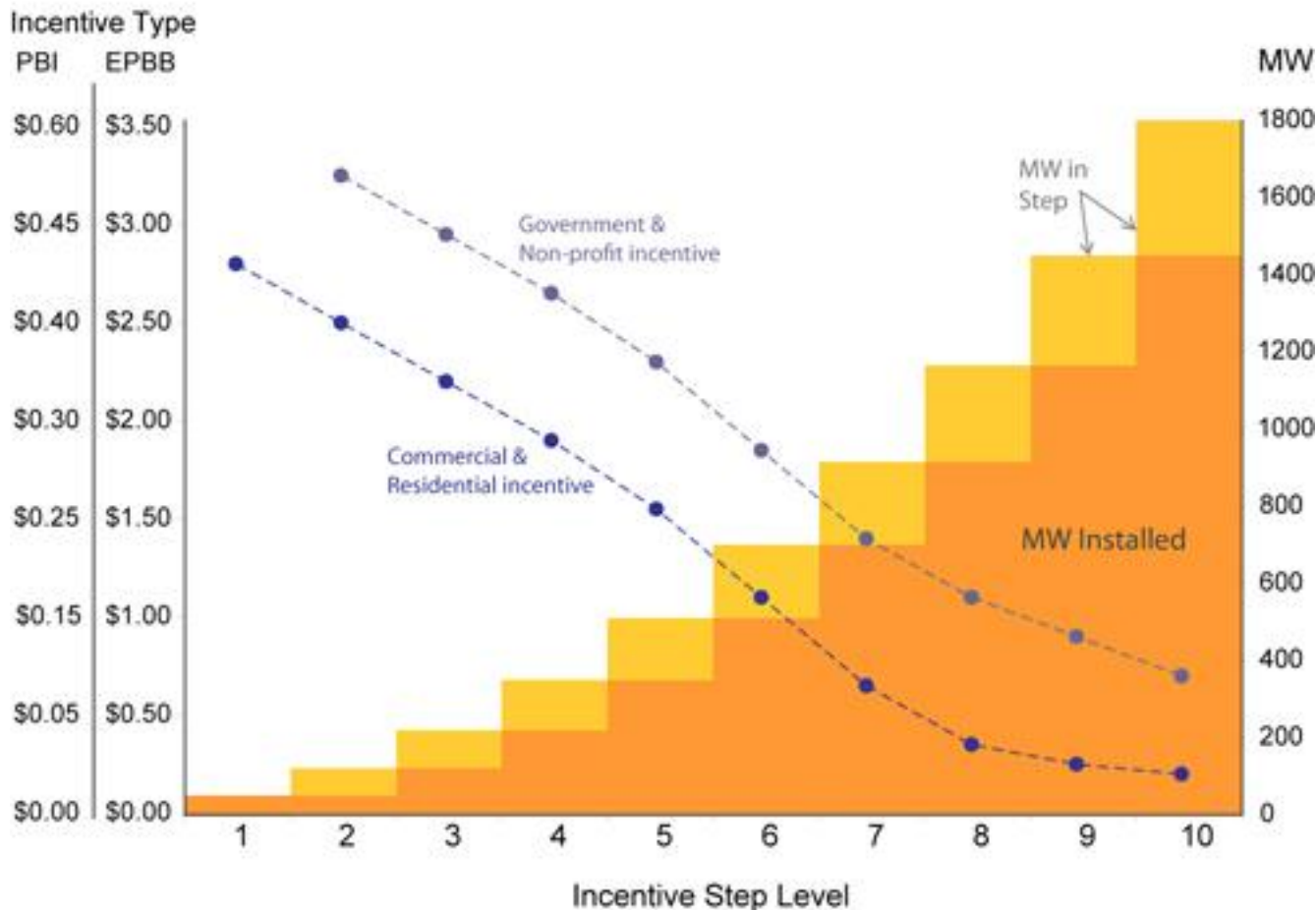


## Goals for Existing Buildings

- 1,940 MW installed capacity by the end of 2016.
- Self-sufficient solar industry
- Emphasis on system *performance*
- Program Components
  1. General Market Program
  2. Affordable Solar Housing : Single-Family (SASH) & Multifamily (MASH) Programs
  3. CSI-Thermal: General Market & Low Income Programs
  4. Research, Development and Demonstration (RD&D) Program



# CSI Program Design: Incentives Decline with Volume

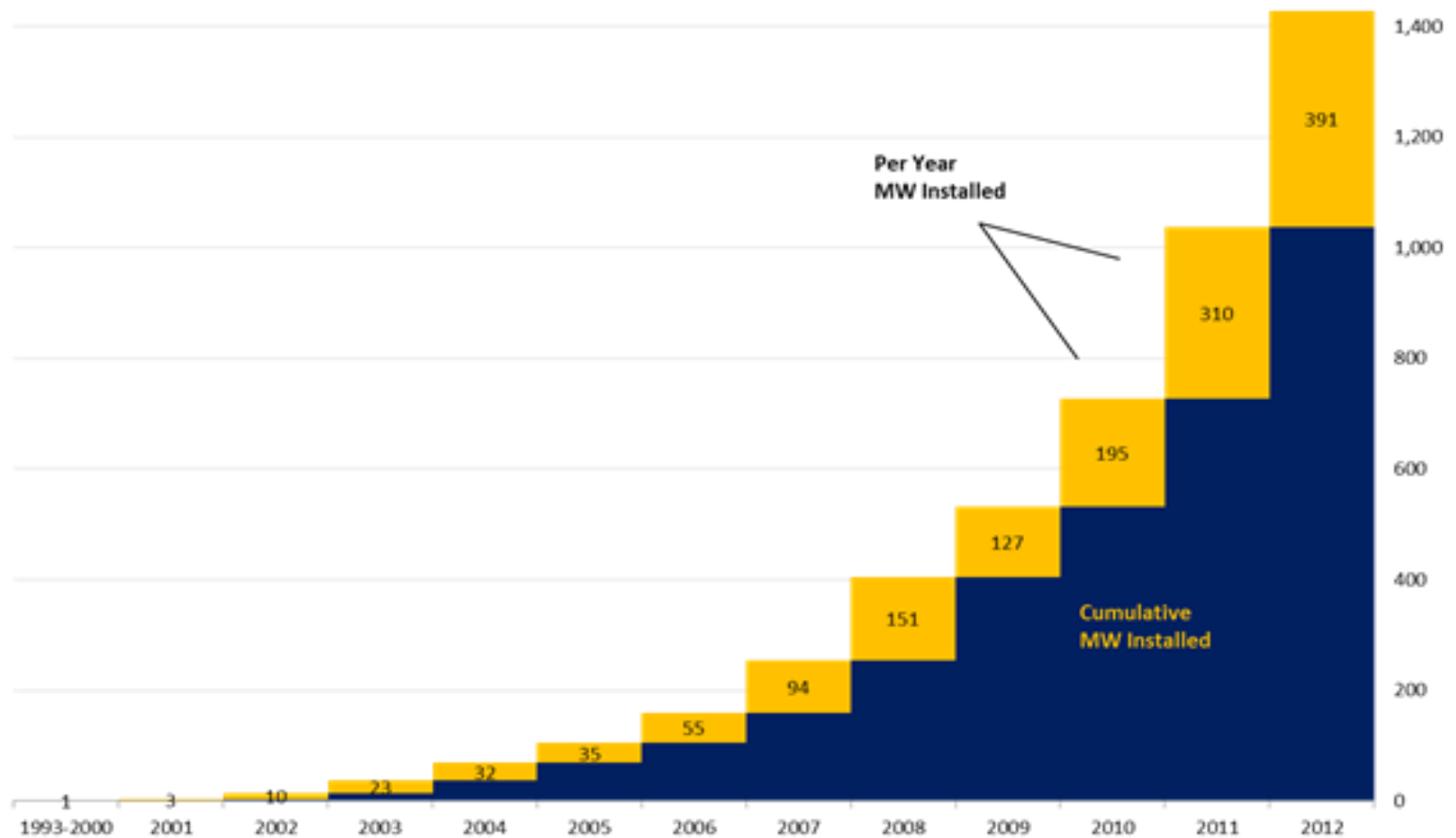


PBI: Performance Based Incentive, paid over 5 years, in \$ / kWh  
 EPBB: Expected Performance Based Buydown, paid upfront, in \$ / W





# CPUC Utility Territories: Actual Installations by MW, 1993-2012





## Goals for New Homes: New Solar Homes Partnership (NSHP)

- Create a sustainable market for solar homes and gain builder commitment to install solar energy systems
- High-performing solar systems on highly energy efficient homes
- 360 MW installed capacity by the end of 2016
- 50% of new homes with solar by 2020
- Self-sufficient solar industry



## NSHP Actuals: Housing Starts Rebounding, Builders Adopting

	Number of Applications	Number of Systems	Incentive Dollars (Millions)	MW (AC)
Under Review	138	2,480		
Reserved	637*	12,243	\$79.1	32.9
Installed	1,522*	7,612	\$69.4	25.5
Total	2,297	22,335	\$148.5	<b>58.4</b>

\*Payment claims are usually submitted for individual systems, not for an entire project. Projects that have not submitted payment claims for all systems within the project are included in the number of reserved applications.

<http://www.gosolarcalifornia.ca.gov/about/ns hp.php>



## NSHP Driving the Shift to Solar

- Solar adoption by homebuilders is picking up:
  - Finally: a recovering housing market!
  - Solar as sales enhancer: Demand (market pull) is leading builders to install solar as a proven “differentiator”
  - Builders are learning to meet EE requirements
  - Incremental cost of new-home solar is quite low: efficient homes need only small systems



## Value of State-Federal Collaboration

- Federal ITC complements state policies such as NEM, solar incentives and feed-in tariffs
- DOE facilitation of cross-cutting Issues
  - Permitting support tools, best practices, R&D
  - Solar America Cities and Sunshot are great examples
  - Zero Net Energy: bridge between renewables and efficiency
- Market data aggregation and intelligence
- Equipment standards support for quality assurance and grid resilience



Thank you!

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California Energy Commission