Solar Deployment and Policy

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About SEIA

• Founded in 1974
• U.S. National Trade Association for Solar Energy
  • 1,000 member companies from around the world
  • Members from across 50 states
  • Largest companies in the world as well as small installers
• Our Mission: Build a strong solar industry to power America
• Our Goal: 10 gigawatts (GW) of annual installed solar capacity in the U.S. by 2015
Key Solar Policies

• Federal 30% Investment Tax Credit (ITC) through 2016
  – Commercial credit drops to 10% on January 1, 2017
  – Residential credit expires January 1, 2017
• Renewable Portfolio Standards
• Net Energy Metering for Customer-Sited PV
  – Value dependent on rate structure, load profile and solar generation profile
• Interconnection Policy
• Improved Financing to Ease Tax Equity Crunch
Policy is Not Just About Incentives

- Net metering, interconnection and utility procurement policies define market access for solar.
- Carbon policy will play a role. Watch how 111(d) develops.
- For customer-sited systems, the permitting process has the potential to break a market through inefficiencies.
- The housing and financial markets impact financing options for solar.
- Trade policy matters
Solar Workforce

- 143,000 Solar Workers in 2013

U.S. Solar Employment

SEIA Rough Estimate  TSF National Solar Jobs Census
Solar Businesses

• 6,100 businesses engaged in the solar industry employing 143,000 people
• PV installations up 79% in Q1 2014 vs Q1 2013

Solar Installations by Quarter

 Yogurt Installations:

- CSP
- Utility
- Non-Residential
- Residential

SEIA/GTM Research U.S. Solar Market Insight

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Year to Date Solar Installations

Annual Solar Installations

Megawatts

CSP
Utility
Non-Residential
Residential

SEIA/GTM Research U.S. Solar Market Insight
Outcomes Driven by Different Policy and Market Structures

Cumulative Solar Capacity by State

- **California**
- **Arizona**
- **New Jersey**
- **North Carolina**
- **Nevada**
- **Massachusetts**
- **Hawaii**
- **Colorado**
- **New York**
- **New Mexico**
- **Pennsylvania**
- **Florida**
- **Texas**
- **Other**
- **Maryland**
- **Georgia**
- **Ohio**
- **Connecticut**
- **Oregon**
- **Tennessee**
- **Indiana**
- **Delaware**
- **Illinois**
- **Missouri**
- **Vermont**
- **Washington**
- **Wisconsin**

SEIA/GTM Research U.S. Solar Market Insight
System PV Prices Continue to Decline

- Typical residential system now about $3.73/W_{dc}
- Typical commercial system now about $2.53/W_{dc}
- Utility system now $1.77/W_{dc}
Non-Incentive Policies Impact PV System Costs

- Top two components largely driven by non-incentive policies.

Typical PV System Pricing Breakdown Q1 2014

- Supply Chain, Logistics, Customer Acquisition, Overhead and Markup
- Design, Engineering, Permitting, Interconnection
- Direct Labor
- Structural BOS
- Electrical BOS
- PV Inverter
- PV Module
- Base Total
- Low Pricing

SEIA/GTM Research U.S. Solar Market Insight
No Secret that Costs Matter

- Small changes can have a large impact
- Incentives decreased over the time shown in the chart
- Most new deployment in CA now done without rebates or PBIs

California Historical Solar Installations and Prices

- Sum of Installations (MW) - Residential
- Sum of Installations (MW) - Utility
- Average of Price ($/Wdc) - Residential
- Average of Price ($/Wdc) - Utility
- Sum of Installations (MW) - Non-Residential
- Sum of Installations (MW) - CSP
- Average of Price ($/Wdc) - Non-Residential
- Average of Price ($/Wdc) - CSP

SEIA/GTM Research U.S. Solar Market Insight. (Utility pricing reflects national average, not state specific value.)
Residential Retail Parity

- $2.00/Wdc with ITC at 30%
- $2.00/Wdc with no incentives

Source: NREL “Residential PV Breakeven Scenario Viewer”
Solar Installation Forecast

- 38 GW\textsubscript{dc} of PV and 2.6 GW\textsubscript{ac} of CSP expected to be online by the end of 2016.
Solid, Timely Data is Critical to Policy and Markets

- The Energy Information Administration has a critical role to play
  - Continue to improve solar coverage: more data, better data, faster access
- Policymakers/regulators depend on data and analysis to inform their decisions
  - Integrated Resource Plans (IRP) forecasting informs investments in assets that will exist for decades
  - Outdated or inaccurate data and can lead to sub-optimal decisions
- Markets thrive on accurate data
  - Consumers develop confidence
  - Financiers can lower costs when they have access to reliable data on asset performance
Thank you

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