

Solar, Today and Tomorrow: Status of Utility PV in the US Market

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- Solarbuzz was **founded in 2001**
- Solar **PV specific market-research team with global analyst team**
- Focused exclusively on understanding PV industry market & technology trends
- **Provide PV market research reports & client-specific consulting**
- **Cited** for over 10 years by global PV industry leaders & all **Tier 1 PV players**
- Part of NPD Group since 2010 (>1,800 clients)



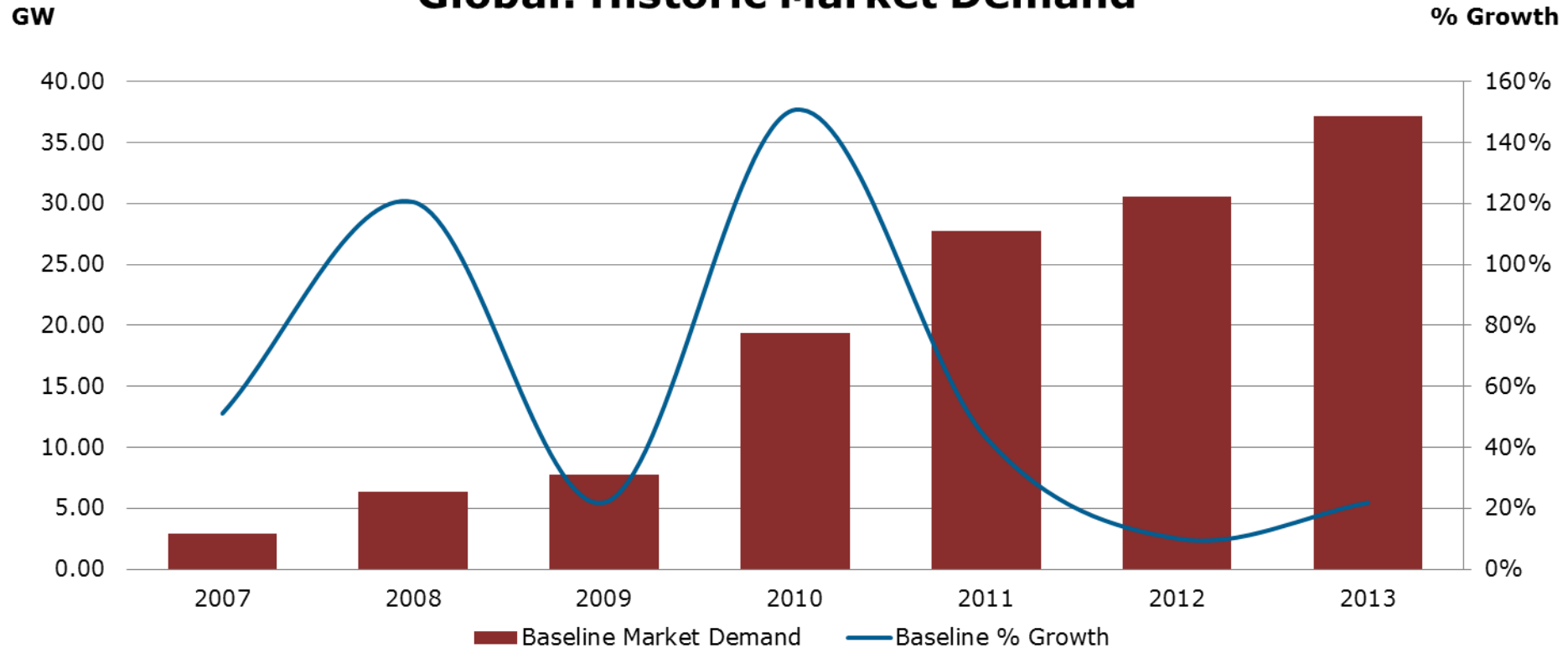
- Historic Global PV Market Review
- US PV Market Overview
- Utility PV in the US
- Utility PV Emerging Issues
- Conclusions



Historic Global PV Market Review



Global: Historic Market Demand

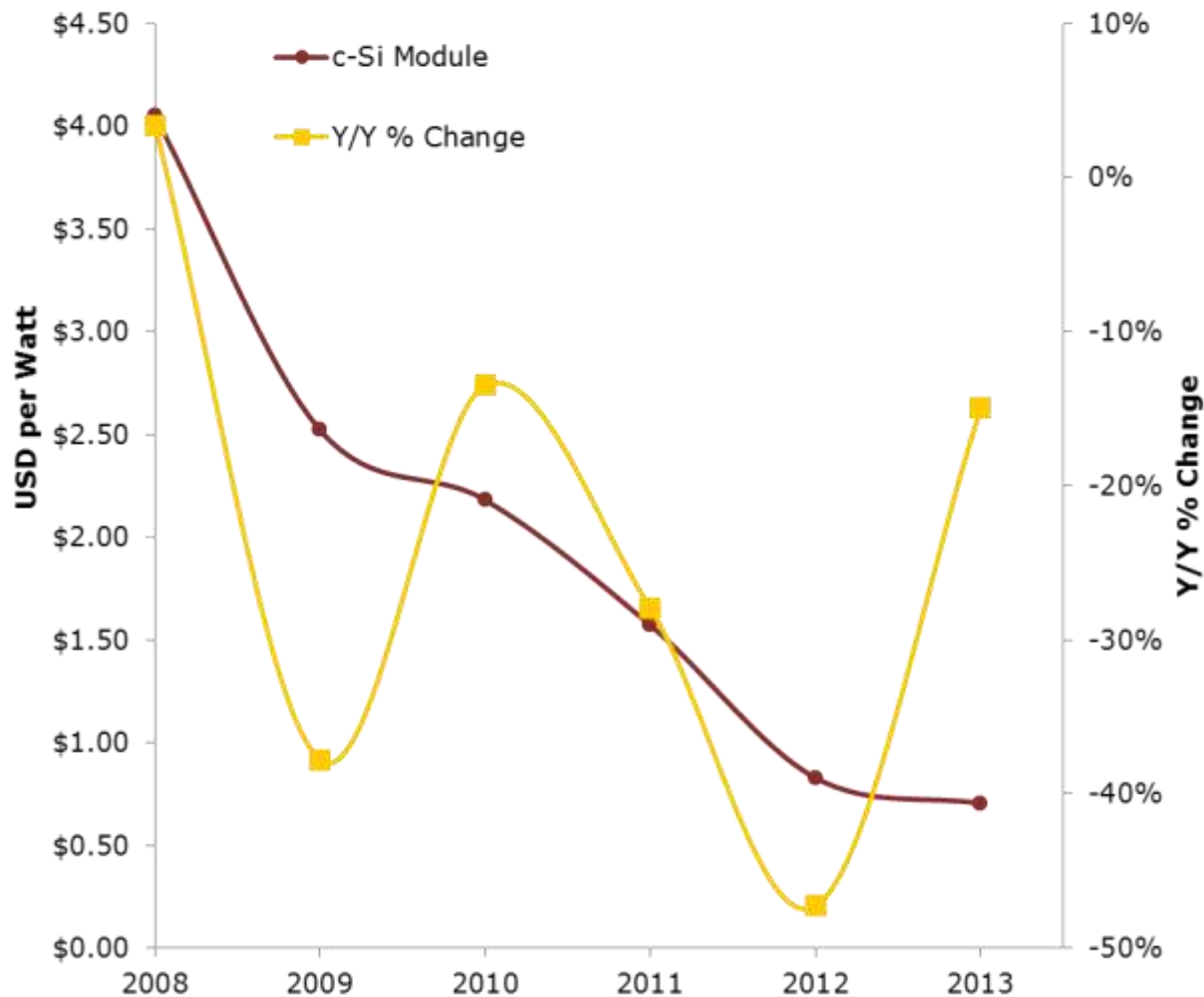


- Global PV end-market demand reached 37 GW in 2013.
- US market demand share exceeded 10%.
- US market becoming increasingly important on global level.

Historic Weighted Average Global c-Si Module ASP

Marketbuzz 2014

c-Si Module Global Weighted Average ASP



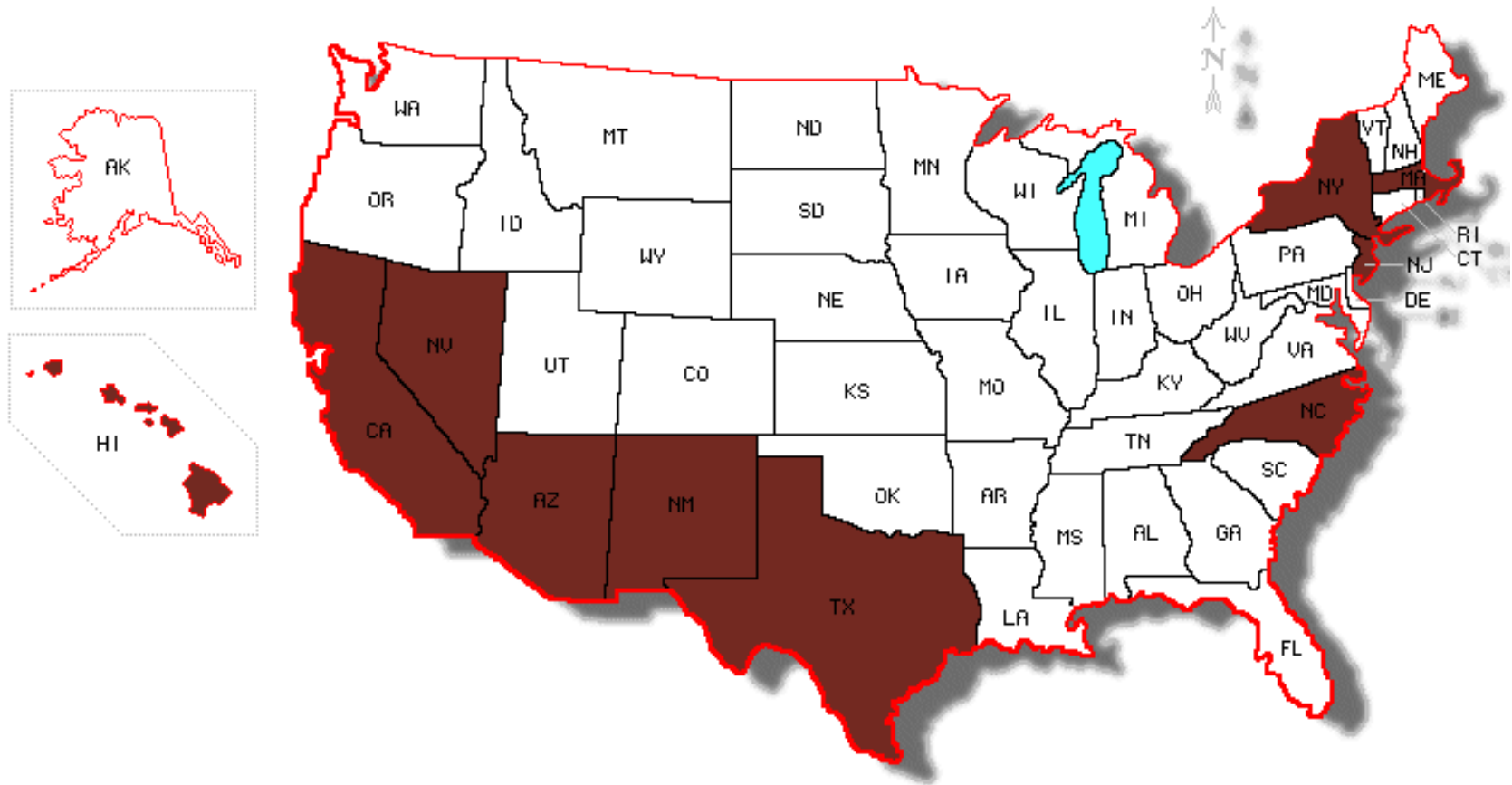
- While the c-Si module global weighted-average selling price (ASP) continued to decline in 2013, the rate of decline was much slower than in previous years.
- This pricing stabilization is a result of higher end-market demand in 2013 as well as a returning supply/demand equilibrium.

US PV Market Overview



2013 Market Rankings: Total PV Demand

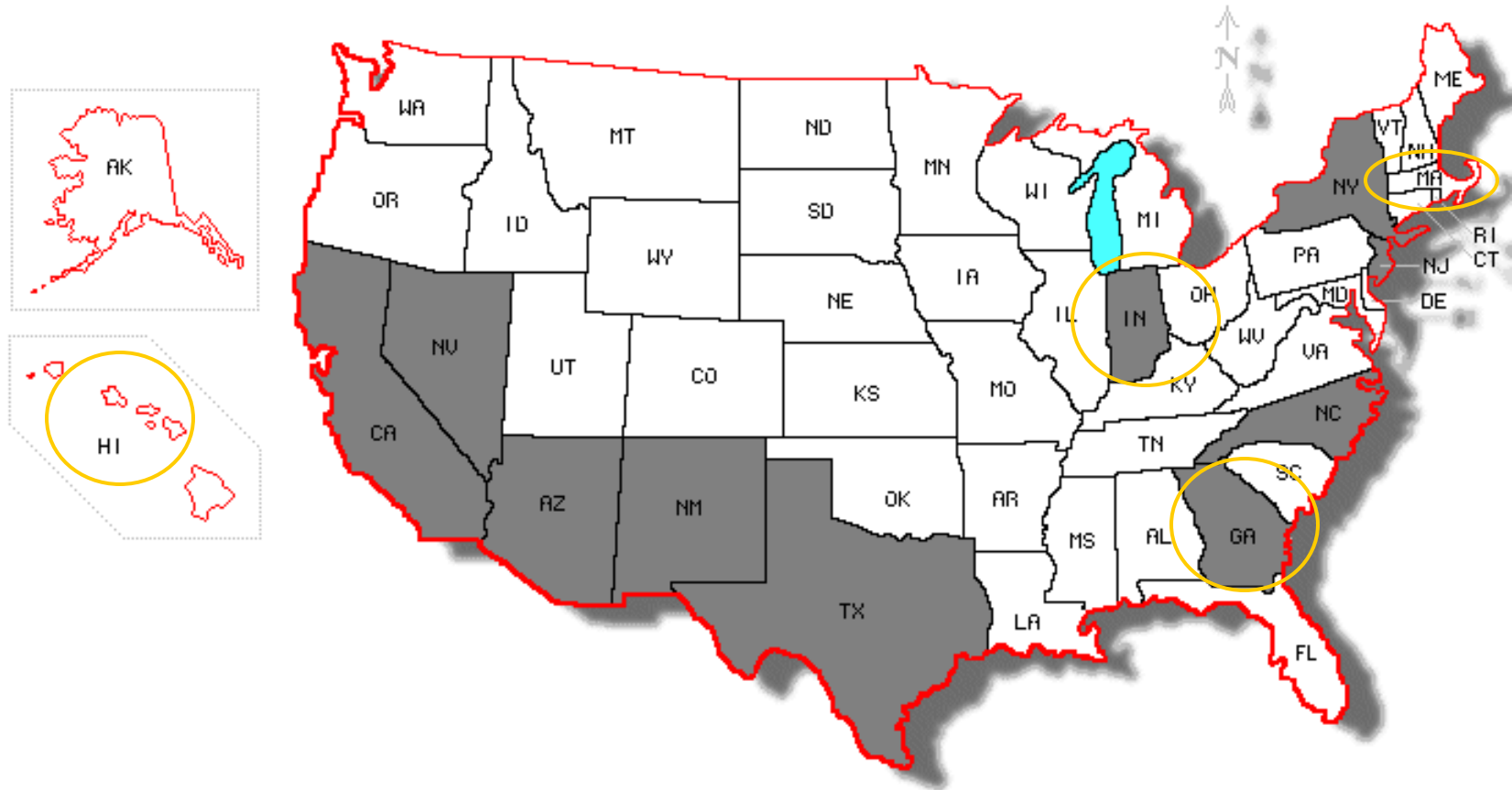
US Utility PV



- Top-10 states by total PV demand.
- Concentrated in the West and Southwest of the US

2013 Market Rankings: Utility PV

US Utility PV

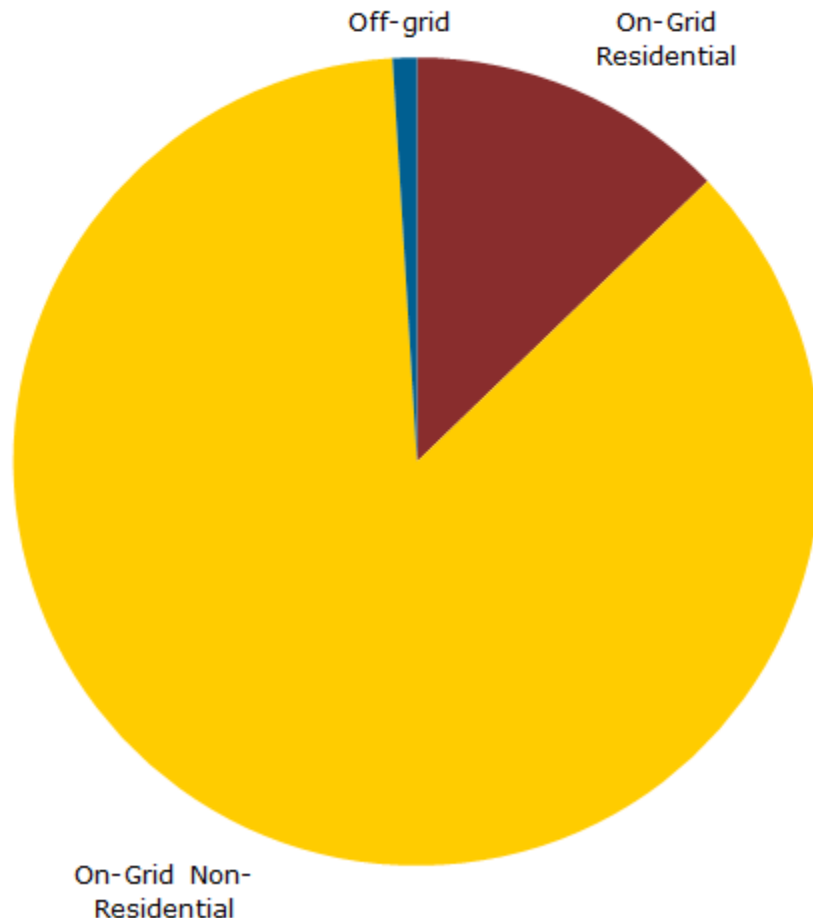


- Top-10 states by utility PV demand only.
- Eight of 10 total demand states are driven by utility PV segment

Total PV Market: Breakdown by Segment

US Utility PV

**2013 Total US Demand Customer Segment:
4.2 GW**

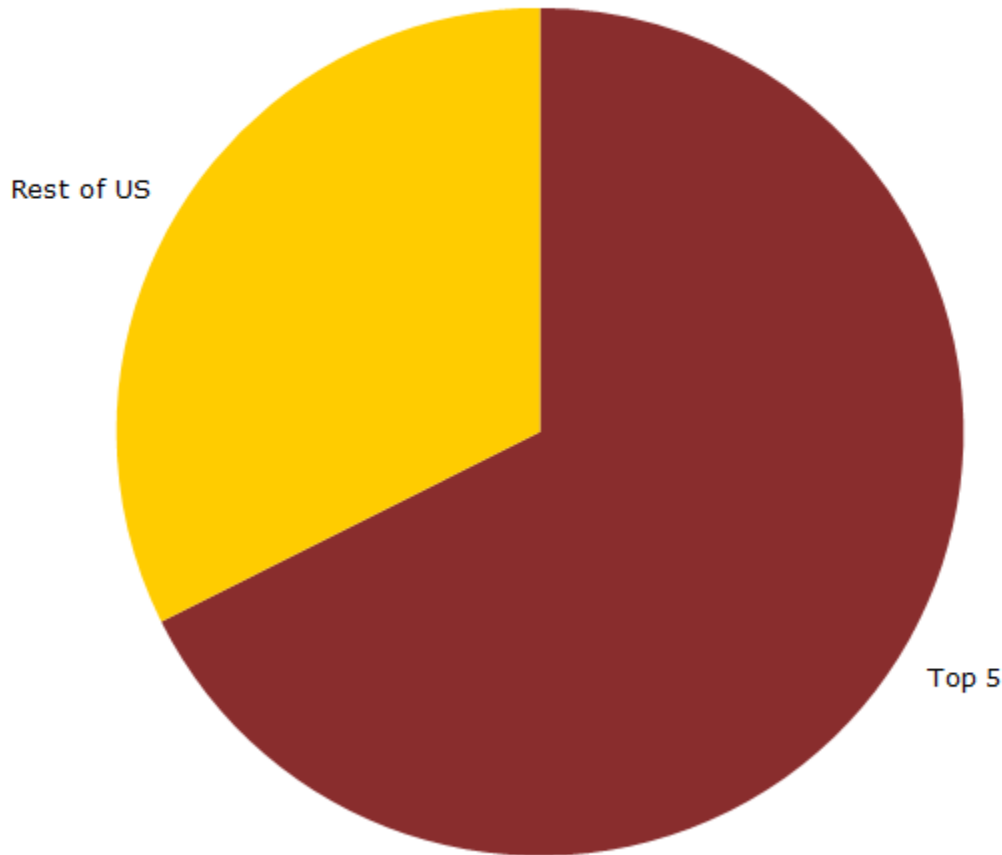


- US utility segment is 70% of on-grid PV market.
- Utility installations account for over 80% of non-residential installations.
- California is largest utility-scale market

Total PV Market: Breakdown by State/Region

US Utility PV

2013 Total US Demand by State: 4.2 GW

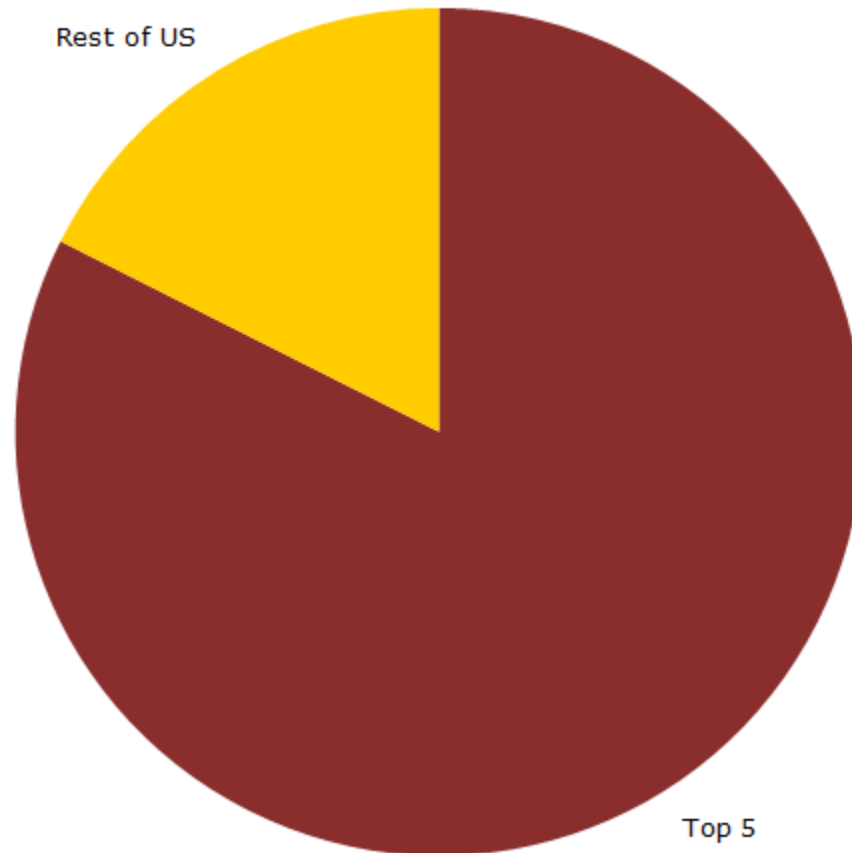


- Top 5 total PV market states:
 - California, North Carolina, Nevada, Arizona, New Jersey
- Top 5 states account for two-thirds of US PV market.

Utility PV Market: Breakdown by State/Region

US Utility PV

2013 Utility PV Demand by State: 2.6 GW

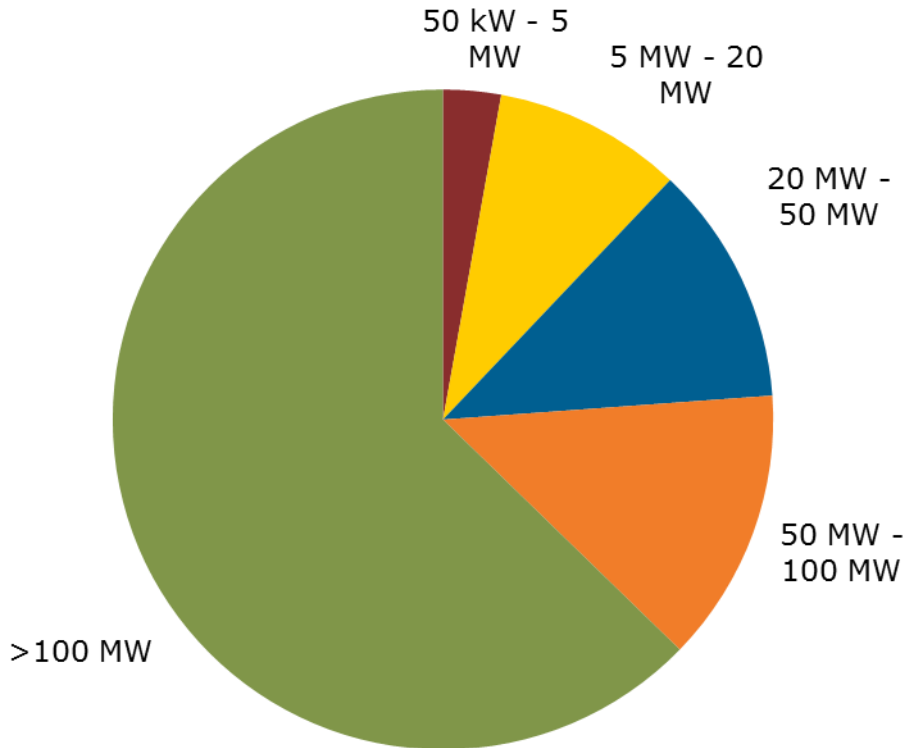


- Top 5 Utility PV demand states:
 - California, North Carolina, Nevada, Texas, Arizona
 - Top 5 states account for 80% of US utility market.

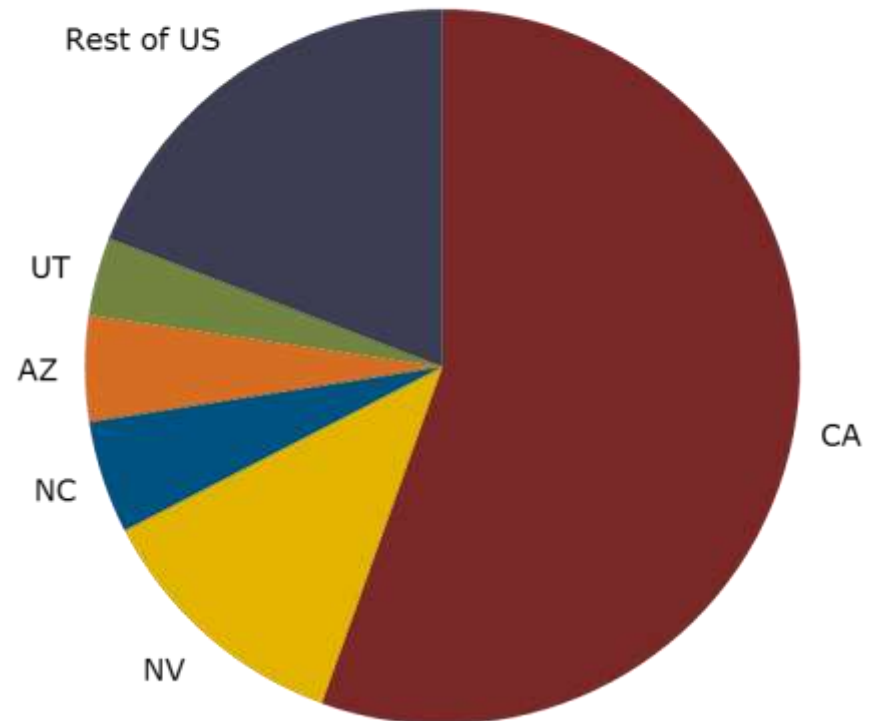
Utility PV Project Pipeline: Breakdown by System Size and State

US Utility PV

US Utility PV Pipeline by System Size: 43 GW



US Utility PV Pipeline by System Size: 43 GW



- Graphics depict PV project pipeline in the utility segment > 50 kW.
- Top 5 states account for >75% of pipeline.

Emerging Issues for Utility PV



Issues facing utility PV

US Utility PV

- Renewable Portfolio Standards
 - Regulatory changes
 - Competition from other energy sources
 - Increasing generation share and grid-stability
 - Electricity storage
 - Investment Tax Credit pending changes
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- US PV market strong and led by utility demand segment
 - Market still highly concentrated in relatively few numbers of states
 - Creates some increased risk of policy shock
 - Illustrates how much larger potential is for PV
 - Pending changes to policy and regulatory structures highlight need for further PV installed system price reductions and efficiency (component and generation) increases
 - Increasing shift to focus on BOS, labor, other cost reductions as component prices have declined dramatically but are now stabilizing
 - Opportunity for providers of solutions that can lower ISPs or boost power generation
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Thank-You!

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