

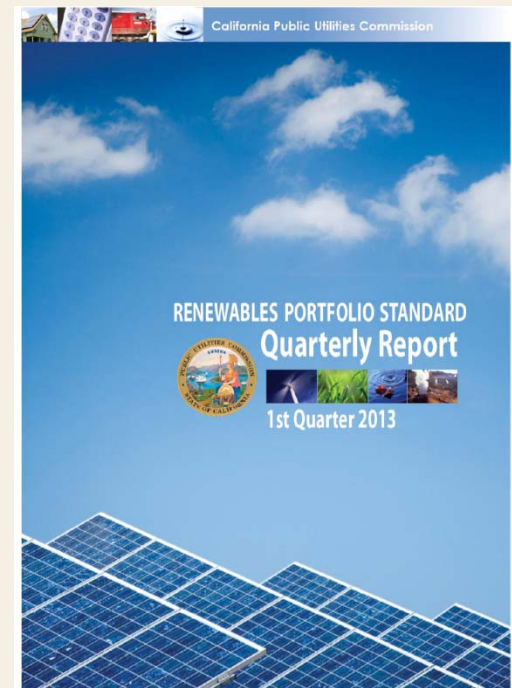
California Renewable Resources: Utility-scale and Distributed Solar Development

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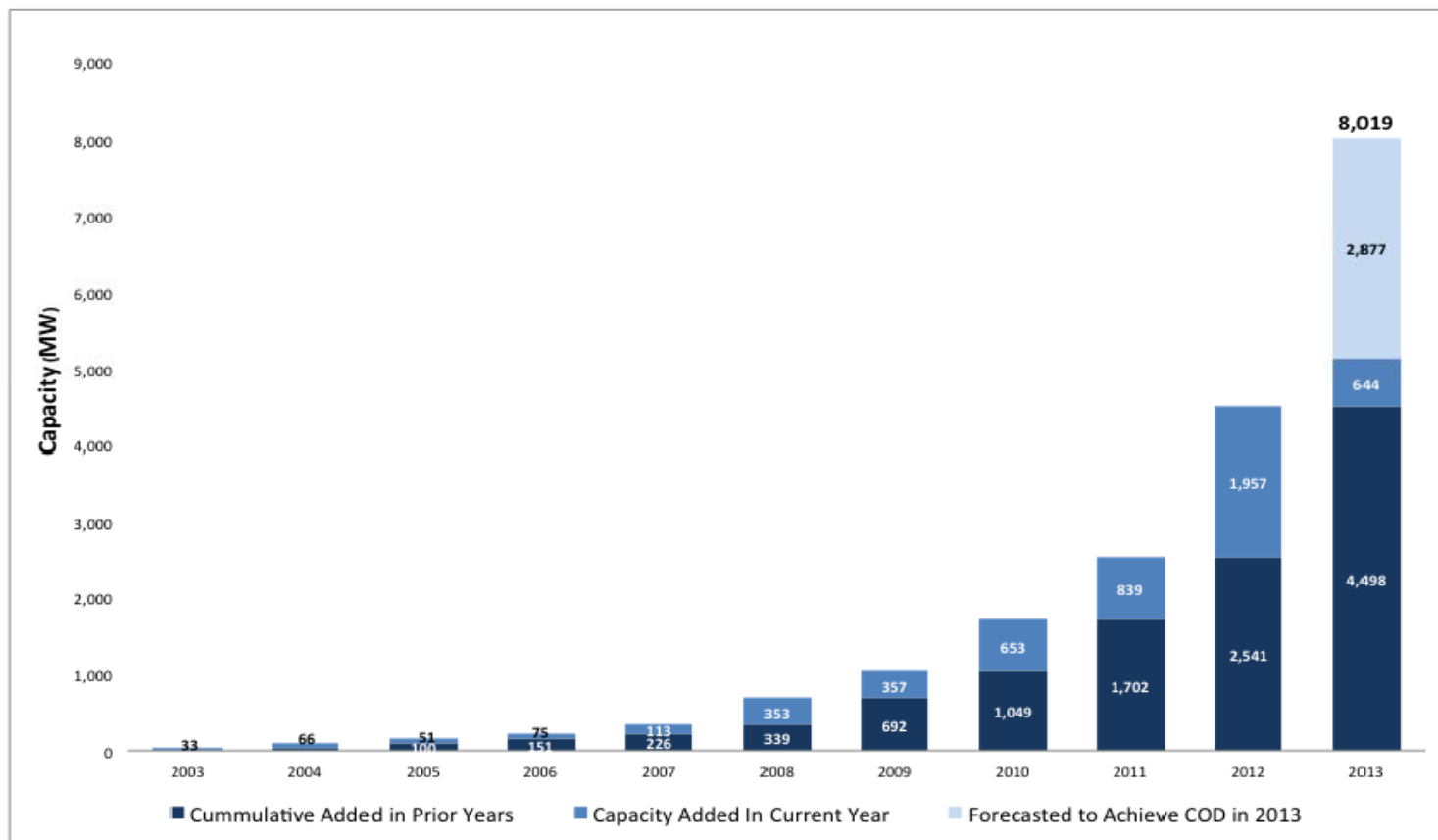
A Few Positive Observations about CA IOUs, RFOs/RFPs, Form PPAs, the RPS Markets, and Results to Date

- California has been the hottest renewable market, but 75/25 rules restrict out of state power
- Utilities have signed hundreds of PPAs to comply with RPS requirements; utilities are reaching compliance; not interested in utility scale pre-2017 COD solar projects
- Many wind and utility-scale solar projects have been financed and are under construction
 - IOUs got lucky that PV prices plunged
 - Consolidation around strength has helped
- IOUs seem to be focusing on distribution interconnected PV projects (<20 MW) (Q1 2013: IOUs file 70 contracts for 180MW)



Hottest Renewables Market: California*

Figure 1. RPS Capacity Installed Since 2003, By Year⁵

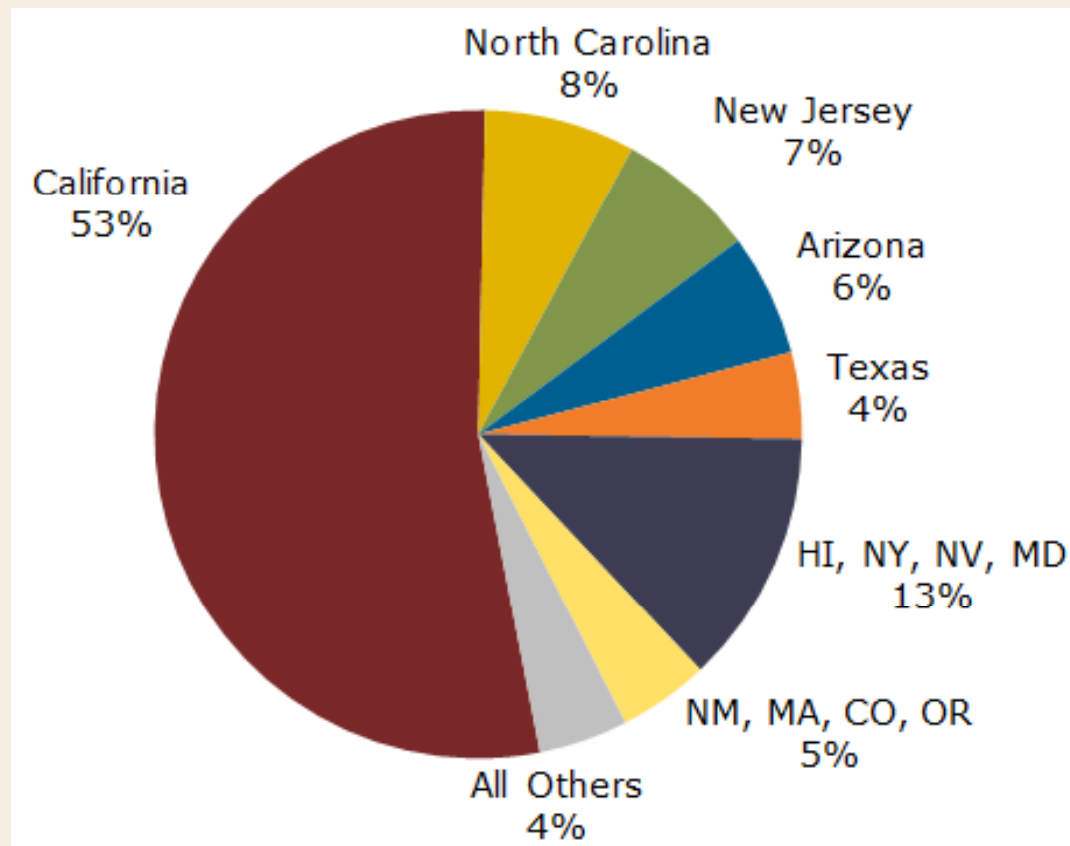


Source: CPUC's RPS Quarterly Report Q1 2013

* (other than Texas's wind market)

Hottest Solar Market: California

976 MW of New Solar PV Capacity Installed in Q2'13



Source: NPD Solarbuzz [North America PV Markets Quarterly](#) report

A Few Less Positive Observations about CA IOUs, RFOs/RFPs, Form PPAs, the RPS Markets, and Results to Date

- Using significant market power (*oligopsony*), utilities created RPS RFO/RFP programs that are onerous and difficult for renewable and other utility scale project developers
- Form PPAs (and utility negotiators) pushed more and more risk onto developers (e.g., SCE's Buyer Curtailment rights, PG&E's CAISO availability standards)
- Due to RAM pricing and unsophisticated new developers willing to sign anything, massive competition has driven PPA contract prices down significantly -- to the point of slim or even negligible returns
- The results:
 - Old higher priced PPAs die (killed?)
 - Many unfinancable PPAs
 - Fewer utility scale PPAs in future
 - ▶ CPV dead; CSP dying; PV is dominant
 - What about post-2016 COD projects?



Uncertainties/Opportunities About The Future of CA Solar Markets

- Expiration of Solar ITC in 2016 is looming
- SGIP/SCI incentives have diminished
- Battle lines over distributed generation and net energy metering are being drawn
 - 5% statewide cap/1MW customer cap
 - SDG&E “network usage charge” was rejected
 - CPUC cost/benefit study underway; residential rate design is also being examined
 - Various legislation is being considered (i.e., AB 327)
- Energy Storage Procurement is coming:
 - Statewide target: 1.3 GW; RAM mechanism/pricing
 - IOU RFO proposals due 1/1/2014

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