



California's Energy Storage Framework and Update

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Commissioner

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California Storage Law and Policy

- California has supported energy storage through research and development, demonstration projects, and procurement mandates
- Assembly Bill 2514 (Skinner), signed into law in 2010, required the CPUC to consider whether to set procurement targets for electric storage by October 2013





Storage Target: Guiding Principles

1. Optimization of the grid, including peak reduction, contribution to reliability needs, or deferment of transmission and distribution upgrade investments;
2. Integration of renewable energy;
3. Reduction of greenhouse gas emissions to 80 percent below 1990 levels by 2050, per California's goals.

Law requires storage to be “viable” and “cost-effective”





Procurement Targets

Storage Grid Domain (Point of Interconnection)	2014	2016	2018	2020	Total
Southern California Edison					
Transmission	50	65	85	110	310
Distribution	30	40	50	65	185
Customer	10	15	25	35	85
Subtotal SCE	90	120	160	210	580
Pacific Gas and Electric					
Transmission	50	65	85	110	310
Distribution	30	40	50	65	185
Customer	10	15	25	35	85
Subtotal PG&E	90	120	160	210	580
San Diego Gas & Electric					
Transmission	10	15	22	33	80
Distribution	7	10	15	23	55
Customer	3	5	8	14	30
Subtotal SDG&E	20	30	45	70	165
Total - all 3 utilities	200	270	365	490	1,325

ESPs/CCAs must procure 1 percent of their annual peak load by 2020.





Procurement Process

- Allows for different ownership models, end uses, and technologies
- Transmission and distribution storage must be procured via a competitive RFO
- Utilities may own up to 50 percent of storage across Transmission, Distribution and Customer grid domains
- Utilities may shift up to 80 percent of MW between Transmission and Distribution grid domains and 85 MW of customer storage to T&D
- Utilities include a cost-effectiveness analysis of all bids received in RFOs; may defer up to 80 percent of MW to later periods with a showing of unreasonableness





Biennial Solicitations

- 2014 RFO – 66.3 MW
 - Mix of technologies including lithium ion batteries, zinc air batteries.
- 2016 Procurement Plan - 159.3MW- Load following, ancillary services, substation deferrals, bill management, permanent load shifting
- 2018 Procurement Plan to be filed March 2018





Other Storage Procurement

- 2013 Southern California Edison preferred resources RFO
 - 63 contracts executed; 23 energy storage
 - 50 MW storage min- 264.14MW procured (100 MW BTM)
 - Lithium-ion batteries, thermal storage
- 2016 Aliso Canyon expedited procurement
 - 8 projects totally 99.5MW; 3 year and 10 year terms
 - Lithium-ion batteries





Storage – Customer Side Solutions

- On the customer side of the meter we see increased interest in storage technologies through our Self-Generation Incentive Program (SGIP)
- (SGIP) program allocate 75% of the program budget to energy storage technologies.
Estimated additional installation of 218-261 MW
- AB2868 500 MW distributed and customer storage mandate
- Need to identify more GHG reduction opportunities





CPUC / Grid Operator Coordination

- 2014 Joint Energy Storage Roadmap
- Station Power
- Multi-Use Applications
- Integrated Resource Plans





Thank you!
For Additional Information:
www.cpuc.ca.gov

