



California's Energy Storage Mandate: Electricity Advisory Committee Meeting

June 17, 2014



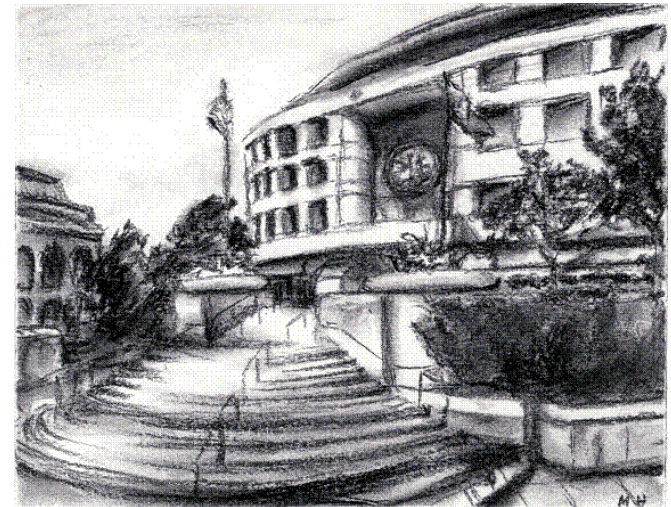
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CPUC Mission

The CPUC serves the public interest by protecting consumers and ensuring the provision of safe, reliable utility service and infrastructure at reasonable rates, with a commitment to environmental enhancement and a healthy California economy.



We regulate utility services, stimulate innovation, and promote competitive markets, where possible, in the communications, energy, transportation, and water industries.



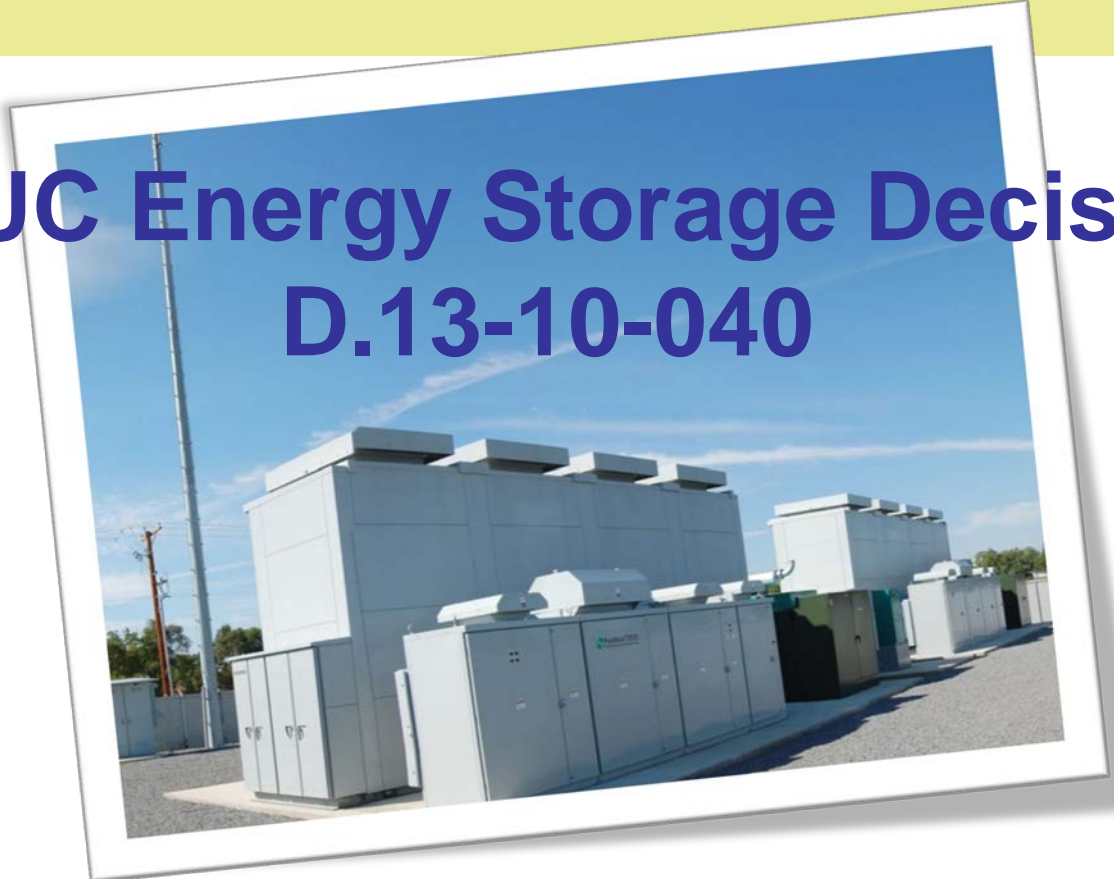


Overview of CPUC Energy Oversight

- The CPUC regulates the investor-owned electric and gas utilities in California that collectively serve over two-thirds of total electricity demand and over three-quarters of natural gas demand throughout California.
- The CPUC has played a key role in making California a national and international leader on a number of energy related initiatives designed to benefit consumers, protect the environment, and support California's economy.
- The CPUC develops and administers energy policy and programs to serve the public interest and ensures compliance with decisions and statutory mandates.



CPUC Energy Storage Decision D.13-10-040



1,325 MW in operation by 2024





AB 2514 (Skinner, 2010)

- **Directed CPUC to open a proceeding to:**
 - Adopt procurement targets, *if appropriate*, for each LSE* to procure viable & cost-effective energy storage
- **CPUC to re-evaluate its determinations every three years**
- **Future utility Renewable Portfolio Standard (RPS) plans must comply w/ storage decision**

*LSE = Load serving entity





Energy Storage Rulemaking (R.10-12-007)

- **Established framework of storage applications/use cases**
 - 21 end uses / 7 use cases
 - Included voltage support and EV charging
 - Distinct types of storage considered from policy perspective
- **Identified regulatory barriers to storage deployment**
 - Lack of defined interconnection rules
 - Lack of cohesive regulatory process
- **Preliminary cost-effectiveness analysis of selected use cases by EPRI & CEC-funded DNV KEMA studies**
- **Proceeding relied on collaboration among stakeholders: Utilities, storage industry, ratepayer advocates and NGOs**





CPUC Storage Decision Highlights

On October 17, 2013, the CPUC approved D. 13-10-040 to establish storage procurement targets and policies for load-serving entities (utility & non-utility):

- **IOU targets: 1,325 MW of storage by 2020 in 4 biennial solicitations (starting December 2014), as follows;**
 - PG&E 580 MW
 - SCE 580 MW
 - SDG&E 165 MW
- **Above targets divided into three “storage grid domains”:**
 - Transmission-connected,
 - Distribution-level and
 - Customer-Side of the Meter applications;
- **Non-utility LSEs targets ~ 1% of peak load by 2020;**



Types of Energy Storage Systems

STORAGE GRID DOMAINS (Grid Interconnection Point)	REGULATORY FUNCTION	USE-CASE EXAMPLES
Transmission-Connected	Generation/Market	(Co-Located Energy Storage) Concentrated Solar Power, Wind + Energy Storage, Gas Fired Generation + Thermal Energy Storage
		(Stand-Alone Energy Storage) Ancillary Services, Peaker, Load Following
	Transmission Reliability (FERC)	Voltage Support
Distribution-Connected	Distribution Reliability	Substation Energy Storage (Deferral)
	Generation/Market	Distributed Generation + Energy Storage
	Dual-Use (Reliability & Market)	Distributed Peaker
Behind-the-Meter	Customer-Sited Storage	Bill Mgt/Permanent Load Shifting, Power Quality, Electric Vehicle Charging



Storage Procurement Targets

Energy Storage Procurement Targets (in MW)²²

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
Sub total 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
Sub total 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
Sub total SDG&E	20	30	45	70	165
Total - all 3 utilities	200	270	365	490	1,325



Flexibility Allowed in Meeting Targets (1)

- **After a solicitation, Utility may request a deferment of up to 80 percent of targets with an affirmative showing of:**
 - Unreasonable cost burden or
 - Insufficient number of operationally viable project offers
- **Deferments added back in for the next solicitation**
- **Must make up delayed procurements by 2020**



Flexibility Allowed in Meeting Targets (2)

- **Over-procurement in one year can be applied to subsequent solicitation**
- **Utility can shift up to 80% of targets between T & D grid domains**
 - No shifting of target into or out of the customer-side domain
- **No portion of the procurement targets can be traded among the utilities.**



Project Eligibility

- **Eligible storage projects must address one or more policy goals:**
 - Grid optimization
 - Integration of renewable energy; and
 - Reduction of GHG emissions
- **Procurements in other proceedings/programs can be counted**
- **Pumped Storage >50 MW not eligible**
- **To count against targets, projects must be:**
 - Installed and operational after January 1, 2010
 - In operation no later than December 31, 2024



Additional Directives in the Decision

- **Utility procurement applications due March 1, 2014 for first competitive solicitation to be held in December 2014**
 - Proposed types of storage resources to be procured, including Quantities and Operational requirements
 - Proposed procurement details, including PPAs
 - Bid evaluation protocols
- **Utility-owned storage limited to 50% of cumulative targets across all grid domains**
- **CPUC staff is ordered to conduct a comprehensive evaluation of the program in 2016 and 2019**



Where we are now

- **Utilities filed applications containing procurement plans on February 28th.**
 - CPUC is currently reviewing applications and will consider additional stakeholder comments before approving.
- **Pending approval of the procurement plans, the utilities will issue the first RFO in December 2014**



Procurement in other proceedings

- **SCE Local Capacity Requirement RFO**
 - SCE issued RFO in late 2013
 - Number of distributed energy storage bids received
 - SCE will likely request approval for contracts in this summer
 - Monitoring best practices from this process for storage proceeding
- **NEM/Storage interconnection rules**
 - CPUC adopted new rules for storage paired with NEM facilities in May
 - Encourages customer-side storage paired with NEM facilities by allowing certain fee exemptions and a streamlining the interconnection process.
 - Establishes consistent rules across utility territories



Thank you!

For Additional Information:

www.cpuc.ca.gov

“energy storage” web page

