# DOCKETED

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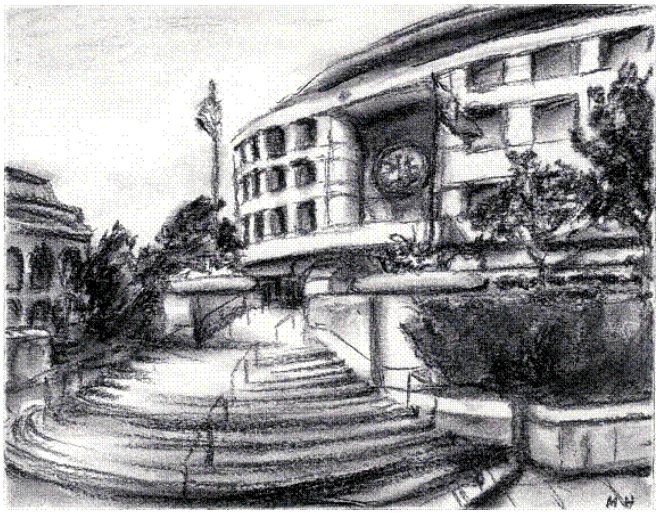
# California's Energy Storage Mandate: Oregon Energy Storage Workshop

**March 19, 2014**

**Melicia Charles**
**California Public Utilities Commission**

# 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.



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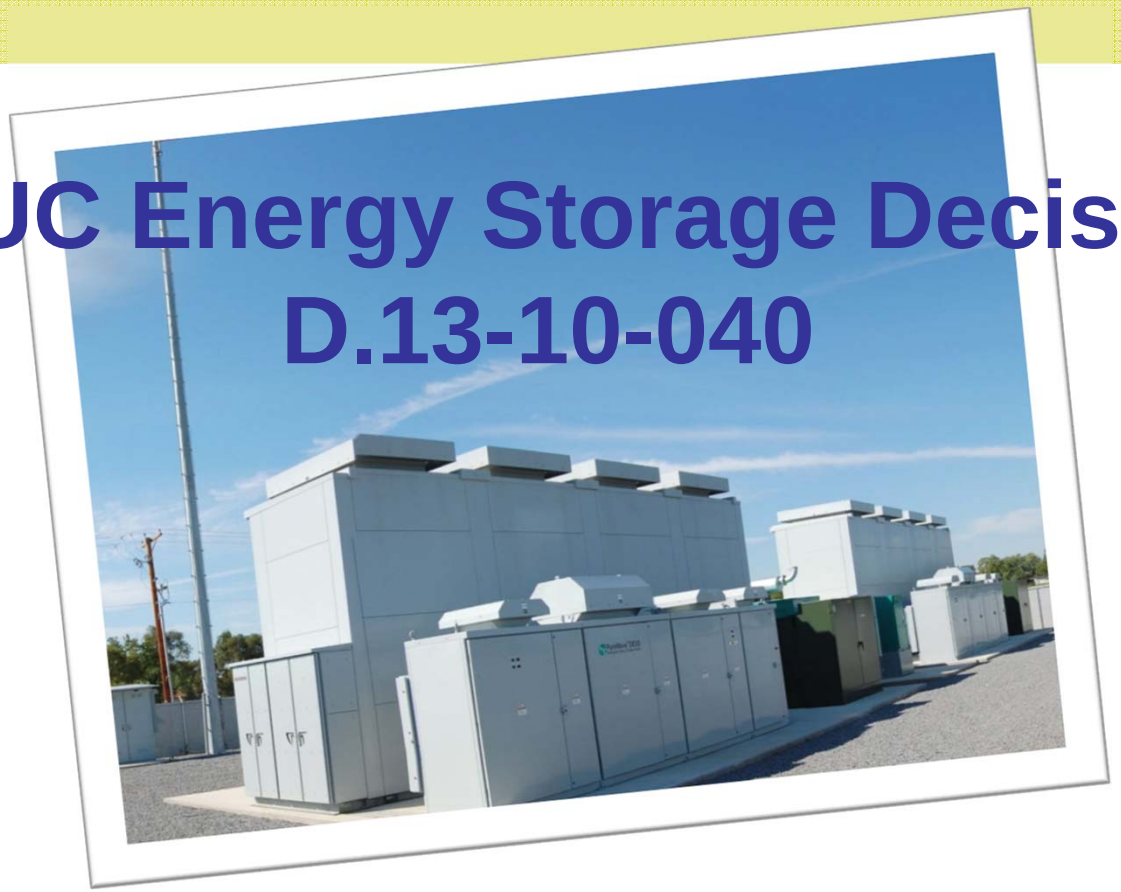
# Overview of CPUC Energy Oversight

• 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



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# 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 IOU Renewable Portfolio Standard (RPS) plans must comply w/ storage OIR decision**

*LSE = Load serving entity



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

- **Established framework of storage applications/use cases**
  - 21 end uses / 7 use cases
  - Distinct types of storage considered from policy perspective
- **Identified regulatory barriers to storage deployment**
- **Preliminary cost-effectiveness analysis of selected use cases by EPRI & CEC-funded DNV KEMA studies**
- **Proceeding relied on collaboration among stakeholders: IOUs, Storage Industry, ORA 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;**



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# 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 |



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# Storage Procurement Targets

**Energy Storage Procurement Targets (in MW)[22]**

| Storage Grid Domain<br>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** |

# Flexibility Allowed in Meeting Targets (1)

- **After a solicitation, IOU 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**

- **IOU 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.**



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# 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**


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# Where we are now

- **Utilities filed applications containing procurement plans on March 1st.**
  - 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**



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# Thank you!

**For Additional Information:**

**www.cpuc.ca.gov**

**“energy storage” web page**



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