

**California's Energy Storage Procurement
Framework and Design Program**

Published March 2014

The essentials

- The Energy Storage Program is designed to facilitate California's aggressive Renewable Portfolio Standard (33% by 2020) and greenhouse gas reduction target (80 percent below 1990 levels by 2050) by vastly increasing the state's energy storage capacity. Increased storage mitigates intermittency issues and will enhance the state's ability to meet peak energy demand while relying on a significant amount of wind and solar electricity generation.
- To accomplish this goal, the plan sets the following targets:
 - Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company, three of California's biggest utilities, are mandated to procure 1,325 MW of energy storage by 2020, with installations completed by 2024.
 - Other electric service providers and "community choice aggregators" must procure energy storage capabilities of 1% of their annual peak load by 2020, with installations completed by 2024.

Policy and Purpose

In September 2010, the California Legislature adopted [Assembly Bill 2514](#) requiring the California Public Utilities Commission ("CPUC") to consider an energy storage mandate for California's utilities and load-serving entities ("LSEs"). CPUC opened Rulemaking [R.10-12-007](#) "to initiate policy for California utilities and LSEs to consider procurement of viable and cost-effective energy storage systems." Over the next two years, CPUC held numerous [workshops](#) with stakeholders and the public. CPUC issued its [energy storage proposal](#) for public comment in September 2013. And in October 2013, CPUC adopted the [Energy Storage Procurement Framework and Design Program](#).

The [purpose of the energy storage program](#) is to "assist electrical corporations, electric service providers, community choice aggregators, and local publicly owned utilities in integrating increased amounts of renewable energy resources into the electrical transmission and distribution system in a manner that minimizes emissions of greenhouse gases."

Increased energy storage will mitigate issues related to the variable, intermittent, and off peak electrical generation from wind and solar resources. CPUC believes that increases in storage will reduce costs and price volatility in renewable energy generation. Recognizing that energy storage technology is still developing, however, CPUC gives affected service providers until 2024 to meet final targets.

Procurement Targets

To accomplish its purpose, the energy storage program establishes the [following targets](#):

- **Large utilities** 1,325 MW of energy storage to be procured by Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company by 2020, with installations required no later than the end of 2024. These utilities filed separate [procurement applications](#) containing a proposal for their first energy storage procurement period on February 28, 2014. The chart below represents the procurement targets for these three utilities.

Energy Storage Procurement Targets (MW)

Service Provider Point of Interconnection	2014	2016	2018	2020	Total
Pacific Gas and Electric					
Transmission	50	65	85	110	310
Distribution	30	40	50	65	185
Customer	10	15	25	35	85
Subtotal PGE	90	120	160	210	580
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
San Diego Gas and Electric					
Transmission	10	15	22	33	80
Distribution	7	10	15	23	55
Customer	3	5	8	14	30
Subtotal SDGE	20	30	45	70	165
Total	200	270	365	490	1,325

- **“Electric Service Providers” and “Community Choice Aggregators”**
Procure energy storage systems capable of storing one percent of their annual 2020 peak load by 2020 with installations no later than 2024. Starting January 1, 2016 and every two years thereafter, these service providers are required to file a “Tier 2 Advice Letter” – a “fast-track”

procurement application – demonstrating compliance with the energy storage regulations.

“Use-Case Buckets”

As the chart above illustrates, the procurement targets are broken into three [“use-case buckets”](#) – transmission, distribution, and customer – based on where the storage project connects to the grid. Examples of transmission side storage include hydroelectric pumped storage, compressed air, flywheels, and batteries located at various locations on the grid. Examples of distribution side storage include flywheels and batteries located at substations or near utility owned distributed energy systems such as solar panels. Examples of customer side storage include batteries and thermal energy storage systems at homes and businesses which store energy during off-peak times and feed it to the customer or the grid during peak energy use.

The plan also sets a [limit on utility ownership](#) of storage projects at 50%. Third-parties and customers are to own the other 50%. To procure third-party energy storage, utilities must solicit competitive bids for storage projects. Through 2015, utilities may fulfill customer-side storage targets through existing proceedings, such as the [2015 demand response application](#), the distributed generation/[California Solar Initiative](#) rulemaking, and [alternative-fueled vehicle rulemaking](#). These programs sunset in 2016, however, so CPUC will open a rulemaking to establish a post 2015 customer-side storage procurement process sometime over the next two years.

Potential impacts

The California Energy Storage Program is groundbreaking. It is the first large - scale energy storage mandate in the United States. CPUC and the renewable energy industry hope California can serve as the [testing ground](#) for a future thriving energy storage market. If the plan is successful and utilities are able to procure [cost-effective](#) energy storage, the implications for the renewable energy industry are profound, as it would represent a major step towards solving the problems associated with high penetration levels of renewable energy such as generation intermittency and unpredictability.

Critics of the energy storage program, which included utilities and consumer protection groups, fear that a mandate is pre-mature. According to critics, [the technology is “unproven”](#) so the cost to utilities and ratepayers associated with a mandate will be high and are not justifiable. For example, the proposed battery systems have never been deployed on a large-scale grid so it is impossible to know how the batteries will perform over time. These groups would prefer a program that incentivized research and development while postponing a

mandate until the technology is more proven. Potential incentives could include preferential transmission access or higher rates paid to entities providing stored off-peak energy during peak demand periods.

Learn more

[CPUC's Energy Storage Docket](#)

Article: [Energy Storage: California's New Green Tech Battleground](#) (Forbes)

Article: [The Power of Energy Storage](#) (UC Berkeley/UCLA)

Contact information

[CPUC's contact information](#)