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Joint Agency Reliability Planning Assessment

SB 846 Fourth Quarterly Report

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ABSTRACT

The *Joint Agency Reliability Planning Assessment* (Reliability Planning Assessment) addresses requirements for electric system reliability reporting in Senate Bill 846 (Dodd, Chapter 239, Statutes of 2022) (SB 846). This report provides the December 2023 fourth quarterly review of the demand forecast, supply forecast, and risks to reliability in the California Independent System Operator territory from 2023 to 2032, as required by SB 846. The report includes an updated analysis and summary for summer 2023.

Keywords: Reliability, Reliability Planning Assessment, Diablo Canyon, SB 846, California ISO, CEC, CPUC, California, electricity, supply and demand, extreme weather, electricity system planning, stack analysis, summer reliability, resource procurement

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EXECUTIVE SUMMARY

Senate Bill 846 (Dodd, Chapter 239, Statutes of 2022) (SB 846) mandated the California Energy Commission (CEC) and California Public Utilities Commission (CPUC) to develop a quarterly joint agency reliability planning assessment. The assessment is required to provide the Legislature with updates on electric system demand and supply for the next 10 years, including an assessment of electric system reliability under different risk scenarios. The report is also required to provide information on the status of new resources and any delays or barriers to the resources being available to support reliability.

This document is the December 2023 fourth quarterly report. The report provides only an update on the status of demand and new electricity supply for summer 2023 for the California Independent Operator (California ISO) territory and the resulting update to the summer 2023 reliability outlook analysis, including different risk scenarios. This report does not update the 5- and 10-year-forward projections or any additional recommendations to the Legislature.

Projected system conditions for this summer have varied from quarter to quarter as a number of projects reached commercial operation either earlier or later than projected. The conditions summarized in this report include a brief recap of summer 2023 and show the current amount of resources on-line as of the end of the third quarter.

Through summer 2023, analysis indicates that the state maintained surplus capacity under average weather conditions. Under extreme weather conditions, such as those witnessed in the August 2020 heat wave (2020 equivalent event) and the September 2022 heat wave (2022 equivalent event), projected need for contingency resources did not worsen compared to the February 2023 first quarterly report.

However, compared to the August 2023 third quarterly report, this report shows there was an increase of 580 megawatts (MW) in need for contingency resources under both the 2020 and 2022 equivalent events. As of this report, for September 2023, the reliability analysis concluded there was a surplus of 1,600 MW this summer under average conditions, a need for 970 MW of contingency resources under a 2020 equivalent event, and a need for 2,600 MW of contingency resources under 2022 equivalent event.

If extreme conditions had occurred this summer or if unanticipated issues arose in the energy markets that result in an energy supply and demand imbalance, a grid emergency could have been managed with contingency resources and additional real-time market procurements.

CHAPTER 1:

Fourth Quarterly Update

Introduction

This report provides an update to reliability-related activities and developments since the August 2023 third quarterly report was published. The report provides updates by topic area called for by Senate Bill 846 (Dodd, Chapter 239, Statutes of 2022) (SB 846) and provided in the first report.

Demand Forecast

CEC staff is currently preparing energy demand forecast models and data for the upcoming 2023 Integrated Energy Policy Report (IEPR) Forecast. Two IEPR Demand Forecast workshops were held in August 2023 and covered forecast inputs and assumptions. Staff discussed updates to the distributed generation forecast methodology, climate change methodology, and additional achievable energy efficiency, additional achievable fuel substitution, and baseline transportation electrification scenarios. Draft load modifier results will be presented at an IEPR workshop in November 2023. The overall draft 2023 IEPR Forecast results will be presented at a workshop in December 2023, and final results will be proposed for adoption at a January 2024 CEC Business Meeting.

Supply Forecast

New Resource Additions to Date

Table 1 below provides an update of the resources that have come on-line since the previous SB 846 reports were issued in February, May, and August 2023. Since the August 2023 third quarterly report was issued, California has added a few notable new resources in the California Independent System Operator's (California ISO) footprint, including:

- 13 new storage projects, adding 800 megawatts (MW) of storage nameplate capacity.
- 8 new solar projects, adding over 500 MW of solar nameplate capacity.
- One hybrid (solar + storage), one wind, and one biomass project, adding nearly 40 MW of nameplate capacity.
-

As of the end of August 2023, more than 75 additional resources were approaching the final stages of completion in the California ISO's New Resource Implementation¹ process, representing more than 5,000 MW in nameplate capacity.

As of July 1, 2023, the California ISO has 5,600 MW of battery energy storage operating in its territory. This represents the largest concentration of lithium-ion energy storage on any grid in

¹ California ISO process for new generating resources to integrate in the energy markets and begin commercial operations. Source: <http://www.caiso.com/participate/Pages/NewResourceImplementation/Default.aspx>

the world. This includes the recent additions of stand-alone battery energy storage (over 4,919 MW nameplate) and hybrid (storage/solar, 1,034 MW nameplate) shown in Table 1, plus a few megawatts that were on-line prior to January 2020. The cumulative amount of on-line battery resources is now over 5,000 MW these storage resources are regularly charging throughout the day, then dispatching both in the morning, and throughout the evening peak. (See battery trend graphs at [California ISO - Supply, Today's Outlook \(caiso.com\)](https://www.caiso.com/California%20ISO%20-%20Supply,%20Today's%20Outlook))

Table 1: Cumulative Resource Additions, January 2020 Through August 30, 2023

Technology Type	Nameplate Capacity (MW)	Estimated Sept. Net Qualifying Capacity (NQC) MW	Number of Projects*
Storage	4,919	4,556	69
Solar	3,993	345	64
Hybrid (Storage/Solar)	1,034	464	17
Wind	783	103	20
Geothermal	41	31	1
Biogas, Biomass, Hydro	36	1	9 (2,3,4)
Subtotal SB 100 Resources, In-California Independent System Operator	10,806	5,499	180
Natural Gas, incl. Alamitos & Huntington Beach	1,477	1,474	12
Total Resources, In-California Independent System Operator	12,282	6,973	192
New Imports, Pseudo-Tie ² or Dynamically Scheduled	1,689	727	13
Total Resources, Including Imports	13,971	7,701	205

Source: CPUC staff³

² A *pseudo-tie* is a mechanism that allows a resource that connects to transmission in one balancing authority area (BAA) to be a supply resource for another BAA.

³ All data shown derived from California ISO Master Generating Capability List, and CPUC NQC lists with on-line dates between January 1, 2020, and May 26, 2023. Nameplate capacity is shown as "Net Dependable Capacity" in the California ISO Master Generating List file. Data shown exclude imports, except where specified. All NQC values are "September NQC" and subject to change based on counting rules. "Project" is defined as a unique

*Number of Projects equals a project defined as a unit with a unique California ISO Resource Identifier.

New Resources under Development throughout the State

As detailed in Table 1, the California ISO territory has seen 10,806 MW of nameplate clean energy resources come on-line since January 1, 2020. Table 2 demonstrates that during this period, clean energy power plants have come on-line in 28 counties throughout the state.

While new clean energy project development has concentrated in Riverside, Kern, Monterey, Kings, and San Bernardino counties during the last few years, significant projects were developed in 10 other counties listed in Table 2.

Table 2 shows projects totaling 50 MW or greater in nameplate capacity were built in 15 counties from 2020-2023. The last row shows projects under 50 MW in size were developed in 13 other counties.

Table 2: New Clean Energy Development by County, 2020-2023 (Nameplate MW)

County	Total Clean Energy Developed Nameplate Megawatts (MW)
Riverside	3,536
Kern	1,984
Monterey	993
Kings	923
San Bernardino	725
Los Angeles	392
Fresno	232
Imperial	231
San Diego	230
Contra Costa	205
Orange	184
San Joaquin	132
Ventura	113
Alameda	68

California ISO resource ID. "Natural Gas" includes Alamitos Unit 7 (675 MW) and Huntington Beach (674 MW) added in February 2020.

County	Total Clean Energy Developed Nameplate Megawatts (MW)
Inyo	60
Colusa, El Dorado, Humboldt, Madera, Mono, Placer, Santa Barbara, Shasta, Solano, Stanislaus, Sutter, Tulare, Yolo	Less than 50 MW of Development per County

Source: CPUC staff

Estimates of Resources Under Contract to CPUC-Jurisdictional Load-Serving Entities (LSEs)

This section updates the estimated MW under contract to CPUC-jurisdictional LSEs through 2026. Tables 3 and 4 include resources being developed for compliance with Integrated Resource Planning (IRP) procurement orders as well as procurement for LSE compliance with Renewables Portfolio Standard (RPS) and procurement the CPUC approved in the Emergency Reliability proceeding.⁴ All totals provided below represent the cumulative LSE-reported September net qualifying capacity (NQC) under contract to CPUC-jurisdictional LSEs. Developers often aim to bring projects on-line in advance of contractual obligations. The data underlying the expected projects can be challenging to track. A new resource can have:

- Several expected on-line date changes.
- Multiple off-takers.
- Several on-line dates for different tranches of a project.
- Multiple technologies in various configurations.
- Changes to project sizing.
- Multiple California ISO resource identification numbers, once they come on-line.

Furthermore, LSE procurement activity is still ongoing to meet existing CPUC IRP procurement orders; some of the existing contracts will be delayed, and other contracts will be added, which is consistent with the cycle of energy project development. The authors emphasize that Tables 3 and 4 do not include all known resources in development in California, nor in all of California ISO's footprint, and represent only resources known to be under contract to CPUC-jurisdictional LSEs between 2023 and 2026, current as of August 2023. These totals are subject to change as the CPUC receives new data reports from LSEs, conducts field calls with developers and investor-owned utilities' (IOUs) interconnection departments, and continues to evaluate the data. Moreover, Tables 3 and 4 do not comprehensively track all new megawatts already on-line and, instead, track LSEs' reporting their contracts coming online. For more information about cumulatively resources online, see Table 1. There are more than 11,000 MW of new NQC scheduled to come on-line between 2023 and 2026, according to LSE contracting.

⁴ See [R.20-11-003](https://www.cpuc.ca.gov/news-and-updates/newsroom/summer-2021-reliability) for more information about this proceeding via <https://www.cpuc.ca.gov/news-and-updates/newsroom/summer-2021-reliability>

These projects represent close to 15,000 MW of new nameplate capacity. The CPUC posts this information on its Tracking Energy Development ([TED](#)) [Task Force website](#).

The volume of new projects that LSEs are reporting as under contract continues to increase through 2026 as LSEs sign new contracts. LSEs and counterparties frequently adjust the on-line date for projects due to continual contracting refinements. The CPUC receives updates about new resources under development across the 40+ CPUC jurisdictional LSEs and for the dozens of counterparties. There are over 300 contracts represented within this data for hundreds of resources under development by over 80 counterparties. As such, the data in Tables 3 and 4 are subject to change frequently. Changes reported in Tables 3 and 4, relative to prior versions, reflect best available information on when projects will reach on-line status, which will change regularly until projects are confirmed to be on-line, at which point they are tracked via Table 1. Most projects facing changes in on-line dates have simply been delayed to future quarters but are expected to come on-line in the future.

Table 3: Expected Cumulative New September NQC (MW) by Resource Type, Based on LSE-Contract Data for 2023 and 2024

Resource Type	2023 Q1	2023 Q2	2023 Q3	2023 Q4	2024 Q1	2024 Q2	2024 Q3	2024 Q4
Solar	7	26	101	150	182	318	321	331
Battery	654	810	1,302	1,825	2,504	5,199	5,528	5,538
Paired /Hybrid	395	473	638	1,280	1,446	1,847	1,856	2,324
Wind	-	14	14	14	14	14	14	14
Geothermal	21	21	21	21	21	74	74	92
Biomass /Biogas	-	-	-	3	22	22	22	25
Total	1,076	1,344	2,076	3,293	4,188	7,474	7,814	8,324

Source: CPUC staff, data as of August 2023

Table 4: Expected Cumulative New September NQC (MW) by Resource Type, Based on LSE-Contract Data for 2025 and 2026

Resource Type	2025 Q1	2025 Q2	2025 Q3	2025 Q4	2026 Q1	2026 Q2	2026 Q3	2026 Q4
Solar	441	459	459	459	462	462	462	462
Battery	5,972	6,743	6,743	6,743	6,865	7,221	7,221	7,221
Paired /Hybrid	2,498	2,815	2,929	2,993	3,001	3,061	3,061	3,061
Wind	14	31	31	31	31	60	60	60
Geothermal	93	122	143	144	160	195	195	200
Biomass /Biogas	25	28	28	28	28	28	28	28
Total	9,043	10,198	10,333	10,398	10,546	11,026	11,026	11,030

Source: CPUC staff, data as of August 2023

The project development volume in Tables 3 and 4 will occur throughout the State of California in 2023 to 2026. The data show that 34 different counties will have some amount of new clean energy projects, including 12 counties that were not included in Table 2 as they did not have any development in the past four years.

Some of the counties that have seen substantial development, such as Kern, Riverside, and San Bernardino counties, are expected to continue to have large amounts of clean energy development (over 1,000 MW Nameplate per county) in the years ahead. In addition, there is projected to be over 1,000 MW nameplate capacity development in Fresno, Tulare, and San Diego counties. Additionally, there is projected to be over 200 MW of new nameplate capacity being developed in Imperial, Los Angeles, Monterey, San Joaquin, Solano, and Stanislaus counties.

Tracking Project Development

Trends in Resource Development

Since the August 2023 third quarterly report was released, the CPUC continues to see the same major themes in new resource development: high levels of LSE contracting for new resources and challenges to bringing resources on-line in the immediate term. Broadly, CPUC-jurisdictional LSEs continue to report new contracts for their compliance with IRP orders, leading to an overall increase in new megawatts expected to come on-line in the midterm horizon of 2023-2028. Information on the IRP’s procurement track is available at the CPUC’s website: [IRP Procurement Track](#).

The CPUC has received two Petitions for Modification (PFMs) to D.21-06-035 (the “Mid-Term Reliability” Decision). Both these PFMs assert a difficult procurement environment LSEs are

currently operating in. The first PFM was submitted by the California Energy Storage Alliance (CESA) and the Western Power Trading Forum (WPTF) on May 30, 2023. This PFM seeks to allow LSEs to make requests at any time for extensions to the commercial on-line date requirement for long lead-time resources to come on-line beyond June 1, 2028, but no later than June 1, 2031, upon meeting the criteria for good faith efforts and demonstrated need for such an extension, such as evidence of contract by LSE. This PFM would apply to the 1,000 MW of long duration energy storage and 1,000 MW of clean firm generation ordered to come on-line by June 1, 2028, in D.21-06-035 and D.23-02-040.

The second PFM was submitted by Southern California Edison (SCE) and Pacific Gas & Electric (PG&E) on August 9, 2023. This PFM requests that the CPUC extend the deadline by two years for LSEs to meet the energy portion of the “Diablo Canyon replacement requirement” of the Mid-Term Reliability Decision, from June 1, 2025, to June 1, 2027. This PFM would affect the 2,500 MW of “Zero-emissions generation, generation paired with storage, or demand response resources,” ordered to be on-line by 2025, as a portion of each LSE’s annual requirement. The PFM would not impact LSE’s annual capacity requirements, but instead would delay the year the energy portion of an LSE’s Diablo Canyon replacement requirement must be on-line. Both PFMs remain under consideration by the CPUC

Tracking Energy Development (TED) Efforts

The Joint Agency TED Task Force, which includes staff from CPUC, CEC, California ISO, and the Governor’s Office of Business and Economic Development, continues to track new energy projects being developed in the state and bring state policy makers information about issues facing energy development in the state.

The TED Task Force continues to have regular, ongoing check-in meetings with developers, typically monthly, to review the status of near-term (1–3 year) projects. Additional ad-hoc meetings are scheduled to review specific project challenges and, when applicable, for the TED Task Force to coordinate actions across member agencies. Related to the TED Task Force’s efforts, the California ISO, in conjunction with the CPUC, hosts Transmission Development Forums to provide stakeholders with updates on transmission projects and related information. These meetings are held every quarter. The most recent meetings were held April 25, 2023, and July 25, 2023, and the next Transmission Development Forum meeting will be held in October 2023. Information on the Transmission Development Forum is available on the [California ISO's User Group and Recurring Meeting page](#).

Additionally, CPUC and CEC staff have continued to collaborate with the California ISO on its 2023 Interconnection Process Enhancement stakeholder initiative. In July 2023, stakeholders presented queue intake and queue management proposals. In August 2023, CPUC staff submitted [comments](#) on the proposal that affirmed its commitments to working with the California ISO in the next phase of the initiative to determine opportunities to align the timing of interconnection processes with IRP planning and procurement processes. The California ISO released its straw proposal on September 21, 2023, and is available on the California [ISO's IPE page](#). The proposal will go to the California ISO’s Board of Governors in February 2024.

Reliability Assessment

The reliability assessment approach used for this report is consistent with the Summer Stack Analysis for 2023–2032 published by the CEC in February 2023.⁵ The assessment compares an hourly projection of anticipated supply against the projected hourly demand plus a reserve margin for the peak day of each month, July through September. A 16 percent planning reserve margin (referred to as the current RA planning standard, or planning standard) compares against expected conditions, while 22.5 and 26 percent planning reserve margins compare to 2020 and 2022 equivalent events, respectively. Generally, the Summer Stack Analysis conservatively identifies the maximum hourly need for contingencies in summer 2023 for each equivalent event. The Summer Stack Analysis projected no need for contingency resources in the months of July and August. Therefore, this section will report on the month of September, where a need for contingency resources was identified in extreme event scenarios like the 2020 and 2022 equivalent events.

In the February 2023 first quarterly report to the Legislature, the CEC projected this summer to have sufficient electric system resources to support average demand conditions. However, there would be a need for about 1,000 MW of contingencies if the state experienced a 2020 equivalent event and a need for about 2,700 MW of contingencies if the state experienced a 2022 equivalent event.

The December 2023 fourth quarterly report shows that various expected resources continue to make progress towards commercial operations, relative to the August 2023 third quarterly report. However, some projects have experienced delays and shifted their on-line dates to the end of 2023 (based on August LSE contracting data in Table 3). Under the planning standard, the surplus decreased to about 1,600 MW from about 2,200 MW, since the August 2023 third quarterly report, which used April 2023 LSE contracting data. As of the December 2023 fourth quarterly report, under the 2020 and 2022 equivalent events, the need for contingency resources increased to 970 MW and 2,600 MW respectively.

Because the reliability assessment tracks the change in the cumulative third quarter LSE contracting numbers, it is assumed that resources that have come on-line in the first and second quarters are accounted for in the third quarter numbers. Therefore, as the reporting period nears the end of each quarter, the Table 3 numbers will be more representative of the resource megawatts on-line while the decrease in third quarter numbers represents resources that have shifted their on-line dates or data cleaning efforts relative to previous reporting.

However, as of this December 2023 fourth quarterly report, it is important to note that more than half of the new resources LSEs reported as expected for 2023 have already come on-line at the end of the third quarter and the remainder is still expected to come on-line by the end of 2023.

⁵ California Energy Commission. [Joint Agency Reliability Planning Assessment: SB 846 Quarterly Report and AB 205 Report](https://www.energy.ca.gov/publications/2023/joint-agency-reliability-planning-assessment-sb-846-quarterly-report-and-ab-205), <https://www.energy.ca.gov/publications/2023/joint-agency-reliability-planning-assessment-sb-846-quarterly-report-and-ab-205>.

Although the end of the third quarter shows that fewer resources came on-line than originally projected in the February 2023 second quarterly report and August 2023 third quarterly report, the overall surplus based on the planning standard has not fallen below the initial projections in all quarterly reports this year, including this one. This is due to above average hydro conditions and changes to import assumptions in the model. Furthermore, California experienced fairly mild summer conditions with only a few high heat days and low impacts to major transmission assets. As a result, the California ISO recorded zero flex alerts, one Energy Emergency Alert 1 (EEA 1)⁶, and two EEA Watch, to date in 2023. By comparison, in 2022, California ISO recorded 11 flex alerts and 21 EEAs ranging from EEA Watch to EEA 3.

In the event of grid emergencies, the state agencies and California ISO set aside nearly 2,800 MW⁷ of contingency resources to support grid reliability.

Table 5: Comparison of Summer Assessment Results for September 2023

	February SB846 Report	August Update	October Update - Current	Change Since Last Update (August Update)
Supply				
Demand Response	1,274	1,274	1,274	–0
Existing Resources*	44,817	45,646	45,646	–0
New Batteries Nameplate	1,759	1,966	1,302	▼664
New Hybrid Nameplate	1,061	1,220	1,055	▼165
RA Imports	5,500	6,000	6,000	–0
Total (MW)	54,411	56,106	55,277	▼829
Demand				
2022 CEC Demand Forecast – 2023 Max Demand	46,827	46,829	46,829	–0
Pump Load Additional Adjustment at Net peak**	0	500	500	–0
Surplus/Shortfalls				
Planning Standard	1,538	2,181	1,606	▼575

6 <https://www.caiso.com/Documents/Grid-Emergencies-History-Report-1998-Present.pdf> . Accessed 9/15/2023.

7 California Energy Commission, *SB 846 Second Quarterly Report*, page 11

<https://efiling.energy.ca.gov/GetDocument.aspx?tn=250176&DocumentContentId=84899>

	February SB846 Report	August Update	October Update - Current	Change Since Last Update (August Update)
2020 Equivalent Event	-1,038	-395	-970	▼ 575
2022 Equivalent Event	-2,676	-2,034	-2,606	▼ 572

***Existing resources adjusted to align with Department of Water Resources (DWR) forecasted hydroelectric generation for summer 2023**

****Pump Load Forecast adjusted to align with DWR forecasted pump load for summer 2023**

Source: CEC staff with CPUC data

The agencies are continuing to track contingency resources to provide support during an extreme event. The updated final contingency list was expected to provide between 2,000 and 2,600 MW during an extreme event and may be called upon to cover contingency needs identified in this stack analysis update.

Table 6: Contingency Resources for Summer 2023

Type	Contingency Resource	Available MW July	Available MW August	Available MW September
SRR	DWR Electricity Supply Strategic Reliability Reserve Program*	148	148	148
SRR	Demand Side Grid Support ⁺	315	315	315
SRR	Distributed Electricity Backup Assets (under development)	0	0	0
CPUC	Ratepayer Programs (ELRP, Smart Thermostats, etc.) **	366	404	434
CPUC	Imports Beyond Stack	325	930	825
CPUC	Capacity at Co-gen or Gas Units Above Resource Adequacy	235	158	86
DWR	DWR SWP***	0	0	0
Non-Program	Balancing Authority Emergency Transfers	500	500	500
Non-Program	Thermal Resources Beyond Limits: Gen Limits	60	60	60
Non-Program	Thermal Resources Beyond Limits: Gen Limits Needing 202c	25	25	25
	Total	2,040	2,612	2,444

*Does not include an additional 144 MW of projects that are not on-line yet but expected to be available before the end of the year.

**Does not reflect actual 2022 ELRP enrollment. Instead, provided values are forecasted projections of ELRP impact based on an updated load impact protocol (LIP) evaluation from ELRP event experience in 2022.

***These resources are projected one week ahead. For the first time since 2006, DWR expects to provide 100 percent of requested water supplies but will reduce pumping demand to the maximum extent possible when energy demand is highest while still making critical water deliveries.

⁺Available MW are based on enrollment.

Source: CEC staff with CPUC, DWR, and California ISO data

Strategic Reliability Reserve Update

Demand Side Grid Support Program

After the modified guidelines expanding the Demand Side Grid support (DSGS) Program were approved by the CEC at the July 26, 2023, business meeting, the DSGS program team worked to build out the operational and administrative functions needed to implement the expanded program this summer. As of September 1, 2023, the program has 12 DSGS providers enrolled, the majority of which are aggregators of demand response resources. As noted in Table 6, staff is projecting sustained enrollment through the summer to incorporate both new enrolled resources and the voluntary nature of program participation.

Distributed Electricity Backup Assets Program

The Distributed Electricity Backup Assets (DEBA) Program statute, Assembly Bill 205 (Ting, Chapter 61, Statutes of 2022) (AB 205), requires the CEC to develop guidelines in consultation with the California Air Resources Board (CARB). Program staff has been preparing draft guidelines that will outline basic program parameters based on initial feedback from stakeholders and CARB. Staff released draft guidelines for public comment on August 11, 2023, held a public workshop on August 15, 2023, with a written public comment period that closed August 31, 2023. Staff has reviewed all submitted comments and will publish revised draft guidelines as appropriate in anticipation of consideration and adoption by the CEC at a future business meeting this fall.

Electricity Supply Strategic Reliability Reserve Program (ESSRRP)

DWR oversees the Electricity Supply Strategic Reliability Reserve Program (ESSRRP) to deploy generation to ensure electric reliability. For summer 2023, DWR has on-line about 148 MW of natural gas-fired generation online, including 120 MW of temporary emergency generation constructed under Governor Gavin Newsom's 2021 emergency proclamation. DWR is overseeing the construction of another 144 MW of natural gas-fired temporary emergency generation at three sites. DWR is closely monitoring the progress of these resources, which have been impacted by supply chain delays. All these assets are to be deployed only to address extreme events on the grid. In a change from summer 2022, DWR voluntarily declined to pursue diesel-fired generation ahead of the Water Code deadline of July 31, 2023. DWR staff will again collaborate with CPUC staff to secure additional imported energy above the resource adequacy requirement noted in the "imports beyond stack" category in Table 6 above.

Diablo Canyon Power Plant Update

A key element of SB 846 relates to the potential extension of operations of Diablo Canyon Power Plant (DCPP). An extension would provide additional grid reliability if the historic levels of new, clean resources ordered by the CPUC over the next five years do not materialize at the required pace. The CPUC and the CEC have ongoing activities that relate to evaluation of DCPP's extension.

CPUC Proceeding

In early January 2023, the CPUC opened Rulemaking (R.) 23-01-007 to consider extending the operations of DCPP, as required by SB 846. The rulemaking has two scoped phases:

- Phase 1: Phase 1, Track 1, addresses the continued funding of the Diablo Canyon Independent Safety Committee (DCISC). Phase 1, Track 2, addresses issues concerning the establishment of new DCPD retirement dates and whether/how to establish processes to monitor ratepayer costs from, and reliability need for, continued DCPD operations.
- Phase 2: Phase 2 does not commence until Q1 2024 and will determine DCPD cost recovery and compensation reporting processes and whether PG&E should provide upfront reasonable manager showings.

On August 10, 2023, the CPUC approved Decision (D.) 23-08-004 for Phase 1, Track 1, authorizing a compensation increase for members of the DCISC and ordering PG&E to track DCISC costs related to the potential DCPD extension in the Diablo Canyon Transition and Relicensing Memorandum Account to ensure continued funding. In Phase 1, Track 2, PG&E filed testimony detailing DCPD historical and forecast cost data May 19, 2023, and PG&E and other interested parties filed testimony June 9, 2023, presenting proposals for future DCPD funding and cost recovery mechanisms. A workshop was held June 13, 2023, to discuss the June 9, 2023, proposals. Comments on both the May 19 and June 9, 2023, testimony were filed June 30, 2023, with rebuttal testimony filed July 28, 2023. Evidentiary hearings were held from September 5-7, 2023. A draft of the CEC's cost-effectiveness evaluation will be posted for public comment in late September 2023, with party comments due by October 6, 2023. Opening briefs were filed on September 18, 2023, and reply briefs on September 29, 2023. The schedule of the rulemaking anticipates a proposed decision for Phase 1, Track 2, in October or November 2023.

CEC Analysis

SB 846 requires the CEC to publish a report of DCPD operations by July 1, 2023, and annually thereafter. The CEC published the first DCPD Operations Assessment Report on July 28, 2023. The report discusses the operation of DCPD related to outage information, operational costs, average revenues from electricity sales, worker attrition, and the contribution to resource adequacy requirements.

The CEC is required to develop a cost comparison of an alternative portfolio of other feasible resources to the extended operations of DCPD for the calendar years 2024 to 2035. The evaluation will consider whether the alternative portfolio is consistent with the state's greenhouse gas emissions reductions goals set forth in Section 454.53 of the Public Utilities Code. SB 846 requires the CEC to provide the report to the Legislature by September 30, 2023, and to make all evaluations public within the docket. CEC held a public workshop on July 7, 2023, to provide an overview of the proposed analytical method and accepted public comments until July 21, 2023. The CEC published a draft report on September 26 for public comment and to support the CPUC proceeding⁸.

Upcoming Activities

⁸ See CPUC [R.23-01-007 Proceeding](#) at

https://apps.cpuc.ca.gov/apex/f?p=401:56::::RP,57,RIR:P5_PROCEEDING_SELECT:R2301007.

The following activities are projected for the next quarter:

- The CEC will target late-October as the submission date to the Legislature for the Diablo Canyon Power Plant Cost Analysis Report. However, a draft was released for public comment on September 26.

APPENDIX A:

Acronyms and Abbreviations

AB	Assembly Bill
California ISO	California Independent System Operator
CEC	California Energy Commission
CPUC	California Public Utilities Commission
DCISC	Diablo Canyon Independent Safety Committee
DCPP	Diablo Canyon Power Plant
DEBA	Distributed Electricity Backup Assets
DSGS	Demand Side Grid Support Program
DWR	(California) Department of Water Resources
ELRP	Emergency Load Reduction Program
IOU	investor-owned utilities
IRP	integrated resource planning
ISO	Independent System Operator
LSEs	load-serving entities
MW	megawatt (million watts)
NQC	net qualifying capacity
NRI	new resource implementation
OIR	order instituting rulemaking
PTO	participating transmission owners
RA	resource adequacy
RPS	Renewables Portfolio Standard
SB	Senate Bill
TED	Tracking Energy Development

APPENDIX B:

Glossary

For additional information on commonly used energy terminology, see the following industry glossary links:

- California Air Resources Board Glossary, available at <https://ww2.arb.ca.gov/about/glossary>
- California Energy Commission Energy Glossary, available at <https://www.energy.ca.gov/resources/energy-glossary>
- California Energy Commission Renewables Portfolio Standard Eligibility Guidebook, Ninth Edition Revised, available at: <https://efiling.energy.ca.gov/getdocument.aspx?tn=217317>
- California Independent System Operator Glossary of Terms and Acronyms, available at <http://www.caiso.com/Pages/glossary.aspx>
- California Public Utilities Commission Glossary of Acronyms and Other Frequently Used Terms, available at <https://www.cpuc.ca.gov/glossary/>
- Federal Energy Regulatory Commission Glossary, available at <https://www.ferc.gov/about/what-ferc/about/glossary>
- North American Electric Reliability Corporation Glossary of Terms Used in NERC Reliability Standards, available at: https://www.nerc.com/pa/Stand/Glossary%20of%20Terms/Glossary_of_Terms.pdf
- US Energy Information Administration Glossary, available at <https://www.eia.gov/tools/glossary/>

Average Demand

The energy demand in a given geographical area over a given period. For example, the number of kilowatt-hours used in a 24-hour period, divided by 24, tells the average demand for that period.

Community choice aggregator (CCA)

Community choice aggregators lets local jurisdictions aggregate, or combine, their electricity load to purchase power on behalf of their residents. In California, CCAs are legally defined by state law as electric service providers and work together with the region's existing utility, which continues to provide customer services.

Integrated Energy Policy Report (IEPR)

Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the California Energy Commission to prepare a biennial integrated energy report. The report, which is crafted in collaboration with a range of stakeholders, contains an integrated assessment of major energy trends and issues facing California's electricity, natural gas, and transportation fuel sectors. The report provides policy recommendations to conserve resources, protect the environment,

ensure reliable, secure, and diverse energy supplies, enhance the state's economy, and protect public health and safety. For more information, see the [CEC Integrated Energy Policy Report Web page](#).

Investor-owned utility (IOU)

Investor-owned utilities (IOUs) provide transmission and distribution services to all electric customers in their service territory. The utilities also provide generation service for "bundled" customers, while "unbundled" customers receive electric generation service from an alternate provider, such as a community choice aggregator (CCA). California has three large IOUs offering electricity service: Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric.

Load-serving entity (LSE)

A load-serving entity is defined by the California Independent System Operator as an entity that has been "granted authority by state or local law, regulation or franchise to serve [their] own load directly through wholesale energy purchases." For more information see the [California Independent System Operator's Web page](#).

Nameplate capacity

The maximum amount of electricity that a generating station (also known as a power plant) can produce under specific conditions designated by the manufacture.

Net qualifying capacity (NQC)

The amount of capacity that can be counted towards meeting resource adequacy requirements in the CPUC's RA program. It is a combination of the CPUC's qualifying capacity counting rules and the methodologies for implementing them for each resource type, and the deliverability of power from that resource to the California ISO system. CPUC IRP procurement orders (D.19-11-016, D.21-06-035, D.23-02-040) also require counting of resources for compliance using the associated NQCs, which can be different to those used in the RA program, depending on the resource type and order.

Planning reserve margin

Planning reserve margin (PRM) is used in resource planning to estimate the generation capacity needed to maintain reliability given uncertainty in demand and unexpected capacity outages. A typical PRM is 15 percent above the forecasted 1-in-2 weather year peak load, although it can vary by planning area.

Power plant

A centralized facility that generates and stores electricity to meet the energy demands of a specific area or grid. It includes generating units and storage resources to produce and supply electrical energy effectively.

Real-Time Market

The competitive generation market controlled and coordinated by the ISO for arranging real-time imbalance energy.

Renewables Portfolio Standard (RPS)

The Renewables Portfolio Standard, also referred to as RPS, is a program that sets continuously escalating renewable energy procurement requirements for California's load-serving entities. The generation must be procured from RPS-certified facilities (which include solar, wind, geothermal, biomass, biomethane derived from landfill and/or digester, small hydroelectric, and fuel cells using renewable fuel or qualifying hydrogen gas). More information can be found at the [CEC Renewables Portfolio Standard web page](#) and the [CPUC RPS Web page](#).

Reserve margin

The differences between the dependable capacity of a utility's system and the anticipated peak load for a specified period.

Resource adequacy

Resource adequacy ensures there is enough capacity and reserves for the grid operator to maintain a balanced supply and demand across the electric system.

Transmission Planning Process (TPP)

The California Independent System Operator's annual transmission plan, which serves as the formal roadmap for infrastructure requirements. This process includes stakeholder and public input and uses the best analysis possible (including the CEC's annual demand forecast) to assess short- and long-term transmission infrastructure needs. For more information, see the [California ISO Transmission Planning Web page](#).