

Final 2024 Report of the Statewide Advisory Committee on Cooling Water Intake Structures

March 11, 2024



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Acronyms and Abbreviations

2010 Final SED	2010 Final Substitute Environmental Document
AFC	Application for Certification
Air District	Air Pollution Control District
Alamitos	Alamitos Generating Station
BAA	Balancing Authority Area
CAISO	California Independent System Operator
CARB	California Air Resources Board
CCC	California Coastal Commission
CCGT	Combined Cycle Gas Turbine
CEC	California Energy Commission
CPUC	California Public Utilities Commission
Diablo Canyon	Diablo Canyon Nuclear Power Plant
ESSRRP	Electricity Supply Strategic Reliability Reserve Program
Harbor	Harbor Generating Station
Haynes	Haynes Generating Station
Huntington Beach	Huntington Beach Generating Station
Los Angeles Regional Water Board	Los Angeles Regional Water Quality Control Board
IRP	Integrated Resource Planning
kV	Kilovolt
LADWP	Los Angeles Department of Water and Power
LCR	Local Capacity Requirement
Local Capacity Technical Report	Local Capacity Technical Analysis – Final Report and Study Results
March 2022 SACCWIS Report	2022 Report of the SACCWIS
MGD	Million Gallons per Day
MVAR	Mega Volt, Ampere, Reactive
MW	Megawatt

NOV	Notice of Violation
NO _x	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NQC	Net Qualifying Capacity
NTC	Notice to Comply
Ormond Beach	Ormond Beach Generating Station
OTC	Once-Through Cooling
PG&E	Pacific Gas and Electric
PTO	Participating Transmission Owner
Redondo Beach	Redondo Beach Generating Station
SACCWIS	Statewide Advisory Committee on Cooling Water Intake Structures
SCAQMD	South Coast Air Quality Management District
Scattergood	Scattergood Generating Station
SCE	Southern California Edison
SDG&E	San Diego Gas & Electric
SLC	State Lands Commission
SONGS	San Onofre Nuclear Generating Station
State Water Board	State Water Resources Control Board
Strategic Reserve	Strategic Reliability Reserve
VCAPCD	Ventura County Air Pollution Control District

I. Introduction

The Statewide Advisory Committee on Cooling Water Intake Structures (SACCWIS) has prepared this report for the State Water Resources Control Board (State Water Board) to summarize the State of California's current electrical grid reliability needs. The State Water Board, in adopting the Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling, also known as the Once-Through Cooling (OTC) Policy,¹ impaneled the SACCWIS to advise the State Water Board on the implementation of the OTC Policy.

Since 2010, the OTC Policy has reduced marine and estuarine water use by electric generators in California and lessened entrainment and impingement mortality of marine life. The SACCWIS is committed to realizing full compliance with the OTC Policy in the coming years, while maintaining the reliability of California's electric system and meeting the state's environmental and energy goals.

On September 25, 2023, the State Water Board received a letter from the operator of the Redondo Beach Generating Station (Redondo Beach) announcing its intent to retire and permanently remove from service the OTC units at the power plant by its OTC Policy compliance date of December 31, 2023. With Redondo Beach's retirement, 12 of the 19 power plants to which the OTC Policy applies have achieved full final compliance. Seven OTC power plants continue to operate and have fulfilled their interim compliance requirements to date. At present, the latest compliance date listed in the OTC Policy is October 31, 2030.

The SACCWIS continues to closely monitor grid reliability needs throughout the state. Load serving entity procurement activity is still ongoing to meet California Public Utilities Commission (CPUC) procurement orders and the CPUC, California Energy Commission (CEC), and California Independent System Operator (CAISO) continue to monitor progress towards meeting these orders. Some existing contracts will be delayed, and

¹ State Water Resources Control Board (State Water Board). 2023. [Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling](#) (Once-Through Cooling or OTC Policy). Sacramento, CA: State Water Board.

other contracts will be added, consistent with the cycle of energy project development. Despite progress in deployment of new, clean generation, the grid remains susceptible to a combination of risks including development delays for authorized procurement of new resources, extreme events such as the west-wide heat wave experienced in August 2020, and coincident extreme events. The impact of these emerging risks, especially those outside of traditional resource planning activities, drives the need for additional capacity to maintain grid reliability. While these needs are not significant enough to recommend any changes to the compliance schedules in the OTC Policy at this time, the CPUC, CEC, and CAISO continue to monitor progress towards meeting procurement orders and update forward grid reliability assessments in quarterly reports pursuant to Senate Bill 846.^{2, 3}

II. SACCWIS Role and Process

The SACCWIS includes representatives from the CEC, CPUC, California Coastal Commission (CCC), State Lands Commission (SLC), California Air Resources Board (CARB), CAISO, and State Water Board. The State Water Board, in adopting the OTC Policy, impaneled the SACCWIS to advise the State Water Board on the implementation of the OTC Policy. The SACCWIS provides recommendations to ensure that the compliance schedule in the OTC Policy accounts for the reliability of California's electricity supply, including local area reliability, statewide grid reliability, and permitting constraints. Section 3.B(4) of the OTC Policy provides that the SACCWIS will report to the State Water Board with recommendations on any need for modifications to the compliance schedule each year.

The OTC Policy states that SACCWIS meetings shall be scheduled regularly and as needed. In addition, the OTC Policy indicates that the State Water Board shall consider

² Senate Bill 846 (Dodd, Chapter 239, Statutes of 2022) mandated the California Energy Commission and CPUC to develop a quarterly joint agency reliability planning assessment. The joint agency report can be found at: [Joint Agency Reliability Planning Assessment: SB 846 Second Quarterly Report | California Energy Commission.](#)

³ California State Legislature. 2022. Sen. Bill No. 846, approved by Governor September 2, 2022 (2021-2022 Reg. Sess.) (hereinafter Senate Bill 846.) Sacramento, CA: California Legislative Information

the SACCWIS' recommendations and, if appropriate, consider modifications to the OTC Policy. If the SACCWIS energy agencies make a unanimous recommendation for an implementation schedule modification based on grid reliability, the State Water Board shall afford significant weight to the recommendation.

The SACCWIS is committed to realizing full compliance with the OTC Policy in the coming years, while maintaining the reliability of California's electric system and meeting the state's environmental and energy goals. The energy agencies are dedicated to monitoring and enhancing California's grid reliability and continue to work collaboratively to improve and perform new analysis that incorporates a range of risk scenarios.

III. Summary of the 2023 Amendment to the OTC Policy

On March 14, 2022, the SACCWIS convened and approved the 2022 Report of the SACCWIS (March 2022 SACCWIS Report). The March 2022 SACCWIS Report did not recommend any changes to the final compliance dates in the OTC Policy for power plants within the CAISO Balancing Authority Area (BAA⁴) because no new system-wide grid reliability issues in the CAISO BAA were identified at that time. Additionally, the CPUC and CAISO had conducted analyses prior to the March 2022 SACCWIS Report's release showing sufficient energy and transmission project development to support system reliability based on two previous CPUC decisions.

After the March 2022 SACCWIS Report was approved, the energy agencies conducted a new reliability analysis that considered impacts from extreme weather events, wildfires, supply chain constraints, interconnection and permitting concerns, and improved climate change updates in the electricity demand forecast. The analysis also considered the potential for coincident events that could further adversely impact system-wide reliability, such as a simultaneously occurring extreme heat wave, drought, and wildfire affecting transmission capacity. The analysis identified a need for resource capacity beyond the then-existing required planning criteria used to support the conclusions in the March 2022

⁴ A balancing authority is the responsible entity that maintains demand and resource balance within its area according to the North American Electric Reliability Corporation. The CAISO and the Los Angeles Department of Water and Power are both BAAs.

SACCWIS Report. Specifically, the analysis identified a projected shortfall as high as 10,000 megawatts (MW) in summer 2025. The energy agencies presented these issues at a CEC workshop on May 20, 2022, and discussed potential options to address the risk to grid reliability during coincident extreme events, including separate capacity resources available for emergency contingency use. The CEC, with participation of the Office of Governor Gavin Newsom and the CAISO, also held a joint agency workshop on August 12, 2022, to discuss the role that the Diablo Canyon Nuclear Power Plant (Diablo Canyon) could have in supporting mid-term electric reliability and California's clean energy transition.

In recognizing these issues, the State Legislature subsequently adopted, and the Governor signed, Assembly Bill 205,⁵ which created a state-wide Strategic Reliability Reserve (Strategic Reserve) to bolster system reliability while California procures clean energy resources. One portion of the Strategic Reserve, the Electricity Supply Strategic Reliability Reserve Program (ESSRRP), operated by the Department of Water Resources, includes the option of extending the operations of power plants currently scheduled for retirement. In response to projected shortfalls, the Strategic Reserve acknowledges that existing generation assets will be required to maintain reliability during extreme events as California transitions to a clean energy future.

As a result of these new considerations, the SACCWIS approved a special report, the Final 2022 Special Report of the SACCWIS,⁶ on September 20, 2022. In this report, the SACCWIS evaluated three alternatives to support the Strategic Reserve and system-wide electrical reliability and recommended that the State Water Board consider extending the OTC Policy compliance dates for Alamitos Generating Station (Alamitos) Units 3, 4, and 5; Huntington Beach Generating Station (Huntington Beach) Unit 2; and Ormond Beach

⁵ California State Legislature. 2022. Assem. Bill No. 205, approved by Governor June 30, 2022 (2021-2022 Reg. Sess.) (hereinafter Assembly Bill 205.) Sacramento, CA: California Legislative Information.

⁶ California Air Resources Board, California Coastal Commission, California Energy Commission, California Independent System Operator (CAISO), California Public Utilities Commission (CPUC), State Lands Commission, State Water Board. 2022. [Final 2022 Report of the Statewide Advisory Committee on Cooling Water Intake Structures](#). Sacramento, CA: State Water Board.

Generating Station (Ormond Beach) Units 1 and 2 for three years from December 31, 2023, through December 31, 2026.

In 2022, the State Legislature also adopted, and the Governor signed, Senate Bill 846, which:

- Allocated \$1.4 billion to Pacific Gas and Electric (PG&E) to support relicensing costs associated with extension of the operations of the Diablo Canyon;
- Set aside the existing CPUC decision authorizing the 2024 and 2025 retirement dates of Diablo Canyon Units 1 and 2, respectively;
- Authorized a fee structure for PG&E to receive in return for continued operations of Diablo Canyon; and
- Revised the State Water Board's OTC Policy compliance date for Diablo Canyon Unit 1 to October 31, 2029, and Diablo Canyon Unit 2 to October 31, 2030.

In response to the Final 2022 Special Report of the SACCWIS and Senate Bill 846, the State Water Board amended the OTC Policy under Resolution No. 2023-0025 on August 15, 2023. The amendment extended the OTC Policy compliance dates for Alamitos, Huntington Beach, and Ormond Beach generating stations for three years from December 31, 2023, to December 31, 2026, contingent on these generating stations participating in the ESSRRP. The amendment also made administrative changes to the implementation provisions and schedule in the OTC Policy. The first of these changes revised the compliance dates for Diablo Canyon Units 1 and 2 to October 31, 2030, to ensure the OTC Policy is consistent with Senate Bill 846. Additionally, the amendment included revisions to specify that the SACCWIS will report to the State Water Board on the status of OTC Policy implementation at least through 2026.

Water Code Section 80710(h) directs the Department of Water Resources to prepare and present the terms, costs, and scope of the ESSRRP investment plan committed to after October 31, 2022, to the CEC. On August 9, 2023, the CEC approved the Department of Water Resources Strategic Reserve Investment Plan, which included contracts with Alamitos, Huntington Beach, and Ormond Beach as part of the ESSRRP, for three years from December 31, 2023, to December 31, 2026.

The 2023 OTC Policy Amendment also included an extension of a Los Angeles Department of Water and Power (LADWP) facility, Scattergood Generating Station (Scattergood). On December 14, 2021, the LADWP adopted its Local Capacity Technical Analysis – Final Report and Study Results (Local Capacity Technical Report). This Local Capacity Technical Report identified grid reliability issues in the LADWP BAA and recommended requesting the State Water Board amend the OTC Policy to extend the compliance date for Scattergood.

The March 2022 SACCWIS Report discussed the request from the LADWP to extend the OTC Policy compliance date of Scattergood Units 1 and 2 for five years from December 31, 2024, through December 31, 2029. In March 2022, the SACCWIS recognized that it may reconvene in 2022 to evaluate whether an extension to the OTC Policy compliance date for Scattergood was necessary to maintain local grid reliability in the LADWP BAA when more information became available. Between March and August 2023, the LADWP provided additional information at the request of the State Water Board. The energy agencies of the SACCWIS assisted the State Water Board in reviewing this information and supported the extension request at the September 30, 2022 Special SACCWIS meeting.

IV. Status of Compliance and Once-Through Cooling Water Use

Since the OTC Policy was adopted in 2010, the majority of OTC generating units have retired, repowered, or come into compliance. The closure of the San Onofre Nuclear Generating Station (SONGS) resulted in a significant reduction in ocean water use for power plant cooling. Table 1 shows the power plants in the CAISO and LADWP BAAs that have achieved compliance, several of which did so well in advance of their mandated compliance deadlines.

Table 1: Gas-Fired OTC Facility Compliance Achievement

Facility & Units	NQC (MW)⁷	OTC Policy Scheduled Compliance Date	Actual Compliance Date
Humboldt Bay 1, 2	135	Dec. 31, 2010	Retired Sept. 30, 2010
South Bay	296	Dec. 31, 2011	Retired Dec. 31, 2010
Potrero 3	206	Oct. 1, 2011	Retired Feb. 28, 2011
Huntington Beach 3, 4	452	Dec. 31, 2020	Retired Nov. 1, 2012 ⁸
Contra Costa 6, 7	674	Dec. 31, 2017	Retired Apr. 30, 2013 ⁹
San Onofre 2, 3	2,246	Dec. 31, 2022	Retired June 7, 2013 ¹⁰
Haynes 5, 6	535	Dec. 31, 2013	Retired June 13, 2013 ¹¹
El Segundo 3	335	Dec. 31, 2015	Retired July 27, 2013 ¹²
Morro Bay 3, 4	650	Dec. 31, 2015	Retired Feb. 5, 2014
El Segundo 4	335	Dec. 31, 2015	Retired Dec. 31, 2015
Scattergood 3	497	Dec. 31, 2015	Retired Dec. 31, 2015
Pittsburg	1,159	Dec. 31, 2017	Operations ceased Dec. 31, 2016
Moss Landing 6, 7	1,509	Dec. 31, 2020	Retired Jan. 1, 2017
Encina 1	106	Dec. 31, 2017	Retired Mar. 1, 2017
Mandalay 1, 2	430	Dec. 31, 2020	Retired Feb. 5, 2018

⁷ Net Qualifying Capacity (NQC) in MW. NQC is the net amount of capacity available from a resource that can be counted towards meeting resource adequacy requirements.

⁸ Huntington Beach Generating Station Units 3 and 4 were converted to synchronous condensers in 2013. Once-through cooling water was used in a limited capacity until September 30, 2018.

⁹ Although NRG Energy retired Contra Costa Generating Station Units 6 and 7, the Marsh Landing Generating Station was constructed immediately next to the retired facility. The Marsh Landing Generating Station is a non-once-through cooling generating facility.

¹⁰ San Onofre Nuclear Generating Station Units 2 and 3 were officially retired June 7, 2013, but they ceased power generation on Jan. 31, 2012.

¹¹ The Los Angeles Department of Water and Power (LADWP) retired Haynes Generating Station Units 5 and 6 and replaced them with Haynes Generating Station Units 11 through 16, which do not use once-through cooling technology.

¹² NRG Energy retired El Segundo Generating Station Unit 3 and replaced it with El Segundo Generating Station Units 5 through 8, which do not use once-through cooling technology.

Facility & Units	NQC (MW)⁷	OTC Policy Scheduled Compliance Date	Actual Compliance Date
Encina 2-5	844	Dec. 31, 2018	Retired Dec. 11, 2018
Redondo Beach 7	493	Dec. 31, 2020	Retired Oct. 1, 2019
Alamitos 1, 2, 6	848	Dec. 31, 2020	Retired Dec. 31, 2019
Huntington Beach 1	215	Dec. 31, 2020	Retired Dec. 31, 2019
Moss Landing 1, 2	1,020	Dec. 31, 2020	Complied Oct. 23, 2020 ¹³
Redondo Beach 5, 6, 8	834	Dec. 31, 2023	Retired Dec. 31, 2023
Total Capacity (MW)	13,819	--	--

Table 2 reflects the current compliance plans for the remaining gas-fired power generating units that use ocean or estuarine water for cooling purposes. Table 3 presents recent performance of the gas-fired OTC units as a percentage of annual capacity factors. The annual capacity factor is defined as the ratio of the electrical energy produced by a generating unit for the year divided by the maximum energy that could have been produced at continuous full power operation. The capacity factor provides one indication of how a generating unit is used. Generating units used to meet peak power needs typically have lower capacity factors. The capacity of most of the remaining OTC facilities is only used a small percentage of the time, but this capacity helps serve demand during peak hours and stressed operating conditions.

¹³ Dynegey Moss Landing Power Plant complied with Track 2 of the OTC Policy.

Table 2: OTC Compliance Plans for Remaining Gas-Fired Units

Facilities and Units	NQC (MW) as of 8/2023	OTC Policy Scheduled Compliance Date	Owner Proposed Compliance Method
Alamitos 3, 4, 5	1,141	Dec. 31, 2026	Plans to comply by Dec. 31, 2026
Harbor 5	75	Dec. 31, 2029	Plans to comply by Dec. 31, 2029
Haynes 1, 2	460	Dec. 31, 2029	Plans to comply by Dec. 31, 2029
Haynes 8	264	Dec. 31, 2029	Plans to comply by Dec. 31, 2029
Huntington Beach 2	227	Dec. 31, 2026	Plans to comply by Dec. 31, 2026
Ormond Beach 1, 2	1,491	Dec. 31, 2026	Plans to comply by Dec. 31, 2026
Scattergood 1, 2	326	Dec. 31, 2029	Plans to comply by Dec. 31, 2029
Total Capacity (MW)	3,984	--	--

Table 3: Recent Performance of OTC Gas-Fired Generating Units

CAISO Balancing Authority Area Facilities and Units	OTC Policy Scheduled Compliance Date	NQC (MW)	Annual Capacity Factors (Percent)						
			2017	2018	2019	2020	2021	2022	2023 (Jan-Sept)
Alamitos 3	Dec. 31, 2026	327	6.67	10.13	5.58	6.46	5.58	9.37	8.35
Alamitos 4	Dec. 31, 2026	334	8.78	9.60	5.59	4.50	6.37	8.96	7.10
Alamitos 5	Dec. 31, 2026	480	3.06	2.93	1.24	5.42	4.63	2.55	4.28
Huntington Beach 2	Dec. 31, 2026	227	9.03	6.99	4.12	5.69	4.46	5.64	6.90
Ormond Beach 1	Dec. 31, 2026	741	1.64	1.31	0.55	4.98	2.00	1.44	1.18
Ormond Beach 2	Dec. 31, 2026	750	1,75	1.28	1.63	5.26	4.04	2.86	3.11
LADWP Balancing Authority Area Facilities and Units									
Harbor 5	Dec. 31, 2029	75	2.29	1.01	3.40	0.39	2.59	3.60	5.23
Haynes 1	Dec. 31, 2029	230	3.45	1.64	4.05	5.13	1.70	4.71	13.34
Haynes 2	Dec. 31, 2029	230	5.34	1.13	1.18	3.92	1.76	3.33	-0.18 ¹⁴
Haynes 8	Dec. 31, 2029	264	39.56	45.39	39.22	48.89	34.62	31.30	38.94
Scattergood 1	Dec. 31, 2029	163	5.32	4.47	3.62	3.15	2.84	2.75	2.65
Scattergood 2	Dec. 31, 2029	163	2.09	2.38	6.62	10.36	1.87	0.78	1.95

Source: California Energy Commission, [Quarterly Fuel and Energy Report](#).

¹⁴ The negative net output reflects more onsite consumption (also known as parasitic load) than generation output to the grid.

Once-Through Cooling Water Use

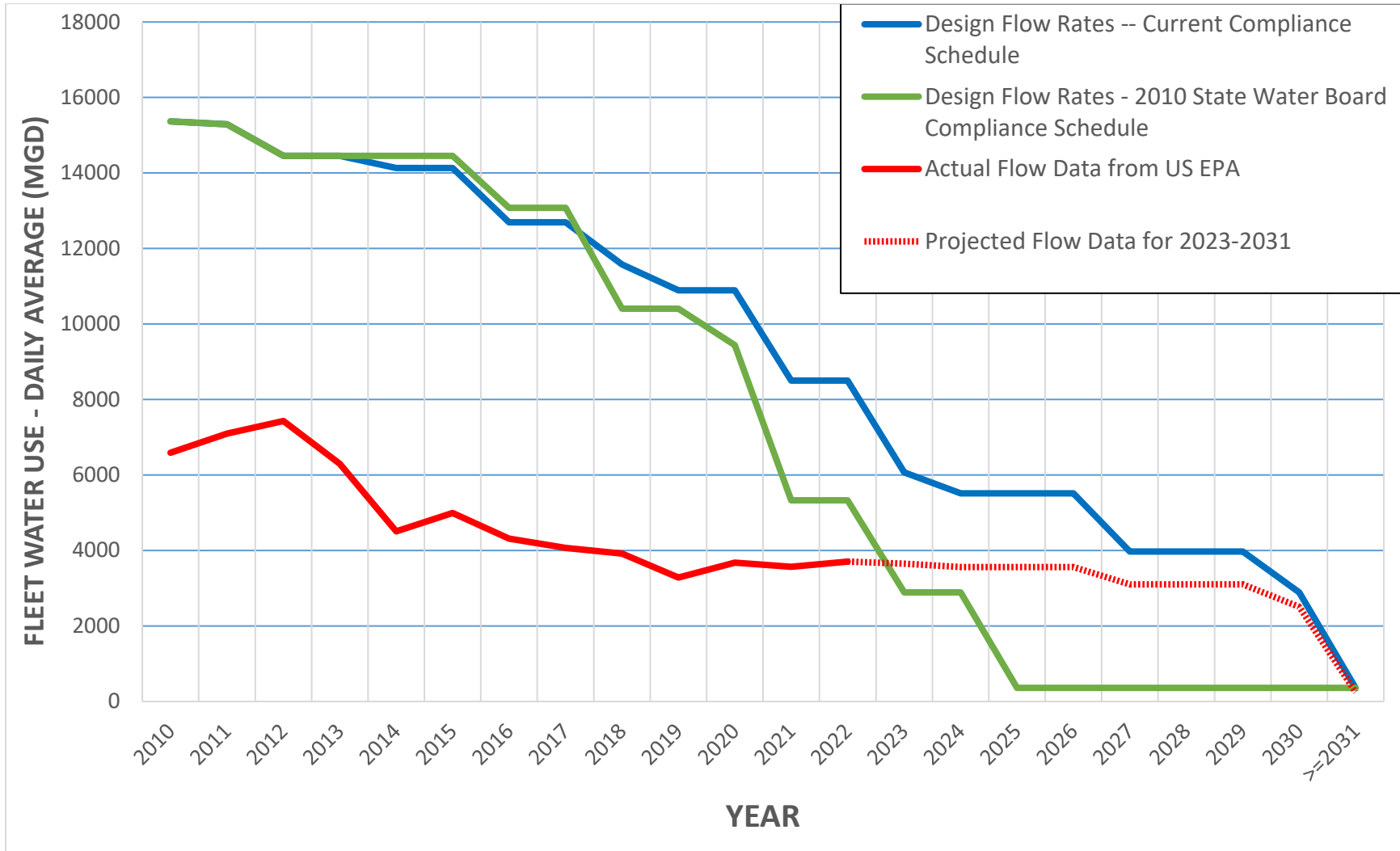
Figure 1 illustrates ocean and estuarine water flow rates of the OTC power plant fleet through time. The uppermost line in solid green shows the OTC Policy compliance schedule as it was originally adopted in 2010, while the solid blue shows the current OTC Policy compliance schedule as last amended in 2023. The solid red line shows actual flow rates from the OTC fleet. See Appendix A for actual flow rate data. The dashed red line shows projected flow rates for 2023 through 2031. Projections are based on the average of the previous three years of actual flow rate data, and future actual flow rate data may be lower than projected due to the exit of several facilities from the CPUC's resource adequacy market and incorporation in the ESSRRP.

The solid red line is below the blue line because fossil-fueled OTC power plants have generally operated with annual capacity factors below design flow rates. In addition, SONGS and several other OTC power plants retired before their OTC compliance dates, thus creating accelerated environmental benefits compared to the original compliance schedule.

Projected OTC flow rates (dashed red line) in 2024 exceed the OTC Policy compliance schedule as it was originally adopted in 2010 (solid green line). However, projected OTC flow rates are still within the most current OTC Policy compliance schedule. Additionally, projected flow rates from 2023 to 2030 exceed the green line from 2023 to 2030 in large part due to the legislative extension of Diablo Canyon's OTC Policy compliance date through 2030. Diablo Canyon is the largest operational OTC facility by volume of daily OTC usage.

Further, owners and operators are required to offset the impacts of impingement and entrainment associated with continued operations by participating in the interim mitigation program established by the OTC Policy, as determined in Resolution No. 2015-0057. The State Water Board is currently considering revising the interim mitigation payment calculation.

Figure 1: Historic and Projected Water Usage by the OTC Fleet



Source: CEC and State Water Board Staff, Updated December 2023.

V. Grid Resource and Infrastructure Planning and Status

The following section describes information pertaining to the State of California's electrical grid, including updates on transmission projects and procurement associated with CPUC decisions ordering additional capacity procurement through 2028. This information relates to OTC Policy implementation because of the OTC power plants' overlay with and impact on local area and statewide grid reliability.

Resource Planning and Responsibility

The CPUC's Integrated Resource Planning (IRP) process periodically evaluates generation resources in the CAISO system.¹⁵ The IRP process was implemented based on the legislative requirements of Senate Bill 350,¹⁶ and serves as a successor to the CPUC's Long-Term Procurement Plan. The intent of this process is to evaluate whether existing and projected resources are sufficient to meet future demand, and to authorize procurement of additional resources in the event that they are insufficient. Retirement schedules for OTC facilities are incorporated into this analysis and the analysis is updated according to progress towards, or changes in retirement deadlines. In addition to system-wide analyses, the IRP process evaluates capacity requirements in localized, high-demand areas.

The CEC is the lead agency for licensing fossil fuel power plants of 50 MW and larger and has a regulatory certification process under the California Environmental Quality Act. Under this process, the CEC conducts an environmental analysis of each project's Application for Certification (AFC) including an analysis of alternatives and mitigation measures to minimize any significant adverse effect the project may have on the environment. These requirements do not apply to the repowering or replacement of an existing power plant wherein the net increase in capacity is less than 50 MW. Assembly Bill 205 gave the CEC additional authority to establish a new Opt-in Certification program for non-fossil fuel power plants, energy storage facilities, and other related facilities, such

¹⁵ The combined Integrated Resource Plan-Long Term Procurement Plan proceeding is R.20-05-003: CPUC. 2020. [Ruling 20-05-003](#). San Francisco, CA: CPUC.

¹⁶ California State Legislature. 2015. Sen. Bill No. 350, approved by Governor October 7, 2015 (2015-2016 Reg. Sess.) Sacramento, CA: California Legislative Information.

as solar photovoltaic or wind facilities of 50 MW and larger under a limited term for applications submitted by June 30, 2029.

Current Resource Authorizations and Applications

Load serving entities participating in the CAISO system are required to procure additional resources based on CPUC decisions related to IRP proceedings. Ultimately, some of the following projects and resources have replaced OTC capacity that is now offline or will replace OTC capacity that is projected to come offline.

In response to the request made by State Water Board members at the August 15, 2023 board meeting, the following information is provided on procurement milestones. Tables 4 through 7 show the different authorizations and approvals of electric capacity procurement for the Southern California area, where the remaining gas-fired OTC power plants are located. The different tracks reflect the separate procurement authorizations under a CPUC planning proceeding, R.12-03-014, that resulted in multiple procurement decisions. Track 1 procurement stems from D.13-02-015, which outlined requirements in the West Los Angeles Basin and Big Creek/Ventura local reliability areas. Track 4 procurement stems from D.14-03-004, which outlined additional requirements in the West Los Angeles Basin and San Diego/Imperial Valley local reliability areas in response to the retirement of SONGS. The use of the term “track” in this context is different from the two tracks for compliance with the OTC Policy.

Table 4: Southern California Edison Current Authorizations

Resource Type	Track 1 LCR¹⁷ (West LA Basin) MW	Track 1 LCR (Big Creek/Ventura) MW	Additional Track 4 Authorization (West LA Basin) MW	Total Authorization MW	Approved Applications MW
Preferred Resources¹⁸ & Energy Storage (Minimum)	200	--	400	600	565 ¹⁹
Gas-fired Generation (Minimum)	1,000	--	--	1,000	1,000
Optional: Preferred Resources/ Storage	Up to 400	--	--	Up to 400	0
Optional: Any Resource	200	--	100 to 300	300 to 500	382
Required: Any Resource	--	215 (minimum) to 290	--	215 (minimum) to 290	207 ²⁰
Total	1,400 to 1,800	215 to 290	500 to 700	2,115 to 2,790	2,154

¹⁷ Local Capacity Requirement (LCR)

¹⁸ Preferred resources are those used for energy efficiency, demand response, renewable resources, and distributed generation. Preferred resources are described in the 2005 State Energy Action Plan II: CPUC. 2005. [State Energy Action Plan II](#). San Francisco, CA: CPUC.

¹⁹ Includes roughly 27 megawatts (MW) of storage capacity authorized by Resolution E-4804 to alleviate constraints in Southern California due to the Aliso Canyon Gas Storage Facility outage: CPUC. [Resolution E-4804](#). San Francisco, CA: CPUC.

²⁰ Includes the 100 MW from the Strata Saticoy Storage Project approved in D.19-12-055 and 95 MW of storage and demand response resources (with the option for an additional 20 MW from one storage resource) approved in Resolution E-5033, which replaced the 262 MW Puente Power Project that was approved in D.16-05-050 and subsequently cancelled. For additional details see:

CPUC. 2019. [Decision 19-12-055](#). San Francisco, CA: CPUC.

CPUC. 2019. [Resolution E-5033](#). San Francisco, CA: CPUC.

CPUC. 2016. [Decision 16-05-050](#). San Francisco, CA: CPUC.

Table 5: Southern California Edison Approved Applications²¹

Resource Type	Location	Capacity MW	Status
Demand Response	Big Creek/Ventura	14	Approved ²²
Demand Response	West LA Basin	5	Approved
Distributed Generation	Big Creek/Ventura	6	Approved
Distributed Solar Generation	Johanna/Santiago	12	Approved
Distributed Solar Generation	West LA Basin	28	Approved
Energy Efficiency	Big Creek/Ventura	6	Approved
Energy Efficiency	Johanna/Santiago	23	Approved
Energy Efficiency	West LA Basin	101	Approved
Energy Storage	Big Creek/Ventura	186	Approved
Energy Storage	Johanna/Santiago	153	Approved
Energy Storage	Long Beach	100	Operational
Energy Storage	West LA Basin	138	Approved
Combined Cycle Gas Turbine	Alamitos	640	Operational
Combined Cycle Gas Turbine	Huntington Beach	644	Operational
Gas Combustion Turbine	Stanton	98	Operational
Total	--	2,154	--

²¹ For additional details, see Southern California Edison applications and CPUC resolutions: CPUC. 2014. [Application 14-11-012](#). San Francisco, CA: CPUC. CPUC. 2014. [Application 14-11-016](#). San Francisco, CA: CPUC. CPUC. 2015. [Application 15-12-013](#). San Francisco, CA: CPUC. CPUC. 2016. [Application 16-11-002](#). San Francisco, CA: CPUC. CPUC. 2015. [Resolution E-4804](#). San Francisco, CA: CPUC. CPUC. 2019. [Resolution E-5033](#). San Francisco, CA: CPUC. CPUC. 2022. [Resolution E-5199](#). San Francisco, CA: CPUC.

²² Approved status indicates that the project has been approved, or that a portion of the capacity (MW) of the associated facility may be operational.

Table 6: San Diego Gas & Electric Current Authorizations

Resource Type	D.13-03-029/ D.14-02-016 MW	Additional Track 4 Authorization MW	Total Authorization MW	Pending & Approved Applications MW
Preferred Resources & Energy Storage	--	200 (Minimum)	200	144.5 ²³
Optional: Any Resource	300 (Pio Pico, CA)	300 to 600	600 to 900	800
Total	300	500 to 800	800 to 1,100	944.5

Table 7: San Diego Gas & Electric Approved Applications²⁴

Resource Type	Location	Capacity in MW	Status
Demand Response	San Diego/Imperial Valley	4.5	Operational
Energy Efficiency	San Diego/Imperial Valley	19	Approved ²⁵
Energy Storage	San Diego/Imperial Valley	121	Approved
Gas Combustion Turbine	Carlsbad (Encina site)	500	Operational
Gas Turbine	Pio Pico	300	Operational
Total	--	944.5	--

²³ Includes roughly 38 MW of storage capacity authorized by Resolution E-4798 to alleviate constraints in Southern California due to the Aliso Canyon Gas Storage Facility outage.

²⁴ For additional details on approved projects, see San Diego Gas & Electric Company's applications:

CPUC. 2014. [Application 14-07-009](#). San Francisco, CA: CPUC.

CPUC. 2016. [Application 16-03-014](#). San Francisco, CA: CPUC.

CPUC. 2017. [Application 17-04-017](#). San Francisco, CA: CPUC.

CPUC. 2016. [Resolution E-4798](#). San Francisco, CA: CPUC.

²⁵ Approved status indicates that the project has been approved, or that a portion of the capacity (MW) of the associated facility may be operational.

Recent Reliability Transmission Projects

The following table provides a summary of the reliability transmission projects approved by the CAISO Board of Governors in the 2012-2013, 2013-2014, 2014-2015, 2015-2016, and 2016-2017 Transmission Plans²⁶ to address reliability concerns related to the retirement of SONGS and OTC facilities in the Los Angeles Basin and San Diego local areas. In Table 8, the in-service date and responsible Participating Transmission Owner (PTO) are identified.

Table 8: In-Service Dates for CAISO Board Approved Transmission Projects

	Transmission Projects	PTO Service Territory	Target In-Service Dates
1	Talega Synchronous Condensers (2x225 Megavolt, Ampere, Reactive, or MVAR)	San Diego Gas and Electric (SDG&E)	In-Service (8/7/2015)
2	San Luis Rey Synchronous Condensers (2x225 MVAR)	SDG&E	In-Service (12/29/2017)
3	Imperial Valley Phase Shifting Transformers (2x400 MVAR)	SDG&E	In-Service (5/1/2017)
4	Sycamore – Peñasquitos 230 kilovolt (kV) Line	SDG&E	In-Service (8/29/2018)
5	San Onofre Synchronous Condensers (1x225 MVAR)	SDG&E	In-Service (10/16/2018)
6	Miguel VAR Support (450 MVAR)	SDG&E	In-Service (4/28/2017)
7	Santiago Synchronous Condensers (3x81 MVAR)	SCE	In-Service (12/8/2017)
8	Mesa Loop-In Project and South of Mesa 230kV Line Upgrades	SCE	In-Service (5/31/2022)

²⁶ Transmission plans are found on the CAISO's website as follows:
 CAISO. 2013. [2012-2013 Transmission Plan](#). Folsom, CA: CAISO.
 CAISO. 2014. [2013-2014 Transmission Plan](#). Folsom, CA: CAISO.
 CAISO, 2015. [2014-2015 Transmission Plan](#). Folsom, CA: CAISO.
 CAISO, 2016. [2015-2016 Transmission Plan](#). Folsom, CA: CAISO.
 CAISO. 2017. [2016-2017 Transmission Plan](#). Folsom, CA: CAISO.

	Transmission Projects	PTO Service Territory	Target In-Service Dates
9	Extension of Huntington Beach Unit 3 Synchronous Condenser (140 MVAR)	SCE	Reliability-Must-Run contract extended and expired on 12/31/2017 ²⁷

Mesa Loop-In Substation Project

The Mesa Loop-In Substation Project rebuilt and upgraded SCE transmission infrastructure in the Western Los Angeles Basin Electric Needs Area. For background, SCE filed an application for a Permit to Construct the Mesa Loop-In Substation Project with the CPUC on March 13, 2015.²⁸ On February 9, 2017, SCE received the Permit to Construct from the CPUC. SCE received the first Notice to Proceed from the CPUC on September 27, 2017, and the second Notice to Proceed for the remaining scope of work (remaining substation, satellite substation work, telecom scope of work) on November 15, 2017. Construction of the project commenced on October 2, 2017, with the majority of the work taking place in the City of Monterey Park, with others in nearby cities and portions of unincorporated Los Angeles County.

One of the primary and final components of the project involved the construction of a 500 kilovolt (kV) substation that replaced a previous and smaller 220 kV substation. This project was completed May 31, 2022.

CPUC Incremental Capacity Procurement Status

The following sections describe the status of capacity procurement ordered by the CPUC in IRP decisions since 2019.

CPUC Incremental Capacity Procurement Pursuant to D.19-11-016

On November 7, 2019, the CPUC adopted D.19-11-016 directing procurement of 3,300 MW net qualifying capacity (NQC) from load serving entities under the CPUC's

²⁷ The contract for the synchronous condensers expired on December 31, 2017, and they are no longer operating.

²⁸ CPUC. 2015. [Application 15-03-033](#). San Francisco, CA: CPUC.

jurisdiction by August 2023, to ensure system-wide electric reliability. The CPUC also recommended that the State Water Board consider revising the OTC Policy to extend the compliance dates for Alamitos Units 3, 4, and 5, Huntington Beach Unit 2, Redondo Beach Units 5, 6, and 8, and Ormond Beach Units 1 and 2. The SACCWIS supported and recommended extending the compliance dates of these power plants in response to this information. On September 1, 2020, the State Water Board adopted an amendment to the OTC Policy extending these compliance dates, several of which were further extended by the August 15, 2023, OTC Policy Amendment.

D.19-11-016 required 1,650 MW of the required procurement to be online by August 1, 2021; 2,475 MW to be online by August 1, 2022; and the full 3,300 MW to be online by August 1, 2023. These requirements only apply to CPUC-jurisdictional load serving entities, which represent approximately 90 percent of the load served in the CAISO. These entities conducted solicitations for replacement capacity in 2019 and 2020, and contracts for the investor-owned utilities' portion of these resources were approved in 2020 and 2021 (the other load serving entities are not required to have contracts approved by the CPUC).²⁹ In D.20-12-044, the CPUC established milestones and reporting deadlines of February 1 and August 1 annually for 2021-2023 for each procurement tranche. Since then, the CPUC has periodically provided procurement progress based on load-serving entities' filings.³⁰

²⁹ See CPUC Resolutions:

CPUC. 2020. [Resolution E-5100](#). San Francisco, CA: CPUC.

CPUC. 2020. [Resolution E-5101](#). San Francisco, CA: CPUC.

CPUC. 2021. [Resolution E-5117](#). San Francisco, CA: CPUC.

CPUC. 2021. [Resolution E-5139](#). San Francisco, CA: CPUC.

CPUC. 2021. [Resolution E-5140](#). San Francisco, CA: CPUC.

CPUC. 2021. [Resolution E-5142](#). San Francisco, CA: CPUC.

³⁰ Information on the status of D.19-11-016 procurement orders can be found on CPUC's [IRP Procurement Track website](#). The most recent update provides a status update on procurement compliance based on load-serving entities' February 1, 2023 filings. See:

CPUC. 2019. [Decision 19-11-016](#). San Francisco, CA: CPUC.

CPUC Incremental Capacity Procurement Pursuant to D.21-06-035

On June 24, 2021, to address mid-term reliability needs, the CPUC adopted D.21-06-035 directing CPUC-jurisdictional load serving entities to procure 11,500 MW of new capacity to come online between 2023 and 2026, in addition to the 3,300 MW ordered in 2019.

This procurement order requires that, out of the 11,500 MW total, 2,500 MW must be from zero-emission resources. Additionally, 2,000 MW must be long lead-time resources, with at least 1,000 MW of long-duration storage (able to deliver at maximum capacity for at least eight hours from a single resource) and 1,000 MW of firm capacity with zero on-site emissions or that qualifies under the renewables portfolio standard eligibility requirements and has at least an 80 percent capacity factor.

D.21-06-035 required that the 11,500 MW total come online as follows: 2,000 MW online by August 1, 2023; 6,000 MW online by June 1, 2024; 1,500 MW online by June 1, 2025; and 2,000 MW online by June 1, 2026.

CPUC Incremental Capacity Procurement Pursuant to D.23-02-040

On February 23, 2023, the CPUC adopted D.23-02-040 directing CPUC-jurisdictional load serving entities to procure 4,000 MW of new capacity to come online in 2026 and 2027, in addition to the 11,500 MW ordered in D.21-06-035. All resources are to come from zero emitting, or otherwise Renewable Portfolio Standard-eligible sources. 2,000 MW of these resources are required to come from long lead-time resources providing firm clean power or long duration energy storage. These resources are required to be online by 2026, with an additional 2,000 MW resources to be online by 2027.

CPUC Incremental Capacity Procurement Monitoring

The CPUC is monitoring procurement under all the various orders described above, including the recent IRP orders D.19-11-016, D.21-06-035 and D.23-02-040. Among these IRP procurement orders, 18,800 MW of capacity is ordered to come online as follows: 1,650 MW by August 1, 2021; 2,475 MW by August 1, 2022; 5,300 MW by August 1, 2023; 11,300 MW by August 1, 2024; 12,800 MW by June 1, 2025; 14,800 MW by June 1, 2026; 16,800 MW by June 1, 2027; and 18,800 MW by 2028.

Largely because of the CPUC’s procurement orders described above, over 13,000 MW of nameplate new clean energy capacity, equivalent to over 6,300 MW NQC, has come online between January 1, 2021, and December 8, 2023. This total exceeds the number of megawatts required by the three recent CPUC IRP procurement orders for 2021-2023 by 1,000 MWs, although some of these resources were the result of other procurement activities and were in the “baseline” of assumed resources when the recent orders were issued. Load serving entities also have contracts for several thousand more MWs of capacity to come online in the near future. While these capacity contracts do not fully meet the requirements of the three recent CPUC procurement orders, there are sufficient transmission and interconnection projects currently underway or in the project development process to meet the nameplate MW capacity requirements of the three recent CPUC procurement orders.

The energy agencies continue to monitor grid reliability, even as new capacity continues to come online. Importantly, several load serving entities have been facing challenges in meeting some mid-term reliability procurement order requirements. For example, SCE and PG&E have requested a two-year extension to the required online date for the Diablo Canyon replacement energy procurement, and long-lead time resource developers have petitioned for the ability to request online date extensions for mid-term reliability’s long lead-time resource (clean firm and long duration energy storage) requirements.³¹ Both these petitions for modification demonstrate that clean firm resource capacity is particularly difficult to procure.

LADWP BAA and OTC Replacement Milestones

The LADWP BAA spans two broad geographic regions, including the Greater Los Angeles Metropolitan Region and the area encompassing the Owens Valley in Eastern California. The LADWP BAA contains three operational gas-fired OTC facilities, including Harbor Generating Station (Harbor), Haynes Generating Station (Haynes), and Scattergood.

³¹ CPUC. 2023. [Joint Expedited Petition for Modification of D. 21-06-035](#). San Francisco, CA: CPUC.

On February 12, 2019, Los Angeles Mayor Eric Garcetti introduced the Los Angeles Green New Deal,³² which included a provision that the LADWP will transition to 100 percent renewable energy by 2045 to help address climate change. This timeline was accelerated by a motion adopted by the Los Angeles City Council in September 2021,³³ which directed the LADWP to procure 100 percent zero-carbon electricity by 2035.

The Green New Deal and motion adopted by the Los Angeles City Council will collectively reduce the impacts of Los Angeles' energy production sector on climate change. However, this goal disrupted the LADWP's previous plans to comply with the OTC Policy that included repowering the three OTC facilities within its BAA with non-OTC, fossil-fueled combined cycle generating turbines (CCGT).

As a result, the LADWP requested on February 3, 2022, to extend the OTC Policy compliance date for Scattergood from December 31, 2024, to December 31, 2029. At its September 30, 2022 meeting, a majority of the SACCWIS supported the LADWP's request. On August 15, 2023, the State Water Board adopted the 2023 OTC Policy Amendment, which extended Scattergood's OTC Policy compliance date as requested by the LADWP.

In information requested by the State Water Board for the 2023 OTC Policy Amendment, the LADWP indicated it intends to comply with the OTC Policy for Scattergood by constructing hydrogen-capable generation capacity. Additionally, the LADWP's 2022 Long Term Strategic Long-Term Resource Plan³⁴ indicates that the LADWP assumes hydrogen generating units will be constructed during the 2030s and 2040s at Harbor and Haynes.

In recognition of the steps necessary to replace existing OTC capacity, in Resolution No. 2023-0025 the State Water Board directed its Executive Director to issue an order pursuant to Water Code section 13383 as soon as feasible requiring the LADWP to

³² Office of Los Angeles Mayor Eric Garcetti. 2019. [Los Angeles' Green New Deal Sustainable City Plan](#). Los Angeles, CA: Los Angeles Mayor's Office.

³³ City of Los Angeles. 2021. [Motion](#). Los Angeles, CA: City of Los Angeles.

³⁴ LADWP. 2022. [The 2022 Strategic Long-Term Resource Plan](#). Los Angeles, CA: LADWP.

identify in writing semi-annual milestones necessary to attain final compliance with the OTC Policy for all three of its facilities by their OTC Policy compliance dates. This order would also require the LADWP to report at least annually in writing with information demonstrating the LADWP's progress towards attaining the milestones and compliance by January 31 of each year and present the information in conjunction with the annual SACCWIS report annually at noticed State Water Board meetings. The order was sent to the LADWP on February 6, 2024, and requires the LADWP to respond with its semi-annual milestones by April 8, 2024. The order also requires the LADWP to submit a letter demonstrating the LADWP's progress towards attaining the milestones and final compliance by November 15, 2024, and by November 15 of each subsequent year until Scattergood, Harbor, and Haynes attain final compliance with the OTC Policy. Additionally, the LADWP will provide a presentation with information on the status of attaining final compliance with the OTC Policy at Scattergood, Harbor, and Haynes at the 2024 annual meeting of the SACCWIS.

VI. Regulatory Considerations and Permitting

The following section describes water quality and air quality regulatory requirements and procedures. In addition to the water and air quality requirements, any extension or expansion of existing power plants that require development, as defined in the Coastal Act Section 30106, would require a coastal development permit from the CCC or Local Coastal Program. These actions are separate and distinct from the contracting process for power plants.

Water Quality

The following section describes water quality related considerations for the operational OTC power plants.

Alamitos

Alamitos' OTC units in operation include Unit 3, 4, and 5, and the power plant's current OTC Policy compliance date is December 31, 2026. On November 12, 2020, the Los Angeles Regional Water Quality Control Board (Los Angeles Regional Water Board) adopted Order R4-2020-0134, which renewed the waste discharge requirements and

National Pollutant Discharge Elimination System (NPDES) permit for Alamitos. Order R4-2020-0134 prescribes effluent limitations for the discharge of OTC water and low-volume wastes to the San Gabriel River Estuary and for the discharge of storm water to the Los Cerritos Channel Estuary. Alamitos is permitted to discharge 729 million gallons a day (MGD) of effluent, including OTC water. Its combined design flow for units 3 through 6, as listed in the 2010 Final Substitute Environmental Document (2010 Final SED), is 1,066 MGD. The design flow is presently lower than this quantity and reflected by the power plant's current permit limits, as Alamitos Unit 1, 2, and 6 were retired by December 31, 2020. Alamitos' cooling water intake structure is located in a canal connected to the Los Cerritos Channel Estuary.

The NPDES permit issued to Alamitos by the Los Angeles Regional Water Board will expire on December 31, 2025. On November 16, 2023, the Los Angeles Regional Water Board renewed the associated Time Schedule Order. The Time Schedule Order sets interim effluent limitations for temperature, total residual chlorine, copper, nickel, Bis(2-ethylhexyl)phthalate, enterococcus, and total suspended solids through December 31, 2025. Pursuant to Section 13376 of the Water Code, the permittee may submit an application and complete a Report of Waste Discharge to renew the NPDES permit at least 180 days prior to the expiration date of Order R4-2020-0134.

Diablo Canyon

Diablo Canyon's OTC units in operation include Unit 1 and 2, and the power plant's current OTC Policy compliance date is October 31, 2030. On July 12, 1985, the Central Coast Regional Water Quality Control Board adopted NPDES permit No. CA0003751 for Diablo Canyon, which was renewed in 1990 via Order R3-1990-0009. Order R3-1990-0009 prescribes effluent limitations for the discharge of multiple sources of wastewater, including OTC water to Diablo Cove. Diablo Canyon is permitted to discharge 2,540 MGD of effluent, including OTC water. Its design flow, as listed in the 2010 Final SED, is 2,528 MGD. Diablo Canyon's cooling water intake structure is located in the power plant's intake cove.

Order R3-1990-0009 remains in effect pending further action from the Central Coast Regional Water Quality Control Board.

Harbor

Harbor's OTC unit in operation is Unit 5, and the power plant's current OTC Policy compliance date is December 31, 2029. On February 27, 1995, the Los Angeles Regional Water Board adopted Order No. 95-027, which implemented waste discharge requirements and NPDES permit No. CA0000361 for Harbor. The Los Angeles Regional Water Board renewed these requirements in 2003 via Order R4-2003-0101. Order R4-2003-0101 prescribes effluent limitations for the discharge of OTC water and demineralizer regeneration wastewater into the Los Angeles Harbor's West Basin. Harbor is permitted to discharge 108 MGD of effluent, including OTC water. Its design flow, as listed in the 2010 Final SED, is 108 MGD. Harbor's cooling water intake structure is located in the Los Angeles Harbor.

Order R4-2003-0101 remains in effect pending further action from the Los Angeles Regional Water Board.

Haynes

Haynes' OTC units in operation include Unit 1, 2, and 8, and the power plant's current OTC Policy compliance date is December 31, 2029. In 2000, the Los Angeles Regional Water Board adopted Order No. 00-081, which implemented waste discharge requirements and NPDES permit No. CA0000353 for Haynes. The Los Angeles Regional Water Board revised these requirements in 2004 via Order R4-2004-0089. Order No. 00-081 prescribes effluent limitations for multiple sources of wastewater, including OTC water into the San Gabriel River. Haynes is permitted to discharge 1,014 MGD of effluent, including OTC water. Its design flow, as listed in the 2010 Final SED, is 968 MGD. The design flow is presently lower than this quantity, as Haynes Units 5 and 6 were retired by December 31, 2013. Haynes' cooling water intake structure is located in the Long Beach Marina.

Order No. 00-081 remains in effect pending further action from the Los Angeles Regional Water Board.

Huntington Beach

Huntington Beach's OTC unit in operation includes Unit 2, and the power plant's current OTC Policy compliance date is December 31, 2026. On December 4, 2020, the Santa Ana Regional Water Board adopted Order R8-2020-0040, which renewed the waste discharge requirements and NPDES permit for Huntington Beach. Order R8-2020-0040 prescribes effluent limitations for the discharge of multiple sources of wastewater, including OTC water to the Pacific Ocean. Huntington Beach is permitted to discharge 127 MGD of effluent, including OTC water. Its design flow, as listed in the 2010 Final SED, is 514 MGD. The design flow is presently lower than this quantity and reflected by the power plant's current permit limits, as Huntington Beach Units 1, 3, and 4 were retired by December 31, 2020. Huntington Beach's cooling water intake structure is located in the Pacific Ocean.

The NPDES permit issued to Huntington Beach by the Santa Ana Regional Water Quality Control Board will expire on December 31, 2025. Pursuant to Section 13376 of the Water Code, the permittee may submit an application and complete a Report of Waste Discharge to renew the permit at least 180 days prior to the expiration date of Order R8-2020-0040.

Ormond Beach

Ormond Beach's OTC units in operation include Unit 1 and 2, and the power plant's current OTC Policy compliance date is December 31, 2026. On November 12, 2020, the Los Angeles Regional Water Board adopted Order R4-2020-0132, which renewed the waste discharge requirements and NPDES permit for Ormond Beach. Order R4-2020-0132 prescribes effluent limitations for the discharge of OTC water, low-volume wastes, and storm water to the Pacific Ocean. Ormond Beach is permitted to discharge 688.2 MGD of effluent, including OTC water. Its design flow, as listed in the 2010 Final SED, is 685 MGD. Ormond Beach's cooling water intake structure is located in the Pacific Ocean.

The NPDES permit issued to Ormond Beach by the Los Angeles Regional Water Board will expire on December 31, 2025. Pursuant to Section 13376 of the Water Code, the permittee may submit an application and complete a Report of Waste Discharge to renew the permit at least 180 days prior to the expiration date of Order R4-2020-0132.

Scattergood

Scattergood's OTC units in operation include Unit 1 and 2, and the power plant's current OTC Policy compliance date is December 31, 2029. On February 11, 2016, the Los Angeles Regional Water Board adopted Order R4-2016-0055, which renewed the waste discharge requirements and NPDES permit for Scattergood. Order R4-2016-0055 prescribes effluent limitations for the discharge of OTC water, industrial process waters, and storm water to the Pacific Ocean. Scattergood is permitted to discharge 226 MGD of effluent, including OTC water. Its design flow, as listed in the 2010 Final SED, is 495 MGD. The design flow is presently lower than this quantity and reflected by the power plant's permit limits, as Scattergood Unit 3 was retired by December 31, 2015. Scattergood's cooling water intake structure is located in the Santa Monica Bay.

On March 18, 2021, the Los Angeles Regional Water Board administratively extended Scattergood's NPDES permit after receiving a complete Report of Waste Discharge from the LADWP. The terms and conditions of Order R4-2016-0055 continue to be in full effect pending action on a new/revised permit by the Los Angeles Regional Water Board.

Air Quality

Air Quality Regulatory Structure

The U.S. EPA, CARB, and California's 35 local air quality management and air pollution control districts (air districts) comprise a three-tiered system for addressing air pollution in California. All power plants that operate in the state and produce emissions are permitted by air districts, which require scheduled monitoring and reporting from the operators to ensure compliance with applicable rules and regulations. The air districts, in coordination with U.S. EPA and CARB, develop regional air quality management plans for attaining and maintaining health-based ambient air quality standards. The air districts set and enforce emissions standards for local sources, including power plants. The South Coast

Air Quality Management District (SCAQMD) is the air district whose jurisdiction covers all of Orange County and the non-desert regions of Los Angeles County, San Bernardino County and Riverside County, including the Coachella Valley. The Ventura County Air Pollution Control District (VCAPCD) jurisdiction encompasses Ventura County. The remaining operational non-nuclear OTC units (those listed in Table 2 of this report) are all located within these two air districts. The following sections describe air-related regulatory considerations for those OTC units. Diablo Canyon is not included because it is a nuclear generation facility, and therefore the generating units do not directly emit air pollutants or carbon dioxide while operating.

Permitting and Compliance

Each operating OTC facility has a current federal Clean Air Act Title V permit and can continue operating in accordance with its permit, subject to renewal requirements. The Title V permit for Huntington Beach was recently renewed and expires in 2027. Operation of Alamitos and Ormond Beach through 2026, and Scattergood, Harbor, and Haynes through 2029, will require that each facility apply to renew its Title V permit in accordance with air district permitting procedures and timelines, including any requirements for public notice. Ormond Beach applied for a Title V permit renewal on March 1, 2023, and the application was subsequently deemed complete by VCAPCD on April 13, 2023. Ormond Beach is able to operate under a Permit Shield until a new Title V permit is issued. Title V permits may include conditions establishing air pollutant emission standards, limits on fuel consumption, visible emission standards, and other air program requirements.

Based on information available to CARB, SCAQMD, and VCAPCD, the facilities are in compliance with applicable rules and regulations as of December 2023. VCAPCD indicated that there are no Notices of Violation (NOV) or Notices to Comply (NTC) for Ormond Beach issued since 2021. For the facilities in SCAQMD, a total of nine NOVs and five NTCs either occurred or were issued since 2021. For Alamitos, these consisted of two NOVs for visible emissions and a self-reported violation of the permitted ammonia injection rate for a selective catalytic reduction control device, and one NTC related to reporting. For Huntington Beach, these consisted of one NOV for compliance with the ammonia slip limit for an auxiliary boiler and one NTC related to reporting. Scattergood

had one NOV for reporting, and two NTCs related to reporting and for failure to pass an ammonia slip test; the latter NTC is pending resolution. Harbor had four NOVs related to recordkeeping/reporting, reconciliation of Regional Clean Air Incentives Market Trading Credits, and a relative accuracy test audit of their continuous emissions monitoring system. Haynes had one NOV for failed particulate matter and ammonia source tests for Boiler #2 that was later retested and passed, and one NTC related to reporting. Aside from the one pending NTC for Scattergood, all other compliance actions have been resolved.³⁵

Rulemaking

VCAPCD does not anticipate future air district rule changes that would directly impact generation at Ormond Beach through its 2026 compliance date.

SCAQMD Rule 1135 and Rule 429.2 are the two key rules that apply to new and existing electric generating facilities in SCAQMD. Rule 1135 sets Best Available Retrofit Control Technology level emissions standards for oxides of nitrogen (NO_x). OTC facilities that plan to comply with the OTC Policy by retiring their OTC generating emissions units are exempt from the Best Available Retrofit Control Technology standards through their OTC Policy compliance dates, including approved extensions, but no later than December 31, 2029. This provision applies so long as the generating units retain their NO_x and ammonia limits, startup, shutdown, and tuning requirements; and the units meet pollutant averaging times in the current permits; the units comply with their compliance dates established in Table 1 of Section 2(B) of the OTC Policy; and facilities provide proper notification to the SCAQMD of any extensions. However, owners or operators that remove the OTC system to comply with the OTC Policy, but continue operating the generating emissions units, will be expected to comply with Rule 1135 NO_x emission limits for boilers and gas turbines, or use the Rule 1135 (g)(1) exemption for combined-cycle gas turbines installed prior to November 2, 2018, which provides some additional flexibility on the NO_x emission limit.

³⁵ Information is available through the SCAQMD Facility Information Detail (F.I.N.D.) web tool at: [F.I.N.D. \(aqmd.gov\)](https://aqmd.gov)

Rule 429.2 is a companion rule to Rule 1135 that establishes requirements for generating unit startup, shutdown, and malfunction events, along with monitoring, recordkeeping, and reporting requirements. Rule 429.2 only exempts OTC units that will be retired by the OTC Policy compliance date from certain provisions through December 31, 2029, including startup and shutdown duration limits, limits to the number of startups, and installing a temperature device. Therefore, any modification to OTC compliance plans that will keep an existing gas generating unit operational and instead achieve compliance through replacement with non-OTC alternate cooling technology, will no longer qualify for the Rule 429.2 exemption for OTC units to be retired.

Any future projects to modify existing emissions units or install new emissions units at the facilities will need to go through the appropriate permit application and review processes of the respective air district. This would include meeting applicable source-specific rule requirements in addition to New Source Review requirements, including Best Available Control Technology and emission offsets.

VII. Conclusions

Currently, the SACCWIS does not recommend any changes to the compliance schedules in the OTC Policy for associated generating facilities. However, SACCWIS members continue to assess reliability impacts to the electric grid in connection with implementation of the OTC Policy.

Energy procurement to meet CPUC procurement orders is ongoing and the CPUC, CEC, and CAISO continue to monitor progress. Consistent with the cycle of energy project development, existing contracts may face delays, and some new contracts will be added. Despite deploying new and clean generation, the grid remains vulnerable to risks such as delays and extreme events. Additional capacity may be needed to maintain grid reliability, but no changes to the OTC Policy's compliance schedules are recommended at this time. CPUC, CEC, and CAISO will continue to monitor procurement and update grid reliability assessments in quarterly reports pursuant to Senate Bill 846.

VIII. APPENDIX A

AVERAGE ANNUAL FLOW RATE DATA FOR ONCE-THROUGH COOLING FACILITIES

Power Plant Name	Average Annual Flow Rate in Million Gallons per Day (MGD)								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Humboldt Bay Power Plant Units 1&2	0	0	0	0	0	0	0	0	0
Potrero Power Plant	152	0	0	0	0	0	0	0	0
Contra Costa Generating Station	15.4	33	53	17	0	0	0	0	0
Pittsburg Power Plant	18.8	16.9	79	48.8	26	67	32	0.07	0
Moss Landing Power Plant	289.9	212.3	396.4	353.6	244.9	312.5	231	135.2	200.3
Diablo Canyon Nuclear Power Plant	2,347	2,368	2,277	2,311	2,242	2,360	2,372	2,286.4	2,338
Morro Bay Power Plant	21.5	41.7	50.2	22.7	0.2	0	0	0	0
El Segundo Generating Station	112.9	97	197	217	107	135	7	4.58	0
Haynes Generating Station Units 1&2	720	812	886	725	471	506	448	355.5	441
Scattergood Generating Station	276.4	299	296.8	272	244	311	151	109.8	108
Harbor Generating Station	45.5	44.0	47.3	46.8	49.6	49.1	47	50.07	46
Alamitos Generating Station	2.9	106	375	496	332	324	317	316.21	114.74*
Redondo Beach Generating Station	59	180	178	95	107	142	95	156.95	75.3*
Mandalay Generating Station	39.7	56	77	109	63	78	56	48.4	3
Ormond Beach Generating Station	12	18	71	133	68	98	60	86.6	117.9
Huntington Beach Generating Station	202.9	242.6	238.5	178	169	159.6	134	134.2	114.5

	Average Annual Flow Rate in Million Gallons per Day (MGD)								
Power Plant Name	2010	2011	2012	2013	2014	2015	2016	2017	2018
South Bay Power Plant	34.5	0	0	0	0	0	0	0	0
Encina Power Station	211.9	314.5	531.1	264.0	338.6	410.2	325	387.8	356.1
San Onofre Nuclear Generating Station	2,030	2,256	1,677	1,003	42	42	37	0	0
Total	6,592.3	7,097	7,430.3	6,291.9	4,504.3	4,994.4	4,312	4,071.8	3,915.9

Source: EPA Flow Data, (Intergraded Compliance Information System [ICIS] Database). Updated December 2023.

AVERAGE ANNUAL FLOW RATE DATA FOR ONCE-THROUGH COOLING FACILITIES (CONTINUED)

Power Plant Name	Average Annual Flow Rate (MGD)			
	2019	2020	2021	2022
Humboldt Bay Power Plant Units 1&2	0	0	0	0
Potrero Power Plant	0	0	0	0
Contra Costa Generating Station	0	0	0	0
Pittsburg Power Plant	0	0	0	0
Moss Landing Power Plant	236.2	241.2	241.7	257.4
Diablo Canyon Nuclear Power Plant	2,067	2,282	2,212	2287.4
Morro Bay Power Plant	0	0	0	0
El Segundo Generating Station	0	0	0	0
Haynes Generating Station Units 1&2	398.7	467.0	472.0	390.3*
Scattergood Generating Station	98.1	124.0	92.0	99.1
Harbor Generating Station	48.1	45.0	49.0	49.3

Power Plant Name	Average Annual Flow Rate (MGD)			
	2019	2020	2021	2022
Alamitos Generating Station	101.8	126.7	126.0	254.6*
Redondo Beach Generating Station	72.4	80.2	60.3	122.5*
Mandalay Generating Station	0	0	0	0
Ormond Beach Generating Station	146.9	227.5	250.6	180.2
Huntington Beach Generating Station	113.4	82.1	68.3	60
South Bay Power Plant	0	0	0	0
Encina Power Station	262.1	0	0	0
San Onofre Nuclear Generating Station	0	0	0	0
Total	3,545	3,814	3,572.6	3706.8

Source: EPA Flow Data, (Intergraded Compliance Information System [ICIS] Database). Updated December 2023.

*The methodology to calculate total averages for Alamitos, Haynes, and Redondo Beach was adjusted for 2022 to reflect average annual flow rate more accurately by adding total monthly volumes from individual discharge points, rather than averaging across individual discharge points.