

Draft 2025 Report of the Statewide Advisory Committee on Cooling Water Intake Structures

March 11, 2025



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Acronyms and Abbreviations

SED	Substitute Environmental Document
AC	After Construction
Air District	Air Pollution Control District
Alamitos	Alamitos Generating Station
BAA	Balancing Authority Area
CAISO	California Independent System Operator
CARB	California Air Resources Board
CEC	California Energy Commission
CO	Construction
CPUC	California Public Utilities Commission
Diablo Canyon	Diablo Canyon Nuclear Power Plant
Harbor	Harbor Generating Station
Haynes	Haynes Generating Station
Huntington Beach	Huntington Beach Generating Station
IRP	Integrated Resource Planning
LADWP	Los Angeles Department of Water and Power
LCR	Local Capacity Requirement
Los Angeles Regional Water Board	Los Angeles Regional Water Quality Control Board
LSE	Load Serving Entity
MGD	Million Gallons per Day
MVAR	Mega Volt, Ampere, Reactive
MW	Megawatt
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
PC	Pre-Construction
PMAX	CAISO-certified Maximum Operating Level (in MW)
PTO	Participating Transmission Owner
RECLAIM	Regional Clean Air Incentives Market
Redondo Beach	Redondo Beach Generating Station
S1	Semester 1
S2	Semester 2
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
SONGS	San Onofre Nuclear Generating Station
State Water Board	State Water Resources Control Board
Strategic Reserve	Electricity Supply Strategic Reliability Reserve Program
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, impaneled the SACCWIS to advise the State Water Board on the implementation of the OTC Policy.¹

Since 2010, the OTC Policy has reduced marine and estuarine water use by electricity generators in California and lessened entrainment and impingement mortality of marine life. The SACCWIS is committed to realizing full and final 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.

Since the adoption of the OTC Policy, 12 of the 19 power plants to which it applied 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 final compliance date listed in the OTC Policy is October 31, 2030.

As a conclusion of the findings of this report, the SACCWIS does not recommend any changes to the final compliance schedules in the OTC Policy for associated generating facilities. The SACCWIS continues to closely monitor grid reliability needs throughout the state. Load Serving Entity (LSE) 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 other contracts will be added, consistent with the cycle of energy project development. Despite progress in deployment of new, clean generation, the grid remains

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.

susceptible to a combination of risks including development delays for authorized procurement of new resources, extreme events such as west-wide heat waves, 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 final 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

II. SACCWIS Role and Process

The SACCWIS includes representatives from the CEC, CPUC, California Coastal Commission, State Lands Commission, 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 final 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 the SACCWIS' recommendations and, if appropriate, consider modifications to the OTC Policy. If the SACCWIS energy agencies make a unanimous recommendation for an

² California State Legislature. 2022. [Sen. Bill No. 846](#), approved by Governor Gavin Newsom on September 2, 2022 (2021-2022 Reg. Sess.) (hereinafter Senate Bill 846.) Sacramento, CA: California Legislative Information. Senate Bill 846 mandated that the California Energy Commission and CPUC develop quarterly joint agency reliability planning assessments. The joint agency assessments can be found on the [California Energy Commission's Joint Agency Reliability Planning Assessment: SB 846 Secondary Quarterly Report Website](#).

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 and final 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. 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 final 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 Los Angeles Department of Water and Power (LADWP) Balancing Authority Areas (BAA) that have achieved final compliance, several of which did so well in advance of their mandated final compliance deadlines.

Table 1: Gas-Fired OTC Facility Compliance Achievement

Facility & Units	Maximum Output (MW)	OTC Policy Scheduled Compliance Date	Actual Final 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 ³
Contra Costa 6, 7	674	Dec. 31, 2017	Retired Apr. 30, 2013 ⁴
San Onofre 2, 3	2,246	Dec. 31, 2022	Retired June 7, 2013 ⁵
Haynes 5, 6	535	Dec. 31, 2013	Retired June 13, 2013 ⁶
El Segundo 3	335	Dec. 31, 2015	Retired July 27, 2013 ⁷
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
Encina 2-5	844	Dec. 31, 2018	Retired Dec. 11, 2018
Redondo Beach 7	493	Dec. 31, 2020	Retired Oct. 1, 2019

³ 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.

⁴ 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.

⁵ San Onofre Nuclear Generating Station Units 2 and 3 were officially retired June 7, 2013, but they ceased power generation on Jan. 31, 2012.

⁶ The Los Angeles Department of Water and Power 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.

⁷ 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	Maximum Output (MW)	OTC Policy Scheduled Compliance Date	Actual Final Compliance Date
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 ⁸
Redondo Beach 5, 6, 8	834	Dec. 31, 2023	Retired Dec. 31, 2023
Total Capacity (MW)	13,819	--	--

Table 2 reflects the final 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.

⁸ Dynegy Moss Landing Power Plant complied with Track 2 of the Once-Through Cooling Policy. However, its OTC units have since been decommissioned and are no longer using any OTC water.

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

Facilities and Units	PMAX (MW) as of 8/2023	OTC Policy Scheduled Final 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 Final Compliance Date	Maximum Output (MW)	Annual Capacity Factors (Percent)						
			2018	2019	2020	2021	2022	2023	2024 (Jan-Sept)
Alamitos 3	Dec. 31, 2026	327	10.13	5.58	6.46	5.58	9.37	8.56	0.49
Alamitos 4	Dec. 31, 2026	334	9.60	5.59	4.50	6.37	8.96	7.46	0.32
Alamitos 5	Dec. 31, 2026	480	2.93	1.24	5.42	4.63	2.55	3.34	0.33
Huntington Beach 2	Dec. 31, 2026	227	6.99	4.12	5.69	4.46	5.64	8.89	0.40
Ormond Beach 1	Dec. 31, 2026	741	1.31	0.55	4.98	2.00	1.44	0.98	0.37
Ormond Beach 2	Dec. 31, 2026	750	1.28	1.63	5.26	4.04	2.86	2.65	0.36
LADWP Balancing Authority Area Facilities and Units									
Harbor 5	Dec. 31, 2029	75	1.01	3.40	0.39	2.59	3.60	4.66	5.46
Haynes 1	Dec. 31, 2029	230	1.64	4.05	5.13	1.70	4.71	14.36	8.16
Haynes 2	Dec. 31, 2029	230	1.13	1.18	3.92	1.76	3.33	-0.16	-0.184 ⁹
Haynes 8	Dec. 31, 2029	264	45.39	39.22	48.89	34.62	31.30	30.13	44.41
Scattergood 1	Dec. 31, 2029	163	4.47	3.62	3.15	2.84	2.75	2.12	1.81
Scattergood 2	Dec. 31, 2029	163	2.38	6.62	10.36	1.87	0.78	1.67	1.68

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

⁹ 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 final 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 and accounts for OTC owner and operator compliance decisions. While most OTC owners and operators opted to retire their OTC units, which qualifies as Track 1 compliance, Moss Landing Power Plant opted to comply with Track 2, which allows limited use of OTC water and explains why the solid green and blue lines approach but do not reach zero in 2031. However, Moss Landing Power Plant's OTC units have since been decommissioned and are no longer using OTC water, so the actual use of OTC water is expected to be zero MGD after all OTC power plants have attained full final compliance.

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 2024 through 2031. Projections are based on the average of the previous three years of actual flow rate data.

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 final compliance dates, thus creating accelerated environmental benefits compared to the original final compliance schedule.

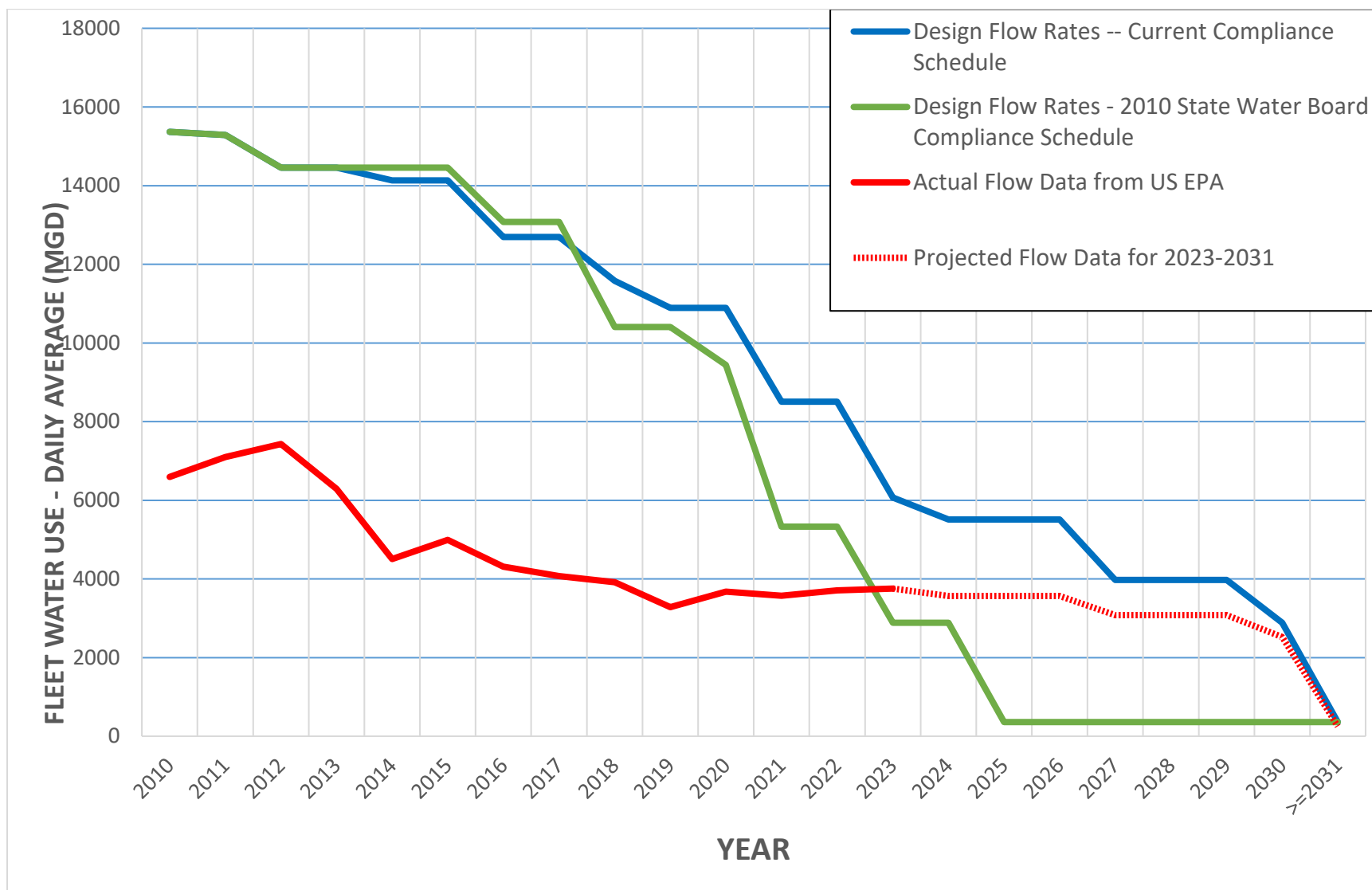
Projected OTC flow rates (dashed red line) in 2024 exceed the OTC Policy final compliance schedule as it was originally adopted in 2010 (solid green line). However, projected OTC flow rates are still within the most current OTC Policy final compliance schedule. Additionally, projected flow rates from 2023 to 2030 exceed the green line from 2023 to 2030 in large part due to the legislative extension of Diablo Canyon Nuclear Power Plant's (Diablo Canyon) OTC Policy final compliance date through 2030 via Senate Bill 846. Diablo Canyon is the largest operational OTC facility by volume of daily OTC usage.

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 and Resolution No. 2024-0014.^{10, 11}

¹⁰ State Water Resources Control Board. 2015. [Resolution No. 2015-0057](#). Sacramento, CA: State Water Resources Control Board.

¹¹ State Water Resources Control Board. 2024. [Resolution No. 2024-0014](#). Sacramento, CA: State Water Resources Control Board.

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



Source: CEC and State Water Board Staff. Last updated November 2024.

IV. Strategic Reserve Power Plant Capacity

On June 30, 2022, Governor Gavin Newsom signed into law Assembly Bill 205, which created a statewide Electricity Supply Strategic Reliability Reserve Program (Strategic Reserve) to bolster system reliability while California procures clean energy resources, including extending the operations of power plants previously scheduled for retirement.¹² The Strategic Reserve acknowledged that existing generation assets, such as some OTC power plants, would be required to maintain reliability during extreme or simultaneously occurring extreme events as California transitions to a clean energy economy. By intent, the Strategic Reserve OTC power plants would only be called upon to support grid operations during extreme events, thereby limiting the use of OTC water and limiting total annual air pollutant and GHG emissions.

Following the creation of the Strategic Reserve and a recommendation from SACCWIS to extend the OTC Policy final compliance dates for Alamitos, Huntington Beach, and Ormond Beach generating stations (Alamitos, Huntington Beach, and Ormond Beach, respectively) contingent upon these power plants participating in the Strategic Reserve, the State Water Board adopted an OTC Policy amendment on August 15, 2023, which extended the final compliance deadlines of the three power plants to December 31, 2026.¹³ Alamitos, Huntington Beach, and Ormond Beach entered service in the Strategic Reserve beginning January 1, 2024.

The CAISO may access Strategic Reserve OTC power plant units in the CAISO BAA according to processes specified in CAISO Operating Procedure 4420.¹⁴ In early July and September 2024, the CAISO operated through periods of prolonged heat and wildfire risks that posed potential risks to grid reliability. Additionally, prolonged heat forecasted in other balancing areas across the Western United States introduced risks that California's

¹² California State Legislature. 2022. [Assembly Bill No. 205](#), approved by Governor Gavin Newsom on June 30, 2022 (2021-2022 Re. Sess.) (hereinafter Assembly Bill 205.) Sacramento, CA: California Legislative Information.

¹³ State Water Resources Control Board. 2023. [Resolution No. 2023-0025](#). Sacramento, CA: State Water Resources Control Board.

¹⁴ California Independent System Operator. 2024. [Operating Procedure 4420](#). Folsom, CA: California Independent System Operator.

access to imported energy would be limited. The CAISO employed Strategic Reserve Units in three separate instances during this summer period.

The first of these instances occurred on July 10 and 11, 2024, during which the CAISO projected heightened electricity demands across much of California and the broader Western United States resulting from persistent high temperatures that threatened to overtax generators running at high outputs for prolonged periods of time, active wildfires that endangered grid infrastructure, and a west-wide heatwave that could have limited access to imported energy. The CAISO therefore instructed Alamitos, Huntington Beach, and Ormond Beach units to start-up and remain on standby at minimum operating levels to be ready to help manage demand conditions starting July 11. Throughout July 10 and 11, as projections of grid conditions improved, the CAISO did not require these units to dispatch above minimum operating levels for reliability. The CAISO subsequently instructed these Strategic Reserve units to shut down by midnight on July 11.

In early September 2024, the CAISO again projected heightened electricity demands across much of California and the broader Western United States resulting from persistent high temperatures. As in July, the CAISO instructed Alamitos, Huntington Beach, and Ormond Beach units to start up and remain on standby at minimum operating levels to be ready to help manage demand conditions starting September 5. On September 5 and 6, the CAISO continued to forecast high system demands through the day. Out of an abundance of caution, the CAISO instructed units to increase capacity to a level that would best position unit ramping times to meet system needs across evening peak and net peak periods. The CAISO ultimately did not require the units to dispatch further for reliability as conditions improved. Additionally, the CAISO forecasted temperatures and associated demands across California and the Western United States to subside in the following days. The CAISO therefore instructed units to shut down by midnight on September 6.

Shortly after this event, the CAISO forecasted high temperatures in California and the broader Western United States on September 9, 2024. Because of the potential risks to generators and electricity imports, the CAISO instructed Strategic Reserve power plant

units to start up and remain on standby at minimum operating levels to be ready to help manage grid conditions starting September 9. However, the CAISO did not require units to dispatch above minimum operating levels for reliability as grid conditions improved and no Energy Emergency Alert Watch or Energy Emergency Alerts at or above level 1 were in effect. The CAISO instructed units to shut down after September 9.

The limited use of the Strategic Reserve OTC power plants demonstrates that the CAISO only dispatched OTC units sparingly when extreme or emergency conditions were forecasted in summer 2024. Capacity factors listed in Table 3 above reflect this limited use in 2024.

V. Grid Resource Planning and Procurement Status

This section describes information pertaining to the State of California's electrical grid, focusing on updates on transmission projects and procurement through 2028. This information relates to OTC Policy implementation because of the OTC power plants' overlay with and impact on statewide grid reliability.

Resource Planning and Responsibility

This section summarizes the roles of the CPUC, CAISO, and CEC in maintaining California's electrical grid reliability.

The CPUC is the agency responsible for setting electricity resource planning targets for LSEs in its jurisdiction, and the mechanism through which this planning occurs is called the Integrated Resource Planning (IRP) process. The IRP process was implemented based on the legislative requirements of Senate Bill 350, and it serves as a successor to the CPUC's Long-Term Procurement Planning process established in 2002 after the California Energy Crisis.^{15, 16} The IRP process is intended to ensure a diverse and balanced portfolio of resources that simultaneously maximizes renewable energy

¹⁵ California State Legislature. 2015. [Senate Bill No. 350](#), approved by Governor Gavin Newsom on October 7, 2015 (2015-2016 Reg. Sess.) Sacramento, CA: California Legislative Information.

¹⁶ United States Energy Information Administration. [Subsequent Events – California's Energy Crisis](#). Washington D.C.: United States Energy Information Administration.

integration to reach California's greenhouse gas reduction targets while minimizing costs and maintaining reliability.¹⁷ To achieve these goals, the CPUC regularly evaluates whether existing and projected resources are sufficient to meet future demand. This analysis is then used by the CPUC to provide procurement and policy guidance. This information is significant to the OTC Policy compliance deadlines because retirement schedules for OTC power plants are incorporated into the IRP planning process. IRP analysis is in part updated according to progress towards, or changes in, retirement deadlines.

The CAISO manages the flow of electricity across high-voltage, long-distance power lines, operates a competitive wholesale energy market, and oversees transmission planning in California's largest balancing authority area. After the CPUC adopts IRP planning targets, which account for OTC final compliance deadlines, it sends its generation portfolio to the CAISO to inform its authorization of new transmission projects that interconnect new generation resources to the electrical grid via the Transmission Planning Process. The collective IRP-Transmission Planning process is open to public feedback through public and stakeholder engagement in the fall, and the CPUC transmits its generation portfolio findings to CAISO by February annually.

The CEC is the state's primary energy policy and planning agency. The CEC established the California Energy Demand forecast, which is the foundation for energy planning in the state, in consultation with the CPUC, CAISO, and CARB. The CEC provides regular reliability assessments to provide situational awareness to the Governor's Office, Legislature, and the public. It also provides technical support during emergencies impacting the electrical grid by coordinating energy resources, managing power disruptions, ensuring continuity of energy services, and collaborating with utility and relevant agencies to resolve energy-related challenges during disasters. Additionally, the CEC maintains the Demand Side Grid Support and Distributed Electricity Backup Assets programs to provide emergency capacity during grid emergencies. The CEC is also the

¹⁷ The combined Integrated Resource Plan-Long Term Procurement Plan proceeding is R.20-05-003. See: California Public Utilities Commission. 2020. [Ruling 20-05-003](#). San Francisco, CA: California Public Utilities Commission.

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, 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, signed into state law on June 30, 2022, 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 as solar photovoltaic or wind facilities of 50 MW and larger under a limited term for applications submitted by June 30, 2029.

Past 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 Plans to address reliability concerns related to the retirement of SONGS and OTC facilities in the Los Angeles Basin and San Diego local areas.¹⁸ In Table 4, the in-service date and responsible Participating Transmission Owner (PTO) are identified.

¹⁸ Previous Transmission Plans can be found on the [California Independent System Operator's Transmission Plans and Studies Library](#).

Table 4: 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 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 230 kilovolt Line Upgrades	SCE	In-Service (5/31/2022)
9	Extension of Huntington Beach Unit 3 Synchronous Condenser (140 MVAR)	SCE	Reliability-Must-Run contract extended and expired on 12/31/2017 ¹⁹

CPUC Procurement Orders and Associated Capacity Status

LSEs subject to CPUC jurisdiction (all of which participate in the CAISO system) are required to procure additional resources based on CPUC’s decisions in the IRP proceedings. Ultimately, some of the following projects and resources have provided new capacity that replaced OTC capacity that is now offline or will provide new capacity that will functionally replace OTC capacity that is projected to go offline. In response to a request made by State Water Board members at the August 15, 2023 State Water Board

¹⁹ The contract for the synchronous condensers expired on December 31, 2017, and they are no longer operating.

meeting, the following sections contain information on past and recent procurement orders, procurement milestones, and monitoring and projections for incremental capacity procurement associated with IRP proceedings.²⁰

Incremental Capacity Procurement and Procurement Monitoring for CPUC Decisions (D.) 13-02-015 and D.14-03-004

This section summarizes information pertaining to two prior procurement orders, which are Decision (D.) 13-02-015 and D.14-03-004. These separate procurement orders stem from a CPUC planning proceeding, Rulemaking (R.) 12-03-014.²¹ Information pertaining to these procurement orders is included in this report because some of the associated new capacity replaced OTC capacity that is now offline.

Tables 5 and 7 below show the different authorizations of electric capacity procurement for the Southern California area, where the remaining gas-fired OTC power plants are located. The different tracks reflect separate procurement orders, where Track 1 procurement stems from D.13-02-015, which outlined procurement requirements for capacity in the West Los Angeles Basin and Big Creek/Ventura local reliability areas.²² Track 4 procurement stems from D.14-03-004, which outlined additional procurement requirements in the West Los Angeles Basin and San Diego/Imperial Valley local reliability areas in response to the retirement of SONGS.²³ It is important to note that the use of the term “track” in this context is different from the two tracks for compliance with the OTC Policy. Each authorization resulted in Applications of Procurement that were subsequently reviewed and approved by the CPUC, which are reflected in Tables 6 and

²⁰ The August 15, 2023 State Water Resources Control Board meeting can be found on the [State Water Resources Control Board's YouTube channel](#).

²¹ California Public Utilities Commission. 2012. [Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans](#) (R.12-03-014). San Francisco, CA: California Public Utilities Commission.

²² California Public Utilities Commission. 2013. [Decision Authorizing Long-Term Procurement for Local Capacity Requirements](#) (D.13-02-015). San Francisco, CA: California Public Utilities Commission.

²³ California Public Utilities Commission. 2014. [Decision Authorizing Long-Term Procurement for Local Capacity Requirements Due to Permanent Retirement of the San Onofre Nuclear Generating Stations](#) (D.14-03-004). San Francisco, CA: California Public Utilities Commission.

8. The approved Applications for Procurement resulted in the construction of resources that came online over the years following the Application for Procurement approvals.

Table 5: Southern California Edison Authorizations from R.12-03-014

Resource Type	Track 1 LCR²⁴ (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 Resources²⁵ & Energy Storage (Minimum)	200	--	400	600	565 ²⁶
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 ²⁷
Total	1,400 to 1,800	215 to 290	500 to 700	2,115 to 2,790	2,154

²⁴ Local Capacity Requirement (LCR)

²⁵ 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. See: California Public Utilities Commission. 2005. [State Energy Action Plan II](#). San Francisco, CA: California Public Utilities Commission.

²⁶ 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. See: California Public Utilities Commission. [Resolution E-4804](#). San Francisco, CA: California Public Utilities Commission.

²⁷ 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 California Public Utilities Commission (CPUC) decisions:

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 6: Southern California Edison Approved Applications

Resource Type	Location	Capacity MW	Status
Demand Response	Big Creek/Ventura	14	Approved ²⁸
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	--

²⁸ 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 7: San Diego Gas & Electric Authorizations from R.12-03-014

Resource Type	D.13-03-029/ D.14-02-016 MW²⁹	Additional Track 4 Authorization MW	Total Authorization MW	Pending & Approved Applications MW
Preferred Resources & Energy Storage	--	200 (Minimum)	200	144.5 ³⁰
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 8: San Diego Gas & Electric Approved Applications

Resource Type	Location	Capacity in MW	Status
Demand Response	San Diego/Imperial Valley	4.5	Operational
Energy Efficiency	San Diego/Imperial Valley	19	Approved ³¹
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	--

²⁹ See California Public Utilities Commission (CPUC) Decisions: CPUC. 2012. [Decision Determining San Diego Gas & Electric Company's Local Capacity Requirement and Granting Partial Authority to Enter into Purchase Power Tolling Agreements](#) (D.12-03-029). San Francisco, CA: CPUC.

CPUC. 2014. [Decision Granting San Diego Gas & Electric Company Authority to Enter into a Purchase Power Tolling Agreement With Pio Pico Energy Center, LLC](#) (D.14-02-016). San Francisco, CA: CPUC.

³⁰ 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. See: California Public Utilities Commission. 2016. [Resolution E-4798](#). San Francisco, CA: California Public Utilities Commission.

³¹ Approved status indicates that the project has been approved, or that a portion of the capacity (MW) of the associated facility may be operational.

Incremental Capacity Procurement and Procurement Monitoring for CPUC Decisions 19-11-016, 21-06-035, and 23-02-040

This section details more recent procurement orders under the CPUC's IRP process, including D.19-11-016, D.21-06-035, and D.23-02-040. These orders date to 2019 and are discussed separately from authorizations and procurement listed in the previous section because they are responsive to improved demand forecasting. These orders are also responsive to conditions that pose greater challenges to California's grid reliability compared to past IRP authorizations, including extreme weather events, wildfires, supply chain constraints, and interconnection and permitting concerns. Additional information on the current status of capacity procurement associated with these recent IRP decisions can be found on the CPUC's website.³²

Table 9 summarizes when capacity associated with these three decisions is ordered to come online. Table 10 summarizes capacity that has come online since January 2020 by capacity type. Much of this capacity is a direct result of, and is intended to fulfill, the recent IRP procurement orders associated with D.19-11-016, D.21-06-035, and D.23-02-040, which are discussed in greater detail below. Notably, a majority of this capacity is renewable or considered zero-carbon. Cells with a zero value indicate no resources of that row's type were added to the electrical grid serving CAISO for that column's year.

³² Information on the status of procurement orders can be found on the California Public Utilities Commission's [IRP Procurement Track website](#). The most recent update provides a status update on procurement compliance based on load serving entities' December 1, 2023 filings.

**Table 9. New Resource Additions Serving CAISO Ordered Online From
CPUC D.19-11-016, D.21-06-035, and D.23-02-040:
August 1, 2021 – June 1, 2028 (NQC MW)**

Date	Cumulative NQC (MW) Ordered Online
August 1, 2021	1,650
August 1, 2022	2,475
August 1, 2023	5,300
August 1, 2024	11,300
June 1, 2025	12,800
June 1, 2026	14,800
June 1, 2027	16,800
June 1, 2028	18,800
Total	18,800

**Table 10. New Resource Additions Serving CAISO:
January 1, 2020 — December 31, 2024 (MW NQC MW)³³**

Technology Type	2020	2021	2022	2023	2024	Total MW	Number Projects
UTILITY-SCALE SOLAR	490	435	327	655	496	2,404	121
STORAGE	100	1,612	1,906	2,448	3,480	9,545	139
UTILITY-SCALE HYBRID (SOLAR + STORAGE)	0	15	668	283	311	1,278	25
WIND	3	65	80	38	63	248	22
GEOHERMAL	0	0	0	0	31	31	1
HYDRO	0	0	0	0	0	0	4
BIOMASS	0	0	0	0	0	0	4
BIOGAS	0	0	0	0	0	0	3
Subtotal Total New Senate Bill 100 Resources, IN-CAISO ³⁴	593	2,128	2,981	3,424	4,381	13,506	319
NATURAL GAS, incl. Alamitos & Huntington Beach	1,448	15	11	0	13	1,487	17
Total New Resources, IN-CAISO	2,041	2,143	2,992	3,424	4,394	14,993	336
New Imports, Pseudo-Tie or Dynamically Scheduled	390	387	33	50	201	1,061	15

³³ Additional Information on New Resource Additions to the California Independent System Operator Balancing Authority Area can be found on the California Public Utilities Commission's [Tracking Energy Development website](#).

³⁴ California State Legislature. 2018. [Sen. Bill No. 100](#), approved by Governor Gavin Newsom on September 10, 2018 (2017-2018 Reg. Sess.) (hereinafter Senate Bill 100.) Sacramento, CA: California Legislative Information. Senate Bill 100, also known as the 100 Percent Clean Energy Act of 2018, requires that by 2045, 100 percent of retail electricity sales and all electricity produced for state agencies come from renewable and zero-carbon resources.

Technology Type	2020	2021	2022	2023	2024	Total MW	Number Projects
Total New Resources, including Imports	2,431	2,530	3,025	3,474	4,595	16,054	351

*MW reported in net qualifying capacity

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

On November 7, 2019, the CPUC adopted D.19-11-016 directing the procurement of 3,300 MW net qualifying capacity (NQC) from LSEs under the CPUC's jurisdiction by August 2023 to ensure system-wide electric reliability.³⁵ The CPUC also recommended that the State Water Board consider revising the OTC Policy to extend the final 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 final 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 final compliance dates for the above units, several of which were further extended by the August 15, 2023, OTC Policy Amendment.

D.19-11-016 required 1,650 MW NQC of the required procurement to be online by August 1, 2021; 2,475 MW NQC to be online by August 1, 2022; and the full 3,300 MW NQC to be online by August 1, 2023. These requirements only apply to CPUC-jurisdictional LSEs, which represent approximately 90 percent of the load served in the CAISO. Affiliated LSEs conducted solicitations for replacement capacity in 2019 and 2020, and contracts for the investor-owned utilities' portion of these resources were approved by the CPUC in 2020 and 2021.³⁶ The other, non-investor-owned utility LSEs

³⁵ California Public Utilities Commission. 2019. [Decision Requiring Electric System Reliability Procurement for 2021-2023](#) (Decision 19-11-016). San Francisco, CA: California Public Utilities Commission.

³⁶ See California Public Utilities (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.

are not required to have contracts approved by the CPUC. 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.³⁷ Since then, the CPUC has periodically provided procurement progress based on LSEs' filings on its IRP Procurement Track website, which is referenced in a prior footnote. Cumulatively, LSEs met the 3,300 MW obligation required under D.19-11-016.

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

To address mid-term reliability needs and to meet the state's greenhouse gas emission reduction goals, the CPUC adopted D.21-06-035 on June 24, 2021, which directs CPUC-jurisdictional LSEs to procure 11,500 MW NQC of clean resources to come online between 2023 and 2026, in addition to the 3,300 MW ordered in 2019.³⁸

This procurement order requires that, out of the 11,500 MW total, 2,500 MW must be from zero-emitting generation paired with storage, or demand response resources to replace Diablo Canyon's capacity. 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. It should be noted that long lead-time resources are those that typically require greater amounts of time to procure due to a variety of associated factors, such as manufacturing times of components and equipment.

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

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

³⁷ California Public Utilities Commission. 2020. [Decision Establishing Process for Backstop Procurement Required by Decision 19-11-016](#) (D.20-12-044). San Francisco, CA: California Public Utilities Commission.

³⁸ California Public Utilities Commission. 2021. [Decision Requiring Procurement to Address Mid-Term Reliability \(2023-2026\)](#) (D.21-06-035). San Francisco, CA: California Public Utilities Commission

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 LSEs 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.21-06-035.³⁹ All resources are to come from zero-emitting or otherwise Renewable Portfolio Standard-eligible sources. These resources are required to be online by 2026, with an additional 2,000 MW of resources to be online by 2027. This Decision also recognizes the difficulties in procuring long lead-time resources by 2026, as required by D.21-06-035, and automatically extends those deadlines to 2028 with additional options to extend until 2031. A subsequent Decision, D.24-02-047, provides additional options to extend those deadlines until 2031 on a project-by-project basis. LSEs with signed contracts for long lead-time resources are permitted to file a request for extension for long lead-time online dates to no later than June 1, 2031, if a good faith showing is made in a Tier 2 advice letter.⁴⁰

CPUC Incremental Capacity Procurement Monitoring for D.19-11-016, D.21-06-035, and D.23-02-040

The CPUC is monitoring procurement under the orders described above, including the recent IRP orders D.19-11-016, D.21-06-035 and D.23-02-040.

Between January 1, 2020, and December 31, 2024, over 16,000 MW of new NQC has come online.⁴¹ This quantity contributes to a majority of the capacity requirements under the three recent CPUC IRP procurement orders for 2021-2024. However, some of these 16,000 MW NQC of new resources were the result of prior procurement activities and

³⁹ California Public Utilities Commission. 2023. [Decision 23-02-004](#). San Francisco, CA: California Public Utilities Commission.

⁴⁰ California Public Utilities Commission. 2024. [Decision 24-02-047](#). San Francisco, CA: California Public Utilities Commission.

⁴¹ California Public Utilities Commission (CPUC) August 2024 Resource Tracking Data can be downloaded from the [CPUC's website](#).

were included in the “baseline” of assumed resources when the recent IRP procurement orders were issued starting in 2019. When excluding these baseline resources, the December 2023 compliance filings show that at least 7,000 MW NQC of the new resources that have come online in this period are supporting LSE compliance with IRP orders, as of the December 2023 IRP compliance filings.

LSEs also have contracts for several thousand more MWs of capacity to come online in the near future. Based on LSE contracts in place by January 2025, LSEs have contracted for nearly 15,000 MW NQC of new resources that are slated to come online by the end of 2028. There appear to be sufficient generation, transmission, and interconnection projects currently underway or in the project development process to meet the MW capacity requirements of the three recent CPUC procurement orders.

CPUC Incremental Capacity Procurement Projections

Even as new capacity continues to come online associated with the previously listed procurement orders, grid reliability must be carefully monitored in the coming years, particularly as several LSEs have encountered challenges and delays in meeting some mid-term reliability procurement order requirements. Delays in an individual LSE meeting its individual CPUC IRP procurement order requirements do not necessarily directly correspond to reliability issues, since there are dozens of LSEs and procurement actualization can be varied in terms of time and MWs across the entities.

As referenced above, the CPUC’s D.23-02-004 recognizes these challenges by automatically extending long lead-time resource procurement deadlines established via D.21-06-035. In September 2024, the CPUC also adopted D.24-09-006, which allows LSEs to use short-term bridge resources to comply with the facets of D.21-06-035 that are intended to replace Diablo Canyon’s capacity and reliability attributes.⁴² D.24-09-006 provides LSEs with flexibility while maintaining progress toward replacing Diablo Canyon’s capacity.

⁴² California Public Utilities Commission. 2023. [Decision 24-09-006](#). San Francisco, CA: California Public Utilities Commission.

Even considering procurement challenges, the CAISO system has added over 4,000 MW of new NQC in 2024 and over 3,000 MW per year in 2022 and 2023, as shown in Table 10 above. This record-setting level of new clean energy capacity additions have been primarily driven by three CPUC procurement orders referenced above. Based on LSE contracting trends, the rate of new generation and storage resources joining the CAISO system in coming years is expected to be of similar magnitude.

A Changing Grid and Regulatory Responses

Driven in part by statutory requirements, regulations, policy and other market forces, the consistency of California's electrical grid is rapidly changing to incorporate a variety of clean resources that will help the state meet its greenhouse gas reduction goals. While new resources are built-out, the state has had to contend with the possibility of extreme events that threaten grid reliability, such as heatwaves and wildfires. As a result, the Strategic Reserve was established to bolster grid reliability in the interim, as referenced in Section 4 of this report.

Assembly Bill 205, which established the Strategic Reserve, identified the California Department of Water Resources (DWR) as a central figure to administer key aspects of the Strategic Reserve Program. Specifically, the DWR's Statewide Water and Energy Office was tasked with core functions including: developing, owning, or contracting for new emergency and temporary generation to provide incremental power during extreme events; extending the operations of existing resources that would have otherwise retired to ensure a reliable and equitable transition to a clean energy future; and participating in interim procurement, such as imported energy, while California expands its clean generation fleet. The DWR was designated with this role because of its expertise as one of the largest power producers in California and because of its prior experience with emergency power procurement.

While Assembly Bill 205's measures have aided in interim reliability, the Strategic Reserve and DWR's role as an administrator of this program were intended primarily as a backstop to the state's traditional electricity supply planning and procurement process. However, the result of such a rapid expansion and shift in consistency of California's

electrical grid is a dynamic marketplace that poses a variety of challenges to its participants and will continue to evolve moving forward. Recognizing the need for a central authority to coordinate procurement efforts amidst the changing energy landscape, Governor Gavin Newsom signed Assembly Bill 1373 on October 7, 2023.⁴³ This legislation taps the DWR as a longer-term central procurement entity that aims to optimize procurement timelines and costs.

This new statutory authority enables the CPUC to request that the DWR participate in procurement processes for some types of resources that are traditionally more challenging to procure, particularly long lead-time resources, where necessary and appropriate. In response to the passage of this legislation, the CPUC conducted a public stakeholder process and issued D.24-08-064 on August 29, 2024, which reinforces the need for a centralized procurement authority (i.e., DWR) as it relates to long lead-time resources.⁴⁴ This decision therefore implements Assembly Bill 1373.

In its new role, the DWR may act to procure resources on behalf of all energy providers within the CPUC's jurisdiction, including community choice aggregators, direct access providers, investor-owned utilities, and publicly-owned utilities. Separately, publicly-owned utilities can request DWR to procure long lead-time resources on their behalf. The DWR and this central procurement process will operate distinctly from and complementary to current requirements for energy providers in the IRP process, such as existing procurement under D.21-06-035, D.23-02-040, and D.24-02-047, as well as future IRP procurement requirements.^{45, 46}

⁴³ California State Legislature. 2023. [Assembly Bill No. 1373](#), approved by Governor Gavin Newsom on October 7, 2023 (2023-2024 Reg Sess.) (hereinafter Assembly Bill 1373) Sacramento, CA: California Legislative Information.

⁴⁴ California Public Utilities Commission. 2024. [Decision Determining Need for Centralized Procurement of Long Lead-Time Resources](#) (D.24-08-064). San Francisco, CA: California Public Utilities Commission.

⁴⁵ California Public Utilities Commission. 2024. [Decision Adopting 2023 Preferred System Plan and Related Matters, and Addressing Two Petitions for Modification](#) (D.24-02-047). San Francisco, CA: California Public Utilities Commission.

⁴⁶ Additional information on Assembly Bill (AB) 1373 can be found on the [California Public Utility Commission's AB 1373 Website](#).

In greater detail, D.24-08-064 defined a need determination, defined as the maximum value determined by the CPUC that could be procured by the DWR, for specified resource types and/or resource attribute(s). Either the DWR or CPUC may decide not to procure these technologies if costs are too high, as electric system planning needs and Senate Bill 100 targets do not require procurement at maximum values.

D.24-08-064's need determination is shown in the table below by resource types, solicitation schedule, and online dates:

Table 11: CPUC D.24-08-064 Need Determinations

Resource Type	Maximum Quantity	Solicitations Beginning In	Online by
Long Duration Energy Storage: 12 hour+ duration	1 GW	2026	2031-2037
Long Duration Energy Storage: multiple day duration	1 GW	2026	2031-2037
Geothermal	1 GW	2027	2031-2037
Offshore Wind	7.6 GW	2027	2035-2037

These specific resources and quantities were selected because they present critical opportunities to help California meet its greenhouse gas emission reduction goals for 2045 and beyond while also meeting reliability goals. They include emerging technologies that must be scaled to lower costs, because they are not currently being procured in large enough quantities by individual energy providers. The establishment of a central procurement authority, the DWR, will reduce the risks to project developers of these resources and help them scale such that they can integrate smoothly in California's physical electrical grid and associated energy market. Future central procurement needs will be regularly assessed within the IRP process and may consider other technologies.

Ultimately, this decision will help California meet its greenhouse gas emission reduction goals while ensuring electrical grid reliability. It is also another tool that will indirectly reduce the reliance on OTC power plants.

Senate Bill 846 Reliability Reporting

On September 2, 2022, Governor Gavin Newsom signed Senate Bill 846 into law. Senate Bill 846 extended the OTC Policy final compliance dates for Diablo Canyon’s generating units, and it also requires the CEC and the CPUC to provide quarterly joint Reliability Planning Assessments to the Legislature. These assessments must identify estimates for the electrical supply and demand balance for the forward five- and ten-year period under high-, medium-, and low-risk scenarios. CPUC and CEC staff continue to collaborate on these quarterly joint Reliability Planning Assessments in compliance with Senate Bill 846. These assessments provide the best assessment of statewide grid reliability by comparing the procurement, generation, and transmission resources discussed in this SACCWIS report against the newest reliability forecasts available.

LADWP BAA and OTC Replacement Milestones

This section describes the LADWP BAA, which is separate from the CAISO BAA. 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: Harbor Generating Station (Harbor), Haynes Generating Station (Haynes), and Scattergood Generating Station (Scattergood).

On February 12, 2019, Los Angeles Mayor Eric Garcetti introduced the Los Angeles Green New Deal, which included a provision that the LADWP will transition to 100 percent renewable energy by 2045 to help address climate change.⁴⁷ This timeline was accelerated by a motion adopted by the Los Angeles City Council in September 2021, which directed the LADWP to procure 100 percent zero-carbon electricity by 2035.⁴⁸

This direction 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. As a result, the LADWP requested to extend the

⁴⁷ Office of Los Angeles Mayor Eric Garcetti. 2019. [Los Angeles’ Green New Deal Sustainable City Plan](#). Los Angeles, CA: Los Angeles Mayor’s Office.

⁴⁸ City of Los Angeles. 2021. [Motion](#). Los Angeles, CA: City of Los Angeles.

OTC Policy final 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 final 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 Plan indicates that the LADWP assumes hydrogen generating units will be constructed during the 2030s and 2040s at Harbor and Haynes.⁴⁹

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 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 also requires 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 the LADWP responded with a letter stating its semi-annual milestones on April 8, 2024. The State Water Board subsequently requested additional compliance milestone information for Harbor and Haynes, for which the LADWP indicated it would have additional responsive information to share at the 2025 annual meeting of the SACCWIS. The order also required 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

⁴⁹ Los Angeles Department of Water and Power. 2022. [The 2022 Strategic Long-Term Resource Plan](#). Los Angeles, CA: Los Angeles Department of Water and Power.

subsequent year until Scattergood, Harbor, and Haynes attain final compliance with the OTC Policy. The LADWP submitted a progress letter on November 15, 2024.

In its April 8, 2024 letter to the State Water Board's Executive Director, the LADWP indicated that it must complete three general project phases to eliminate OTC for its OTC power plants. These phases include pre-construction, construction, and post-construction activities. Pre-construction activities broadly consist of: planning and development, local ordinance planning and compliance, Board of Water and Power Commissioners' consideration and approval, California Environmental Quality Act and environmental permitting, equipment procurement, Request for Proposal processing and contractor selection, noticing to proceed, and design. Construction activities include site preparation, environmental training, and build-out and construction. Finally, post-construction activities include commissioning and work associated with operating and permitting.

The following Table 12 illustrates when the LADWP anticipates initiating and completing each of these phases for each OTC replacement project. Table 12 includes the following abbreviations: Semester 1 (S1), which includes January 1 through June 30 of a given year, Semester 2 (S2), which includes July 1 through December 31 of a given year, pre-construction activities (PC), Construction activities (CO), and after-construction activities (AC).

**Table 12: OTC Policy Compliance Milestone Projections for
LADWP OTC Power Plants**

Facility and Units	2024 S1	2024 S2	2025 S1	2025 S2	2026 S1	2026 S2	2027 S1	2027 S2	2028 S1	2028 S2	2029 S1	2029 S2
Scattergood	PC	PC	PC	PC	PC	CO	CO	CO	CO	CO	CO	AC
Haynes Unit 8	PC	PC	PC	PC	PC	CO	CO	CO	CO	CO	AC	AC
Haynes Units 1 and 2	PC	PC	PC	PC	PC	PC	CO	CO	CO	CO	CO	AC
Harbor Unit 5	PC	PC	PC	PC	PC	PC	CO	CO	CO	CO	CO	AC

LADWP BAA and OTC Replacement Milestone Updates

The LADWP provided two submissions to the State Water Board to provide information and updates on its progress towards attaining final compliance with the OTC Policy for each of its power plants. These updates were provided on April 8, 2024, and November 15, 2024. This section summarizes the information provided by the LADWP in these submissions.

Harbor: As of November 2024, the LADWP was in the planning process to replace OTC capacity at the power plant. The LADWP plans to comply with the OTC Policy by retrofitting Harbor Unit 5 with a closed-cycle cooling system. The LADWP also stated that it was preparing to “submit a formal request for approval by the Los Angeles City Council, in accordance with Executive Directive No. 4, which will authorize the LADWP to pursue an engineering, procurement, and construction contract through a competitive solicitation project.” Additionally, the LADWP suggested that environmental review will commence once a project concept is developed, though permitting will likely take “longer than anticipated” provided Harbor is within the California Coastal Commission’s jurisdiction.

Haynes: As of November 2024, the Haynes Unit 8 Recycled Water-Cooling System Retrofit Project was underway, and the planning process for Haynes Units 1 and 2 was under consideration. The LADWP indicated that it will commence environmental review and other environmental permitting once a project concept is developed. Several key tasks have been completed. For instance, the Haynes Unit 8 Initial Study and Mitigated Negative Declaration was adopted on February 8, 2022. Additionally, the LADWP received confirmation from the South Coast Air Quality Management District (SCAQMD) that the Haynes cooling tower is exempt from air permitting requirements.

Scattergood: As of November 2024, the LADWP was engaged in pre-construction activities for the Scattergood Modernization Project, which includes replacing Units 1 and 2 with a combined-cycle generating system capable of operating on a fuel mixture of natural gas and hydrogen.

The LADWP provided the following updates in its November 2024 submission to the State Water Board:

- The Notice of Preparation public scoping meeting was held on June 6, 2023. All oral comments from the Notice of Preparation public meeting as well as written comments received were being addressed and considered in the draft.
- The draft Environmental Impact Report (EIR) was released for public review on October 31, 2024, for a 50-day review period ending December 20, 2024. A request was received to extend the review period, so it was extended from a 50-day to 90-day review period that ended in January 2025.
- The air permit applications for three original equipment manufacturers for the combined-cycle generating system were submitted to SCAQMD in May 2024, August 2024, and October 2024, respectively.⁵⁰ The SCAQMD is currently evaluating the air permit applications.
- The application process for the Industrial Waste Permit for the sanitary sewer discharges from Scattergood is underway. All in-plant waste streams and stormwater will be directed to the Hyperion Treatment Plant located adjacent to Scattergood. An Industrial Waste Permit is expected to be issued in the fourth quarter of 2026.

In its initial April 2024 submission to the State Water Board, the LADWP indicated that the development of the Request for Proposals for the design and build contractor was underway; the target release date for the Request for Proposals was 4th Quarter 2024. The LADWP did not include updates on the Request for Proposals in its November 2024 submission to the State Water Board.

The SACCWIS will continue to monitor the LADWP's progress towards attaining final compliance with the OTC Policy as these projects continue.

⁵⁰ The Los Angeles Department of Water and Power (LADWP) submitted three different sets of applications for three different turbine manufacturers. The South Coast Air Quality Management District will be issuing permits to construct for the three manufacturers. The LADWP will decide which to install and cancel the other two.

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 California Coastal Commission 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 OTC Policy final 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.⁵¹ 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.⁵² 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

⁵¹ Los Angeles Regional Water Quality Control Board. 2020. [Water Quality Order R4-2020-0134](#). Los Angeles, CA: Los Angeles Regional Water Quality Control Board.

⁵² State Water Resources Control Board. 2010. [Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling – Final Substitute Environmental Document](#). Sacramento, CA: State Water Resources Control Board.

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.⁵³ 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 OTC Policy final 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 R3-1990-0009.⁵⁴ 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 OTC Policy final compliance date is December 31, 2029. On February 27, 1995, the Los Angeles Regional

⁵³ Los Angeles Regional Water Quality Control Board. 2023. [Time Schedule Order R4-2023-0371](#). Los Angeles, CA: Los Angeles Regional Water Quality Control Board.

⁵⁴ Central Coast Regional Water Quality Control Board. 1990. Order No. R3-1990-0009. San Luis Obispo, CA: Central Coast Regional Water Quality Control Board.

Water Board adopted Order No. 95-027, which implemented waste discharge requirements and NPDES permit No. CA0000361 for Harbor.⁵⁵ The Los Angeles Regional Water Board renewed these requirements in 2003 via Order R4-2003-0101.⁵⁶ 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 OTC Policy final 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.⁵⁷ The Los Angeles Regional Water Board revised these requirements in 2004 via Order R4-2004-0089.⁵⁸ Order No. 00-081 prescribes effluent limitations for multiple discharges 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.

⁵⁵ Los Angeles Regional Water Quality Control Board. 1995. [Order No. 95-027](#). Los Angeles, CA: Los Angeles Regional Water Quality Control Board.

⁵⁶ Los Angeles Regional Water Quality Control Board. 2003. [Order. No. R4-2003-0101](#). Los Angeles, CA: Los Angeles Regional Water Quality Control Board.

⁵⁷ Los Angeles Regional Water Quality Control Board. 2000. Order No. 00-081. Los Angeles, CA: Los Angeles Regional Water Quality Control Board.

⁵⁸ Los Angeles Regional Water Quality Control Board. 2004. [Order No. R4-2004-0089](#). Los Angeles, CA: Los Angeles Regional Water Quality Control Board.

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 OTC Policy final 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.⁵⁹ 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 OTC Policy final 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.⁶⁰ Order R4-2020-0132 prescribes effluent limitations for the discharge of OTC water, low-volume wastes, and

⁵⁹ Santa Ana Regional Water Quality Control Board. 2020. [Order No. R8-2020-0040](#). Riverside, CA: Santa Ana Regional Water Quality Control Board.

⁶⁰ Los Angeles Regional Water Quality Control Board. 2020. [Order No. R4-2020-0132](#). Los Angeles, CA: Los Angeles Regional Water Quality Control Board.

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 OTC Policy final 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.⁶¹ 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 United States Environmental Protection Agency, CARB, and California's 35 local air quality management and air pollution control districts (air districts) comprise a three-tiered

⁶¹ Los Angeles Regional Water Quality Control Board. 2016. [Order No. R4-2016-0055](#). Los Angeles, CA: Los Angeles Regional Water Quality Control Board.

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 United States Environmental Protection Agency 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 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.⁶² Title V permit renewal applications were submitted to SCAQMD for Harbor, Scattergood, Haynes, and Alamitos on the following respective dates: July 21, 2023; July

⁶² The current Title V permit expiration dates for the plants in the South Coast Air Quality Management District (SCAQMD) are: Alamitos Generating Station – April 21, 2025; Scattergood Generating Station – January 13, 2025; Harbor Generating Station – February 6, 2024; Haynes Generating Station – January 30, 2025; and Huntington Beach Generating Station – March 22, 2027. Submittal of a renewal application to SCAQMD between 180 days and 545 days prior to expiration of their Title V permit qualifies as an application shield to continue operating under the terms and conditions of the permit until it is renewed.

17, 2024; August 2, 2024; and October 22, 2024. These permit renewal applications are in various stages of review. 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 operating under an application shield until a new Title V permit is issued. The permit fee has been paid and VCAPCD is in the process of permit issuance. 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 2024. This subsection covers Notices of Violation and Notices to Comply (NTCs) issued from October 1, 2023, to December 2024. VCAPCD indicated that there are no Notices of Violation or NTCs for Ormond Beach issued during this timeframe. For the facilities in SCAQMD, a total of three Notices of Violation and two NTCs were issued by SCAQMD to Huntington Beach, Harbor, and Haynes during this timeframe; one Notice of Violation was issued by CARB to Alamitos. For Huntington Beach, these consisted of one Notice of Violation for a shortfall of Regional Clean Air Incentives Market (RECLAIM) Trading Credits for the compliance year from July 2022 to June 2023. Harbor had one NTC related to the requirement to perform a relative accuracy test audit of their continuous emissions monitoring system by June 30, 2023, for non-OTC simple-cycle gas turbine Unit 13. Haynes had three compliance actions related to non-OTC equipment. One Notice of Violation was issued for exceeding the oxides of nitrogen (NO_x) startup limit on simple-cycle gas turbine Unit 16, and one Notice of Violation was issued for a failed ammonia slip source test for simple-cycle gas turbine Unit 15.⁶³ One NTC was issued for operating an unregistered portable compressor onsite. Alamitos' Notice of Violation from CARB was issued for exceedance of the allowed 2020 emissions rate limit in the *Regulation for*

⁶³ According to the Los Angeles Department of Water and Power, an ammonia drain valve was inadvertently left open after flushing the selective catalytic reduction skid, leading to an exceedance of oxides of nitrogen startup limits.

Reducing Greenhouse Gas Emissions from Gas-Insulated Equipment. All compliance actions have been resolved.⁶⁴

Rulemaking

VCAPCD does not anticipate future air district rule changes that would directly impact generation at Ormond Beach through its 2026 compliance date. Ormond Beach Power intends to permanently shut down and retire Ormond Beach Units 1 and 2 per the final compliance date listed in the OTC Policy, and does not plan to retrofit these existing units with alternate cooling technologies to comply with Track 1 of the OTC Policy or use operational or technical measures to comply with Track 2.

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 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 emissions 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.

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

⁶⁴ Information is available through the [South Coast Air Quality Management District's Facility Information Detail \(F.I.N.D\) web tool](#).

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 plans to comply with the OTC Policy 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.

Alamitos and Huntington Beach

AES intends to permanently shut down and retire Alamitos Units 3, 4, and 5 and Huntington Beach Unit 2 per the compliance dates listed in the OTC Policy and does not plan to retrofit these existing units with alternate cooling technologies to comply with Track 1 of the OTC Policy or use operational or technical measures to comply with Track 2. Therefore, these units qualify for the OTC exemptions in Rule 1135 and Rule 429.2.

Harbor

The LADWP plans to keep Harbor Unit 5 operational and replace the OTC system with alternate cooling technology, which is still in the planning phase. The natural gas-fueled combined-cycle turbines (Units 1 and 2) associated with Harbor Unit 5 had their combustors upgraded to dry low-NOx burners and are also equipped with post-combustion selective catalytic reduction to comply with the Rule 1135 NOx limit for combined-cycle units. The units are also in compliance with the startup/shutdown duration, fuel oil readiness testing, and NOx control temperature measuring device requirements in Rule 429.2.

Haynes

Haynes Units 1 and 2 already comply with the NOx emission limit for boilers in Rule 1135, as well as the startup/shutdown duration, fuel oil readiness testing, and NOx control temperature measuring device requirements in Rule 429.2.

The LADWP plans to keep Haynes Unit 8 operational and replace the OTC system with a wet cooling system that utilizes reclaimed water. The natural gas-fueled combined-cycle

turbines (Units 9 and 10) associated with Haynes Unit 8 are currently in compliance with the Rule 1135 NO_x limit for combined-cycle units. The units are also in compliance with the startup/shutdown duration, fuel oil readiness testing, and NO_x control temperature measuring device requirements in Rule 429.2.

Scattergood

The LADWP plans to eliminate the use of OTC and repower Scattergood Units 1 and 2 with a new fossil fuel-capable and hydrogen-ready combined-cycle gas turbine. Permit-to-construct applications have been submitted to SCAQMD and are in review.

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

The SACCWIS does not recommend any changes to the compliance schedules in the OTC Policy for associated generating facilities because the need for additional capacity to maintain grid reliability is not significant enough to recommend any changes to final compliance schedules at this time. However, SACCWIS members continue to assess reliability impacts to the electric grid, as well as permitting constraints, in connection with implementation of the OTC Policy, and in consideration of air quality and climate goals.

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 continues to remain vulnerable to risks such as project delays and extreme weather events. Additional capacity may be needed to maintain grid reliability, but no changes to the OTC Policy's compliance schedule is recommended at this time. The 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

	Average Annual Flow Rate in Million Gallons per Day (MGD)								
Power Plant Name	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: U.S. EPA Flow Data, (Intergraded Compliance Information System [ICIS] Database). Last updated November 2024.

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

	Average Annual Flow Rate (MGD)				
Power Plant Name	2019	2020	2021	2022	2023
Humboldt Bay Power Plant Units 1&2	0	0	0	0	0
Potrero Power Plant	0	0	0	0	0
Contra Costa Generating Station	0	0	0	0	0
Pittsburg Power Plant	0	0	0	0	0
Moss Landing Power Plant	236.2	241.2	241.7	257.4	260.1
Diablo Canyon Nuclear Power Plant	2,067	2,282	2,212	2287.4	2313.83
Morro Bay Power Plant	0	0	0	0	0
El Segundo Generating Station	0	0	0	0	0

	Average Annual Flow Rate (MGD)				
Power Plant Name	2019	2020	2021	2022	2023
Haynes Generating Station Units 1&2	398.7	467.0	472.0	390.3*	382.1
Scattergood Generating Station	98.1	124.0	92.0	99.1	80.1
Harbor Generating Station	48.1	45.0	49.0	49.3	51.6
Alamitos Generating Station	101.8	126.7	126.0	254.6*	270
Redondo Beach Generating Station	72.4	80.2	60.3	122.5*	146.3
Mandalay Generating Station	0	0	0	0	0
Ormond Beach Generating Station	146.9	227.5	250.6	180.2	180.5

	Average Annual Flow Rate (MGD)				
Power Plant Name	2019	2020	2021	2022	2023
Huntington Beach Generating Station	113.4	82.1	68.3	66**	71.6
South Bay Power Plant	0	0	0	0	0
Encina Power Station	262.1	0	0	0	0
San Onofre Nuclear Generating Station	0	0	0	0	0
Total	3,545	3,814	3,572.6	3706.8	3,755.8

Source: U.S. EPA Flow Data, (Intergraded Compliance Information System [ICIS] Database). Last updated November 2024.

*The methodology to calculate total averages for Alamitos, Haynes, and Redondo Beach generating stations 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.

**Huntington Beach Generating Station's average annual flow rate was improperly entered as 60 million gallons per day (MGD) in 2022. The correct amount is 66 MGD and is reflected in the table.