

Item 4

Report from the Statewide Advisory Committee on Cooling Water Intake Structures With Recommendations Regarding Redondo Beach Generating Station's Compliance Date

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Outline

- **Statewide Advisory Committee on Cooling Water Intake Structures (SACCWIS) Presentation:**
 - Timeline of Events
 - SACCWIS Recommendation
 - Final Root Cause Analysis: Summary of Findings and Agency Actions
 - Summary of CPUC Incremental Procurement
 - Stack Analysis by CAISO, CPUC, and CEC
- **State Water Board Presentation:**
 - Once-Through Cooling Policy Amendment
 - Permits and Other Regulatory Documents
 - Project Timeline
- **Questions**

Timeline of Events

- **August 2019:** SACCWIS identifies a local capacity need in the LA Basin, as well as an emerging system capacity need. SACCWIS recommends an extension of two or more years (but no longer than necessary) for Alamitos and one or more other OTC resources to meet these needs and states that it will update the analysis as additional information becomes available.
- **November 2019:** CPUC Decision (D). 19-11-026 requires 3,300 MW of procurement and recommends extension of Alamitos and Huntington Beach for 3 years, Redondo for 2 years, and Ormond for 1 year as a “bridge” during procurement.
- **January 2020:** SACCWIS recommends extension of Alamitos, Huntington Beach, and Ormond for 3 years and Redondo for 1 year.
- **August 2020:** Load shed events on August 14 and 15, during West-wide heat event.
- **September 2020:** SWRCB approves extensions according to SACCWIS recommendation.
- **January 2021:** Release of Final Root Cause Analysis on Mid-August 2020 Heat Wave.
- **March 2021:** The SACCWIS adopts the 2021 Report of the SACCWIS.

SACCWIS Recommendation

The SACCWIS recommends the State Water Board amend the OTC Policy to extend the compliance date of Redondo Beach Units 5, 6, and 8 for two years from December 31, 2021, to December 31, 2023.

The extension would help meet system reliability needs in September 2022 at hour ending 8 p.m. PDT as demonstrated by the system-wide grid shortfalls in the 2022 stack analysis. The second year of the extension is necessary to address the uncertainty in the 2023 resource supply and the CEC's forecasted 500 MW increase in demand between 2022 and 2023.

Furthermore, a two-year extension would minimize the regulatory risk of returning to the State Water Board should the power generated by Redondo Beach be needed in 2023. Should it be determined that there is no need for Redondo Beach in 2023, the unit may retire earlier than its compliance date deadline.

CAISO/CEC/CPUC Final Root Cause Analysis: Findings

- The climate change-induced extreme heat wave across the western United States resulted in demand for electricity exceeding existing electricity resource adequacy (RA) and planning targets.
 - 1-in-30-year August weather event for California (based off 35 years of data).
- In transitioning to a reliable, clean, and affordable resource mix, resource planning targets have not kept pace to ensure sufficient resources that can be relied upon to meet demand in the early evening hours. This made balancing demand and supply more challenging during the extreme heat wave.
 - Rotating outages both occurred after the period of peak demand, during the “net demand peak,” which is the peak demand after subtracting solar and wind generation resources.
- Some practices in the day-ahead energy market exacerbated the supply challenges under highly stressed conditions.
 - Under-scheduling of load, a previous market enhancement that obscured the effects of under-scheduling of load, and convergence bidding issues all contributed.

Final Root Cause Analysis: Agency Actions

- CEC is focusing on additional reliability-related actions in the 2021 Integrated Energy Policy Report (IEPR), including a meeting conducted on May 4, 2021.
- CPUC opened a proceeding and issued two decisions (D.21-02-028 and D.21-03-056) setting requirements and parameters for expedited procurement in summer 2021 and summer 2022. This should result in more than 1,000 MWs of additional resources.
- CAISO's Board of Governors approved on March 24 and April 21 a package of market and operational improvements to support grid reliability in California and throughout the West during tight supply conditions to be implemented before the start of summer 2021.
- CAISO designated ~400 MW of resources at risk of retirement as "reliability must run" resources to prevent their retirement.
 - Almost 300 MW were designated for system reliability must run, the first ever system reliability must run (the remainder had been identified earlier for local reliability reasons, but also support system needs).
 - Most recent system RMR designation (Kingsburg) was on March 24, 2021.

Agency Actions: CPUC Incremental Procurement Prior to 2020

- Required 3,300 MW of incremental procurement to be online by August 1, 2023.
 - 50% by August 1, 2021, 75% by August 1, 2022, and 100% by August 1, 2023.
- Load serving entities must report progress towards procurement milestones on September 1, February 1, and August 1 for each "tranche" of procurement.
- Energy Division staff are analyzing February 1, 2021 filings and later supplemental findings in response to errors identified by staff. Full compliance filings are thousands of pages long, but staff has made significant progress.
- Nothing in staff review so far indicates that load serving entities will not meet their obligations.
- After analysis, the Commission will determine whether backstop procurement by the investor-owned utilities is necessary.
- Energy Division sent a quarterly report to the SWRCB on March 16, 2021.

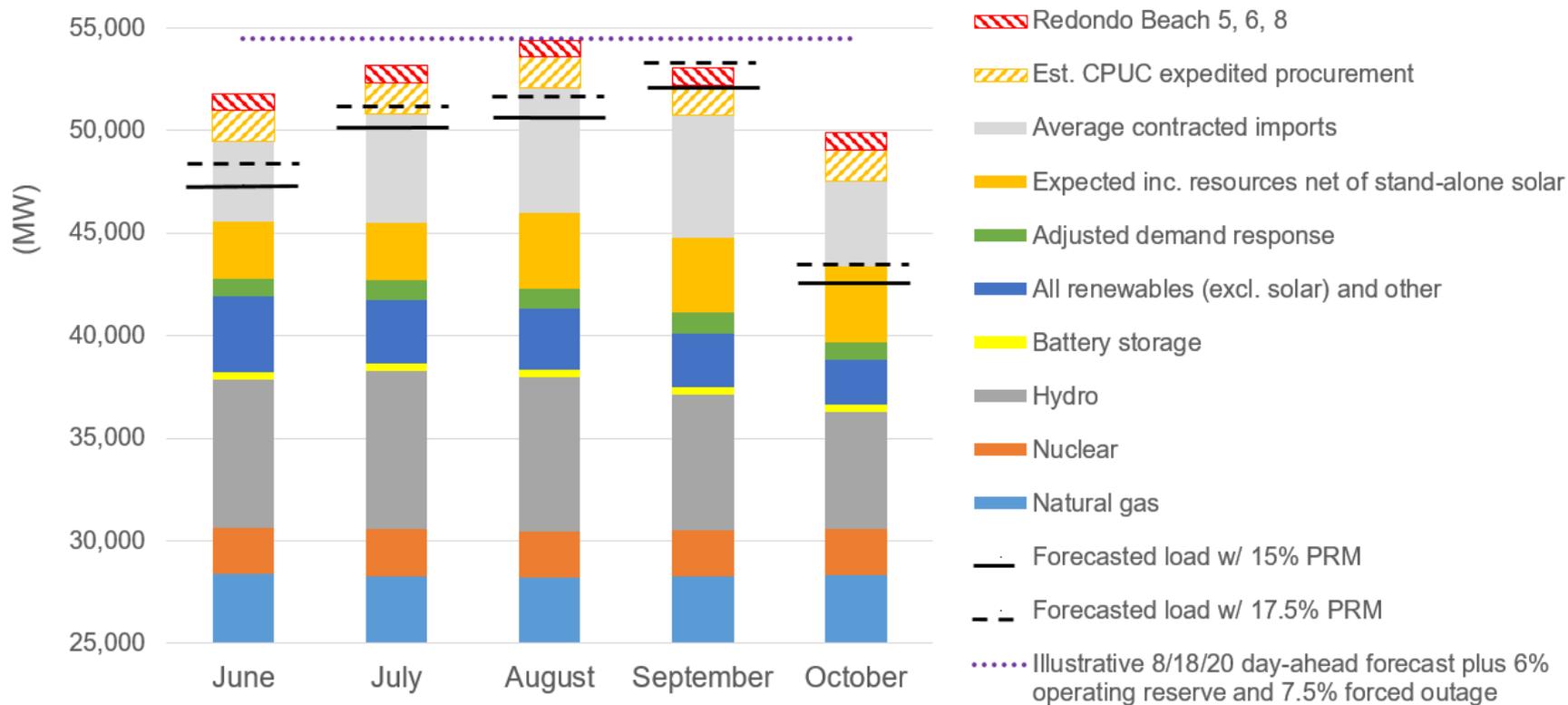
Agency Actions: CPUC Incremental Procurement

- CPUC opened a proceeding on summer reliability (R.20-11-003) in response to the events of August 2020.
- In February 2021, CPUC issued a decision requiring the investor-owned utilities to procure additional supply-side capacity that will be available during peak and net peak hours during the summer of 2021. Approved resource types are:
 - Incremental capacity at existing power plants from efficiency upgrades, revised power purchase agreements, etc.
 - Contracting for generation that is at risk of retirement.
 - Incremental storage capacity.
 - Firm forward imported energy.
- The investor-owned utilities filed contracts for roughly 564 MW, which the CPUC Energy Division approved.
- A March 2021 decision authorized additional demand-side resources and programs (including utility demand response programs and an Emergency Load Reduction Program Pilot) and set overall procurement parameters for 2021 and 2022.

Need Determination (1 of 3)

- A stack analysis compares the capacity of the fleet of available generators to the expected need.
- Assumed 1-in-2 (average) load from the 2020 Integrated Energy Policy Report.
- Focused on most critical hour after peak (hour ending 8 PM) for June-October 2022.
- Removed solar, which is generally not available at hour ending 8 PM.
- Assumed resources on the 2021 Net Qualifying Capacity list will also be online in 2022, except Redondo Beach.
- Assumed demand response performs at 60%; slight improvement on the 50% finding in the Finding Root Cause Analysis.
- Assumed five-year historical average resource adequacy imports for each month.
- Assumed incremental non-solar resources come online as outlined in CPUC November 2020 *Status of New Resources Expected* analysis.
- Assumed CPUC incremental procurement results in 1,500 MW of additional capacity available by summer of 2022.
- Analyzed 15% and 17.5% planning reserve margins (PRM), as well as an illustrative August 2020 day-ahead forecast.

Jun.-Oct. 2022 Resource Stack at 8 PM



Source: 2021 Report of the Statewide Advisory Committee on Cooling Water Intake Structures, Figure 3.

Jun.-Oct. 2022 Surpluses and Shortfalls

Table 10: Surplus and Shortfall of 2022 Existing and Expected Online Resource Stack Without Redondo Beach as Compared to Load for HE 8 p.m. PDT Plus 15 percent and 17.5 percent PRM (MW)

| Month | Existing and expected online resource stack without Redondo Beach | Load for HE 8 p.m. PDT | 15% PRM plus load for HE 8 p.m. PDT | 17.5% PRM plus load for HE 8 p.m. PDT | Resource stack minus 15% PRM plus load ([B] - [D]) | Resource stack minus 17.5% PRM plus load ([B] - [E]) |
|-----------|---|------------------------|-------------------------------------|---------------------------------------|--|--|
| [A] | [B] | [C] | [D] | [E] | [F] | [G] |
| June | 49,466 | 41,204 | 47,385 | 48,415 | 2,082 | 1,051 |
| July | 50,819 | 43,603 | 50,143 | 51,233 | 676 | (414) |
| August | 52,073 | 44,009 | 50,610 | 51,711 | 1,463 | 363 |
| September | 50,715 | 45,343 | 52,145 | 53,278 | (1,430) | (2,563) |
| October | 47,537 | 37,036 | 42,591 | 43,517 | 4,946 | 4,020 |

Note: In columns [F] and [G], a surplus is shown in black font and a shortfall is shown in red font within parentheses.

Source: 2021 Report of the Statewide Advisory Committee on Cooling Water Intake Structures, Table 10.

Note: The analysis is based on resource adequacy capacity only and does not include additional expedited procurement.

September Supply With and Without Redondo

Table 11: Surplus and Shortfall for September 2022 Total Resource Stack as Compared to Load for HE 8 p.m. PDT Plus 15 percent and 17.5 percent PRM (MW)

| | 15% PRM | 17.5% PRM |
|---|---------|-----------|
| [1] Existing and expected online resource stack | (1,430) | (2,563) |
| [2] Estimated CPUC expedited procurement | 1,500 | 1,500 |
| [3] Sub-total with only expedited procurement | 70 | (1,063) |
| [4] Redondo Beach Units 5, 6, and 8 (RB) | 834 | 834 |
| [5] Total with expedited procurement and RB | 904 | (229) |

Note: A surplus is shown in black font and a shortfall is shown in red font within parentheses.

Source: 2021 Report of the Statewide Advisory Committee on Cooling Water Intake Structures, Table 11.

Analysis by CAISO, CPUC, and CEC (2 of 3)

- 2022 Stack Analysis
 - Conservative estimates (assuming all resources come online and are contracted) show shortfalls in July and September.
 - Redondo helps alleviate projected shortfalls.
- 2023
 - IEPR currently shows 500 MW increase in demand at hour ending 8 PM from 2022 to 2023.
 - Uncertainty regarding incremental procurement remains.

Analysis by CAISO, CPUC, and CEC (3 of 3)

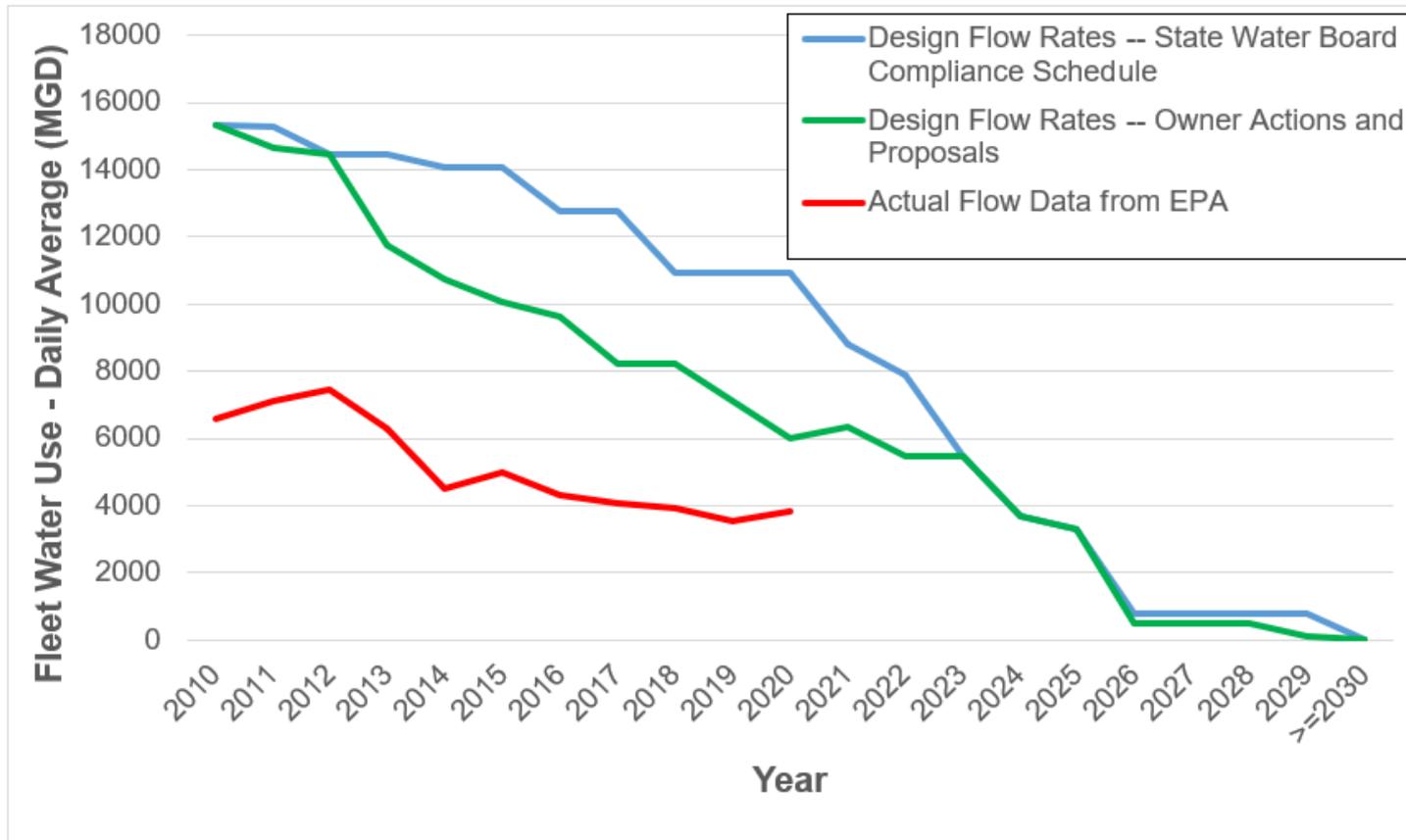
"At this point in time it is unclear whether authorized or proposed procurement will be realized and whether such procurement will adequately address the net demand peak period; whether an average level of imports can be delivered, whether actual operating conditions stay within planning targets for load, forced outages and needed operating reserves; whether all existing resources stay online and load serving entities are able to contract for all necessary resources in the CAISO BAA; and whether new and untested programs will perform as anticipated." (2021 SACCWIS Report)



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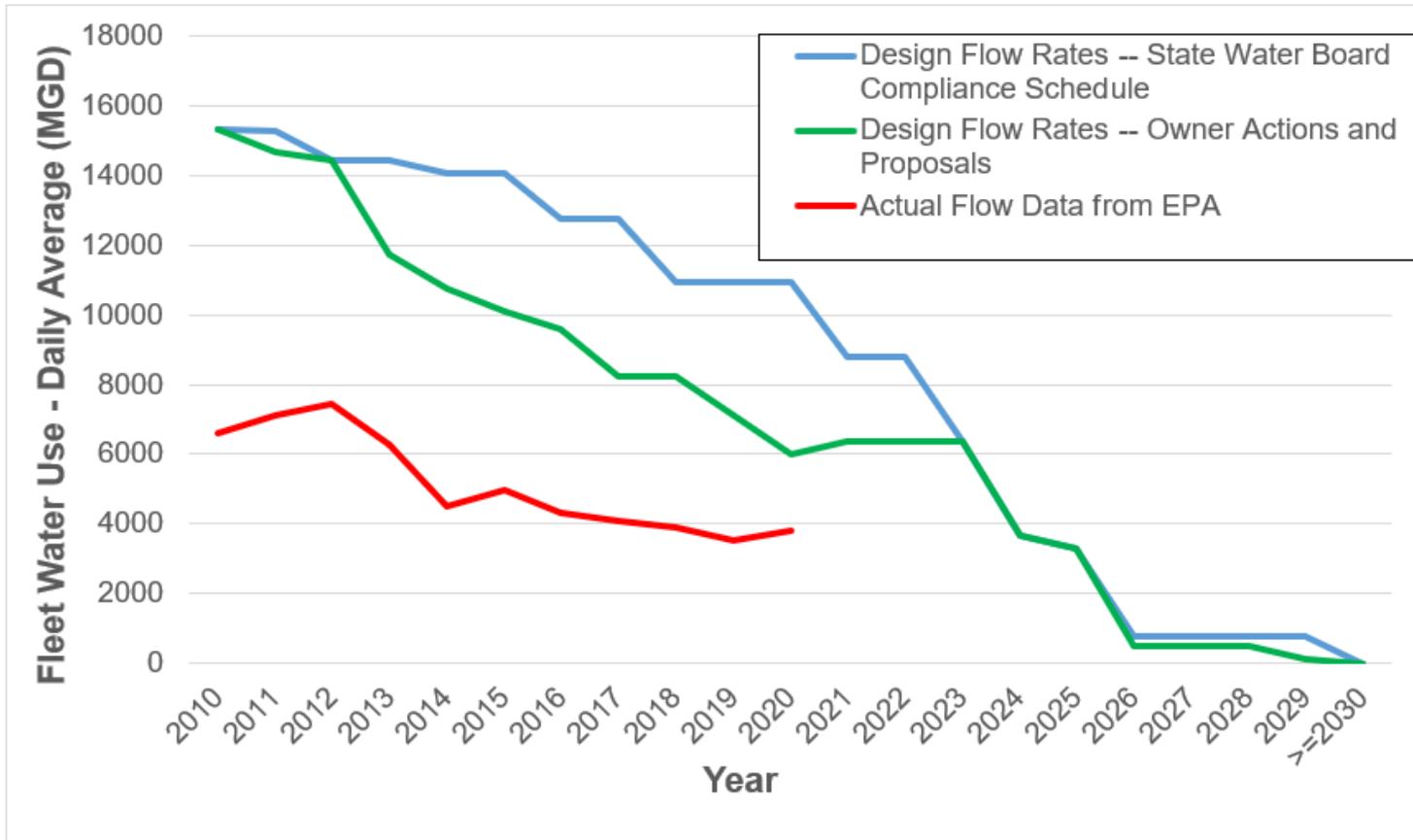
Water Quality Considerations

Historic and Projected Water Use by the OTC Fleet Without Extension of Redondo Beach



Source: CEC and State Water Board Staff, Updated February 17, 2021

Historic and Projected Water Use by the OTC Fleet With Extension of Redondo Beach



Source: CEC and State Water Board Staff, Updated March 3, 2021



OTC Policy Amendment

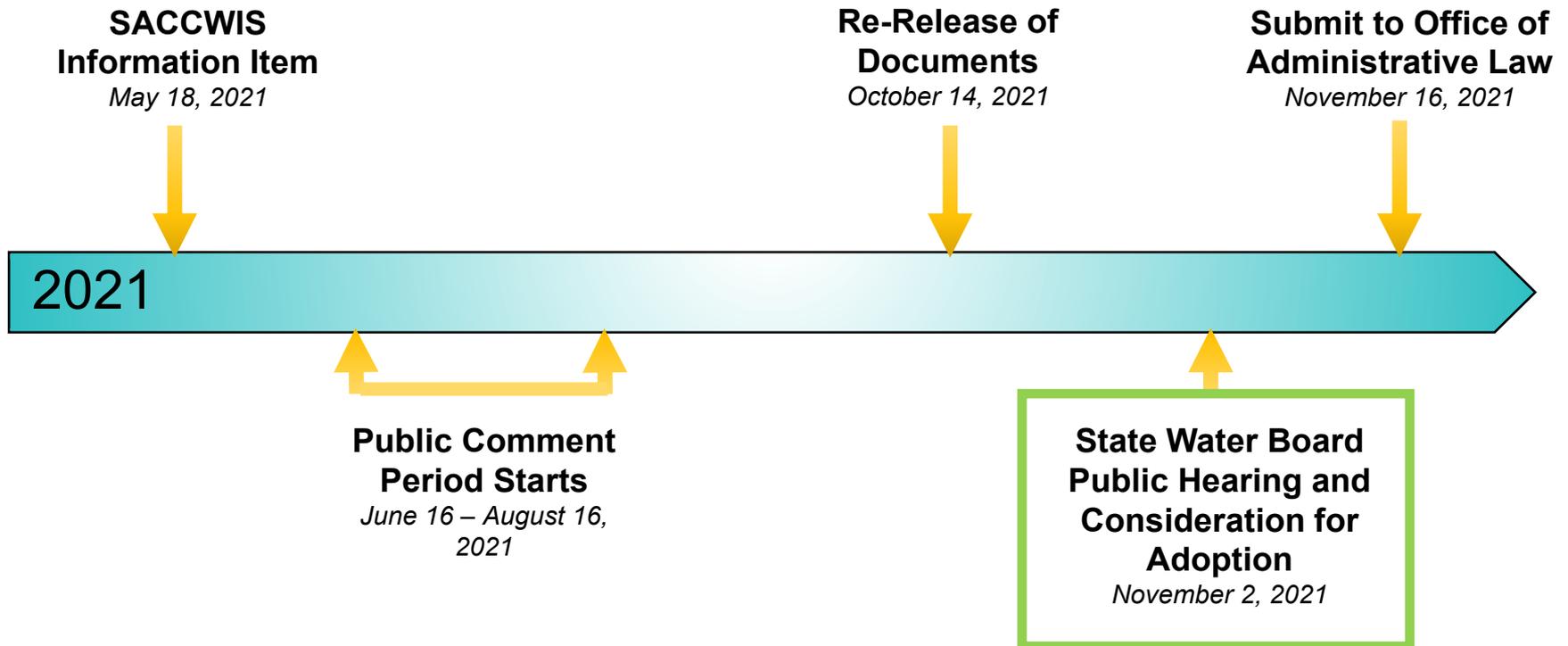
- Based on the recommendation of the SACCWIS, State Water Board staff is preparing a proposed amendment to the OTC Policy to extend the compliance date for Redondo Beach Generating Station for two years through December 31, 2023.
- Office of Administrative Law (OAL) approval must occur by 12/31/2021 for Redondo Beach to remain in compliance with the OTC Policy.
- Should there be any unforeseen delays to the schedule, CAISO could request suspension of Redondo Beach's OTC compliance date for more than 90 days, under Section 2.B.(2)(b) of the OTC Policy.



Other Regulatory Documents

- NPDES Permit: The NPDES permit for Redondo Beach Generating Station expires on September 30, 2021. The Los Angeles Regional Water Board is considering an administrative extension of the permit.
- Time Schedule Order: The Time Schedule Order (TSO) for Redondo Beach Generating Station expires on December 31, 2021. The Los Angeles Regional Water Board is preparing to consider a new TSO in fall.

OTC Policy Amendment Timeline



QUESTIONS?