# Appendix D-1

Updated 2027-2030 and Post-2030 Allowance Allocation to Electrical Distribution Utilities

*Proposed Amendments to the Regulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms*

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## Background

The California Air Resources Board (CARB) allocates free allowances to electrical distributions utilities (EDUs) to benefit their ratepayers, consistent with the goals of AB 32 (California Global Warming Solutions Act of 2006, Chapter 488, Statutes of 2006). Since the beginning of the Program, allowances provided to EDUs have been provided to protect against ratepayer impacts that would solely result from the implementation of the Program. The number of allowances allocated to each EDU is based on its anticipated Cap-and-Trade Program compliance costs. In order to support the transition to lower-carbon electricity sources and to provide certainty to EDUs regarding ratepayer protection, CARB set the annual EDU allowance allocation in the Regulation multiple years ahead of time. Table 9-4 of the Regulation, which was adopted in the 2016 rulemaking, specifies the vintage 2021–2030 allowance allocations to each EDU. However, when allowances are allocated in advance based on projected supply, load, and resulting compliance costs, as they were for the vintage 2021-2030 allocation in Table 9-4, there is a risk that the load projections will be too high or too low or that the supply projections would not reflect the actual generation mix. Depending on supply, load projections that are too low can result in under-allocation with respect to compliance costs, and load projections that exceed actual load can result in over-allocation.

In the 2018 Rulemaking Final Statement of Reasons (CARB 2018), staff indicated plans to re-evaluate post-2020 allocation to EDUs, including re-evaluating allocation levels to incorporate the increased Renewable Portfolio Standard requirement of 60% of retail sales in 2030, as mandated by SB 100 (De León, Chapter 312, Statutes of 2018), and the most recent information related to increased load due to electrification of the transportation sector pursuant to direction from Board Resolution 17-21 (CARB 2017). Additionally, the most recent information from the California Energy Commission (CEC) (CEC 2024a, CEC 2025a) indicates that the existing total 2027-2030 EDU allocation may provide more allocation relative to total Program compliance costs but leave some utilities that have seen increases in demand with fewer allocated allowances than they need to address Program compliance costs.

As part of this rulemaking, CARB staff propose to update the 2027-2030 EDU allocation with the best available data and to continue allocation to EDUs for the benefit of ratepayers, consistent with the goals of AB 32, beyond 2030. The proposed 2027-2030 update uses updated information from the CEC (CEC 2023a, CEC 2024a, CEC 2025a), including the updated California Energy Demand Planning Forecast (CEC 2025a).

Additionally, the proposed amendments also establish EDU allocations through the vintage 2031-2035 allowance budgets. Allocations post-2030 were calculated using information from the CEC (CEC 2025a) and applying the SB 100 RPS targets and the SB 1020 (Laird, Statutes of 2022, Chapter 361) zero-carbon energy targets, as described below. The proposed 2027-2035 EDU allocation calculations are available in Appendix D-2.

## Summary of the 2027-2030 EDU Allocation Revision

The proposed amendments include an update to the 2027-2030 EDU allocation, which follows a similar methodology that was used for the current EDU allocation in Table 9-4 of the Regulation. This methodology is outlined in Attachment C of the 2016 rulemaking (CARB 2016a), with the exception of the cap adjustment factor, which was not included in the EDU

allocation calculation in the adopted amendments. In this update, staff propose to correct energy to serve load instead of retail sales. Since all EDUs are now listed on the CEC's Form 1.1c, the data source for retail sales, staff propose consistently using this data set and correcting the energy to serve load when retail sales exceed energy to serve load. Additionally, staff corrected energy to serve load for several EDUs by applying a maximum transmission loss factor of 15%. The full allowance allocation to each EDU was calculated as specified in the 2021-2030 EDU Allocation Spreadsheet (CARB 2016b) of the 2016 rulemaking.

The proposed amendments include updates to the EDU allocation from the vintage 2027-2030 allowance budgets to account for the more ambitious Renewable Portfolio Standard target for 2030 under SB 100, the most recent information available from the CEC (CEC 2023a, CEC 2024a, and CEC 2025a), updated coal generation emissions factor from 2022 to 2024 for Intermountain Power Plant, and the most recent data for electricity purchased by industrial covered entities during 2022-2024. The RPS target was updated by applying a linear increase in RPS procurement from the 2020 RPS target of 33% to the 2030 target of 60%. For each year during 2021-2030, 5% was subtracted from that year's expected RPS procurement to represent other electricity used to "firm and shape" zero-emissions electricity, which was then annually rounded to the nearest whole percent.

Following the approach used during the 2016 Rulemaking, the current update to vintage 2027-2030 EDU allocation includes several alternate data sources to the methodology when data was missing or unavailable. Those alternate data sources are described and explained in Table 1, below.

## Table 1: Alternate Data Sources

| EDU Name | EDU-Specific Alternate Data Sources |
|---|---|
| Anza Electric Cooperative, Inc. | Anza Electric Cooperative, Inc. is not required to submit Electricity Resource Planning Forms to CEC. The proposed 2027-2030 update uses coal, nuclear, and large hydroelectric supply provided in the 2022 S-2. |
| Bear Valley Electric Service, Inc. (BVES) | Bear Valley does not submit Electricity Resource Planning Forms to CEC. All of Bear Valley's supply is projected to be natural gas generation or unspecified power, per Bear Valley's Integrated Resource Planning Report (BVES 2022). |
| City of Needles | The City of Needles 2024 Electricity Resource Planning Forms were not available. The City of Needles provided staff with estimated 2027–2030 large hydroelectric, coal, and nuclear data. The proposed 2027-2030 update uses the CEC's 2023 Power Content Label Data (CEC 2025b) for retail sales data because the Form 1.1c does not accurately capture this information for the City of Needles. |
| Eastside Power Authority | Eastside Power Authority's supply information for hydroelectric in the 2024 S-2 does not separate small and large hydroelectric. Eastside Power Authority provided staff with the estimated percentage of large hydroelectric supply. |
| Liberty Utilities (CalPeco Electric) LLC | Liberty Utilities does not submit Electricity Resource Planning Forms to CEC. The proposed 2027-2030 update uses the average of 2021,2022, and 2023 Power Content Label data (CEC 2023b, CEC 2024b, CEC 2025b) from the CEC for Liberty's coal, nuclear, and large hydroelectric supply. |
| Pacific Gas and Electric Company (PG&E) - Electric Power Entity | Energy to serve load, retail sales, and supply are inclusive of community choice aggregators and electricity service providers that receive distribution service from PG&E. The proposed 2027-2030 update uses the average of 2021, 2022, and 2023 Power Content Label data (CEC 2023b, CEC 2024b, CEC 2025b) from the CEC for all CCAs. |
| PacifiCorp | Pacificorp does not submit Electricity Resource Planning Forms to the CEC and is not included in CEC's Form 1.5a. Information from Pacificorp's 2023 Integrated Resource Plan Update was used to calculate emissions and annual allocations consistent with sources used in the current 2021-2030 allocation methodology (Pacificorp 2024). The allocation calculation for Pacificorp now follows the same method as all other EDUs. |
| Port of Oakland | A transmission loss factor of 15% was applied to determine the final energy to serve load for the Port of Oakland. This is to reflect the fact that the Port supplies electricity to meet its own needs, which are not retail sales. |
| Port of Stockton | The Port of Stockton is no longer required to submit Electricity Resource Planning Forms to CEC. The proposed 2027-2030 update uses coal, nuclear, and large hydroelectric supply provided by the Port of Stockton. |

| EDU Name | EDU-Specific Alternate Data Sources |
|---|---|
| Power and Water Resources Pooling Authority (PWRPA) | PWPRA's supply information for hydroelectric in the 2024 S-2 does not separate small and large hydroelectric. The percentage of large hydroelectric supply was provided by PWRPA. |
| San Diego Gas & Electric (SDG&E) | Energy to serve load, retail sales, and supply are inclusive of community choice aggregators and electricity service providers that receive distribution service from SDG&E. A majority of CCAs did not submit or have confidential public supply forms. The proposed 2027-2030 update uses the average of 2021, 2022, and 2023 Power Content Label data (CEC 2023b, CEC 2024b, CEC 2025b) from the CEC for all CCAs. |
| Southern California Edison (SCE) | Energy to serve load, retail sales, and supply are inclusive of community choice aggregators and electricity service providers that receive distribution service from SCE. Staff assumed that generation from large hydro and nuclear for 2027–2030 would be equal to 2022 shown in the 2024 S-2. A majority of CCAs did not submit or have confidential public supply forms. The proposed 2027-2030 update uses the average of 2021, 2022, 2023 Power Content Label data (CEC 2023b, CEC 2024b, CEC 2025b) from the CEC for all CCAs. |
| Surprise Valley Electrification Corp. | Surprise Valley Electrification Corp. no longer submits Electricity Resource Planning Forms to CEC. The proposed 2027-2030 update uses the average of 2021, 2022, 2023 Power Content Label data (CEC 2023b, CEC 2024b, CEC 2025b) from the CEC for coal, nuclear, and large hydroelectric supply. |
| Valley Electric Association, Inc. (VEA) | Form 1.5a includes all of Valley Electric Association's service territory. Valley Electric Association's 2022 S-1 was used for energy to serve load. |
| WAPA - Sierra Nevada Region | WAPA does not submit an S-2 to CEC. Staff used the average of 2014–2023 quantities of large hydroelectric, provided by WAPA. Based on prior conversations with WAPA, staff used MRR data to update retail sales for 2027-2030. The energy to serve load for 2027-2030 was derived from retail sales, adjusted to account for average State transmission losses of 7% (CARB 2016a). |

## Summary of the Post-2030 EDU Allocation

Staff propose a new standard methodology to calculate post-2030 EDU allocation because the supply data needed to replicate the previous methodology is only available through 2031 for most EDUs. Further, SB 100 requires that renewable and zero-carbon resources supply 100% of electric retail sales to end-use customers by 2045, with an interim target of 90% by 2035 set by SB 1020.

As for the update to vintage 2027-2030 EDU allocation, for post-2030 allocation all EDUs are assumed to achieve the 60% RPS target in 2030, minus 5% to represent nonzero emissions electricity used to "firm and shape" zero-emissions electricity. Per the new standard methodology, all EDUs are assumed to achieve the 90% target by 2035, minus 5% as described above, by increasing the percentage of zero-carbon electricity at a rate of 6% per

year from 2031-2035, as described in Table 2. This rate of increase is referred to as the zero-carbon trajectory.

Table 2 shows the RPS target, zero-carbon trajectory, and the maximum percentage of electricity generated from natural gas for 2031-2035. The maximum percentage of electricity generated by natural gas in the amount of electricity that is not covered by the RPS and zero carbon trajectory, minus 5% to represent nonzero emissions electricity used to "firm and shape" zero-emissions electricity.

**Table 2: Summary of the RPS target, zero-carbon trajectory, and maximum electricity generated by natural gas.**

| Year | RPS Target (%) | Zero-Carbon Trajectory (%) | RPS Target + Zero-Carbon Trajectory (%) | Maximum Electricity Generated by Natural Gas (%) |
|---|---|---|---|---|
| 2031 | 55 | 6 | 61 | 39 |
| 2032 | 55 | 12 | 67 | 33 |
| 2033 | 55 | 18 | 73 | 27 |
| 2034 | 55 | 24 | 79 | 21 |
| 2035 | 55 | 30 | 85 | 15 |

The 2031-2035 allowance allocation for an EDU is calculated by one of the three methods identified below depending on its status in 2030 relative to the zero-carbon trajectory in that year. The energy to serve load is taken from the CEC Form 1.5a or from the CEC Form 1.1c grossed up by the transmission loss factor for EDUs not listed on the CEC Form 1.5a (CEC 2025a). The transmission loss factor is calculated as the ratio of energy to serve load to retail sales, averaged over 2027-2030. The CEC Form 1.5a and Form 1.1c provide energy to serve load and retail sales, respectively, through 2040 (CEC 2025a).

The proposed update for vintage 2027-2030 EDU allocation includes the current status of Diablo Canyon Nuclear Power Plant. Because Diablo Canyon Nuclear Power Plant is slated to be retired before 2031, the post-2030 calculation for PG&E via Path 1 reflects the 2030 allocation without Diablo Canyon Nuclear Power Plant.

Additionally, as specified in Table 1, the retail sales data for City of Needles and WAPA are not accurately captured in the CEC Form 1.1c (CEC 2025a). Because of this, the post-2030 EDU allocation continues to use the alternate data sources, specified in Table 1, and scaled up by its average annual growth factor.

Overall, the approach is designed to ensure that an EDU that meets or exceeds the zero-carbon trajectory during 2031-2035 is provided a similar level of allocation as in 2030, scaled by its average annual growth factor to account for increased load. An EDU that is not yet meeting the zero-carbon trajectory receives allocation commensurate with state targets, and an EDU that is fully renewable and/or zero-carbon is provided allocation for 5% of its energy to serve load, which is aligned with the existing allocation approach.

1. **Path 1, EDUs that are projected to meet or exceed the 2031 zero-carbon trajectory in 2030:** If in 2030, an EDU is exceeding 6% zero-carbon trajectory from its nuclear and large hydroelectric supply, then the new standard methodology calculates the EDU's 2031 allocation as its 2030 allocation scaled by the average annual load growth factor from the CEC Form 1.5a or CEC Form 1.1c (CEC 2025a). This calculation method continues in subsequent years until the EDU is no longer exceeding the trajectory for the SB 1020 target in 2035 that is described in Table 1. In the year that the EDU no longer exceeds the trajectory for the SB 1020 target under Path 1, the new standard methodology calculates the EDU's annual allocations following Path 2. Through Path 1, the allocation in 2031 is calculated by the following equation:

$$Allocation_{2031} = Allocation_{2030} \times Avg\ Annual\ Growth\ Factor$$

Where:

"$Allocation_{2031}$" is the allocation in 2031;

"$Allocation_{2030}$" is the allocation in 2030; and

"Avg Annual Growth Factor" is the average annual growth factor from the CEC Form 1.5a or CEC Form 1.1c.

2. **Path 2, EDUs that are projected to not exceed the 2031 zero-carbon trajectory in 2030:** If in 2030, an EDU is not exceeding the 6% zero-carbon trajectory from its nuclear and large hydroelectric supply, then the new standard methodology calculates the EDU's 2031 allocation as the 39% of its retail sales that is not covered by RPS-eligible or zero-carbon resources plus the difference between energy to serve load and retail sales, multiplied by the natural gas generation emissions factor (0.4354 $MTCO_2e/MWh$). For EDUs that serve industrial covered entities, the electricity purchases by industrial covered entities are subtracted from the retail sales before it is multiplied by the maximum electricity generated by natural gas percentage. The baseline industrial covered entity purchased electricity is in row 15 of each EDUs tab in the vintage 2027-2035 EDU Allocation spreadsheet. It represents the annual electricity purchased by industrial covered entities served by the EDU, as reported pursuant to MRR, averaged over the period 2022-2024.

   The same method is applied for 2032-2035 using the zero-carbon trajectory and maximum electricity generated by natural gas listed in Table 1, thus assuming the RPS target plus zero-carbon trajectory is met each year. The maximum percentage of energy projected to serve load from natural gas generation is limited each year by the annually increasing RPS and zero-carbon trajectory, as shown in Table 1. The allocation in 2031 is calculated using the following equation:

$$Allocation_{2031} = [((RS - EITE) \times 39\%) + (ESL - RS)] \times 0.4354 \frac{MTCO_2e}{MWh}$$

Where:

"$Allocation_{2031}$" is the allocation in 2031;

"RS" is the retail sales in 2031;

"EITE" is the annual average electricity purchases by industrial covered entities served by the EDU; and

"ESL" is the energy to serve load in 2031.

3. **Path 3, EDUs that are projected to have fully renewable or zero-carbon supply in 2030:** Lastly, if in 2030 an EDU's load is fully supplied by RPS-eligible, nuclear, and large hydroelectric resources, then the new standard methodology provides the EDU allocation to cover 5% of its energy to serve load using natural gas generation emissions factor for each year during 2031-2035, consistent with the EDU allocation in the current Regulation. The allocation in 2031 is calculated using the following equation:

$$Allocation_{2031} = 5\% \times ESL \times 0.4354 \frac{MTCO_2e}{MWh}$$

Where:

"Allocation$_{2031}$" is the allocation in 2031; and

"ESL" is the energy to serve load in 2031.

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