# California Air Resources Board

Senate Bill 350
Integrated Resource Planning Electricity Sector
Greenhouse Gas Planning Targets: 2020 Update

**March 2021**

CALIFORNIA
AIR RESOURCES BOARD

## Section 1: Introduction

Under the Clean Energy and Pollution Reduction Act (Senate Bill 350) (de León, Chapter 547, Statutes of 2015), the California Air Resources Board (CARB) must establish 2030 greenhouse gas (GHG) planning targets for individual publicly-owned utilities (POU) and load-serving entities (LSE).[1] CARB staff originally developed these targets in July 2018, as published in Staff Report: Senate Bill 350 Integrated Resource Planning (IRP) Electricity Sector Greenhouse Gas Planning Targets (July 2018 Staff Report). This 2020 Update document provides an update to some of the 2030 GHG planning targets, and these revised targets were derived consistent with the methodology used in the 2018 Staff Report. Board Resolution 18-26 directs "the Executive Officer, in coordination with the CPUC and CEC, to update the load-serving entity and/or publicly owned utility GHG planning target ranges in advance of a Scoping Plan update, as necessary, provided that the sum of these changes do not exceed the approved electricity sector GHG planning target range, there is public process, and the methodology utilized for the update is consistent with the methodology set forth [in the 2018 Staff Report]."

These 2020 revisions, developed in coordination with the California Public Utilities Commission (CPUC) and California Energy Commission (CEC), are necessary to support CPUC's IRP planning cycle to accommodate shifts in load-share between LSEs and new entities. LSEs subject to IRP are required to submit their 2020 IRP filings to CPUC by September 1, 2020. The GHG planning targets in the July 2018 Staff Report and in this 2020 Update are ranges, categorized as follows. Categories updated as part of this 2020 Update are marked below with an asterisk:

- Electricity sector as a whole
- POUs (Table 1 from July 2018 Staff Report)
- Host electrical distribution utilities (EDU)[2] (Table 2)*
- Community choice aggregators (CCA)[3] (Table 2),* and
- Electricity service providers (ESP)[4] (Aggregate totals are presented in Table 2).*

By 2023, CARB will update the 2030 GHG planning targets for POUs subject to CEC's IRP process, commensurate with next filing deadline for these entities.

[1] Load-serving entities include investor-owned utilities, electric service providers, and community choice aggregators.
[2] The term "host EDU" is used to describe the IOU operations that are served by the IOU itself, after accounting for load served by the CCAs and ESPs that operate in the IOU's territory.
[3] CCAs are governmental entities formed by cities and counties as authorized under Public Utilities Code Section 366 to procure electricity for residents, businesses, and municipal facilities within the service territory of IOUs. CCAs serve load but are not EDUs. IOUs provide transmission and distribution service for CCAs.
[4] ESPs are non-utility entities authorized under Public Utilities Code Section 394 that offer direct access electric service to customers within the service territory of IOUs. ESPs serve load but are not EDUs. IOUs provide transmission and distribution service for ESPs.

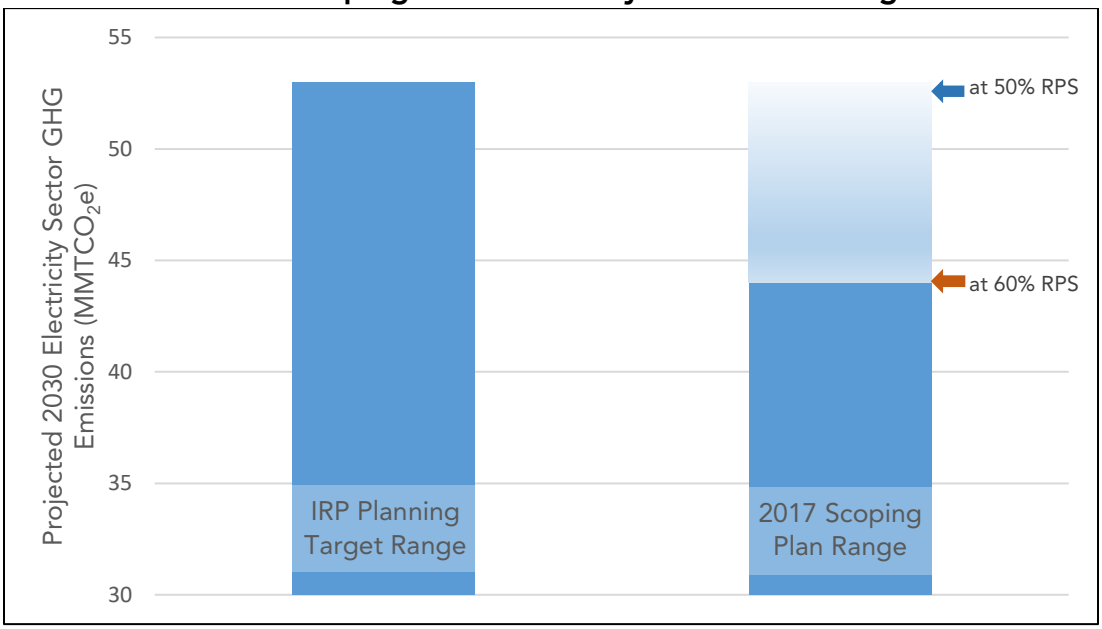
## Section 2: GHG Planning Target Range for Electricity Sector

The 2030 GHG planning target range of 30–53 $MMTCO_2e$ for the electricity sector remains the same in the 2020 Update as it was in the July 2018 Staff Report, wherein a more detailed description of the methodology can be found. In that report, CARB staff used California's 2017 Climate Change Scoping Plan (2017 Scoping Plan Update) to inform the GHG planning targets pursuant to SB 350. The 2017 Scoping Plan Update used PATHWAYS to model different GHG emissions scenarios that achieve the 2030 economy-wide GHG emissions target.[5] The Scoping Plan scenario included existing programs or actions required by statute at the time the 2017 Scoping Plan Update was performed, including a 50-percent Renewables Portfolio Standard (RPS) by 2030, and resulted in electricity sector GHG emissions of 53 $MMTCO_2e$. An alternative scenario (Alternative 1) included additional energy efficiency gains, additional zero emission vehicles, and an increase in the percent of RPS achieved, among other measures, that result in electricity sector GHG emissions as low as 30 $MMTCO_2e$. These two scenarios form the bookends for CARB's GHG planning target range of 30–53 $MMTCO_2e$ for the electricity sector.

Following publication of the July 2018 Staff Report, on September 10, 2018, Senate Bill (SB) 100 (de León, Chapter 312, Statutes of 2018) was signed into law, which raised the RPS target to 60 percent by 2030, up from 50 percent under SB 350. The 2017 Scoping Plan Update includes a scenario (60 percent RPS) that explores the impact of increasing the RPS from 50 percent to 60 percent by 2030, retaining all other measures expected to be achieved by 2030 in the Scoping Plan Scenario. This 60 percent RPS scenario results in a reduction of about 10 $MMTCO_2e$ relative to the Scoping Plan Scenario. Had staff used the 60 percent RPS scenario instead of the Scoping Plan scenario to establish the electricity sector GHG planning target range, the top end of the range would have reduced from 53 $MMTCO_2e$ to 44 $MMTCO_2e$, or 17 percent (See Figure 1 below). The bottom end of the range remains at 30 $MMTCO_2e$.

[5] California PATHWAYS Model Framework and Methods (January 2017). PATHWAYS is a model structured to estimate GHG emissions in future years while recognizing the integrated nature of the industrial economic and energy sectors.

**Figure 1. Comparison of IRP Planning Target Range with 2017 Scoping Plan Electricity Sector Modeling**




Therefore, the adopted IRP electricity sector target range is still valid under the new SB 100 RPS 2030 target; however, LSEs and POUs may end up below the top range of their respective IRP targets as a result of meeting a stricter RPS target, and are encouraged to plan towards the bottom end of their range.

In 2021, CARB staff will begin the process of developing the 2022 Scoping Plan Update, which will model GHG emissions scenarios that incorporate the State's current programs and goals. CARB staff anticipates that future Scoping Plan modeling will yield an electricity sector GHG emission upper bound that is lower than 53 $MMTCO_2e$.

## Section 3: GHG Planning Target Ranges for POUs

The GHG planning target ranges for POUs in 2030 remains the same as those target ranges in the July 2018 Staff Report, where a more detailed description of the methodology can be found. The POU target ranges are repeated here in Table 1 for convenience.

**Table 1 – 2030 GHG Planning Target Ranges for POUs**

| Publicly Owned Utility | Percentage of 2030 Electricity Sector Emissions[6] | 2030 GHG Planning Target Range, 30–53 $MMTCO_2e$[7] | |
|---|---|---|---|
| | | Low ($MTCO_2e$) | High ($MTCO_2e$) |
| City of Anaheim | 1.015% | 305,000 | 538,000 |
| City of Burbank | 0.430% | 129,000 | 228,000 |
| City of Glendale | 0.396% | 119,000 | 210,000 |
| City of Palo Alto | 0.174% | 52,000 | 92,000 |
| City of Pasadena | 0.426% | 128,000 | 226,000 |
| City of Redding | 0.191% | 57,000 | 101,000 |
| City of Riverside | 0.918% | 275,000 | 487,000 |
| City of Roseville | 0.452% | 136,000 | 240,000 |
| City of San Francisco | 0.041% | 12,000 | 22,000 |
| City of Vernon | 0.497% | 149,000 | 263,000 |
| Imperial Irrigation District | 1.745% | 524,000 | 925,000 |
| Los Angeles Department of Water & Power | 8.851% | 2,655,000 | 4,691,000 |
| Modesto Irrigation District | 1.055% | 317,000 | 559,000 |
| Sacramento Municipal Utility District | 3.621% | 1,086,000 | 1,919,000 |
| Silicon Valley Power | 0.915% | 275,000 | 485,000 |
| Turlock Irrigation District | 0.629% | 189,000 | 333,000 |

## Section 4: GHG Planning Target Ranges for LSEs

The methodology used in this 2020 Update to develop GHG planning target ranges for LSEs in 2030 is similar to that used in the July 2018 Staff Report. The ranges presented in Table 2 have been revised[8] to reflect more recently available data.

Staff assigned a portion of the 30–53 $MMTCO_2e$ electricity sector GHG planning target range to each of the six investor-owned utilities (IOU) based on each IOU's percentage of 2030 GHG emissions from the 2021–2030 EDU Allocation Spreadsheet[9] developed for CARB's Cap-and-Trade Program's 2021–2030 Allowance Allocation to EDUs. The process and resulting "IOU Percentage of 2030 Electricity Sector GHG Emissions" remain unchanged relative to the June 2018 Staff Report.

CARB staff next calculated each IOUs' GHG planning target ranges by multiplying each IOU's percentage of 2030 electricity sector GHG emissions by the lower (30 $MMTCO_2e$) and upper (53 $MMTCO_2e$) electricity sector GHG planning target ranges. No additional steps were needed to determine the GHG planning target ranges for

[6] Percentage of 2030 electricity sector emissions are rounded to the nearest thousandth.
[7] Emissions targets for each utility are rounded to the nearest 1,000 $MTCO_2e$.
[8] With the exception of PacifiCorp, Liberty Utilities (CalPeco Electric) LLC, and Golden State Water Company (Bear Valley Electric Service).
[9] Note EDU-specific GHG emissions are listed on tabs for each EDU; EDU-specific GHG emissions include the industrial source electricity demand in the spreadsheet. Industrial source electricity demand is excluded for EDU allowance allocation purposes.

three of the six IOUs (PacifiCorp, Liberty Utilities (CalPeco Electric) LLC, and Golden State Water Company (Bear Valley Electric Service)). For the other three IOUs (Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas and Electric Company (SDG&E)), CARB staff apportioned their GHG planning target ranges to the entities operating in the IOU's territory (CCAs, ESPs, and the host EDUs themselves) based on each entity's share of projected 2030 electricity demand for the IOU as a whole. Each IOUs total projected 2030 electricity demand is based on the adopted 2019 IEPR demand forecasts.[10]

To calculate the GHG planning target range for each CCA, CARB staff multiplied the CCA's share of the IOU's total projected 2030 electricity demand by the GHG planning target range for each associated IOU. Each CCA's projected demand came from the adopted 2019 IEPR demand forecasts unless the CCA elected in early 2020 to file a motion in CPUC Proceeding R1602007 to modify their 2030 demand forecast for IRP planning purposes, in which case CARB staff used projected demand from those filings.[11] These values can be found in Table 2.

The process to calculate ESP GHG planning target ranges is different than that used for CCAs. The adopted 2019 IEPR demand forecasts do not contain projections of 2030 electricity demand for individual ESPs, as it does for CCAs, and instead provide an aggregate total for all ESPs that operate within each IOU's service territory. To calculate the GHG planning target range for these "aggregated ESPs," CARB staff multiplied the aggregated ESP's share of the IOU's total projected 2030 electricity demand by the GHG planning target range for the associated IOU. These values can be found in Table 2.

The host EDU's GHG planning target range can also be found in Table 2 and is simply the GHG planning target range for the IOU as a whole, less the sum of the GHG target planning ranges for CCAs and aggregate ESPs operating within the IOU's service territory. As mentioned above, the IOU's total projected 2030 electricity demand remains fixed based on 2019 IEPR projections, so CARB staff assumed that the portion of electricity demand served by the host EDU shrinks or expands per changes in demand forecasts made by CCAs in early 2020.

The final step establishes a GHG planning target range for each ESP. CARB staff started by summing the GHG planning targets for the aggregated ESPs operating in PG&E, SCE and SDG&E's service territories to determine a statewide GHG planning target for all ESPs. Next, CARB staff calculated each individual ESP's projected statewide electricity demand for 2030. Due to a lack of long-term forecast information

[10] 2019 Integrated Energy Policy Report, Form 1.1c California Energy Demand 2019 – 2030 Managed Forecast – Mid Demand / Mid AAEE Case.
[11] New or amended load forecasts were assigned to the following LSEs: Desert Community Energy, East Bay Community Energy, Marin Clean Energy, Monterey Bay Community Power Authority, PG&E, Redwood Coast Energy Authority, Silicon Valley Clean Energy, Sonoma Clean Power, SCE, and Valley Clean Energy Alliance.

for all ESPs, CARB set 2030 electricity demand for each ESP to be the average of historical retail sales for 2019 (if available)[12] and forecasted retail sales for 2020 and 2021 submitted to CPUC under the Resource Adequacy Proceeding.[13] CARB staff then calculated total projected 2030 electricity demand for all ESPs, and the percentage of that total for each individual ESP. To calculate the GHG planning target range for each ESP, CARB staff multiplied the ESP's share of total ESP 2030 projected electricity demand by the GHG planning target range for all ESPs. This methodology differs slightly from the July 2018 Staff Report where 2030 electricity demand for each ESP was the average of the prior three years of historical sales data. Forecasts from the Resource Adequacy Proceeding were not available at the time the July 2018 Staff Report was developed.

Due to concerns expressed by some ESPs that annual demand data could be back-calculated from individual ESP target ranges, CARB staff have removed individual ESP GHG planning target ranges from this Final 2020 Update, and will instead directly notify each ESP of their updated GHG planning target range. Table 3 lists each ESP for which a GHG planning target range was calculated.

## Section 5: Public Process

CARB released a draft version of this 2020 Update for a two-week public comment period on November 9, 2020. Seven comments were submitted. Several commenters requested that the upper bound of the electricity sector's GHG planning target range be lowered in recognition of SB 100. As discussed above, while revisions to the electricity sector's GHG planning target range were not considered as part of this 2020 Update, they will be considered as part of the 2022 Scoping Plan Update.

[12] Historical retail sales data is based on CEC Energy Consumption Data Management System (ECDMS), form CEC-1306Bp unless the ESP requested their ECDMS data be treated as confidential information. For these ESPs, staff used data from the Annual Electric Power Industry Report, Form EIA-861, if available. When 2019 data were not available from either source, 2030 electricity demand was based on forecasted retail sales for 2020 and 2021 only.

[13] Data submitted by ESPs in CPUC's Resource Adequacy Proceeding are not publicly available.

**Table 2 – GHG Planning Target Ranges for LSEs**

| IOU | Load Serving Entity | IOU Percentage of 2030 Electricity Sector GHG Emissions[14] | Percentage of 2030 IOU Electricity Demand[14] | Percentage of 2030 Electricity Sector GHG Emissions[14] | 2030 GHG Planning Target Range, 30–53 $MMTCO_2e$[15] | |
|---|---|---|---|---|---|---|
| | | | | | Low ($MTCO_2e$) | High ($MTCO_2e$) |
| Pacific Gas and Electric Company (PG&E) | PG&E (Host EDU) | 33.837% | 35.026% | 11.852% | 3,556,000 | 6,281,000 |
| | Aggregated ESPs | | 14.912% | 5.046% | 1,514,000 | 2,674,000 |
| | Butte Choice Energy CCA[16] | | 1.209% | 0.409% | 123,000 | 217,000 |
| | Clean PowerSF CCA[17] | | 4.020% | 1.360% | 408,000 | 721,000 |
| | East Bay Community Energy CCA | | 9.038% | 3.058% | 918,000 | 1,621,000 |
| | King City Community Power CCA | | 0.039% | 0.013% | 4,000 | 7,000 |
| | Marin Clean Energy CCA | | 7.832% | 2.650% | 795,000 | 1,404,000 |
| | Peninsula Clean Energy Authority CCA | | 4.657% | 1.576% | 473,000 | 835,000 |
| | Pioneer Community Energy CCA[18] | | 1.493% | 0.505% | 152,000 | 268,000 |
| | Redwood Coast Energy Authority CCA | | 0.821% | 0.278% | 83,000 | 147,000 |
| | San Jose Clean Energy CCA[19] | | 5.820% | 1.969% | 591,000 | 1,044,000 |
| | Silicon Valley Clean Energy CCA | | 5.205% | 1.761% | 528,000 | 933,000 |
| | Sonoma Clean Power CCA | | 3.020% | 1.022% | 307,000 | 542,000 |
| | Valley Clean Energy Alliance CCA | | 0.996% | 0.337% | 101,000 | 179,000 |
| Southern California Edison Company (SCE) | SCE (Host EDU) | 33.171% | 63.488% | 21.060% | 6,318,000 | 11,162,000 |
| | Aggregated ESPs | | 15.699% | 5.208% | 1,562,000 | 2,760,000 |
| | Apple Valley Choice Energy CCA | | 0.278% | 0.092% | 28,000 | 49,000 |
| | Baldwin Park CCA[16] | | 0.287% | 0.095% | 29,000 | 50,000 |
| | City of Commerce CCA[16] | | 0.468% | 0.155% | 47,000 | 82,000 |
| | City of Palmdale CCA[16] | | 0.260% | 0.086% | 26,000 | 46,000 |
| | City of Pomona CCA[16] | | 0.487% | 0.162% | 48,000 | 86,000 |

[14] IOU Percentage of 2030 GHG Emissions, Percentage of 2030 IOU Electricity Demand and Percentage of 2030 Electric Sector GHG Emissions are rounded to the nearest thousandth. Percentages of 2030 IOU Electricity Demand for PG&E and SCE do not sum to 100% because some load is expected to be served by MBCPA (see footnote 23). Additionally, 0.497% of PG&E's load is expected to be served by Bay Area Rapid Transit (BART), which is not included in Table 2 because it is not required to submit an IRP. BART procures their own power and PG&E delivers it as described in Public Utilities Code 701.8.

[15] GHG planning targets are rounded to the nearest 1,000 $MTCO_2e$.

[16] This CCA formed after publication of the July 2018 Staff Report.

[17] This CCA was named Clean Power San Francisco Clean CCA in the July 2018 Staff Report.

[18] This CCA was named Pioneer Community Power Authority CCA in the July 2018 Staff Report.

[19] This CCA was named San Jose City CCA in the July 2018 Staff Report.

| | | | | | | |
|---|---|---|---|---|---|---|
| | City of Santa Barbara CCA[16] | | 0.395% | 0.131% | 39,000 | 69,000 |
| | Clean Power Alliance CCA[20] | | 13.851% | 4.594% | 1,378,000 | 2,435,000 |
| | Desert Community Energy CCA | | 0.678% | 0.225% | 67,000 | 119,000 |
| | Lancaster Choice Energy CCA[21] | | 0.656% | 0.218% | 65,000 | 115,000 |
| | Pico Rivera Innovative Municipal Energy CCA | | 0.287% | 0.095% | 29,000 | 50,000 |
| | Rancho Mirage Energy Authority CCA | | 0.314% | 0.104% | 31,000 | 55,000 |
| | San Jacinto Power CCA | | 0.189% | 0.063% | 19,000 | 33,000 |
| | Western Community Energy CCA[16] | | 1.876% | 0.622% | 187,000 | 330,000 |
| PG&E / SCE[22] | Monterey Bay Community Power Authority CCA (MBCPA) | N/A | 2.969% | 2.093% | 628,000 | 1,109,000 |
| San Diego Gas & Electric Company (SDG&E) | SDG&E (Host EDU) | 8.843% | 30.667% | 2.712% | 814,000 | 1,437,000 |
| | Aggregated ESPs | | 21.634% | 1.913% | 574,000 | 1,014,000 |
| | Clean Energy Alliance CCA[16,23] | | 5.315% | 0.470% | 141,000 | 249,000 |
| | San Diego Community Power CCA[16] | | 42.384% | 3.748% | 1,124,000 | 1,986,000 |
| PacifiCorp | PacifiCorp | 0.746% | 100.000% | 0.746% | 224,000 | 395,000 |
| Liberty Utilities (CalPeco Electric) LLC | Liberty Utilities (CalPeco Electric) LLC | 0.255% | 100.000% | 0.255% | 77,000 | 135,000 |
| Golden State Water Company (Bear Valley Electric Service) | Golden State Water Company (Bear Valley Electric Service) | 0.059% | 100.000% | 0.059% | 18,000 | 31,000 |

[20] This CCA was named Los Angeles Community Choice Energy CCA in the July 2018 Staff Report.
[21] This CCA was named Lancaster Energy Clean CCA in the July 2018 Staff Report.
[22] MBCPA is expected to serve load from both PG&E and SCE's service territories. Total presented for MBCPA includes load served from both PG&E and SCE. MBCPA is expected to serve 5.415% of PG&E's load and 0.787% of SCE's.
[23] Solana Beach CCA is expected to join Clean Energy Alliance of Southern California CCA in 2021. The values presented for Clean Energy Alliance of Southern California CCA incorporate demand that had been projected to have been met by Solana Beach CCA.

## Table 3 – ESPs with Updated 2030 GHG Planning Target Ranges

| Electricity Service Providers[24] |
|---|
| 3 Phases Renewables, Inc. |
| American Powernet Management, LP |
| Calpine Energy Solutions, LLC |
| Calpine PowerAmerica-CA, LLC[25] |
| Commercial Energy of California |
| Constellation New Energy, Inc. |
| Direct Energy Business |
| EDF Industrial Power Services (Ca), LLC |
| Just Energy Solutions |
| Pilot Power Group, Inc. |
| Shell Energy North America[26] |
| The Regents of the University of California |
| Tiger Natural Gas, Inc. |

[24] Agera Energy, LLC was assigned a GHG planning target range in the July 2018 Staff Report but was not in the 2020 Update because they ceased direct access operations in California at the end of 2019. Liberty Power Delaware LLC, Palmco Power Ca, Praxair Plainfield, Inc., Tenaska Power Services Co., and ENERCAL (formerly Yep Energy, Y.E.P.) submitted a 2020 Electric Service Provider Application Update Form to CPUC, but were not assigned a GHG planning target range because they were not serving load in California as of March 2021.

[25] This ESP was named Champion Energy Services, LLC in the July 2018 Staff Report.

[26] This ESP was named Shell Energy in the July 2018 Staff Report.