

Appendix B

California Energy Commission (CEC) Recommendations

July 2018

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Introduction

This appendix includes California Energy Commission (CEC) Recommendations to CARB for establishing 2030 electric sector greenhouse gas emissions targets to use in the State's integrated resource planning process.

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CALIFORNIA ENERGY COMMISSION

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April 12, 2018

Mary D. Nichols, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Dear Chair Nichols:

I commend the California Air Resources Board (CARB) on the adoption of the 2017 Scoping Plan Update and appreciate the partnership the California Energy Commission, CARB, and the California Public Utilities Commission (CPUC) have established to implement the Integrated Resource Planning (IRP) provisions of the Clean Energy and Pollution Reduction Act of 2015, also known as Senate Bill 350 (De León, Chapter 547, Statutes of 2015) (SB 350). Energy Commission staff and I look forward to continuing to work with our sister agencies and participating in the public process now occurring at CARB to formally establish greenhouse gas (GHG) targets for IRP.

In support of CARB's work to set GHG targets for IRP, Energy Commission staff engaged in a public process to solicit input regarding Publicly Owned Utility (POU) IRPs. Early work began in 2016, culminating in two workshops in 2017, focused on establishing a methodology to determine GHG emission targets for each POU. As a result of this public engagement, Energy Commission staff recommends a methodology, described in further detail in the enclosure, to determine each POU's assigned share of the electricity sector GHG emissions target. The methodology attempts to balance the efforts needed by each POU to reach their respective targets and is based on CARB's method for allocating GHG emissions allowances.

Though Energy Commission staff has not performed independent analysis to determine an appropriate electricity sector-wide GHG target, staff generally supports the work of our sister agencies. CARB engaged in extensive modeling for the Scoping Plan Update, resulting in a 30-53 million metric tons carbon dioxide equivalent (MMTCO₂e) emission target range for 2030 for the electricity sector. The CPUC has recommended an electricity sector-wide GHG target of 42 MMTCO₂e by 2030 based on separate modeling. Energy Commission staff agrees that 42 MMTCO₂e, or a range that encompasses this number, appears to be appropriate based on both CPUC and CARB modeling.

POU Governing Boards are required to adopt their first SB 350 IRPs by January 1, 2019. Thus, POU planning efforts are already underway. Though CARB has not yet formally established the GHG targets for IRP, Energy Commission staff

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encourages POUs to utilize its recommended methodology and the 2017 Scoping Plan Update range to estimate an appropriate GHG target for IRP purposes, as further explained in the enclosure. I hope that by using this approach POU plans will ultimately align well with the targets CARB adopts later this year.

I respectfully submit for your consideration Energy Commission staff's recommendation regarding setting GHG emission targets for IRP. Staff and I look forward to our continued partnership on IRP implementation.

Sincerely,



ROBERT B. WEISENMILLER
Chair

Enclosure

Energy Commission Staff Recommended Methodology for Setting POU-Specific GHG Emission Reduction Targets for Integrated Resource Planning

Senate Bill 350 (De León, Chapter 547, Statutes of 2015) requires the California Air Resources Board (CARB), in coordination with California Public Utilities Commission (CPUC) and California Energy Commission (Energy Commission), to establish greenhouse gas (GHG) emission reduction targets for the electricity sector and each load-serving entity (LSE), primarily investor-owned utilities (IOU), or publicly owned utilities (POU) that meet a size threshold.¹ The targets would reflect the electricity sector's percentage in achieving economy-wide greenhouse gas emissions reductions of 40 percent from 1990 levels by 2030. The 16 largest POUs are required to submit integrated resource plans (IRP) to the Energy Commission that meet the GHG reduction targets established by CARB. The CPUC must establish a process for IOUs and other load-serving entities to submit IRPs that also meet GHG reduction targets.

Joint Agency Process for GHG Target Setting

The CPUC, Energy Commission, and CARB are working together to establish GHG targets for integrated resource planning. Under the joint agency process the agencies have agreed upon, the Energy Commission and CPUC have engaged the public to solicit feedback as they developed recommendations for CARB to consider when setting GHG emission targets for the sector and each load-serving entity and POU. The *Final 2017 Scoping Plan Update* included the electricity sector target range of 30-53 MMTCO₂e and stated that the range would be used to help inform CARB's setting of the SB 350 IRP GHG emission reduction planning targets for the sector. The *Final 2017 Scoping Plan Update* also stated that the Energy Commission, CPUC ,and CARB would continue to coordinate on this effort before final IRP targets are established for the sector and would investigate the potential for and appropriateness of deeper electric sector reductions.²

Over the last year and a half, the CPUC and Energy Commission have developed potential GHG allocation methods, held workshops, and solicited public comments on proposed options for establishing targets. On February 10, 2017, the CPUC and Energy Commission released a staff discussion document to assist the joint agencies in developing a 2030 electricity sector GHG planning target and a methodology to split that target between CPUC and CEC jurisdictional entities.³ The staff paper addressed options for determining the 2030 electricity sector GHG planning target and establishing a method to allocate the electricity sector GHG target between IOUs and POUs.

To determine the 2030 electricity sector GHG planning target, two options were proposed:

- Option 1A: Use the electricity sector's share of statewide 2030 emissions from the Scoping Plan developed by CARB and under Governor Brown's Executive Order B-30-15.
- Option 1B: Scale the statewide 2030 GHG target by the electricity sector's share of CARB's most recent GHG emissions inventory.

¹ POUs with an average annual electrical demand exceeding 700 gigawatt-hours, as determined on a three-year average commencing January 1, 2013, must adopt an IRP for review by the Energy Commission.

² https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

³ *Options for Setting GHG Planning Targets for Integrated Resource Planning and Apportioning Targets Among Publicly Owned Utilities and Load Serving Entities*, CPUC and California Energy Commission Staff Discussion Document, February 10, 2017.

http://docketpublic.energy.ca.gov/PublicDocuments/17-IEPR-07/TN215849_20170210T125610_Options_for_Setting_GHG_Planning_Targets_for_Integrated_Resourc.pdf.

To establish a method to allocate the electricity sector GHG target between IOUs and POUs, three options were proposed:

- Option 2A: Use a method similar to CARB's GHG emissions allowance allocation for electricity distribution utilities for 2021 – 2030.
- Option 2B: Divide the 2030 GHG target based on electricity load served in 2016.
- Options 2C: Develop a bottom-up method for apportioning 2030 GHG targets among all retail sellers of electricity (POUs and IOUs).

On February 23, 2017, the three joint agencies held a workshop on 2030 Greenhouse Gas Emission Reduction Targets for Integrated Resource Planning. On April 17, 2017, the Energy Commission and CARB held a joint workshop to present a proposed method for allocating CARB's 2030 electricity sector GHG planning targets to POUs for use in their IRPs.

To set the electricity sector GHG reduction planning target, stakeholders, including Los Angeles Department of Water and Power (LADWP), California Municipal Utilities Association (CMUA), Northern California Power Agency (NCPA), Southern California Public Power Authority (SCPPA), Sierra Club, Pacific Gas & Electric (PG&E), Community Choice Aggregation Parties and Utility Consumers' Action Network, generally favored using the electricity sector target from the Scoping Plan (Option 1A) as a reasonable starting point. LADWP did not support Option 1B because potential inaccuracies could arise in using the CARB's GHG emission inventory numbers, which have changed over time. SCPPA did not support Option 1B for setting the electricity sector planning target because it uses a 2014 baseline that is different from the SB 32 target of GHG emissions 40 percent below 1990 levels.

For the method to allocate the electricity sector GHG reduction planning target between the LSEs and POUs, several parties noted that Options 2A and 2C were very similar, both relying on a bottom-up approach. LADWP, SMUD, CMUA, NCPA, and SCPPA, generally supported a bottom-up method. Based on stakeholder feedback, the Energy Commission proposed the method described below to allocate the electricity sector planning target between the LSEs and POUs. The same method was also proposed to establish POU-specific GHG reduction targets for use in their IRPs, which again received general support from the POUs.

Recommended Method for Setting POU GHG Emission Reduction Target

The Energy Commission staff's proposed method, based on CARB's method for allocating GHG emissions allowances to distribution utilities for the period 2021 – 2030, uses estimates of GHG emissions in 2030 to determine each utility's assigned share of electricity sector GHG emissions. Once CARB sets an electricity sector emissions target, each utility's share can be used to derive its emissions target for 2030. This method attempts to balance the efforts needed by each POU to reach their respective targets (and thus the electricity sector target) across all POUs by requiring utilities endowed with zero-carbon resources such as large hydroelectricity and nuclear generation, to achieve lower emissions intensities than utilities without those GHG free-resources.

The proposed method uses the Energy Commission's *2015 Integrated Energy Policy Report (2015 IEPR)* demand forecast to derive 2030 estimates of the net energy for load and retail sales of each POU and IOU. The proposed method includes the following elements:

- **Net energy for load** represents the amount of energy that must be generated or procured by the utility to meet customer demand, including industrial loads, and equals consumption (net of what is self-provided by customers) plus (energy) losses during transmission and distribution.

- **Retail sales** are used to estimate the portion of net energy for load that is met in 2030 with **RPS-eligible energy**.⁴ Utilities are assumed to procure RPS-eligible energy in an amount equal to 45 percent of retail sales in 2030.
- Another share of the utility's **remaining energy need** is assumed to come from **existing zero-carbon (non-RPS eligible) resources** in its portfolio, such as large hydro or nuclear. The utility-filed *2015 IEPF Supply Form S-2* was used to estimate energy from such resources in 2030. Average annual energy projected to be generated or procured from such resources over 2013 – 2026 (or some subset of these years, depending upon the stability or stationarity of historical and projected values) is used to calculate the 2030 estimate.⁵
- Remaining energy needs are assumed to be met with natural gas-fired generation with an **emissions intensity** of 0.4354 metric tons (MT) carbon dioxide equivalent (CO₂-e) per megawatt-hour (MWh).⁶

Sample Derivation of a POU GHG Emissions Target

This example demonstrates the steps used to calculate the GHG Emissions target for a sample POU with the following energy needs and resource mix:

Projected 2030 Retail Sales: 1,800 GWh

Net Energy for Load: 2,000GWh

Generation form existing zero-carbon (non-RPS-eligible) resources: 250 GWh

1. Calculate RPS-Eligible Energy:

45% x Retail Sales

0.45 X 1,800 GWh = 810 GWh RPS-Eligible Energy

2. Calculate Remaining Energy Need (to be met with non-RPS-eligible energy)

Net Energy – RPS-Eligible Energy

2,000 GWh – 810 GWh = 1,190 GWh Remaining Energy Need

3. Calculate Assumed Natural Gas Generation:

Remaining Energy Need – Existing Zero-Carbon (non-RPS-eligible) Resources

1,190 GWh – 250 GWh = 940 GWh Assumed Natural Gas Generation

4. Calculated POU GHG Emissions Target

Emissions Intensity x Assumed Natural Gas Generation

0.4354 MT CO₂-e/MWh x 1000 MWh/GWh x 940 GWh = 409,276 MT CO₂-e

Rounded to Nearest Thousand = 409,000 MT CO₂-e GHG POU Emissions Target

Table 1 presents the shares of electricity sector GHG emissions, including industrial loads, for each POU using the Energy Commission staff recommended methodology. The Table then applies that share to three potential electricity sector emission targets that fall within the *2017 Final Scoping Plan Update* range to illustrate POU-specific targets under various sector targets, pending CARB adoption of final sector targets.

⁴ The *2015 IEPF* demand forecast provides values for net energy for load and retail sales through 2026. To estimate values for 2030, the average value during 2024 – 2026 is escalated at the 2014 – 2026 growth rate over 2027 – 2030.

⁵ "Stationarity" refers to a time series whose statistical properties such as mean, variance, autocorrelation, and so forth are all constant over time.

⁶ CARB, Mandatory GHG Reporting and Cap-and-Trade Program Workshop, June 24, 2016. P. 33.

https://www.arb.ca.gov/cc/capandtrade/meetings/062416/arb_and_caiso_staff_presentations_updated.pdf.

Table 1: POU 2030 GHG Emissions Targets (MT CO2-e)

Utility	Share of Sector Target*	Sample POU Target Under Three Potential Sector Targets within Scoping Plan Range (MT CO2-e)**		
		30,000,000	42,000,000***	53,000,000
Anaheim	1.015%	305,000	426,000	538,000
Burbank	0.430%	129,000	181,000	228,000
City and County of San Francisco	0.041%	12,000	17,000	22,000
Glendale	0.396%	119,000	166,000	210,000
Imperial Irrigation District	1.745%	524,000	733,000	925,000
LADWP	8.851%	2,655,000	3,717,000	4,691,000
Modesto Irrigation District	1.055%	317,000	443,000	559,000
Palo Alto	0.174%	52,000	73,000	92,000
Pasadena	0.426%	128,000	179,000	226,000
Redding	0.191%	57,000	80,000	101,000
Riverside	0.918%	275,000	386,000	487,000
Roseville	0.452%	136,000	190,000	240,000
Silicon Valley Power	0.915%	275,000	384,000	485,000
SMUD	3.621%	1,086,000	1,521,000	1,919,000
Turlock Irrigation District	0.629%	189,000	264,000	333,000
Vernon	0.497%	149,000	209,000	263,000
Total Filing POUs****	21.356%	6,407,000	8,970,000	11,319,000
Exempt POUs	1.667%	500,000	700,000	884,000
CPUC Jurisdictional Entities	76.976%	23,093,000	32,330,000	40,797,000

* Share of target percentages were rounded to the nearest thousand.

** Emission targets for each utility are rounded to the nearest 1,000 MT Co2-e.

*** Energy Commission staff recommends that POUs utilize this methodology and the 2017 *Final Scoping Plan Update* range, as illustrated in Table 1, to estimate an appropriate GHG target for IRP purposes until CARB establishes targets. Using a sector-target in the middle of the range, such as 42 MMTCO2e, should maximize the chance of alignment with the targets ultimately adopted by CARB later this year.

**** Totals may not sum due to rounding.

Summary

Energy Commission staff recommends the methodology described above, and each POU's share of the electricity sector-wide target reflected in Table 1, to CARB for consideration in setting POU-specific GHG emission targets for IRP.