

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



December 5, 2017

Advice Letter 3670-E

Russell G. Worden
Director, State Regulatory Operations
Southern California Edison Company
8631 Rush Street
Rosemead, CA 91770

**SUBJECT: Adjustments to Photovoltaic and Electric Vehicle Forecasts to be Used
in Southern California Edison Company's 2017-2018 Distribution
Planning**

Dear Mr. Worden:

Advice Letter 3670-E is withdrawn per withdrawal letter dated November 30, 2017.

Sincerely,

A handwritten signature in cursive script that reads "Edward Randolph".

Edward Randolph
Director, Energy Division

November 30, 2017

Energy Division
Attn: Tariff Unit
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102

Re: Withdrawal of SCE Advice 3670-E

Dear Energy Division Tariff Unit:

On October 6, 2017, Southern California Edison Company (SCE) filed Advice 3670-E to request approval of adjustments to Photovoltaic and Electric Vehicle forecasts to be used in Southern California Edison Company's 2017-2018 Distribution Planning. By this letter, SCE withdraws Advice Letter 3670-E.

In SCE's Reply to Various Protests (filed November 2), SCE stated "If the Commission does not act on or before November 30, SCE will withdraw Advice 3670-E in order to move forward with its planning cycle using the unadjusted 2016 IEPR Update." Consistent with that approach, SCE now withdraws Advice 3670-E.

Although this AL was protested by two parties, SCE continues to believe that the protests are without merit, and SCE continues to stand behind the forecasts submitted in the AL. However, SCE must now move forward with its distribution planning process, and so SCE reluctantly withdraws Advice 3670-E.

Should you have any questions, please contact me.

Sincerely,

Russell G. Worden

RGW:dc:jm

cc: James Loewen, CPUC Energy Division
Dina Makin, CPUC Energy Division
Service Lists SCE's GO 96-B and R.14-08-013 service lists

October 6, 2017

ADVICE 3670-E
(U 338-E)

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA
ENERGY DIVISION

SUBJECT: Adjustments to Photovoltaic and Electric Vehicle Forecasts to be Used in Southern California Edison Company's 2017-2018 Distribution Planning

PURPOSE

Pursuant to the Assigned Commissioner's Ruling (ACR) issued on August 9, 2017, SCE is filing this Advice Letter to submit adjustments to the forecasts for (i) Photovoltaic (PV) Resources, and (i) Electric Vehicles (EV). SCE will use the adjusted forecasts in SCE's 2017-2018 distribution planning process.

BACKGROUND

The forecasting of Distributed Energy Resources (DER) (which include PV and EV), and use of these forecasts in IOU distribution planning, is the subject of Sub-track 1 of Track 3 (policy) of R.14-08-013 et al., the Distribution Resource Plan (DRP) proceeding.

Over the course of 2017, numerous activities discussed DER forecasting and how IOUs use these forecasts for distribution planning. These activities included a workshop, numerous meetings of an informal stakeholder Working Group established specifically to discuss these topics, multiple rulings, and multiple filings submitted by the IOUs and other parties. These activities culminated in the ACR issued August 9, 2017.¹

For the 2017-18 planning cycle, the August 9 ACR required IOUs to use the DER forecasts from the 2016 IEPR Update, "with limited adjustments to PV and EV forecasts."² In explaining the potential need for adjustments, the ACR recognized that the 2016 IEPR uses DER forecast data from 2015.³ Thus, the DER forecasts will be over two years old at the time planning begins. The ACR therefore determined that "the PV forecast may be adjusted to account for policy changes since 2015"⁴ and "the EV

¹ For a detailed procedural background, see the ACR at p.4.

² ACR at p. 2.

³ ACR at p. 3.

⁴ ACR at p. 3.

forecast may be adjusted to account for the latest public data regard[ing] ZEV adoption and load growth.”⁵ The ACR directed the IOUs to “submit these adjustments by Tier 1 advice letter within 60 days.”⁶ Consistent with the direction provided in the ACR, SCE hereby submits adjustments to the PV and EV forecasts.

PROPOSED ADJUSTMENTS TO PV AND EV FORECASTS

Forecasts utilized for distribution planning should represent the best estimate of DER adoption and future load growth at the distribution substation and feeder level. This includes the most up to date assumptions at the time distribution planning commences so that grid needs are informed to the best extent possible. This will support providing safe, reliable, and affordable energy to ratepayers served from the distribution system.

For the PV forecast, SCE is proposing to adjust the 2016 IEPR PV forecast to account for Zero Net Energy (ZNE), a state policy impact that the 2016 IEPR forecast did not explicitly incorporate.⁷ Given the impact of the state’s policy for future ZNE on the Solar PV forecast, SCE proposes to modify the 2016 IEPR forecast to include an estimation of future incremental solar PV adoptions driven by ZNE policy.

To determine an appropriate adjustment to the 2016 IEPR, SCE began the process by using housing start data from Moody’s Analytics, the same third-party forecast the CEC relies on for establishing new single-family housing starts between 2020 and 2027 within SCE’s service territory.⁸ SCE then applied an estimate of the average PV installation size expected in compliance with ZNE building standards of 3.5 kW per installation.⁹ SCE also assumed a compliance level of 85%.¹⁰ In addition, SCE accounted for the small percentage of organic adoptions for new homes in the 2016 IEPR by subtracting that amount from SCE’s total estimated ZNE forecast to avoid double counting.¹¹ As a result, the final total PV forecast adjustment would add 597 MW (nameplate capacity) to the IEPR PV forecast between 2020 and 2027. This represents an 11% increase in cumulative installed capacity by 2027. Table 1 depicts the 2016 IEPR forecast, and the new forecast SCE proposes to use in the upcoming 2017-18

⁵ *IBID.*

⁶ ACR p. 12.

⁷ CEC Staff intends to incorporate ZNE into the 2017 IEPR as stated at the DER Growth Scenarios Workshop on February 10, 2017.

⁸ SCE’s relies on the forecast of new single family housing starts from Moody’s Analytics for each of the metropolitan statistical areas served by SCE. SCE further reduced this number by 80% to reflect the portion of these areas which SCE does not serve based on historical share of single family starts from 2007 to 2016.

⁹ The installation size is based on anticipated compliance with 2019 Title 24 standards for a 2700 square foot single family detached home.

¹⁰ Both SCE and CEC ZNE experts expect high levels of compliance rates for future new single-family constructions of 80% to 90%; SCE therefore used the assumption of 85%.

¹¹ This data was provided to SCE by CEC staff on 10/2/2017.

distribution planning cycle. Additional data and calculations supporting the values presented in Table 1 can be found in Appendix A.

Table 1: Solar PV Forecast
Cumulative Installed Nameplate Capacity (MW)

Forecast (MW)	2020	2021	2022	2023	2024	2025	2026	2027
2016 IEPR	2614	2881	3195	3550	3939	4373	4834	5296
ZNE Adjustment	86	165	239	313	386	456	522	597
Proposed Forecast	2700	3046	3434	3863	4325	4829	5356	5893

For light-duty EV forecast, SCE’s adjustment reflects changes that have occurred following development of the 2016 IEPR including the CARB Scoping Plan, the latest EV adoption data in SCE’s service territory, as well as CEC’s updated analysis on average future EV energy consumption. SCE’s first adjustment was to update the historical number of vehicles in the 2016 IEPR forecast based on the latest actual adoption data. Then, SCE utilized the current number of EVs in SCE territory anticipated through the end of 2017 and assumed a linear growth rate to meet the 2030 vehicle target set by the CARB Scoping Plan¹². In addition, SCE applied the latest updated information from CEC on future EVs including the projected split between Battery Electric Vehicles (BEV) and Plug-in Hybrid Electric Vehicles (PHEV) and corresponding kWh per vehicle consumptions as part of the 2017 IEPR development process. Based on the steps described above, SCE’s overall EV adjustments to the IEPR EV forecast are shown below. SCE’s EV adjustment would lead to an increase of 929 GWh or 35% by 2027 over the 2016 IEPR. Additional data and calculations supporting the values presented in Table 2 can be found in Appendix B.

Table 2: EV Forecast with Adjustments (GWh)

GWh	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
2016 IEPR Mid Demand Case	364	457	580	729	921	1,148	1,413	1,732	2,025	2,298	2,612
Incremental to Add to IEPR	111	370	587	753	871	951	1,000	983	974	971	929
2016 IEPR with Adjustments	475	827	1,167	1,483	1,793	2,100	2,414	2,715	2,999	3,269	3,541

UPDATED DER FORECASTS ARE IMPORTANT TO DISTRIBUTION PLANNING

Given the necessary focus in Distribution Planning on near term reliability issues, forecasted energy consumption at a distribution substation or feeder has much larger impact on potential grid upgrades in comparison to the transmission system. The forecasts used for distribution planning ultimately inform the investments required to maintain a safe, reliable, and affordable distribution grid. Utilizing outdated forecast data leads to an outdated assessment of grid needs and identification of non-optimal

¹² <https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>

solutions. This could ultimately result in higher costs to ratepayers. Therefore, it is imperative that distribution forecasts be based on the most up-to-date assumptions possible to develop the most up-to-date grid needs and most cost-effective solutions.

TIER DESIGNATION

Pursuant to the August 9 ACR, this advice letter is submitted with a Tier 1 designation.

EFFECTIVE DATE

This advice letter will become effective October 26, 2017, 20 days after the filing date.

NOTICE

Anyone wishing to protest this advice filing may do so by letter via U.S. Mail, facsimile, or electronically, any of which must be received no later than 20 days after the date of this advice filing. Protests should be submitted to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, California 94102
E-mail: EDTariffUnit@cpuc.ca.gov

Copies should also be mailed to the attention of the Director, Energy Division, Room 4004 (same address above).

In addition, protests and all other correspondence regarding this advice letter should also be sent by letter and transmitted via facsimile or electronically to the attention of:

Russell G. Worden
Managing Director, State Regulatory Operations
Southern California Edison Company
8631 Rush Street
Rosemead, California 91770
Telephone (626) 302-4177
Facsimile: (626) 302-6396
E-mail: AdviceTariffManager@sce.com

Laura Genao
Managing Director, State Regulatory Affairs
c/o Karyn Gansecki
Southern California Edison Company
601 Van Ness Avenue, Suite 2030
San Francisco, California 94102
Facsimile: (415) 929-5544
E-mail: Karyn.Gansecki@sce.com

There are no restrictions on who may file a protest, but the protest shall set forth specifically the grounds upon which it is based and must be received by the deadline shown above.

In accordance with General Rule 4 of GO 96-B, SCE is serving copies of this advice filing to the interested parties shown on the attached GO 96-B and R.14-08-013 service lists. Address change requests to the GO 96-B service list should be directed by electronic mail to AdviceTariffManager@sce.com or at (626) 302-4039. For changes to all other service lists, please contact the Commission's Process Office at (415) 703-2021 or by electronic mail at Process_Office@cpuc.ca.gov.

Further, in accordance with Public Utilities Code Section 491, notice to the public is hereby given by filing and keeping the advice filing at SCE's corporate headquarters. To view other SCE advice letters filed with the Commission, log on to SCE's web site at <https://www.sce.com/wps/portal/home/regulatory/advice-letters>.

For questions, please contact Steve Coulter at (626) 302-4988 or by electronic mail at steven.w.coulter@sce.com.

Southern California Edison Company

/s/ Russell G. Worden
Russell G. Worden

RGW:sc:jm
Enclosures

Appendix A: Solar PV Forecast Adjustment Calculations

Table A.1: Solar PV Forecast Calculations

% of compliance	85%			
kW/installation	3.5			
Year	SCE New Construction*	MW	2016 IEPR CEC MW**	Total PV Adjustment
2020	31,602	94	8	86
2021	29,517	88	9	79
2022	28,668	85	11	74
2023	28,884	86	12	74
2024	28,495	85	12	73
2025	27,874	83	13	70
2026	26,660	79	13	66
2027	25,220	75	0	75

Total: 597 MW

*New construction numbers from new single family starts from Moody's for each of the metropolitan statistical areas served by SCE reduced by 80% to reflect the portion of these areas that SCE does not serve based on historical share of single-family starts from 2007 to 2016.

** 2016 IEPR CEC MW are the amount of Solar PV the 2016 IEPR included which would be installed on new construction due to natural adoption

Appendix B: Electric Vehicle Forecast Adjustment Calculations

$$Adjustment = (Vehicles_{Total} * BEV_{\%} * BEV_{kWh}) + (Vehicles_{Total} * PHEV_{\%} * PHEV_{kWh})$$

Table B.1: Updated Number of Vehicles (thousands)

PEV Stock	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Proposed Approach	125	219	312	405	499	592	686	779	872	966	1,059	1,152	1,246	1,339

*SCE converted the 2030 statewide number from the CARB scoping plan to SCE by applying a 38% share. Based on historical adoption data, SCE has adopted approximately 38 share of California's annual vehicle sales in the last five years.

Table B.2: Updated Split Between BEV/PHEV

Vehicle Type	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
BEV (Preliminary 2017 IEPR)	44%	44%	45%	46%	47%	48%	49%	49%	50%	50%	51%
PHEV (Preliminary 2017 IEPR)	56%	56%	55%	54%	53%	52%	51%	51%	50%	50%	49%

Table B.3: Updated kWh assumptions

KWh Per Vehicle	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
BEV (Preliminary 2017 IEPR)	4,440	4,238	4,075	3,906	3,785	3,689	3,625	3,559	3,484	3,407	3,340
PHEV (Preliminary 2017 IEPR)	3,271	3,424	3,463	3,443	3,424	3,413	3,422	3,415	3,394	3,365	3,348

CALIFORNIA PUBLIC UTILITIES COMMISSION

ADVICE LETTER FILING SUMMARY ENERGY UTILITY

MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Southern California Edison Company (U 338-E)

Utility type:

ELC GAS
 PLC HEAT WATER

Contact Person: Darrah Morgan

Phone #: (626) 302-2086

E-mail: Darrah.Morgan@sce.com

E-mail Disposition Notice to: AdviceTariffManager@sce.com

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas
 PLC = Pipeline HEAT = Heat WATER = Water

(Date Filed/ Received Stamp by CPUC)

Advice Letter (AL) #: 3670-E

Tier Designation: 1

Subject of AL: Adjustments to Photovoltaic and Electric Vehicle Forecasts to be Used in Southern California Edison Company's 2017-2018 Distribution Planning

Keywords (choose from CPUC listing): Compliance

AL filing type: Monthly Quarterly Annual One-Time Other _____

If AL filed in compliance with a Commission order, indicate relevant Decision/Resolution #:

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: _____

Summarize differences between the AL and the prior withdrawn or rejected AL: _____

Confidential treatment requested? Yes No

If yes, specification of confidential information:

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement.

Name and contact information to request nondisclosure agreement/access to confidential information:

Resolution Required? Yes No

Requested effective date: 10/26/17 No. of tariff sheets: -0-

Estimated system annual revenue effect: (%): _____

Estimated system average rate effect (%): _____

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed¹: _____

Pending advice letters that revise the same tariff sheets: None

¹ Discuss in AL if more space is needed.

Protests and all other correspondence regarding this AL are due no later 20 days after the date of this filing, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, California 94102
E-mail: EDTariffUnit@cpuc.ca.gov

Russell G. Worden
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Laura Genao
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601 Van Ness Avenue, Suite 2030
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