BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Pacific Gas & Electric Company for a Commercial Electric Vehicle Day-Ahead Hourly Real Time Pricing Pilot. (U39M.)	Application 20-10-011 (filed October 23, 2020)

REPLY TESTIMONY OF PAUL L. CHERNICK AND JOHN D. WILSON ON BEHALF OF SMALL BUSINESS UTILITY ADVOCATES

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SBUA
Small Business Utility Advocates

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ATTACHMENTS

I. Introduction

Q: Are you the same Paul Chernick and John D. Wilson who filed direct testimony in this proceeding?

A: Yes.

Q: What is the scope of your reply testimony?

A: We respond to the testimony filed by the Public Advocates Office (Cal Advocates), Enel X, and Environmental Defense Fund.

Q: What issues do you address?

A: We focus mainly on the method for assigning Marginal Generation Capacity Costs (MGCCs) to hours. We also comment more briefly on the design of the Revenue Neutral Rate Adder and the ME&O plan with respect to small business inclusion.

Q: How have your recommendations regarding the PG&E pilot changed since you filed your direct testimony in this proceeding?

A: In our direct testimony, we recommended that the Commission should direct PG&E to conduct further study to establish the quantitative relationship of hourly ANL to reliability metrics. We have conducted some further study in response to Cal Advocates' testimony, and have developed a proposed method for the method for imputing Marginal Generation Capacity Costs (MGCCs) that builds on the proposals from both PG&E and Cal Advocates.

Our other recommendations are unchanged. In replying to suggestions from other witnesses, we propose enhancements regarding inclusion of small businesses in the pilot.

II. Overview of Proposals for Hourly Marginal Generation Capacity Cost Rates

Q: Please summarize your concerns regarding PG&E's proposal for calculating the MGCC portion of the DAHRTP rate.

A: In our direct testimony, we concluded that PG&E's proposal for the MGCC portion of the DAHRTP rate is a generally reasonable application of California's marginal cost methods to an RTP rate design. We recommended that PG&E should consider alternatives to the linear interpolation of MGCCs to individual hours above 80% of forecast peak ANL. Specifically, we urged that PG&E study the relationship between ANL and reliability metrics such as loss of load probability (LOLP) and expected unserved energy (EUE).

We will refer to PG&E's proposal as the ANL/PCAF method, as described in our direct testimony.

Q: Do other party witnesses also express concerns about the ANL/PCAF method?

A: Yes, while Cal Advocates is generally supportive of the ANL/PCAF method, it has two concerns about utilizing it to set the entire MGCC component of the DAHRTP rate.

First, Cal Advocates expresses concern about the link between PG&E's proposed MGCC rate component and the risk of reliability risks. Cal Advocates opines that in order to "send meaningful price signals indicating operational and reliability risks, [the DAHRTP rate] should reflect the timing of the highest risk of reliability events."[1] In support of its concern, Cal

[1] Cal Advocates, Testimony, Ch. 1, p. 8, lines 13-14.

Advocates' evidence suggests that "PG&E's proposal will not sufficiently capture CAISO Flex Alert or Alert events."[2]

Second, Cal Advocates expresses the concern that "PG&E's generation PCAF proposal would result [in] unreasonable variations in the MGCC price signal and in revenue collections that would be dependent on weather conditions, not underlying costs … [since] the effective MGCC price signal that gets sent through rates can be significantly above or below marginal costs."[3]

Based on these concerns, Cal Advocates recommends that the "DAHRTP rate should provide price signals that incentivize an effective customer response to Flex Alerts and Alerts, helping to prevent or mitigate CAISO reliability events."[4] Specifically, Cal Advocates recommends a "dynamic CPP component of the DAHRTP rate that would be called on a day-ahead basis and could vary in duration from two to six hours during the hours 3:00-9:00 pm."[5]

Q: What is your opinion of Cal Advocates' proposed dynamic CPP component of the DAHRTP rate?

A: We find a lot to like about the proposal, although we have some specific concerns. We agree with Cal Advocates that the DAHRTP rate should reflect the timing of the highest risk of reliability events. As discussed in our direct testimony, we also have concerns with the effectiveness of the ANL/PCAF approach used by PG&E to link price signals to the risk of reliability events.

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[2] Cal Advocates, Testimony, Ch. 1, p. 10, lines 12-13.

[3] Cal Advocates, Testimony, Ch. 1, p. 17, lines 11-16.

[4] Cal Advocates, Testimony, Ch. 1, p. 8, lines 22-23.

[5] Cal Advocates, Testimony, Ch. 1, p. 13, lines 10-12.

Furthermore, we agree with Cal Advocates that day-ahead alerts from CAISO are the most valid measure of the risk of reliability events.

However, we disagree with Cal Advocates regarding the revenues that should be recovered through a dynamic CPP component. We also disagree regarding the limitation of the dynamic CPP component to a maximum of six hours per event, occurring during the hours of 3 PM to 9 PM, and totaling between 15 and 20 hours per year.

Q: Why do you disagree with Cal Advocates regarding the size of the revenue requirement that should be linked to a dynamic CPP component?

A: Most fundamentally, we believe that an RTP rate design that collects revenues to offset marginal generation capacity costs should collect greater revenues in years with unusually high reliability stress. If the cost recovery is to be "real time," then it does not make sense to collect the same amount of revenues in a year with relatively mild demand and ample supply as in a year with an extremely tight supply-demand balance.

On the other hand, we also share Cal Advocates' concern with "large annual swings in revenue collections" and the associated burden on RTP customers in years with many high-risk hours.

Cal Advocates' rate design proposes to reduce PG&E's "PCAF generation price signals by 15% while concentrating the 15% PRM costs in 15 hours of the year."[6] Cal Advocates' justifies this approach as a cost-based approach, as follows:

- The 15% PRM costs are the costs of maintaining an operating and planning reserve margin necessary to provide reliable service in case

[6] Cal Advocates, Testimony, Ch. 1, p. 15, lines 16-17.

of high demand and contingency events, and assigned based on CAISO's assessment of reliability risk; and

- The 85% remaining reflect the marginal value of generation capacity, excluding the costs of maintaining the PRM.[7]

Cal Advocates' suggestion to distinguish between the non-PRM and PRM components of marginal generation capacity costs is novel, but fundamentally unnecessary. Combined with Cal Advocates' proposal to charge the full PRM rate during 15–20 hours every year, but to charge no PRM rate during some other hours with CAISO events that indicate reliability risk, this approach does not closely align rates with costs. As we will discuss below, there are other reasonable ways to allocate MGCCs to link them to reliability risk.

Q: Why do you disagree with Cal Advocates regarding the limited duration of its recommended dynamic CPP rate component?

A: Cal Advocates recommends limiting its proposed dynamic CPP rate component, which tracks Flex Alert/Alert hours, to six hours each, in the period 3 PM to 9 PM, and to a total of 15–20 hours per year because of concern that "commercial EV fleet operators would be able to maintain significant load reductions" for 12 hours or longer, when very high prices could result from its proposed dynamic CPP events.[8]

This restriction violates Cal Advocates' proclaimed goal of reflecting the timing of the highest reliability risks in the DAHRTP rate. While we agree that

[7] Cal Advocates, Testimony, Ch. 1, p. 15, lines 11-21.

[8] Cal Advocates, Testimony, Ch. 1, p. 13, lines 6-7; p. 14, lines 4-6.

any customer would find it difficult to maintain significant load reductions for 12 hours or longer, we view this concern as balanced by three factors.

First, the number of hours per year will generally be very low. The number of Flex Alert hours averaged 27 per year from 2011 to 2020 and 21 from 2017 to 2020.[9] Even under the extreme conditions of 2020, the longest Alert or Flex Alert was 9 hours. In years with a relatively high number of dynamic CPP events, customers will generally be aware of the extreme circumstances (as they were in 2020) and understand why the high rates are in effect more frequently than in a typical year.

Second, including more hours in a dynamic CPP rate component would reduce the hourly rate. Whatever costs are allocated to the dynamic CPP rate component will be spread over more hours, resulting in a more modest price signal for those hours. While customers may find it difficult to maintain significant load reductions for 12 hours or longer, customers will be able to respond to the price signals by deferring charging to another day or identifying the least-cost hours in which to charge.

Third, establishing a limited CPP period and requiring PG&E to select hours within that period effectively second guesses the decision at CAISO to issue a Flex Alert for a particular period of time. For example, if CAISO issues a Flex Alert for 1 PM – 5 PM, under Cal Advocates' proposal, the dynamic CPP rate would increase suddenly at 3 PM. This rate design would encourage customers to charge during the 1 PM – 3 PM time period, working against the intent of CAISO's Flex Alert.

[9] CAISO, AWE Grid History Report, March 4, 2021. Note that throughout our testimony, where we refer to Flex Alert events, our analysis of CAISO data excludes Flex Alerts called after 6 PM prior to the event day for reasons discussed in our proposal.

Furthermore, we do not fully agree with Cal Advocates' interpretation of evidence regarding the length of emergencies and interruptions in 2020. Cal Advocates suggests that a six hour event duration would capture 88.9% of events in 2020, and thus only one hour of one event would be missed by its proposed rule.[10]

Cal Advocates' analysis does not reflect the realistic operation of the DAHRTP rate, which is proposed to be set a day in advance. The historical actual CAISO emergencies and interruptions are not the same hours in which emergencies or interruptions were (or could have been) avoided due to the advance issuance of Flex Alerts or pricing mechanisms, including the proposed DHARTP rate. Cal Advocates computes the length of the emergencies and interruptions, which are known only after the event, and not for the Alerts and Flex Alerts that would trigger day-ahead CPP calls. The Alerts and Flex Alerts are typically longer than the emergencies and interruptions, and PG&E has no way of knowing which alert hours will be called as emergencies or worse. The Flex Alerts in 2020 all lasted until 10 PM or 11 PM, as did five of the nine Alerts that were announced early enough to trigger a CPP call.

Notwithstanding these problems in this particular analysis, we appreciate Cal Advocates' suggestion that the CAISO Alerts and Flex Alerts be used in assigning MGCC costs to hours. Cal Advocates' review of the relationship between PG&E's simulated, historical hourly MGCC rates and historical incidence of CAISO Alerts and Flex Alerts informs our response. We have conducted further evaluation of the relationship between ANL and CAISO reliability events.

[10] Cal Advocates, Testimony, Ch. 1, p. 12, lines 5-13.

III. Relationship Between ANL and CAISO Reliability Events

Q: Please summarize your analysis of the relationship between CAISO reliability events and system ANL.

A: Our evaluation of 2017–2020 CAISO reliability event (Attachment 5) and system ANL data (Attachment 3 to our direct testimony) reveals that the relationship between system ANL and CAISO reliability events is not perfectly captured by either PG&E's ANL/PCAF method or Cal Advocates' dynamic CPP event methods.

1. About 16 percent of Flex Alerts and 78 percent of Restricted Maintenance Orders (RMOs) are called when ANL values are below 80 percent of the annual peak.
2. There is a roughly linear relationship between hourly system ANL and the probability of CAISO calling an advance Flex Alert for that hour.
3. Flex Alerts are called for about one-fifth of hours when system ANL is above 80 percent of the annual peak.
4. RMOs are called for about half of hours when system ANL is above 80 percent of the annual peak.

The RMOs indicate CAISO's concern that demand may approach available power supply (including imports and non-renewable generation). The alerts indicate a higher level of concern. While actual system ANL is correlated with the CAISO's system reliability events, it is not a sufficient indicator of reliability risk.[11]

[11] Furthermore, the day-ahead ANL will differ from actual ANL.

We restricted our analysis to the 2017–2020 period, the time period over which PG&E provided hourly system ANL data (see Attachment 3 to our direct testimony). We also retained events called by CASIO for Southern California only because we were evaluating the relationship between system ANL data and system reliability events. We address the exclusion of events called for Southern California only in the design of our proposal.

Q: Why did you evaluate RMOs?

A: Cal Advocates' analysis did not consider RMOs. CAISO issues an RMO to require generators and transmission operators to postpone any planned outages for routine equipment maintenance, maximizing the grid assets available for use. When CAISO issues an RMO, the reliability concern can be mitigated by a reduction in load just as easily as by postponing planned service outages.

This is also a good point to note that in our discussion below, we generally consider Flex Alerts, but not Alerts, because it appears that nearly all Alerts are also Flex Alerts. We found only one Alert in 2017–2020 that was not recorded by CAISO as also being a Flex Alert; that was on August 15, 2020, in the midst of emergency declarations.[12]

Q: How often are Flex Alerts and RMOs called when ANL values are below 80 percent of the annual peak?

A: PG&E's ANL/PCAF method limits the pricing signal to hours in which the ANL is above 80 percent of the forecast annual peak. However, our analysis shows that a significant number of CAISO reliability events occur even when the ANL is below 80 percent of the forecast annual peak. As shown in Table

[12] Either an Alert or a Flex Alert should be sufficient to trigger a DAHRTP price increment.

1, these are most frequently RMO events, but about one in six Flex Alerts is called when the ANL is below 80 percent.

Table 1: CAISO Reliability Event Hours by ANL, 2017-2020 (Percent of Forecast ANL Peak)

	> 80%	< 80%	Total	Percent of Events < 80%
Restricted Maintenance Order	218	767	985	**78 %**
Flex Alert	68	13	81	**16 %**

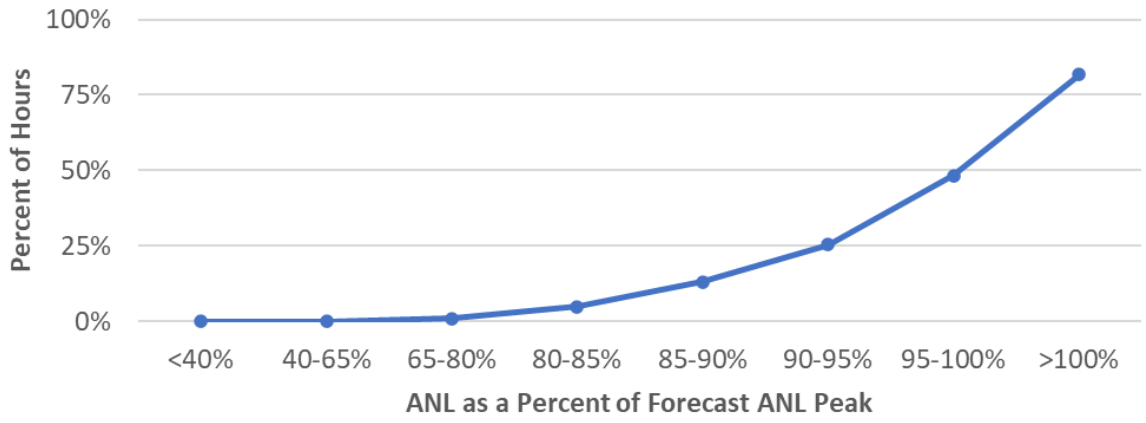
Because so many RMOs and Flex Alerts occur even when ANL peaks are below 80% of the forecast ANL peak, this suggests that these CAISO declarations are valuable indicators of system capacity value, independent ANL. However, since our analysis includes some RMO events that were called for only Southern California, further consideration of this issue is warranted.

Q: What is the relationship between system ANL and the probability of CAISO calling a Flex Alert for the same hour?

A: The probability of the CAISO calling a Flex Alert goes up in a roughly linear fashion once the ANL exceeds roughly 80 percent, as shown in Figure 1.[13] When system ANL is between 80 and 85 percent of the forecast ANL peak, Flex Alerts are rarely called – during only about 6 percent of hours. But when system ANL exceeds 100 percent of the forecast ANL peak (mainly during 2020), Flex Alert hours are called at a frequency of 80 percent.

[13] This analysis includes only events called early enough to inform PG&E's DAHRTP pricing, which we take to be 6 PM the prior evening.

Figure 1: Frequency of Flex Alerts, 2017-2020



In our direct testimony, we discussed the scarcity of evidence quantitatively relating hourly ANL to reliability metrics. The frequency of Flex Alerts supports the general design of the PCAF method, including both the 80% cutoff point and the linear relationship of reliability to ANL. However, while supporting the general design of the PCAF method, our analysis also finds that significant reliability risk does exist below the 80% cutoff point, and also that the ANL can be greater than the forecast ANL peak without creating reliability risk.

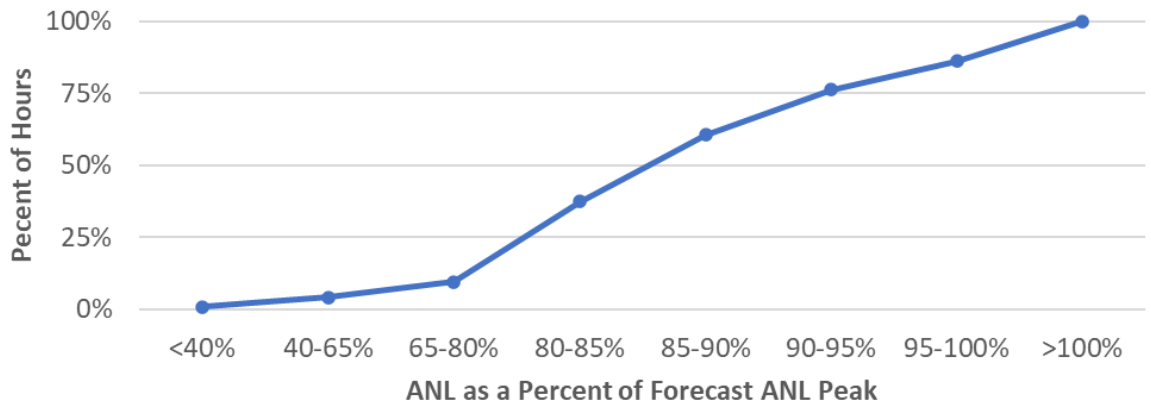
Q: How often are Flex Alerts called when system ANL is above 80 percent of the annual peak?

A: Flex Alerts are called only 18 percent of the time when system ANL is above 80 percent of the annual peak. The ANL was over 80 percent of the annual peak in PG&E's 2017-2020 dataset in only 372 hours, and Flex Alerts were called for only 68 of those hours. While the probability of a Flex Alert does increase with ANL, even a relatively high ANL of 95-100% of forecast ANL peak has a less than 50 percent chance of predicting a Flex Alert (see Figure 1).

Q: How often are RMOs called when system ANL is above 80 percent of the annual peak?

A: Compared to Flex Alerts, RMOs are more likely to be called when system ANL is above 80 percent of the annual peak, with an overall frequency of 59 percent. As shown in Figure 2, the relationship between RMOs and ANL is also roughly linear. Even though most RMOs occur when the ANL is below 80 percent (see Table 1), Figure 2 shows that the frequency of RMOs is very low when the ANL is below 80 percent.

Figure 2: Frequency of Restricted Maintenance Orders, 2017-2020



Q: Please summarize your findings on the relationships between ANL and various CAISO reliability declarations.

1. It is reasonable to assume there is a correlation between ANL and reliability and that some variant of the PCAF method would be appropriate for assigning some MGCC values to high-ANL hours. Our new analysis supports, but does not prove, that it is reasonable to use the linear PCAF method.

2. Flex Alert reliability events are not perfectly correlated with high-ANL hours – they may occur outside of high ANL hours and may not occur during individual high ANL hours.
3. RMO reliability events are more comprehensive than Flex Alert events and only imperfectly overlap high ANL hours.
4. While it is reasonable for PG&E to apply the PCAF method as used in cost allocation to allocate some MGCC to hours in the DAHRTP-CEV Pilot, it is also appropriate to allocate some MGCC to Flex Alert and RMO hours.
5. Widespread inclusion of MGCC in DAHRTP rates will benefit from further evidence of the quantitative relationship of hourly ANL to reliability metrics.

Thus, we continue to recommend that the Commission should direct PG&E to conduct further study to establish the quantitative relationship of hourly ANL to reliability metrics. Ideally, such study would be conducted in coordination with the other IOUs and CAISO.

IV. SBUA Proposal for Hourly Marginal Generation Capacity Cost Rates

Q: In your direct testimony, you supported implementation of PG&E's proposed ANL/PCAF method. Why have you developed a new proposal?

A: As discussed above, we found much to agree with in Cal Advocates' alternative proposal, but disagreed on some key points. Based on our new research into CASIO events and their relationship with system ANL, we recommend the Commission adopt an approach that significantly improves on Cal Advocates' proposal.

Q: Please summarize your proposal.

A: We propose that the MGCC component of the DAHRTP rate comprise three components, as follows.

1. PG&E's ANL/PCAF method, potentially as modified by Cal Advocates to reflect hydrological conditions;
2. An hourly Flex Alert event price; and
3. An hourly RMO event price.

For simplicity, we suggest allocating PG&E's full MGCC (including the PRM) equally among the three components. However, we have no objection to some other weighting among the three components, especially if that weighting can be supported by some evidence.

In its proposed rate design, PG&E takes its proposed MGCC from its GRC Phase 2 Application, plus a 15% PRM adder and a line loss factor of 1.091, resulting in a total annualized marginal capacity value of $87.04/kW-year.[14] We thus propose allocating $29.01/kW-year to each of the three elements we identify.

For PG&E's ANL/PCAF method, this allocation would simply reduce the price to one-third of PG&E's proposed values. PG&E's historical back-cast of its MGCC rate for 2017–2020 identifies that the rate could reach $3.46/kWh;[15] under our proposal the ANL/PCAF portion of the rate would reach only $1.15/kWh.

[14] As summarized by Cal Advocates. Cal Advocates also notes that the DAHRTP rate should be updated according to the final MGCC value adopted by the Commission in the GRC Phase 2. Cal Advocates, Testimony, Ch. 1, p. 14, lines 16-18.

[15] Obtained from PG&E's attachment to our Attachment 3: GRC-2020-PhII_DR_SBUA_005-Q01Attch02, Tab "Price Analysis," Column J.

For the hourly Flex Alert and RMO event prices, we propose that the $29.01/kW-year would be allocated based on the average number of events in the past ten years.

- For the RMO event prices, we excluded all Southern California-only RMO events from the count. It would not be appropriate to charge PG&E customers based on a regional reliability event that does not affect PG&E.
- For Flex Alert events, we excluded all events that CASIO notified after 6 PM on the day prior to the event in order to be consistent with the DAHRTP-CEV Pilot advance notification process.

Over the past ten years, there were an annual average of 27 Flex Alert and 140 RMO reliability hours.[16] Dividing the $29.01/kW-year portions of the MGCC over those hours yields a rate of $1.08/kWh for Flex Alert hours and $0.21/kWh for RMO hours.

Using PG&E's historical back-cast of its MGCC rate, and assuming that the maximum occurred during an hour in which CAISO called both a Flex Alert and an RMO event, then the total DAHRTP MGCC rate element would be $2.44/kWh, which is significantly lower than PG&E's maximum rate.

Q: What will be the effect of SBUA's proposal on revenue over- and under-collections?

A: Our proposal may have a more moderate effect on both monthly and annual billing variability than the proposals from PG&E and Cal Advocates, while more effectively linking the pricing signal to the timing of the highest risk of reliability events.

[16] The two Alerts that were not Flex Alerts would add about one hour to the annual average for all alerts.

To demonstrate the effect, we created total DAHRTP rates reflecting the proposals from PG&E, Cal Advocates, and SBUA, as follows.

- For PG&E, we obtained the hourly marginal generation capacity and energy costs for 2017-2020.
- For Cal Advocates, we used the same energy costs, 85 percent of the generation costs, and manually coded CPP events for the remaining 15 percent of the generation costs. We coded 20 hours of CPP events for every year except 2018 (which had 15 hours), prioritizing Flex Alert hours first, then RMO hours with high ANL, and finally high ANL hours. We did not reflect Cal Advocates' hydro proposal in this analysis.
- For SBUA, we used the same energy costs, 33 percent of the generation costs, and obtained Flex Alert and RMO hours from CAISO data sources. We excluded Flex Alert and RMO hours that were not noticed in advance of 6 PM, as well as RMO hours that were called for Southern California only.

Using the resulting (nearly) four years of hourly pricing data for both MECs and MGCCs, we have constructed two figures to illustrate how total DAHRTP pricing in our proposal would differ from PG&E and Cal Advocates' proposals.[17]

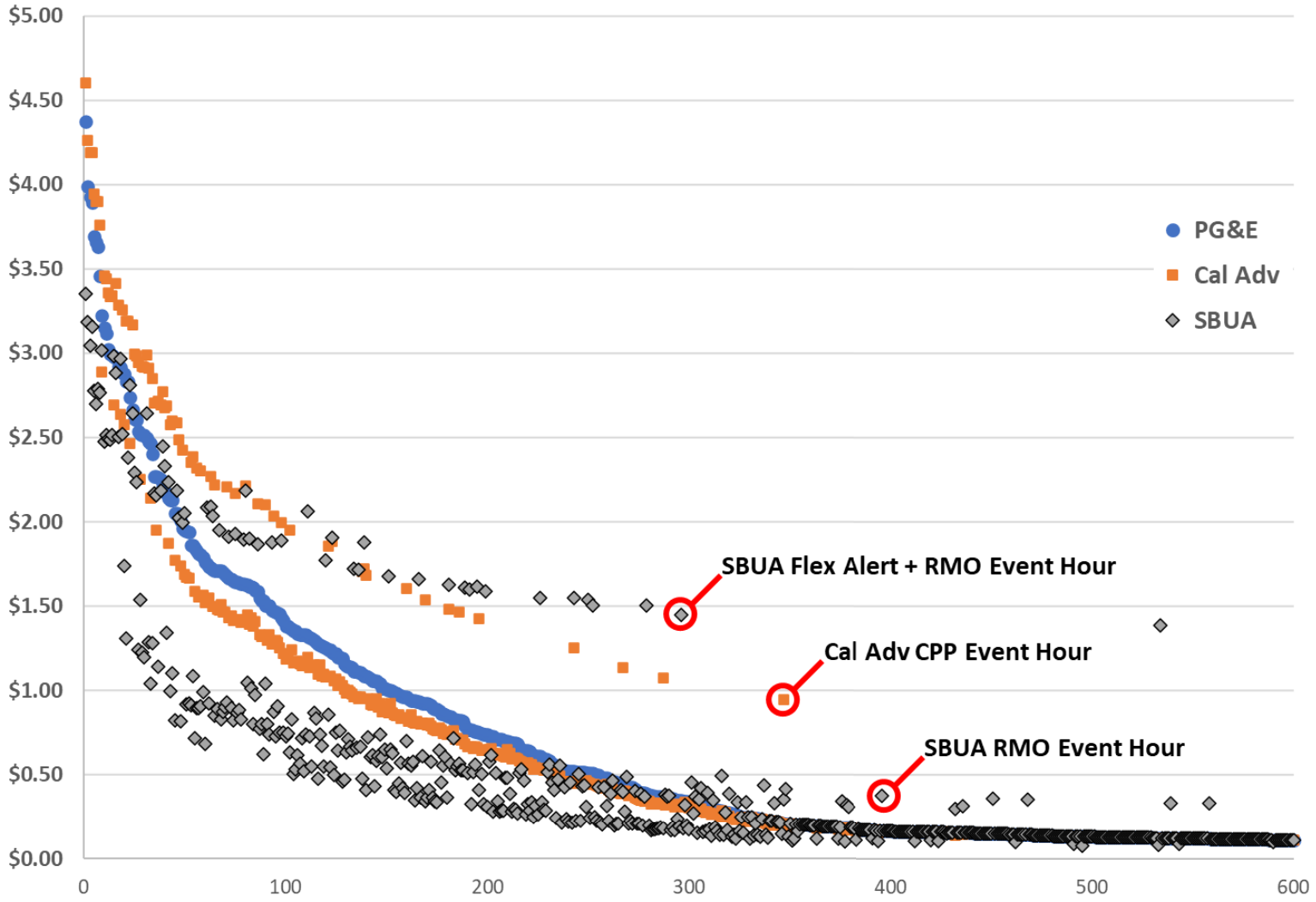
Figure 3 illustrates how prices vary among the proposals on an hour-by-hour basis. We have selected the top 600 hours based on PG&E's pricing. This

[17] We acknowledge Cal Advocates' analysis of effective MGCC price signals. We were unable to utilize this method to analyze our proposal because we do not know when CAISO might call reliability events in 2021.

means that some of the top 600 hours based on Cal Advocates' or SBUA's pricing are not included in this figure.

In Figure 3, the effect of the use of event-triggered prices by Cal Advocates and SBUA is evident. In Cal Advocates' case, there are 15-20 hours per year in which their proposed CPP event triggered price increment is reflected. As a result, there are two pricing curves, each displaced from the PG&E curve by a similar amount.

Figure 3: Top 600 Highest Priced DAHRTP Hours, 2017-2020, Sorted by PG&E Proposal



For our proposal, the displacement from PG&E's curve is more substantial. On Flex Alert days, the SBUA pricing is similar to Cal Advocates' CPP events, although a bit flatter because of the reduced sensitivity to the ANL/PCAF pricing component. Flex Alert days almost always include a pricing increment due to RMO events as well.

Another feature of our proposal is much lower pricing during a significant number of high-priced hours under PG&E and Cal Advocates' proposals. These are days on which no CAISO reliability event was called, or only an RMO event was called. We believe this is an indication that our proposal aligns prices with reliability risk more effective than PG&E and Cal Advocates' proposals.

In Figure 4, we look at twice as many hours, and sort the pricing independently, so that these are the top 1,200 hours for each proposal. So the hours for SBUA's pricing curve are not the exact same 1,200 hours as are included in PG&E's pricing curve.

Figure 4 illustrates four further findings.

Figure 4: Top 1,200 Highest Priced DAHRTP Hours, 2017-2020, Sorted Independently

- SBUA's proposal has the lowest maximum rate.[18]
- For the highest price portion of the curve, SBUA's price curve is similar to the other two, but as shown in Figure 3, the mix of hours in this portion of the curve is significantly different.
- For the mid-range portion of the curve, SBUA has lower prices than the other pricing curves, reflecting the reduced ANL/PCAF component.
- For the lower portion of the curve, SBUA has higher prices reflecting a broader allocation of MGCCs to RMO event hours, which are often well below the 80 percent ANL threshold used in the other proposals.

We believe that these two analyses demonstrate that while the costs being allocated are identical, our proposal is likely to reduce bill volatility on a monthly and annual basis, while more effectively linking the pricing signal to the timing of the highest risk of reliability events.

Q: Should the Commission adopt Cal Advocates' recommendation to adjust the ANL forecast using January – April hydro generation data?

A: We take no position on this proposal. However, we note that if this or some similar proposal is adopted, it will result in a definition of ANL for the DAHRTP-CEV rate that differs from that used in PG&E's General Rate Case applications for other purposes. To avoid confusion, it may be useful adopt a new terminology if a RTP-specific metric for ANL is developed.

[18] Since we were unable to model Cal Advocates' hydro proposal, we are not certain how our proposal compares with theirs in this respect.

V. Design of the Revenue Neutral Rate Adder

Q: Please discuss Enel X's proposal for the revenue neutral rate adder.

A: Enel X's proposal for a TOU-differentiated, revenue-neutral rate design is very similar to the one proposed in our direct testimony. However, Enel X designed its rate using a credit method in order to make it possible to overlay the rate onto any existing tariff.

In contrast, SBUA's proposal was for a simple adder that would only apply to the DAHRTP-CEV rate, but also as an overlay.

In our opinion, the objectives and basic concepts behind SBUA and Enel X's proposals are identical. If the DAHRTP-CEV Pilot is not extended to include other rate classes, then we are indifferent between the two approaches as the differences are merely in semantics and presentation.

However, if Enel X's proposal to extend the pilot to include residential customers is adopted, then Enel X's credit method may be easier to implement, at least as a mechanism for determining the adder.

In summary, our findings and recommendations on this topic remain unchanged, but we are also supportive of Enel X's method if it is more suitable to other aspects of an approved DAHRTP-CEV Pilot.

VI. Marketing, Education and Outreach (ME&O) Plan

Q: Did any other parties specifically discuss the perspective of small businesses?

A: No.

Q: Are any of the other parties' proposals potentially of interest to small business customers?

A: Yes. In our direct testimony, we recommended that PG&E should aim to include at least 3 small businesses with workplace charging and at least 3 small businesses with medium-duty delivery fleet charging in the pilot.

Enel X recommended expanding the pilot to include single-family residential EV charging customers.[19] Without commenting on the merits of Enel X's proposal, we would support a similar method to recruiting small businesses to participate in the pilot.

If Enel X's proposal for single-family residential customers is adopted, the Commission should also consider allowing for a similar number of small businesses to participate using the B-6 rate with an RTP overlay.

Furthermore, if a B-6 rate with an RTP overlay is adopted, then SBUA would strongly encourage the Commission to approve the use of EVSE submetering as discussed in the testimony of Enel X and Cal Advocates.[20]

In addition, Environmental Defense Fund (EDF) suggested an expanded list of pilot market segments, including a focus on small fleets and funding for enabling technology for pilot program participants.[21] SBUA is generally supportive of EDF's perspective, but due to the lack of detail in the proposal does not take a position.

Q: Does this conclude your testimony?

A: Yes.

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[19] Enel X, Testimony, pp. 5-6.

[20] Enel X, Testimony, pp. 7-8; Cal Advocates, Testimony, Ch. 2, p. 12.

[21] Environmental Defense Fund, Testimony, pp. 7-10.

Event	Start Datetime	End Datetime	Notice Datetime	Start Date	Start time HE	End Date	End time HE	Notice Date	Notice Time	Notice before cutoff?	Notes	SoCal?
RMO	1/3/17 0:00	1/3/17 12:00	12/30/16 14:07	1/3/2017	1	1/3/2017	13	12/30/2016	15	1		
RMO	6/19/17 0:01	6/22/17 22:00	6/18/17 14:26	6/19/2017	1	6/22/2017	23	6/18/2017	15	1		
RMO	7/7/17 7:00	7/7/17 22:00	7/6/17 8:36	7/7/2017	8	7/7/2017	23	7/6/2017	9	1		
RMO	8/1/17 6:00	8/1/17 22:00	7/31/17 8:33	8/1/2017	7	8/1/2017	23	7/31/2017	9	1		
RMO	8/2/17 6:00	8/2/17 22:00	7/31/17 8:36	8/2/2017	7	8/2/2017	23	7/31/2017	9	1		
RMO	8/3/17 6:00	8/3/17 22:00	8/1/17 12:56	8/3/2017	7	8/3/2017	23	8/1/2017	13	1		
RMO	8/21/17 6:00	8/21/17 20:00	8/4/17 15:22	8/21/2017	7	8/21/2017	21	8/4/2017	16	1		
RMO	8/28/17 6:00	8/31/17 22:00	8/25/17 8:54	8/28/2017	7	8/31/2017	23	8/25/2017	9	1		
RMO	8/31/17 22:00	9/1/17 22:00	8/29/17 15:50	8/31/2017	23	9/1/2017	23	8/29/2017	16	1		
RMO	9/1/17 22:00	9/3/17 22:00	8/31/17 9:31	9/1/2017	23	9/3/2017	23	8/31/2017	10	1		
RMO	2/21/20 0:01	2/22/18 23:59	2/20/18 9:46	2/21/2020	1	2/22/2018	24	2/20/2018	10	1		SoCal
RMO	2/24/18 6:00	2/28/18 22:00	2/23/18 8:43	2/24/2018	7	2/28/2018	23	2/23/2018	9	1		SoCal
RMO	3/2/18 6:00	3/2/18 22:00	3/1/18 17:48	3/2/2018	7	3/2/2018	23	3/1/2018	18	1		SoCal
RMO	3/3/18 6:00	3/3/18 22:00	3/2/18 1:36	3/3/2018	7	3/3/2018	23	3/2/2018	2	1		SoCal
RMO	3/4/18 6:00	3/4/18 22:00	3/2/18 1:52	3/4/2018	7	3/4/2018	23	3/2/2018	2	1		SoCal
RMO	3/5/18 6:00	3/5/18 22:00	3/4/18 8:40	3/5/2018	7	3/5/2018	23	3/4/2018	9	1		SoCal
RMO	7/6/18 6:00	7/6/18 22:00	7/3/18 10:05	7/6/2018	7	7/6/2018	23	7/3/2018	11	1		SoCal
RMO	7/7/18 6:00	7/7/18 22:00	7/6/18 8:49	7/7/2018	7	7/7/2018	23	7/6/2018	9	1		SoCal
RMO	7/23/18 6:00	7/23/18 22:00	7/19/18 10:23	7/23/2018	7	7/23/2018	23	7/19/2018	11	1		
RMO	7/25/18 6:00	7/25/18 22:00	7/19/18 10:30	7/25/2018	7	7/25/2018	23	7/19/2018	11	1		
RMO	7/26/18 6:00	7/26/18 22:00	7/24/18 9:15	7/26/2018	7	7/26/2018	23	7/24/2018	10	1		
RMO	7/31/18 6:00	7/31/18 22:00	7/30/18 9:17	7/31/2018	7	7/31/2018	23	7/30/2018	10	1		
RMO	8/6/18 6:00	8/6/18 22:00	8/5/18 8:55	8/6/2018	7	8/6/2018	23	8/5/2018	9	1		SoCal
RMO	8/15/19 8:00	8/15/19 22:00	8/14/19 12:31	8/15/2019	9	8/15/2019	23	8/14/2019	13	1		
RMO	8/14/20 6:00	8/17/20 22:00	8/12/20 6:55	8/14/2020	7	8/17/2020	23	8/12/2020	7	1		
RMO	8/16/20 19:16	8/19/20 22:00	8/16/20 19:18	8/16/2020	20	8/19/2020	23	8/16/2020	20		*too late for first day, l*	
RMO	8/17/20 16:30	8/21/20 22:00	8/17/20 16:10	8/17/2020	17	8/21/2020	23	8/17/2020	17			
RMO	8/24/20 6:00	8/25/20 22:00	8/21/20 8:30	8/24/2020	7	8/25/2020	23	8/21/2020	9	1		
RMO	9/5/20 6:00	9/8/20 22:00	9/3/20 9:29	9/5/2020	7	9/8/2020	23	9/3/2020	10	1		
RMO	10/1/20 6:00	10/1/20 22:00	9/30/20 15:06	10/1/2020	7	10/1/2020	23	9/30/2020	16	1	*left out, for some reas*	
RMO	10/15/20 6:00	10/15/20 22:00	10/14/20 17:57	10/15/2020	7	10/15/2020	23	10/14/2020	18	1		
RMO	10/16/20 6:00	10/16/20 22:00	10/15/20 10:24	10/16/2020	7	10/16/2020	23	10/15/2020	11	1		
Flex Alert	9/1/17 13:00	9/1/17 22:00	8/31/17 13:06	9/1/2017	14	9/1/2017	23	8/31/2017	17	1		
Flex Alert	7/24/18 17:00	7/24/18 21:00	7/24/18 10:58	7/24/2018	18	7/24/2018	22	7/23/2018	2	1		
Flex Alert	7/25/18 17:00	7/25/18 21:00	7/24/18 10:58	7/25/2018	18	7/25/2018	22	7/23/2018	2	1		
Flex Alert	8/14/20 15:00	8/14/20 22:00	8/13/20 14:57	8/14/2020	16	8/14/2020	23	8/13/2020	15	1		

Flex Alert	8/16/20 15:00	8/16/20 22:00	8/15/20 14:55	8/16/2020	16	8/16/2020	23	8/15/2020	15	1
Flex Alert	8/17/20 15:00	8/17/20 22:00	8/16/20 14:06	8/17/2020	16	8/17/2020	23	8/16/2020	18	1
Flex Alert	8/18/20 15:00	8/18/20 22:00	8/16/20 14:06	8/18/2020	16	8/18/2020	23	8/16/2020	18	1
Flex Alert	8/19/20 15:00	8/19/20 22:00	8/18/20 14:56	8/19/2020	16	8/19/2020	23	8/18/2020	15	1
Flex Alert	9/5/20 15:00	9/5/20 21:00	9/3/20 9:05	9/5/2020	16	9/5/2020	22	9/3/2020	13	1
Flex Alert	9/6/20 15:00	9/6/20 21:00	9/5/20 14:22	9/6/2020	16	9/6/2020	22	9/5/2020	15	1
Flex Alert	9/7/20 15:00	9/7/20 21:00	9/3/20 9:05	9/7/2020	16	9/7/2020	22	9/3/2020	13	1
Flex Alert	10/1/20 15:00	10/1/20 22:00	9/30/20 14:54	10/1/2020	16	10/1/2020	23	9/30/2020	15	1
Flex Alert	10/15/20 15:00	10/15/20 22:00	10/14/20 17:33	10/15/2020	16	10/15/2020	23	10/14/2020	18	1
Alert	8/14/20 17:00	8/14/20 21:00	*8/13/20 14:57*	8/14/2020	18	8/14/2020	22	8/13/2020	15	1
Alert	8/15/20 17:00	8/15/20 21:00	8/14/20 14:24	8/15/2020	18	8/15/2020	22	8/14/2020	15	1
Alert	8/16/20 17:00	8/16/20 21:00	*8/15/20 14:55*	8/16/2020	18	8/16/2020	22	8/15/2020	15	1
Alert	8/17/20 14:00	8/17/20 21:30	8/16/20 13:21	8/17/2020	15	8/17/2020	22	8/16/2020	14	1
Alert	8/18/20 15:00	8/18/20 20:45	8/17/20 14:49	8/18/2020	16	8/18/2020	21	8/17/2020	15	1
Alert	8/19/20 17:00	8/19/20 20:00	*8/18/20 14:56*	8/19/2020	18	8/19/2020	21	8/18/2020	15	1
Alert	9/6/20 16:00	9/6/20 21:00	*9/5/20 14:22*	9/6/2020	17	9/6/2020	22	9/5/2020	15	1
Alert	10/1/20 18:00	10/1/20 19:00	*9/30/20 14:54*	10/1/2020	19	10/1/2020	20	9/30/2020	15	1
Alert	10/15/20 16:00	10/15/20 18:00	*10/14/20 17:33*	10/15/2020	17	10/15/2020	19	10/14/2020	18	1

Most data are from: http://www.caiso.com/informed/Pages/Notifications/NoticeLog.aspx

Red items are from http://www.caiso.com/about/Pages/News/NewsReleases/Default.aspx

red italiics are from the Reason column

wrong time, but not consequential

RMO added