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PG&E Comments RE IEPR CED Forecast Results Part II Workshop

Additional submitted attachment is included below.

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California Energy Commission
Docket Number 23-IEPR-03
715 P Street
Sacramento, CA 95814

RE: Integrated Energy Policy Report (IEPR) IEPR Commissioner Workshop on the California Energy Demand Forecast Results Part II

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment on the California Energy Commission's (CEC) IEPR Commissioner Workshop on the California Energy Demand (CED) Forecast Results Part II held on Tuesday, December 19, 2023.

PG&E again wants to commend the CEC on its robust analysis of future electricity demand. Specifically, PG&E appreciates the effort and resources that the CEC has invested in making meaningful improvements to its electricity forecasting.

Below, PG&E offers specific comments on various aspects of the peak demand workshop. Our final two points reiterate previously-filed comments due to relevance for peak demand planning, while the remainder of our letter constitutes new feedback. To aid the CEC's review, we have underlined new comments.

AAFS Assumptions Regarding Peak Demand

PG&E would like to request the CEC provide a disaggregated view of AAFS end uses contributing to peak demand. For example, it is unclear how much of the 14,596 MW of incremental AAFS contributing to CAISO's 2040 hour-18 peak is attributable to space cooling versus water heating and space heating. This is particularly relevant as the CAISO coincident peak forecast has a large impact on reliability modeling in the Integrated Resource Plan (IRP). The large increase in AAFS peak impact could significantly change the portfolio selected later in 2024 for development of load-serving entity (LSE) plans relative to the draft 2023 Preferred System Plan (PSP) published on October 5. Sharing additional details regarding the AAFS peak demand impact will help all LSEs understand the change and better prepare for their next plan filings.

PG&E also recommends that the CEC and California Air Resources Board (CARB) align on assumptions about appliance replacement rate for technologies in scope of the AAFS forecast. For example, our understanding is that the CEC assumes a 15-year appliance lifetime for residential gas furnaces compared to CARB's assumption of 18 years. This assumption affects how quickly appliances are

replaced, with the CEC effectively assuming that residential gas furnaces get replaced 20% faster than CARB assumes. In the IEPR forecast, this assumption difference is especially impactful because heat pump HVAC systems appear to be major drivers of peak demand in both summer evenings (space cooling) and winter mornings (space heating).

Additionally, PG&E recommends that the CEC consider differing assumptions across their various AAFS scenarios regarding water heating technology mix. Our current understanding is that both the Planning Forecast and Local Reliability Scenarios assume that half of AAFS water heaters are heat pump water heaters and the other half are electric resistance water heaters. However, given the relative nascency of fuel substitution programs and standards, our understanding is that the likely technology mix is highly uncertain. Considering the substantial contribution of AAFS on peak demand—and that heat pump water heaters typically use less than half the energy of electric resistance water heaters—we suspect that this technology mix assumption has a large impact on the peak demand forecast.

Detail Regarding the Geographic distribution of the CEC's Peak Demand Forecast

PG&E is interested in better understanding how the peak demand forecast varies with geographic area. We understand that the CEC does not currently differentiate its IEPR load modifiers forecasts by geographic area. However, the CEC does allocate its IEPR overall peak demand forecast by geographic area in order to create peak demand forecasts for the IOU planning areas. PG&E requests the CEC characterize which variables or aspects of its IEPR peak demand forecast are geographically specific and which are not. PG&E would like to interpret the IEPR forecasts correctly and be cognizant of the relative impact of geographic area – both outside of and within PG&E's service area – on the IEPR forecasts.

In the long term, PG&E is interested in a zonal-based model, or at least more geographically-precise forecast outputs. Such a forecast would be very beneficial for PG&E's planning process since without geographic specificity the IEPR forecast has limited relevance for distribution system and resource adequacy planning.

Including Climate Data in the California Planning Library

PG&E, like the CEC, incorporates climate-informed weather data into its peak demand forecast using the global climate models provided in Cal-Adapt. To compare the climate data used by PG&E with what the CEC is using it would be helpful to get temperature, HDD, CDD, cloud cover, and dew point values used by the CEC to estimate PG&E service area expected and 1-in-N peak demand estimates.

Such a comparison would help us understand any differences in methods or data, provide feedback, and improve our forecasting. PG&E recommends this data be published in the California Planning Library, echoing our prior comments that the CEC's Planning Library is a very useful resource that should be expanded.

AATE Electric Vehicle Load Profiles

PG&E observed from the workshop presentation deck appendix that the load profiles, (MW impact in hour of the day), are different for "Light-Duty EV" versus "Additional Achievable Transportation Electrification – Light Duty" and for "Medium/Heavy-Duty EV" versus "Additional Achievable Transportation Electrification – Medium/Heavy Duty" and would like to understand the cause of the differences. Our understanding is that these four segments are additive (i.e., none of them are inclusive

of any of the others). If this is the case, there is an assumption that the vehicles under the "Additional Achievable Transportation Electrification" classification operate differently. PG&E would like to request any additional information the CEC has on this discrepancy so we can better understand the basis for this assumption across all vehicle classes.

Opportunity to Review Draft Hourly Load Impact Results Earlier

PG&E would appreciate greater opportunities to understand how hourly impacts are modeled in the CEC forecast. To that end, for future IEPR cycles, PG&E would like to request an opportunity to review and discuss preliminary hourly impacts earlier in the forecasting cycle, for example via a Demand Analysis Working Group meeting, to facilitate PG&E's understanding of the CEC's hourly load forecasts prior to that work being presented to the Commissioners.

Potential Impact of Load Flexibility to Manage Peak Demand

The ability for DERs to shift load represents a substantial, albeit highly uncertain opportunity to manage the growth of peak demand to the benefit all Californians. PG&E expects that a material share of customers will use the flexibility to shift load—especially via electric vehicles and heat pump water heaters—to reduce their energy bills. In future cycles of the IEPR forecast, PG&E recommends that the CEC consider how load flexibility might change the hourly impact of load modifiers relative to current assumptions in the IEPR forecast. Given the CEC's expertise with existing Additional Achievable modeling framework—already applied to energy efficiency, fuel substation, and transportation electrification— PG&E recommends the CEC consider if it would be appropriate to apply the Additional Achievable framework to load flexibility, for example, to create an Additional Achievable Load Flexibility scenario.

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PG&E appreciates the opportunity to comment on the 2023 IEPR and looks forward to continuing to collaborate with the CEC. Please reach out to me if you have any questions.

Sincerely,

Josh Harmon
State Agency Relations