

DOCKETED	
Docket Number:	24-IEPR-01
Project Title:	General Scope
TN #:	255556
Document Title:	PG&E Comments RE 2024 IEPR Update Draft Scoping Order
Description:	N/A
Filer:	System
Organization:	PG&E/Josh Harmon
Submitter Role:	Public
Submission Date:	4/5/2024 4:29:19 PM
Docketed Date:	4/5/2024

*Comment Received From: Josh Harmon
Submitted On: 4/5/2024
Docket Number: 24-IEPR-01*

PG&E Comments RE 2024 IEPR Update Draft Scoping Order

Additional submitted attachment is included below.



Josh Harmon
CEC Liaison
State Agency Relations

1415 L Street, Suite 280
Sacramento, CA 95814
(628) 777-4138
Joshua.Harmon2@pge.com

April 5, 2024

California Energy Commission
Docket Number 24-IEPR-O1
715 P Street
Sacramento, CA 95814

RE: Draft Scoping Order for the 2024 Integrated Energy Policy Report Update

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment on the California Energy Commission's (CEC) Draft Scoping Order for the 2024 Integrated Energy Policy Report (IEPR) Update.

PG&E is grateful for the CEC's robust efforts in its IEPR forecasting of future electricity demand. PG&E views the feedback process as necessary to continue improving the IEPR. As such, PG&E is thankful for the opportunity to provide feedback on the IEPR, and PG&E appreciates the CEC being receptive to feedback.

Below, PG&E offers six comments, representing requests and recommendations to improve the IEPR process, with a specific focus on the 2024 IEPR Update scope. Some of these comments mirror those we have made in the past, (e.g., for 2023 IEPR workshops), but remain relevant for 2024.

Potential New Sources of Load Growth

PG&E made comments during the 2023 IEPR cycle related to the need to forecast potential new large industrial loads, such as the electrification of today's industry in addition to new industries like data centers, cryptocurrency mining, and hydrogen production. PG&E recognizes that forecasting these new industrial loads is challenging and will likely require substantial investment of resources; however, there is reasonable likelihood that they could have major impacts on a decarbonized energy system in California. Additionally, some of these new industrial loads are flexible and could play a meaningful role in improving the efficiency and reliability of California's electricity grid.

To that end, it is promising to see that the 2024 IEPR Update will include scenarios estimating the potential impacts of data center growth. Data center growth is an issue PG&E is actively working to understand as well, and we would look forward to collaborating with the CEC on forecasting efforts.

In addition to data centers, PG&E recommends that the CEC expand its 2024 IEPR Update electricity forecast scope to include additional scenarios for potential new large industrial loads, cryptocurrency mining, and hydrogen production. One additional recommendation is that the CEC incorporate into the

2024 IEPR Update electricity forecast update some degree of electricity impact from the hydrogen production necessary to fuel hydrogen fuel cell electric vehicles, the population of which the CEC is already forecasting.

Further Collaboration on Hourly Forecast Development

PG&E appreciates the multiple DAWG and IEPR workshops that occur each year as part of developing an IEPR forecast, as they present opportunities for feedback and collaboration related to forecast assumptions and results. Still, PG&E believes that more and earlier opportunities to understand how IEPR hourly impacts are modeled would be beneficial. We request the scope of the 2024 IEPR Update include more interaction with stakeholders to align on the hourly forecast. A few examples of topics PG&E would be interested in discussing include:

- Draft hourly forecast results: In the past, the timing of the presentation of the hourly results has left little opportunity for revision by the CEC. PG&E is understanding of the fact that the hourly forecast is dependent upon load modifier adoption and annual energy forecasts and, as such, is produced later in the IEPR production process. However, PG&E considers stakeholder feedback as necessary to produce a valuable IEPR hourly forecast, and because of that, PG&E requests the 2024 IEPR Update forecast development process include an opportunity to incorporate stakeholder feedback prior to final hourly forecast modeling. For example, we propose the below process:
 - Step 1) CEC presents preliminary hourly forecast results and data files. These could be presented at a workshop or shared electronically.
 - Step 2) CEC holds workshop no earlier than two weeks later to hear stakeholder feedback and answer questions. Two weeks represents the minimum time PG&E would need to reasonably review/analyze the files and identify questions for the CEC.
 - Step 3) CEC incorporates feedback from meeting into final forecast results.
- Observed annual peak discrepancy: PG&E has noticed differences in its internal recorded peak demand data and what the CEC has included in its IEPR forecast in the past. As part of the 2024 IEPR Update, PG&E is interested in collaborating with the CEC to identify the most suitable recorded peak data source that can be used for both the CEC's and PG&E's forecast.
- Climate variables: PG&E, like the CEC, incorporates climate data, (e.g., temperature, heating degree days, cooling degree days, cloud cover, dew point), into its peak demand forecast using the global climate models provided in Cal-Adapt. A discussion on these assumptions would ensure alignment of underlying climate assumptions for the 2024 IEPR Update.
- Geographic distribution: It is unclear to PG&E exactly how the IEPR's hourly forecast is disaggregated into forecasts for different IOU planning and service areas. PG&E would be interested in understanding what variables of the 2024 IEPR Update hourly forecast are geographically specific and which are not.
- AAFS end use disaggregation: PG&E would like the 2024 IEPR Scope to include detail on each AAFS end uses' contribution to peak. In previous IEPR forecast vintages it has been unclear the extent to which space cooling, water heating, and space heating respectively contribute to peak

demand. Understanding the contributions of each end use is important as the 2023 IEPR forecast featured AAFS as a primary driver of peak growth.¹

Potential Impact of Load Flexibility to Manage Peak Demand

Many distributed energy resources have the ability to shift load away from peak demand. This 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 future flexibility to shift load – especially via electric vehicles and heat pump water heaters – to reduce energy bills. For the 2024 IEPR Update, PG&E recommends that the CEC consider how load flexibility might change the hourly impact of load modifiers. Given the CEC’s expertise with the “Additional Achievable” modeling framework – already applied to energy efficiency, fuel substitution, 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 Additional Achievable Load Flexibility scenarios. PG&E would be happy to collaborate with CEC on this subject.

Assumption Differences: Planning Forecast vs. Local Reliability Scenario

The underlying assumptions for the 2023 IEPR forecast resulted in the scenario set, (i.e., the planning forecast and local reliability scenario), being much more similar, in terms of overall system sales and peak, than in prior IEPR forecast vintages. Considering the high degree of uncertainty associated with DER adoption, emerging policy, and the resulting impacts on electricity demand, PG&E believes it is valuable to have IEPR scenarios that have larger differences to depict the range of uncertainty. To that end, for the 2024 IEPR Update, PG&E recommends that the CEC consider opportunities to represent more of that uncertainty in the planning forecast and local reliability scenario.

AAFS Technology Assumptions

PG&E recommends that the CEC and California Air Resources Board (CARB) align on assumptions about appliance replacement rate for technologies in scope of the 2024 IEPR Update’s 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. This assumption difference is especially impactful because heat pump HVAC systems have seemingly been drivers of IEPR peak demand in the past, in both summer evenings (space cooling) and winter mornings (space heating).

Additionally, PG&E recommends that the CEC consider differing assumptions across its various 2024 IEPR Update AAFS scenarios regarding water heating technology mix. Our current understanding is that both the Planning Forecast and Local Reliability Scenario assume that half of AAFS water heaters are heat pump water heaters, while half are electric resistance water heaters. However, given the relative nascency of fuel substitution programs and standards, the likely technology mix is highly uncertain. Considering the substantial contribution that AAFS has historically had on IEPR peak demand – and that heat pump water heaters typically use less than half the energy of electric resistance water heaters – we

¹ The 2023 IEPR Planning Forecast has AAFS contributing 14.6 GW of the 19.5 GW of peak growth between years 2022 and 2040. Source: Slide 22, Electricity and Gas Demand Forecast, Hourly Electricity Demand. December 18, 2023. <https://efiling.energy.ca.gov/GetDocument.aspx?tn=253660&DocumentContentId=88907>

suspect that this technology mix assumption would have a large impact on the 2024 IEPR Update peak demand forecast.

Load Modifier Temperature Sensitivity

PG&E recognizes that the CEC has improved its forecasting in recent years by incorporating certain temperature-related impacts into the IEPR, such as EV load profiles, reflecting seasonal differences in driving behaviors. Expanding upon that for the 2024 IEPR Update, PG&E recommends the CEC consider how the efficiency of load modifiers will vary with extreme future temperatures. For example, the efficiency of both heat pumps and electric vehicles decreases with extreme temperatures. These temperature sensitivities are especially pertinent on winter peak and summer peak days – which typically coincide with extreme temperature events – and the 1-in-N electricity peak analyses.

--

PG&E appreciates the opportunity to comment on the 2024 IEPR Update 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