2024 IEPR Data Center Forecast Recap

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Data Received and Methods

Estimated Peak Load, using Assumptions from Existing Data Centers

SCE	• Requested capacity from data center applications • Inquiries • Confidence level based on application status
PG&E	• Requested capacity by year, based on ramping schedules included in applications • Inquiries
City of San Jose	• Received start dates, capacity, and ramping schedules for potential data center projects.

Utility-provided peak load

SVP	• Annual peak demand for data centers
City of Palo Alto	• Annual peak demand for data centers

Estimating Peak Load of Data Centers

Ramping Assumptions, if not provided by the utility:

1. Assume each data center starts at 5.0 MW in Year 0
2. Ramp up year-over-year until the requested capacity is reached:
   a) Year 0 – 5: 149% ramp
   b) Year 6 – 10: 113% ramp

Peak load of data center is 67% of requested capacity

Source: Silicon Valley Power (SVP) analyzed historical data for 60+ data centers in their territory and shared results with CEC in Sept 2024.

PG&E and SCE Projects

- **For PG&E and SCE, a confidence level was applied based on application status:**
  - **SCE T&D planning**
  - **Group 1:** completed or to-be completed engineering studies
  - **Group 2:** Active applications prior to initiating engineering studies
  - **Group 3:** Inquiries

PG&E	Low	Mid	High
Group 1	50%	70%	70%
Group 2	-	-	50%
Group 3	-	-	10%

SCE	Low	Mid	High
T&D planning	100%	100%	100%
Group 1	50%	70%	70%
Group 2	-	50%	50%
Group 3	-	-	10% - 50% per SCE

Source: CEC Staff (with data inputs from PG&E and SCE)

Hourly and Annual Demand

1. CEC staff calculated average hourly load factors by weekdays and weekends using interval meter data for a sample of data centers
2. Assigned load factors to the corresponding day type in each forecast year
3. Multiplied the hourly load factors by the peak data center demand to get the hourly data center load
4. Aggregated hourly loads by year to get the total annual GWh

Goals for Today's Discussion

- Feedback on what worked and didn't work with last year's methodology
- Input on how to standardize the methodology across utilities
  - Can data collection be standardized across utilities?
- What new data are available for use in the projections?
  - Any data to update the assumptions?
  - More granularity on application status?

Data Center Forecasting Challenges

- Assumption that new data centers use energy similar to existing data centers
- Forecasting mid- and long-term growth
- Accounting for redundancy
- Avoiding double-counting
- Confidence levels based on application status
  - Works for system level planning, but how does this impact transmission and distribution planning? Is there a better way?
  - Need to reflect capacity in forecast early enough for transmission planning and balance that with the confidence that the project will come online
- Timing of projects coming online is uncertain
  - Data centers counted in RA years should have high confidence (e.g., permits pulled, SPPE application, etc)