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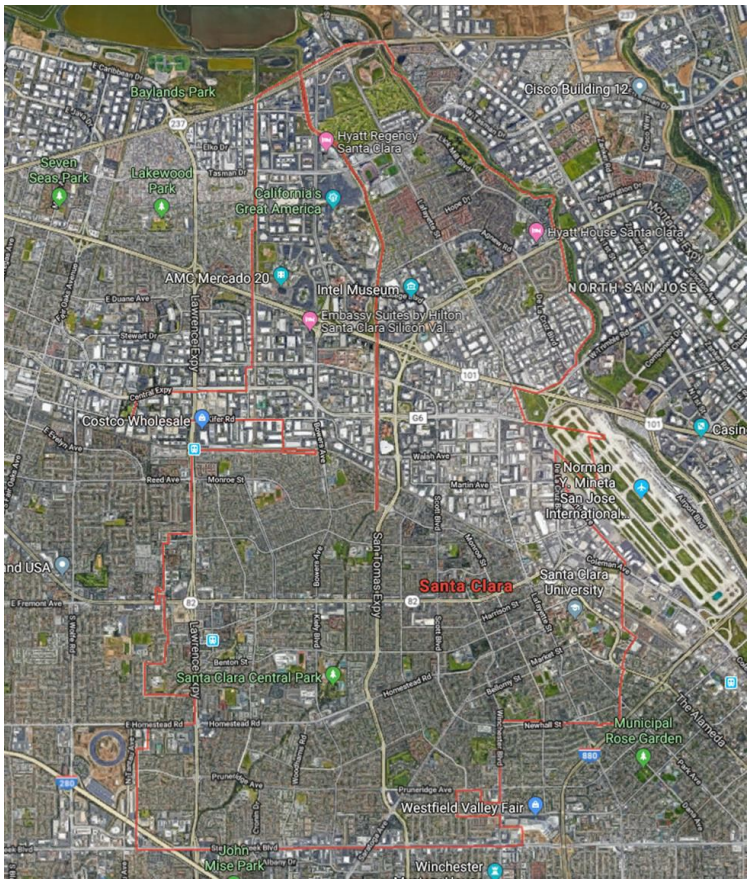
June 30, 2021

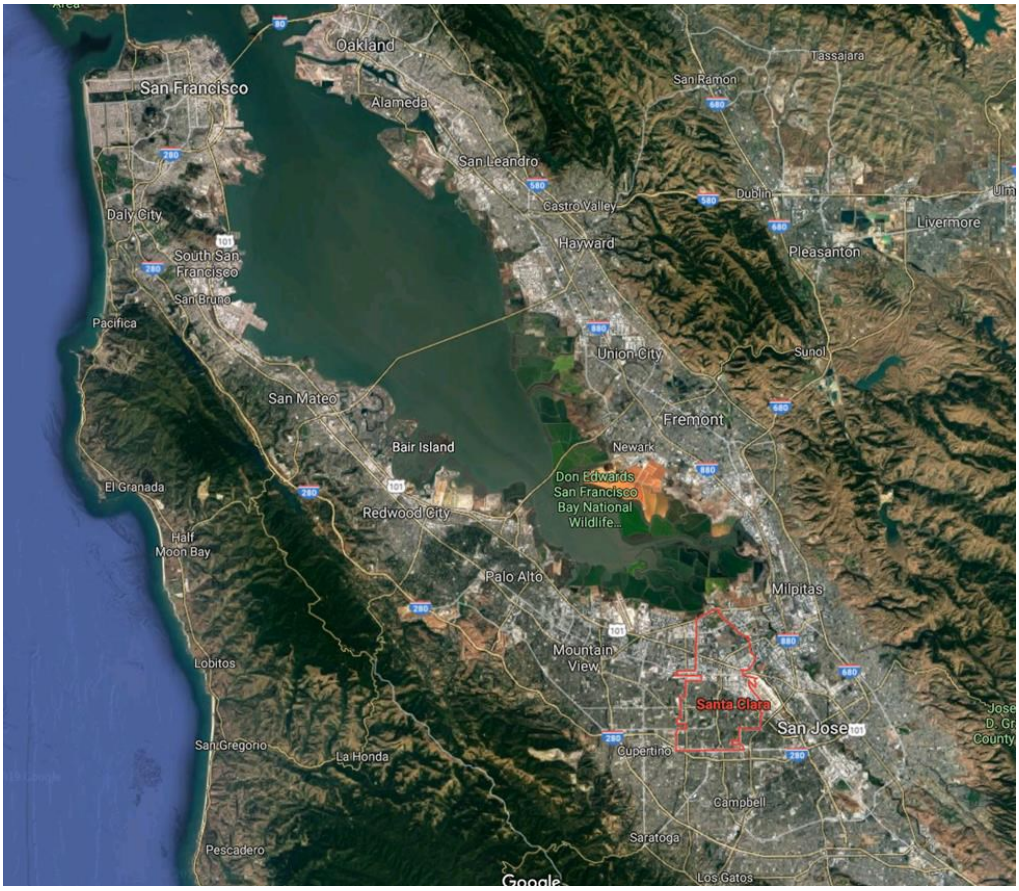
California Energy Commission
Docket Office, MS-4
Re: Docket No. 21-IEPR-03
1516 Ninth Street
Sacramento, CA 95814-5512
docket@energy.ca.gov

Re: The City of Santa Clara *dba* Silicon Valley Power (SVP) Form 4 on the California Energy Commission Docket No. 21-IEPR-03: Demand Forecast Models and Methods

Service Territory Overview

The City of Santa Clara is located at the southern tip of the San Francisco Bay and consists of 18.41 square miles of urban development with little undeveloped open space. From a climate perspective Santa Clara weather is moderated by ocean temperatures that tend to keep temperatures mild in the summer and warm in the winter compared to many other cities in California. Santa Clara's border extends to the east right up against the San Jose Norman Y. Mineta International Airport providing an excellent source of historical weather data for the entire Santa Clara service territory since no location within this service territory is more than 4 miles from the weather station (KSJC).





The City of Santa Clara is growing both from residential high-density development and large industrial/commercial customer's redevelopment projects. As summarized in SVP's December 17, 2020 comments on the California Energy Commission Docket No. 20-IEPR-03: Commissioner Workshop on Updates to the California Energy Demand 2019-2030 Forecast[1]; the customer requested magnitude for these load additions are significant prompting SVP system upgrades, and the expected timing of these projects are scheduled to occur within this current rolling 10-year forecast.

Demand Forecast Overview

SVP's load forecasting process begins with a historic assessment of metered system load (Base Load). SVP also maintains a database of tracked customer loads (Block Load Inventory) which are then applied to the Base Load (Base Load + Block Load Inventory). Final profiled adjustments are also performed to the Base Load + Block Load Inventory for Distributed Generation/Distributed Energy Resources (DG/DERs), Curtailable Demand Side Management (Curtailable DSM), and Energy Efficiency/Demand Side Management (EE/DSM) Potential.

These various elements of SVP's load forecast are summarized in additional detail below:

[1] CEC Docket: 20-IEPR-03, TN#235998

Base Load (Flat Load)

SVP's "Base Load" (Flat Load) Forecast begins with an assessment of 5 years (Model Training Period) of Historic SVP Load over time at SVP's NCP1 CAISO meter which is aligned with the following exogenous data:

1. Historic Temperatures (KSJC) accounting for Heat Effects
   - T_{MAX631} (Σ60% $T_{MAX\ Current\ Day}$, 30% $T_{MAX\ Prior\ Day}$, 10% $T_{MAX\ 2\ Days\ Prior}$)
   - T_{MIN}
2. Weekdays/Weekends
3. Holidays
4. Time of Year

SVP then fits a Seasonal Autoregressive Integrated Moving Average (SARIMA) model to this data and forecasts forward one year of data using various weather probability scenarios[2] (e.g. 1-in-2, 1-in-5, 1-in-10, 1-in-20) to arrive at a "Base Load" (Flat Load) forecast.

This "Base Load" (Flat Load) is carried forward for the full 10-year forecast with no "Organic" (e.g. non-SVP tracked) Load Growth assumed.

Block Load Inventory

SVP's "Block Load" Forecast begins with a raw catalog of SVP Customer Growth Projections produced from key account representative customer surveys and interviews.

- These "Block Loads" represent ~65-70% of SVP customer load growth based on 2019-to-date tracked actual growth.
- Block loads are profiled based on AMI data and derated to account for customer versus SVP system coincident peak and corresponding Load Factor (LF) impacts.

A QA/QC Process involving Engineering, Resources, Finance, and Key Accounts Representatives is then performed to arrive at SVP's final block load forecast:

- SVP's QA/QC Process includes the following adjustments to customer load ramps (typically in the form of a derate, but can also be an addition) based on:
  1. Customer Contracts (ex: interim service magnitude and duration).
  2. Physical Limitations (ex: south loop or other project upgrades delaying ramps).
  3. Historical Performance (ex: customer ramps too aggressive and have historically not been achieved).
  4. Load Migration (ex: data center load shifting between customers).
  5. Public Health & Economic Conditions (ex: impacts of reduced facility capacity and/or closures).

[2] Attachment 1 – SVP System Temperature Response

Distributed Generation/Distributed Energy Resources (DG/DERs)

DG/DERs are assessed based on (1) historic data provided in SVP's CEC Form 1304b filings and (2) forward forecasts through interviews with SVP program managers, key customer and account representatives.

- DG/DER impacts are 8760 profiled based on technology type and applied to the forward forecast as either load additions or reductions based on impact at time of SVP system peak.

Curtailable Demand Side Management (Curtailable DSM)

SVP has 10 MW of available customer contracted Curtailable DSM which may currently be called 30 times per year, and SVP typically calls these curtailments during SVP system peak hours.

- A flat derate of 10MW is applied to each monthly SVP system peak.

Energy Efficiency/Demand Side Management (EE/DSM) Potential

Pursuant to SB1037 SVP also incorporates the results of EE/DSM programmatic activity and potential.

- Profiled EE/DSM impacts are overlaid onto SVP system load reported at the time of SVP system peak.

Closing Remarks

SVP wants to thank the California Energy Commission staff for working with us to gain understanding of the unique situation SVP is experiencing resulting from the load growth caused primarily by new Data Centers. We look forward to continuing our partnership with stakeholders in the development of the 2021 IEPR Update. Please do not hesitate to contact me at (408) 615-2718 with any questions or concerns you may have. I am available to discuss our demand forecast models and methods further at your convenience.

Sincerely,
Monica Nguyen
Resource Analyst II
Silicon Valley Power

Attachments:
Attachment 1 – SVP System Temperature Response