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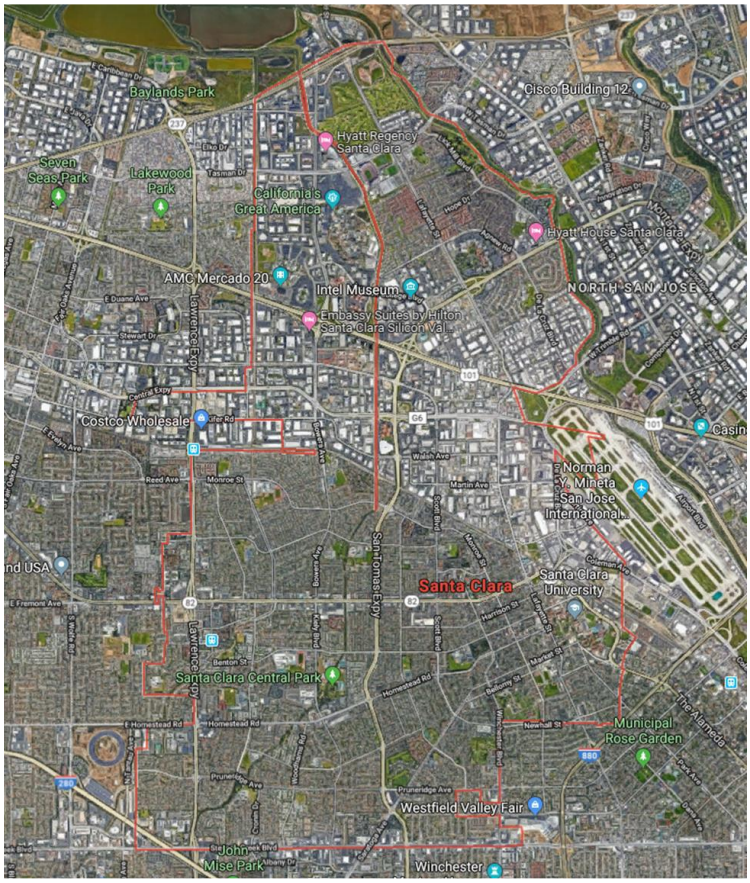
July 3, 2023

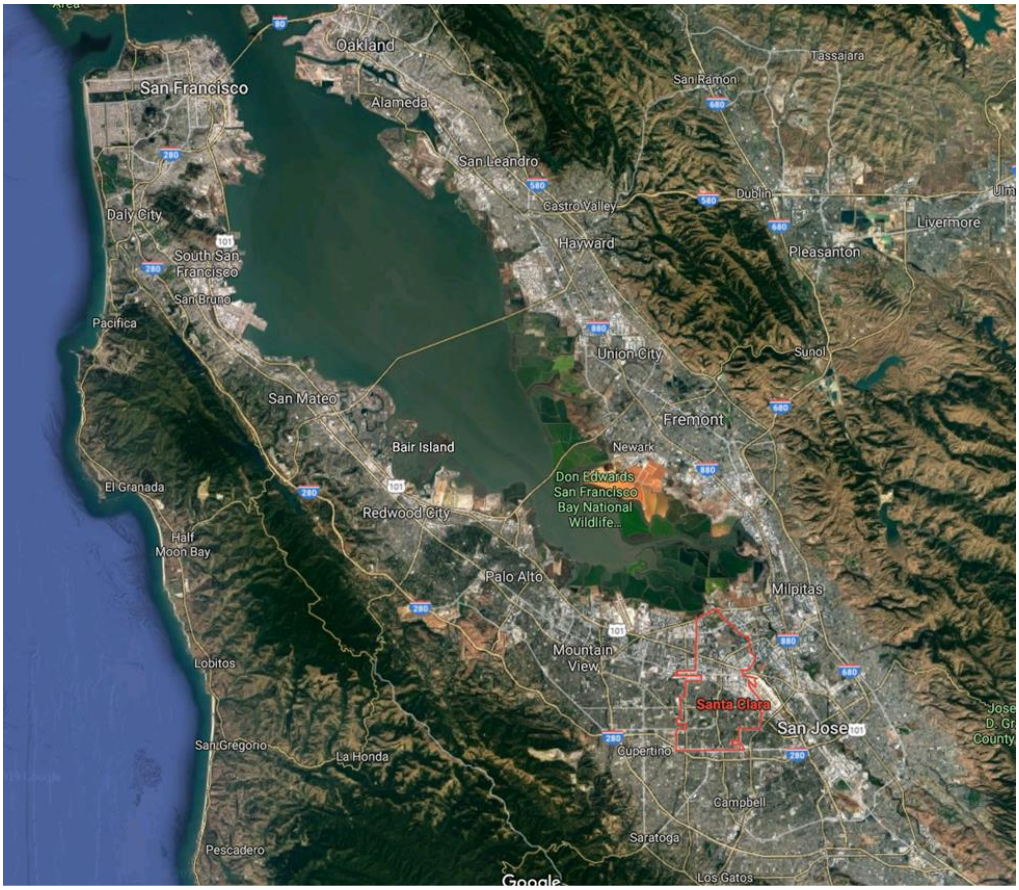
California Energy Commission
Docket Office, MS-4
Re: Docket No. 23-IEPR-02
1516 Ninth Street
Sacramento, CA 95814-5512
docket@energy.ca.gov

Re: The City of Santa Clara *dba* Silicon Valley Power (SVP) Form 4 on the California Energy Commission Docket No. 23-IEPR-02: 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 most recently summarized in SVP's October 3, 2023 comments on the California Energy Commission Docket No. 22-IEPR-03: Commissioner Workshop on Updates to the California Energy Demand 2023-2033 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 (BaseCase). 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), Energy Efficiency/Demand Side Management (EE/DSM) Potential, and Building + Vehicle Electrification.

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

[1] CEC Docket: 22-IEPR-03, TN#246349

BaseCase (Base Load)

SVP Distribution Engineers take a snapshot of SVP's system load for the average of the 5-minute intervals over the annual peak hour of SVP's system by substation down to the transformer bank level via our SCADA system, which is generally in alignment with SVP's CAISO NCP1 Meter.

This system peak snapshot is then adjusted to account for any known customer curtailments and/or outages (planned or unplanned) to arrive at SVP's system Counterfactual Load[2]. This view of the Counterfactual Load adjusted system peak serves as SVP's System BaseCase (Base Load) and is weather normalized to various weather probability scenarios (e.g. 1-in-2, 1-in-10, etc.) for planning purposes.

Block Load Inventory

SVP's "Block Load" Forecast begins with a raw catalog of SVP Customer Growth Projections produced from SVP load research paired with 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.

SVP Planning Engineers then assess which projects are current in the queue for or proceeding through the City of Santa Clara's Project Coordination Council (PCC) process[3]. Each PCC Project is then reviewed for its most recent status and assigned an Engineering Group # detailed below:

Engineering Group # Detailed Descriptions

- Group 1 – Customer facilities which have active building permits with the City of Santa Clara and have an agreement with the City of Santa Clara for SVP to build electric infrastructure to connect the Customers facilities to the electric grid. Customer facilities with backup generation exceeding 49 MW's also have received a Small Power Plant Exemption (SPPE) from the CEC.
- Group 2 – Customer facility plans which have been approved by the City of Santa Clara's Project Clearance Committee to proceed to receiving building permits, are in the process of completing an EIR/CEQA that includes the SPPE from the CEC for facilities with backup generation greater than 49MW's and have a funding agreement with the City of Santa Clara allowing SVP to work with the customer on designing the electric infrastructure required to serve the new load.
- Group 3 – Customers which are in the initial stages of planning their development and are working with City of Santa Clara departments. This can include involvement in the City of Santa Clara's Project Clearance Committee (PCC), initiating system impact studies with the City of Santa Clara's storm, sewer, traffic, and electric systems.
- Group 4 – Customers which are engaging with SVP, working with engineers to determine the general site layout, and own the land to be developed but are not in PCC yet.

The Load Ramps for each Engineering Group are developed through SVP's assessment of developer submittals paired with load research from existing, energized projects. Once the Load Ramps have been developed, SVP's distribution planning engineers then layer 12kV load ramps by substation, transformer,

[2] SVP's counterfactual system load is the CAISO NCP1 system peak load, averaged over the SVP system peak hour, which would have been observed in the absence of customer curtailments and/or outages.

[3] The City of Santa Clara's Project Coordination Council (PCC) process is the process by which development projects are reviewed and permitted for construction.

bank, and feeder # onto the SVP System BaseCase[4] to create the SVP BaseCase Switch Plan. Subsequently, SVP's transmission planning engineers layer 60kV load ramps onto the BaseCase Switch Plan thereby completing the "Block Load" Forecast.

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: SVP or other system projects 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).

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.

Building + Vehicle Electrification

SVP is currently examining the potential impacts of Building Electrification from reach codes and fuel switching measures along with the penetration of Light, Medium, and Heavy Duty Electric Vehicles (EVs).

- Preliminary Building + Vehicle Electrification impacts are not included in SVP's aggregate load and energy to serve load[5] forecasts, but are reported in 23-IEPR Form 3.

[4] For the 11-year planning horizon, in alignment with CEC-IEPR & CAISO TPP

[5] Preliminary forecasts for Plug-in Electric Vehicle (PEV) energy impacts are expected to reach between 0.70% - 2.61% of SVP's retail sales by 2030.

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 2023 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