





City Council

Item #4: Silicon Valley Power Quarterly Strategic Plan Update

RTC #20-750


August 25, 2020

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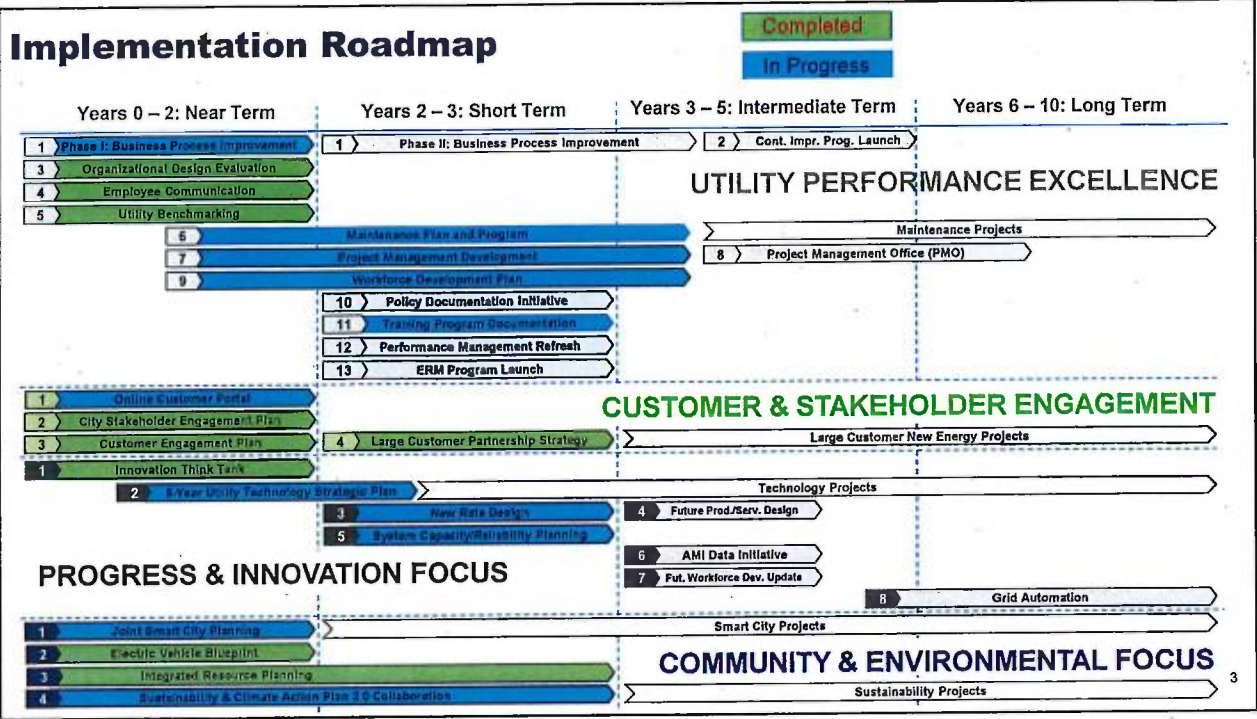
Agenda

- Strategic Plan Update
 - System Expansion Plan
- Capital Projects Update
- DVR Project Update
- Update on Community Benefit Programs
- Heatwave, Lightning Storm, Loylton Fire, Elk Creek (Stony Gorge) Fire
- Electric Vehicle Charging and Wrap Contest

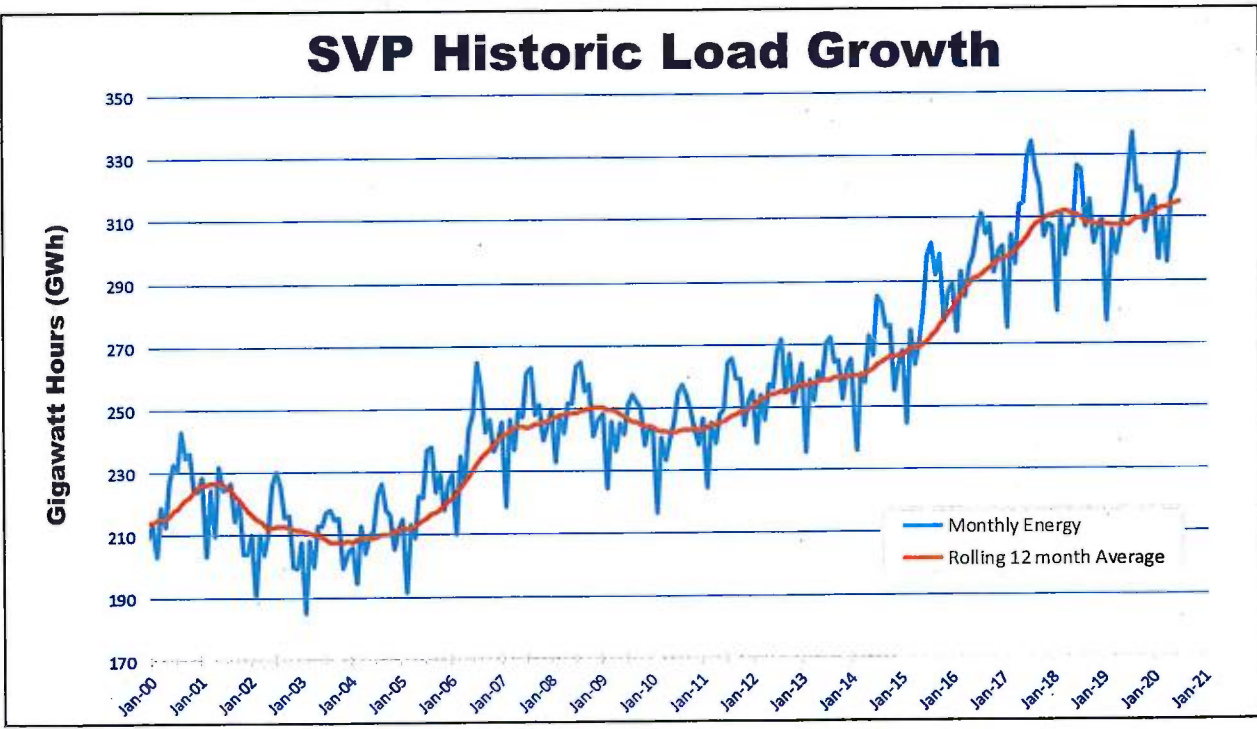


The diagram illustrates the 'SVP Change Drivers' as a central blue circle surrounded by five other circles connected by a ring. Clockwise from the top, the circles are: 'Climate Action Policies' (green), 'Legislative & Regulatory Changes' (brown), 'Impact of Emerging Technologies' (dark blue), 'Distributed Energy Resources' (black), and 'Renewable Energy & Energy Efficiency Goals' (grey).

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Load Growth Drivers

Data Centers and Commercial & Residential Development Drive Load Growth

- City Council Approved
 - Oaks Junction – under construction (27 MW*)
 - San Tomas Junction – design phase (99 MW*)
 - Esperanca Substation – design phase (60 MW*)
- Upcoming for City Council Consideration (late 2020 –early 2021)
 - Laurelwood Substation (50 MW*) - Stender Way Junction (49 MW*)
 - Martin Ave Junction (97 MW*) - Memorex Junction (89 MW*)
 - Freedom Circle Junction (80 MW*)

*Proposed Capacity with CEC

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Load Growth Drivers (cont.)

- Commercial and Residential Development
 - Tasman East Specific Plan(24 MW est.)
 - El Camino Specific Plan (55 MW est.)
 - Patrick Henry Specific Plan (35 MW est.)
- SVP Creates Integrated Capital Project Schedule for 5 to 10 years (+/- \$250 million)
- Additional Developer Contributions for Capacity Projects Will be Needed.



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Expansion Plan

- SVP's Energy Import Connections
 - 750 MW peak capacity rating in 2020
 - Planning for 1,000+ MW projected demand
- System Expansion Plan Solicitation
 - Consultants Selected
 - Agreements for Council consideration in Oct/Nov
 - Working on additional Transmission Capacity with PG&E
 - Prioritizing Projects
- Prepare System Expansion Plan
 - System Planning, Substation and Transmission Line Development, Load Development Costs
 - Near and long-term plan
- Continue Working on Major Capital Projects



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South Loop Project Update

- Scope: South Loop projected to be capacity in 2021. Install 80 new steel poles and 2.3 Miles of new 60kV transmission line.
- Schedule: Online Early 2022
- Status: Easement acquisition and new poles being delivered.
- Construction Start: Spring 2021
- Benefits: Increases system capacity of 60kV lines to serve new datacenter loads with looped system redundancy.



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Oaks Junction Substation Construction

- Scope: Build new datacenter substation with two 30 MVA transformer banks, switchgear and control room.
- Budget: \$2.9M (city scope of work)
- Schedule: Online Summer 2022
- Status: In Construction
- Construction Start: Q1 2020
- Benefits: Connecting new 27 MW Data Center.



CAD rendering of completed Oaks Junction Substation

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Serra Substation Reconstruction

- Scope: Replace existing single 16 MVA bank and switchgear with two 20 MVA banks, switchgear and control room.
- Budget: \$22M
- Schedule: Online Summer 2021
- Status: Demolition of existing facilities complete. Earthwork and conduits in progress.
- Benefits: Replacement of aging equipment to improve reliability and additional capacity to meet future load growth



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DVR Maintenance Outage and Improvements

Major Work Efforts

- Steam Turbine and Generator 100,000 service hour Inspection and Overhaul
- Gas Turbine maintenance and swap
- Distributed Control System replacement
- Air Emission Monitoring equipment replacement
- Balance of Plant maintenance of over 200 work orders

Work Complete

- Significant issues with Steam Turbine Generator requiring substantial re-design and re-build.
- Huge Team Effort without a single injury.
- Fully Operational as of June 14, 2020



Steam Turbine Rotor Exposed



Steam Turbine Rotor

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New Programs

- Launched Low Income Solar Grant Program in June
 - Provides grants to eligible low-income customers to install 3kW PV systems on their home
 - Estimate will cover nearly 100% of annual usage
 - Program target of 30 systems installed
 - 31 applications received; 27 are in the process of moving forward
- Small Business Energy Efficient Grant Program
 - \$10,000 grants for small businesses impacted by COVID-19
 - Funds energy efficiency upgrades to help reduce electric bill
 - Free energy audits, technical assistance, and review of bids provided by SVP-sponsored energy engineers

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Electric Transportation – Coming Soon

- Electric bicycle rebate – Coming to Council September 2020
- California’s Clean Fuel Rewards (CFR) program – Fall 2020
New electric vehicle point of purchase rebate
- SVP Commercial Forklift rebate – Fall 2020
- City of Santa Clara/Silicon Valley Power Fleet Electrification Plan – Fall/Winter 2020
- CALeVIP -December 2020 - Electric Vehicle Charging Equipment
Rebate for commercial and multi-family homes
- New/Used electric vehicle rebate – Fall/Winter 2021

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Additional Upcoming Item

- Two proposed Municipal Code changes regarding Power Plants
- November timeframe
- Power Plants require a Use Permit per Section 18.60.050
- Section 18.06.010 (e) - definition of a Power Plant includes “...production of electricity using any source of thermal, steam, wind, or solar energy with a generating capacity of more than five hundred (500) kilowatts and less than fifty (50) megawatts”
- Change the Muni Code to:
 - Add the words “natural gas” to definition in 18.06.010 (e) for additional clarity
 - Add language to section 18.60.050 excluding solar from the requirement of a Use Permit

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Heatwave and Thunderstorm

- 42 Total Outages
 - 21 due to overloaded transformers that required replacement
 - 1 caused by a tree
 - 4 simultaneous outages due to lightning strikes on major equipment
 - 16 for other items
- Major outage as part of lightning storm
 - Agnew Substation - 12kV Circuits
 - Walsh Substation
 - Transformer damaged
 - Multiple line insulators damaged and replaced (two lightning strikes)
 - 12kV Circuits
 - Northern Receiving Station (NRS)
 - Transformer damaged (lightning strike)



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Heatwave and Thunderstorm

- Kifer Receiving Station
 - Dropped Lafayette Substation Load
 - Dropped Fiberglas Substation Load
- North and South Receiving Stations – Had to be patrolled
- North Receiving Station/Newark - Transformer failure (lightning strike)
- Heat related outages were small but lightning related outages affected over 7,500 costumers
- Lightning Damage Very Difficult to Resolve
 - Determine damage location
 - Assess damage
 - Develop plan
 - Correct issues

Silicon Valley Power received replies
Silicon Valley Power @SantaClar... · 10h ✓
 A customer on Facebook shared this photo of the work our crews are doing outside her house right now. Restoration work is in progress.



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Proactive Load Reduction

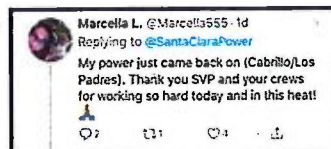
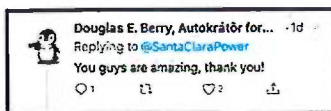
- California Independent System Operator (CAISO) expected rolling outages in the State.
- Governor Newsom's Emergency Proclamation enabled Back-Up Generators to operate proactively
- CAISO and the California Energy Commission (CEC) contacted SVP proactively to seek our help.
- We worked with our large customers to significantly reduce load per request from CAISO.
- SVP's proactive work had a role in preventing outages.
- We received a big thank you from the CAISO and CEC.
- Big THANK YOU to the Data Centers who partnered with us to use their Back-Up Generators.
- These actions not only helped our residents and businesses but the entire Bay Area!



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Team Effort

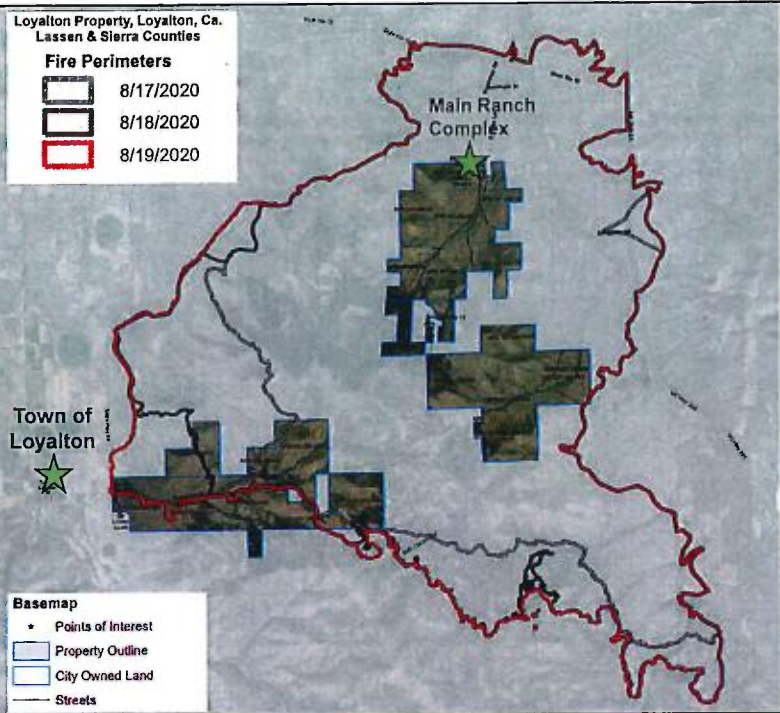
- Staff worked around the clock Friday evening through Tuesday morning to resolve issues as quickly as possible. (Identify, Triage, Prioritize, Execute)
- Over 60 staff members from Transmission and Distribution, Substations, System Operations, Engineering, Customer Support, and Communications.
- Some outages were long – fully understand our customers concerns
- No one currently at SVP had ever experienced something like this combination of extreme heatwave and lighting damage
- Appreciate positive feedback staff received



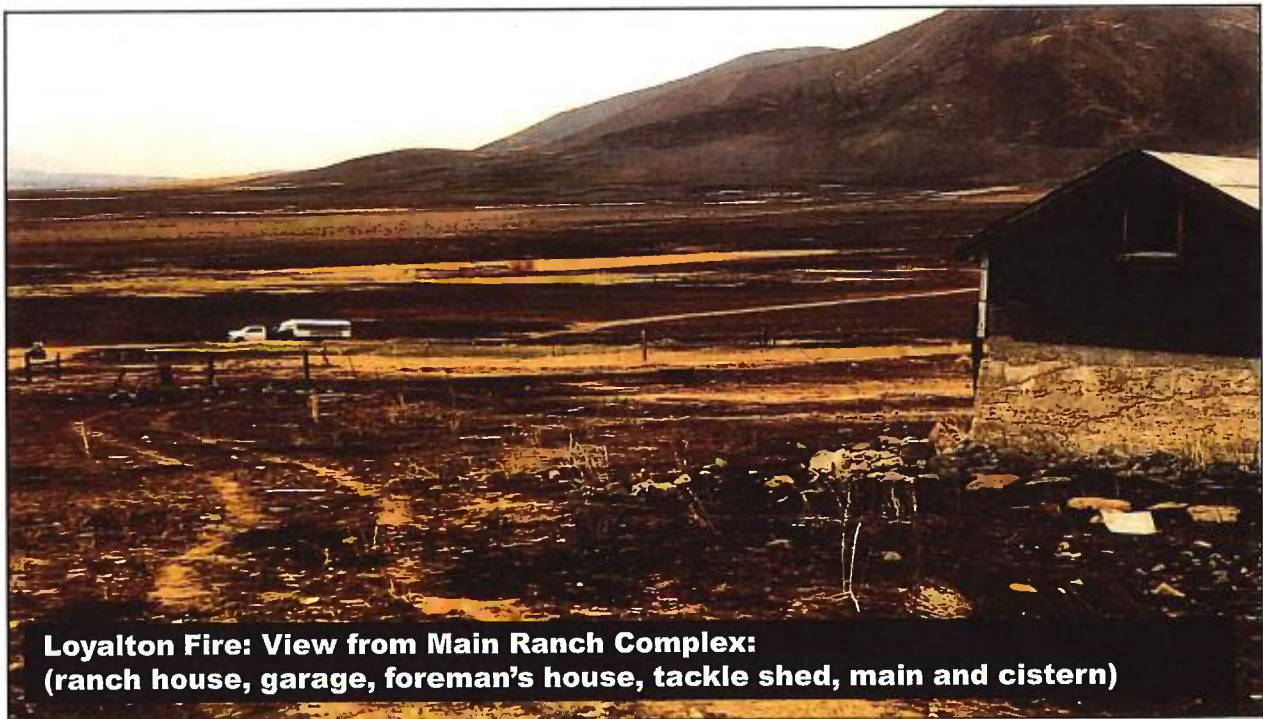
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Loyalton Wildfire

- Background on Loyalton Ranch Property: In 1977, the City purchased approximately 10,000 acres of undeveloped land located within Lassen, Sierra and Plumas Counties.
- Cause of Fire: Lightning
- Burned over 46,000 acres.
- More than 90% of the City's Loyalton Ranch Property affected by the fire.



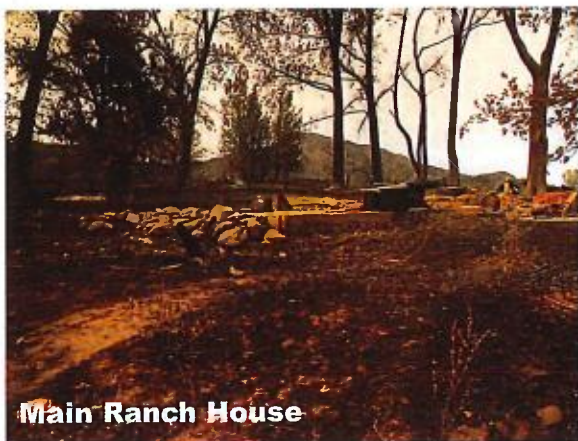
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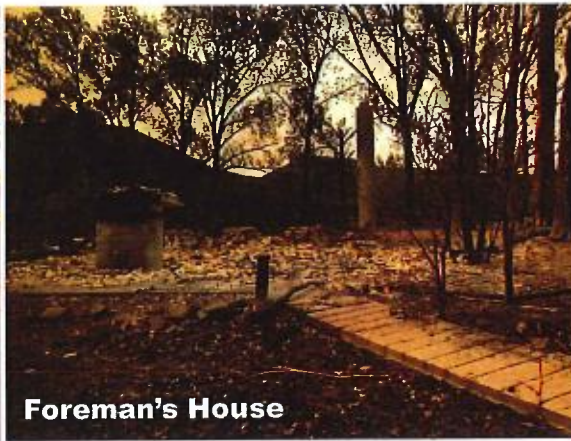
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Main Ranch Complex



Main Ranch House



Foreman's House

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Ivory Fire Stony Gorge Power House

- Stony Gorge Power House (4.9MW)
 - Power House owned by City of Santa Clara (1983)
 - Operated under contract by Orland Unit Water Association Glenn County
- Stony Gorge Power House - evacuated as of 8/19/2020
- Power House and Transmission Line are offline
- Fire has burned over 4,000 acres. Cause is still under investigation.



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New City EV Fleet and Wrap Contest

- Increase awareness of electric vehicles, clean transportation and City's Sustainability Commitment.
- Funding comes from SVP's Low Carbon Fuel program specifically for electric vehicle promotion.
- 6 vehicle wrap designs to choose from
- AND THE WINNER IS.....



Winner!



- Love the bold statement "Drive Clean, Drive Electric!"
- Clean, easy to read



Recommendation

Title: Silicon Valley Power Quarterly Strategic Plan Update

Staff Recommendation:

- Note and File Quarterly Strategic Plan Update

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Thank You!

Questions?



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