12/3/19 item 6

City Council

Item #6: Silicon Valley Power Quarterly Strategic Plan Update

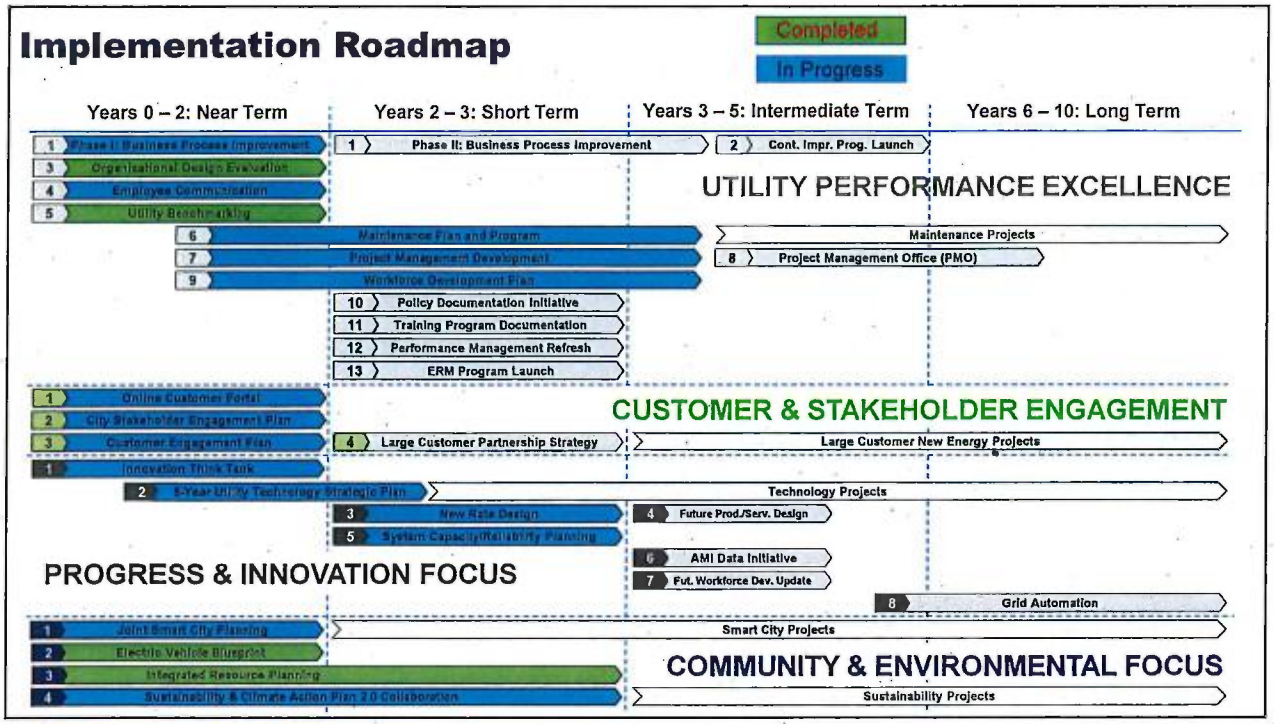
RTC #19-074

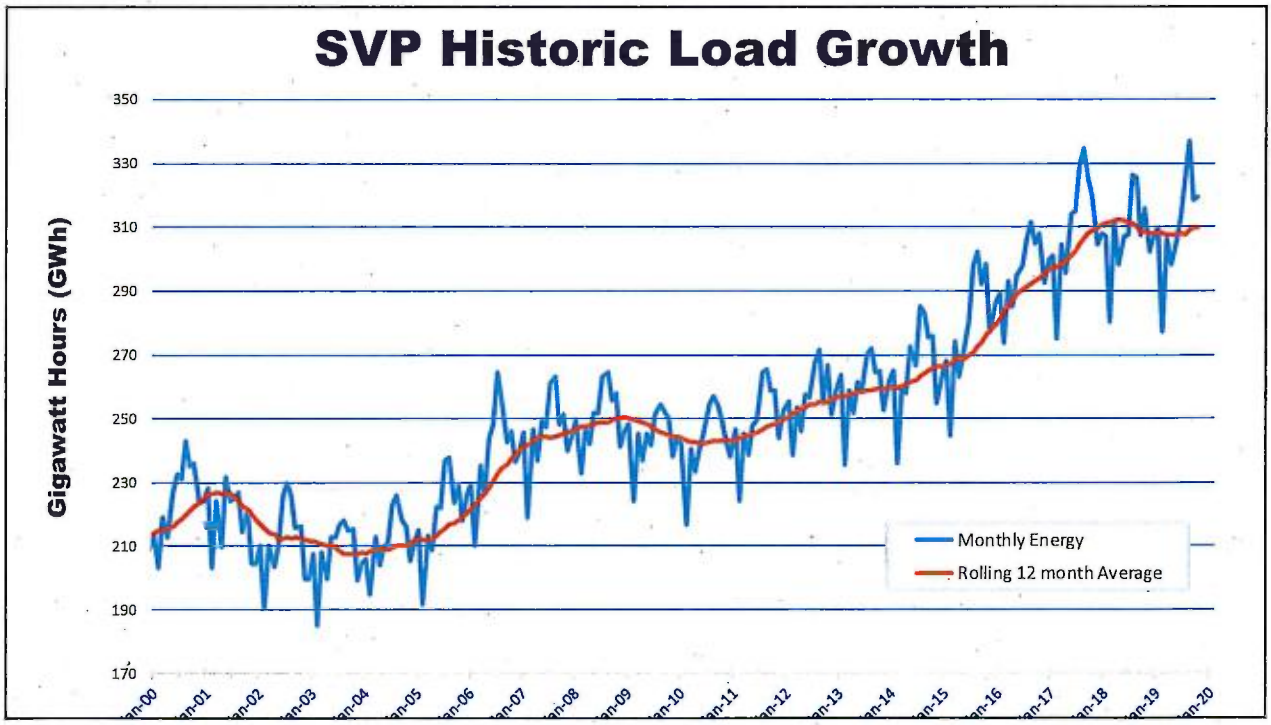
December 3, 2019

Agenda

- Strategic Plan
- Project Load Growth
- Infrastructure and Capital Projects
- DVR Major Maintenance
- Electric Vehicle Charging

POST MEETING MATERIAL


Implementation Roadmap
Completed
In Progress
Years 0 – 2: Near Term
Years 2 – 3: Short Term
Years 3 – 5: Intermediate Term
Years 6 – 10: Long Term
1 Phase I: Business Process Improvement
3 Organizational Design Evaluation
4 Employee Communication
5 Utility Benchmarking
1 Phase II: Business Process Improvement
2 Cont. Impr. Prog. Launch
UTILITY PERFORMANCE EXCELLENCE
6 Maintenance Plan and Program
7 Project Management Development
9 Workforce Development Plan
Maintenance Projects
8 Project Management Office (PMO)
10 Policy Documentation Initiative
11 Training Program Documentation
12 Performance Management Refresh
13 ERM Program Launch
1 Online Customer Portal
2 City Stakeholder Engagement Plan
3 Customer Engagement Plan
CUSTOMER & STAKEHOLDER ENGAGEMENT
4 Large Customer Partnership Strategy
Large Customer New Energy Projects
1 Innovation Think Tank
2 5-Year Utility Technology Strategic Plan
Technology Projects
3 New Rate Design
5 System Capacity/Reliability Planning
4 Future Prod./Serv. Design
6 AMI Data Initiative
7 Fut. Workforce Dev. Update
PROGRESS & INNOVATION FOCUS
8 Grid Automation
1 Joint Smart City Planning
Smart City Projects
2 Electric Vehicle Blueprint
3 Integrated Resource Planning
4 Sustainability & Climate Action Plan 2.0 Collaboration
COMMUNITY & ENVIRONMENTAL FOCUS
Sustainability Projects


SVP Historic Load Growth
Gigawatt Hours (GWh)
350
330
310
290
270
250
230
210
190
170
Monthly Energy
Rolling 12 month Average

SVP Infrastructure

- 24 Substations & 4 System Connection Stations
- 30 miles of 60kV Power Lines
- 160 Distribution Feeders
- 543 miles of 12kV Distribution Lines (65% underground)
- 11,000+ Power Poles
- 5,700 transformers
- 55,300+ Customers meters
- 8,100+ Street Light Poles
- 145 Fiber Miles

Street Light Poles

SVP MeterConnect©

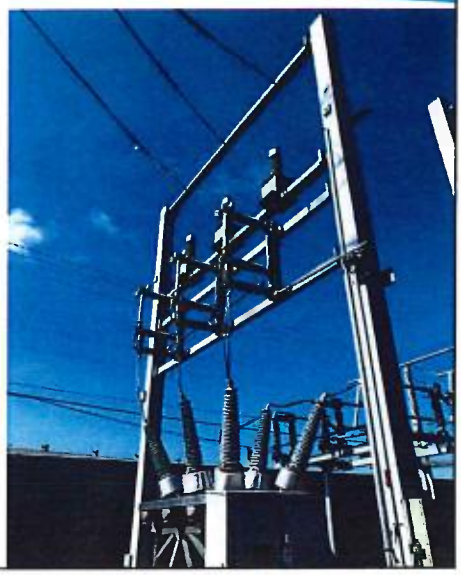
Distribution and Customer Substations

Bulk Electric System Improvements

- SVP's Energy Import Connections
  - 750 MW peak capacity rating in 2019
  - Planning for 1,000 MW projected demand in ten years
- Expanding Receiving Stations
  - Larger transformers (300+ MVA)
  - Modernizing Control Systems
- Analyzing new transmission Connection between SVP's two Receiving Stations to increase load serving ability

Load Growth

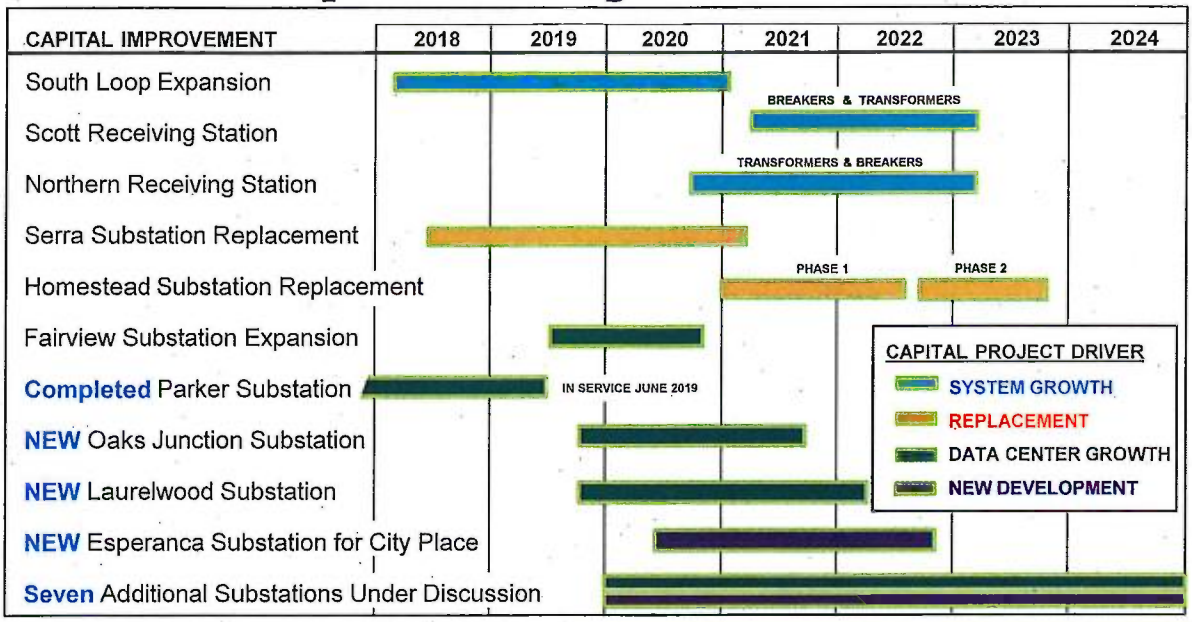
- Data Center & Commercial and Residential Development Drive Load Growth
  - Esperanca on December 3 (63 MW)
  - Oaks Junction December 17 (27 MW)
  - Laurelwood Early 2020 (100 MW)
  - San Tomas Early 2020 (100 MW)
- SVP Creates Integrated Capital Project Schedule for 5 to 10 years (+/- $250 million)



System Expansion SOQ

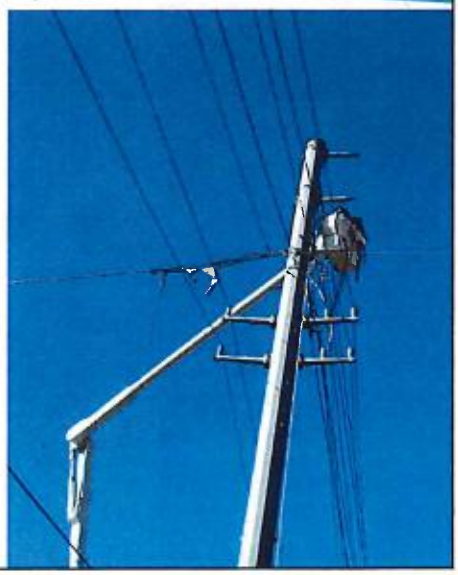
- Over $250 million of upcoming Projects
- Need to prioritize projects and needs
- Goal – Accommodate future expansion and continue reliability
- Releasing Statement of Qualifications (SOQ) to support implementation
- Prepare System Expansion Plan
  - System Planning
  - Substation and Transmission Line Development
  - Load Development Costs
  - Project Management

SVP Capital Projects



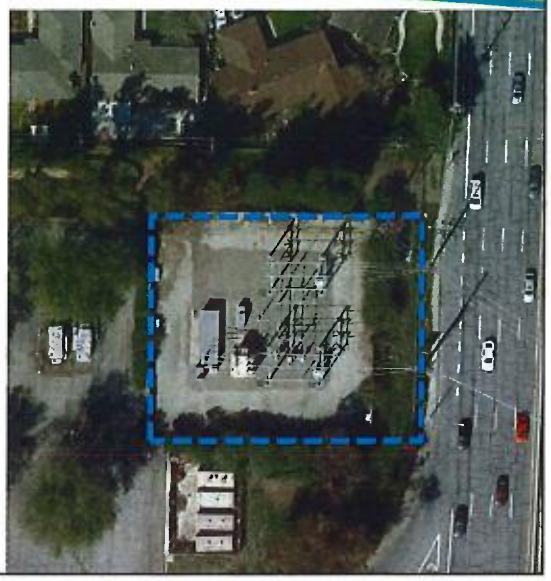
South Loop Project

- Scope: South Loop projected to be capacity in 2021. Install 80 new steel poles and 2.3 Miles of new 60kV transmission line.
- Budget: $23.7 M est.
- Schedule: Online middle 2021
- Status: Easement acquisition and equipment bidding
- Construction Start: Late 2020
- Benefits: Increases system capacity of 60kV lines to serve new datacenter loads with looped system redundancy.



Serra Substation Reconstruction

- Scope: Replace existing single 16MVA bank and switchgear with two 20 MVA banks, switchgear and control room.
- Budget: $22M
- Schedule: Online early 2021
- Status: Currently Bidding Public Works Construction Package
- Construction Start: Early 2020
- Benefits: Replacement of aging equipment to improve reliability and additional capacity to meet future load growth



Homestead Substation Reconstruction

- Scope: Existing switchgear is 45 years old. Replace 60 kV bus work, breakers, old metal clad switchgear with new 12 kV switchgear, and additional 3rd transformer.
- Budget: $25M est.
- Schedule: Phase 1 Construction (first transformer) Online early 2025
- Status: Project Scoping
- Construction Start: Mid 2022
- Benefits: replacement of aging equipment to improve reliability and meet future load growth with additional transformer.

DVR Maintenance Outage and Improvements

- Scheduled October – December
- Spend to date $7,400,000 (all budgeted)
- International Support for this Outage (Canada, Australia, Japan, United Kingdom)

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

Steam Turbine Rotor Exposed

Steam Turbine Rotor

Distributed Control System Replacement

- Replaces multiple obsolete / unsupported control systems
- Spare parts no longer available
- Standardizes one platform for support and spare parts
- Provides dependability through redundancy
- Provides better and finer tuning of Emissions and associated equipment
- Compliant with NERC Security Standards

Turbine Control panel

Control Room

Control System remote panel

Steam Turbine Casing Flip

Gas Turbine Engine Removal

Emissions Probe Work

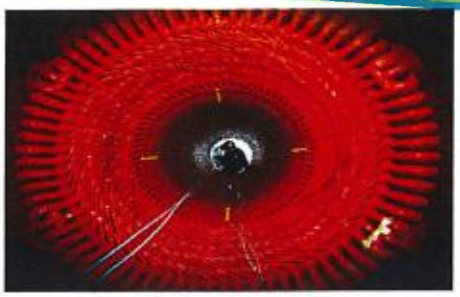
Work 24/7

Steam Turbine Generator Rotor Removal

Steam Turbine Generator Rotor Trucking

DVR Next Steps

- Most unexpected issues have been addressed
- Significant unexpected item to Steam Turbine Generator Stator
- Staff worked non-stop to review options
  - Safe, Fast, Effective
- Have developed multiple options
  - Near term solutions
  - Long term options
- Council Action on December 10 to Authorize City Manager to execute future contracts
- Goal – Finish Project on Mid January and finalize long term options



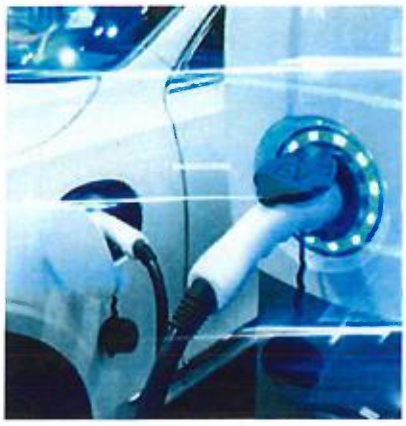
Steam Turbine Generator Stator

City EV Charging Station Project RFP

- Scope: Expand EV charging stations at City properties for public, fleet and workforce charging (36 public charging ports in 2020 and 5-year forecast of over 100 fleet charging ports)
- Budget: $1.25M
- Schedule: Deployment through 2021
- Status: RFP closed November 13, evaluating 7 proposals
- Construction Start: Early 2020
- Benefits: Expanded EV charging station access throughout the City of Santa Clara and allow City Green Fleet

California EV Incentive Program

- Scope: Regional Bay Area EV charging station rebate program to incentivize the construction of DC fast chargers and Level 2 chargers
- Budget: $4 million from SVP restricted funds and matching $4 M from the California Energy Commission
- Schedule: Target launch May 2020
- Status: Contract negotiations to be completed early 2020
- Benefits: Expand EV charging station access for multi-unit dwellings, workplace and at public access locations.



Clean Fuel Rewards Program Rebates

- Scope: State program to provide residents of Santa Clara and point-of-purchase rebate when purchasing electric vehicles through the dealership
- Budget: SVP restricted funds – Varies annually
- Schedule: Target launch is Spring/Summer 2020
- Status: Final contract approval January/February 2020
- Benefits: Simplifies the rebate process for the customer

Weekend Storm Response

Silicon Valley Power @SantaClara... · 1h
We are currently experiencing three additional small outages, each affecting several customers. Our troubleshooter is responding and will work to locate the causea and restore power as quickly as safely possible. With this windy weather, we are on alert for more outages.
3

Kristy Ramos @kkramos74 · 1h
Replying to @SantaClaraPower
Great service and response. Thank you! Stay safe!
1 1 1

Silicon Valley Power Retweeted
chintan patel @chintu7s · 2h
Replying to @SantaClaraPower
Thanks a lot. Way faster than I thought. Appreciate ur hard work.
1 1 2

Silicon Valley Power @SantaClaraPower

Power has been restored to all customers. The troubleshooter found a tree branch in the 12kV lines. He removed the branch and was able to restore power.

2:32 PM · 11/30/19 · Twitter for Android

1 Retweet 24 Likes

Silicon Valley Power Retweeted
chintan patel @chintu7s · 2h
Replying to @SantaClaraPower
Thanks a lot. Way faster than I thought. Appreciate ur hard work.
1 1 2

Silicon Valley Power Retweeted
alittlewhine @alittlewhine · 2h
@SantaClaraPower thank you so much for helping to get the power back on so quickly!
1 2

Santa Clara Weekly -"I was a huge fan of the way Silicon Valley Power responded to and used Twitter to update customers during the storm this past weekend."

Recommendation

Title: Silicon Valley Power Quarterly Strategic Plan Update

Staff Recommendation:

- Note and File Quarterly Strategic Plan Update

SILICON VALLEY POWER
CITY OF SANTA CLARA

Thank You!

Questions?