Integrated Resources Plan – 2023 Update

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Agenda

- About SVP
- Core Services
- What is an Integrated Resources Plan?
- 2018 IRP Findings
- Major Planning Requirements
- Greenhouse Gas Emissions
- Renewable Portfolio Standard (RPS)
- SVP Resources
- New Renewables
- Planning for the Future
- Challenges

About Silicon Valley Power

Fast Facts

127 years young
Established in 1896

4TH Largest Municipal Utility
Retail Sales in CA

Vertically Integrated Utility
We do it all! Poles, Power lines, Power plants, Rebates, etc!

222
SVP Employees
(50 vacant positions)

59,556
Electric Meters

18.41 sq. Miles
Service Area

61.1 Miles
Transmission Lines

694 MW
Peak Demand

74.3%
System Load Factor

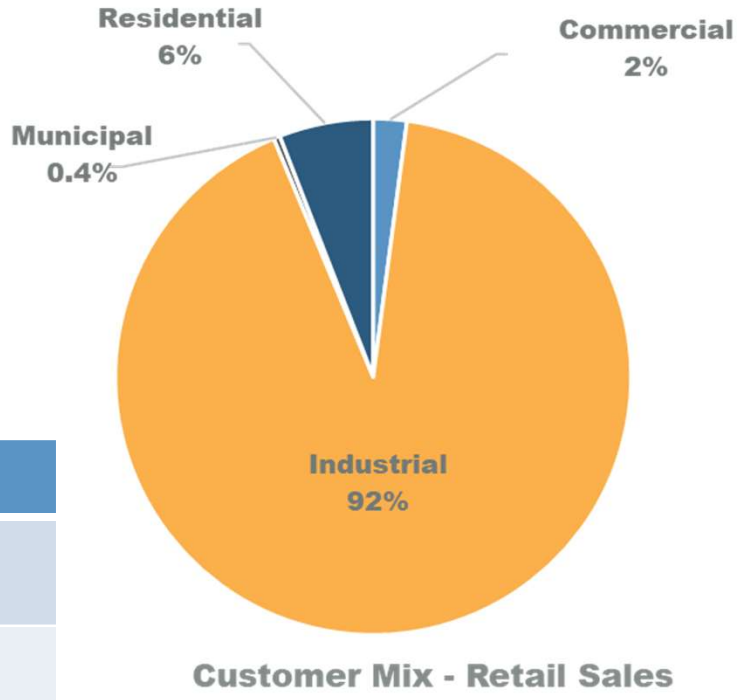
Department of the City of Santa Clara

Data Center Capital of the West Coast

Silicon Valley Power (SVP)

Residential Prices **60%** Lower than PGE

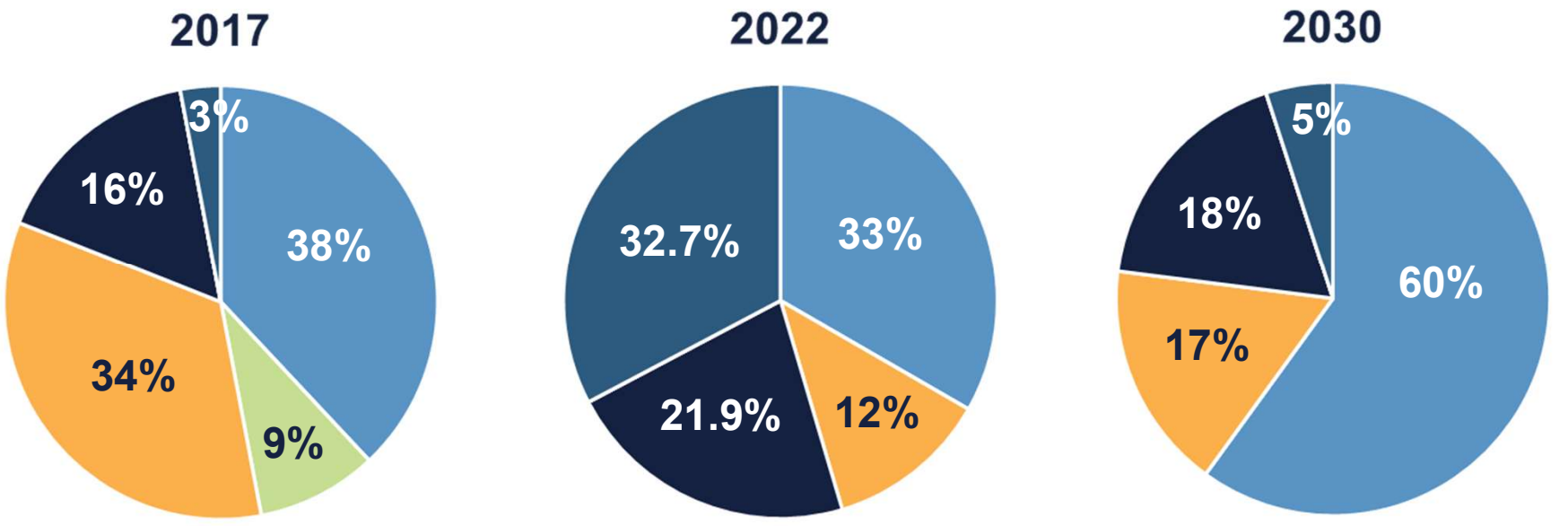
Retail Transactions	
$557 Million Retail Sales Revenue	4,414 GWH Sales
**Sales expected to double in the next 10 years*	



Core Services

Resource Planning and Customer Engagement	Customer Development and Project Management
• Generation resources scheduling and purchases, state and federal reliability and environmental compliance requirements, energy efficiency and electrification programs, manage all Joint Powers Authorities (JPA) • Customer relations, sustainability, communications & outreach	• Capital projects, private development, GIS, asset management, remote properties • System expansion plan • Customer development • Distributed energy resources interconnection
Electric Utility Operations	**Business Services**
• Operate and Maintain Santa Clara's Electrical System and SVP owned generation (within city limits and remote assets) • Manage Cyber Security and IT/OT functions	• Strategic Planning, budget, contracts, procurement (RFP, RFQ), training plans • Regulatory and legislative compliance

Past, Present and Future Resources



Eligible Renewable	Coal	Large Hydroelectric	Natural Gas	Unspecified

Goal of the 2024 Integrated Resource Plan

> Identify a plan that meets or exceeds the State's clean energy mandates while balancing affordability and reliability.

Integrated Resource Plan (IRP)

- What is the IRP?
  - The IRP is a formal planning document to be adopted by the City Council that details:
    - Resource Needs – Planning for the future
    - Policy Goals – Green House Gas (GHG) reduction, renewables, etc.
    - Physical and Operational Constraints
    - General Priorities/Resource choices
    - Ultimately a compliance document that is the roadmap for the future both short term and long term

*Target Date for City Council is Tuesday, November 14, 2023

IRP Core Objectives

- Complying with changing regulations in California
- Meeting mandates of SB350 – going beyond?

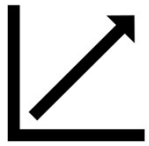
- Community Values
- Exceptional service
- Environmental Sustainability

- Ensuring Reliable Power
- Minimize outages & service interruptions

- Limit future cost increases
- Balance costs and benefits

Previous Key Findings: 2018 Integrated Resource Plan (IRP)

Silicon Valley Power's 2018 IRP identified 670 MW solar additions and 500 MW wind additions by 2030 to meet growing demand, renewable target, and GHG emission reduction goals



823 MW
Peak Demand by 2030

670 MW
Solar additions by 2030

500 MW
Wind additions by 2030

60%
RPS achieved by 2030

334,408 MMT
GHG emissions in 2030*

* SVP's High 2030 GHG emission target set by CARB is 485,000 MTCO2e

Major Planning Requirements

AB 32 (2006) Cap-and-Trade Program

- Reduce greenhouse gas emissions to 40% below 1990 levels by 2030

- Greenhouse Gas Cap & Trade Program

SB 100 Renewable Portfolio Standards (RPS)

- 60% eligible renewables by 2030

- Large hydro does not count toward RPS
- 65% Long-Term Contracts

Clean Energy Mandates

- POUs with an average load greater than 700GWh must file Integrated Resource Plans every 5 years

- Zero-Carbon by 2045 goal

Transportation Electrification

- Low Carbon Fuel Standards (LCFS) Program

- No gas vehicle sales after 2035

- Medium- and heavy- duty fleets must electrify 2024

- Advanced Clean Trucks

Building Electrification

- Title 24 Building Energy Code

- Encouraging decarbonization

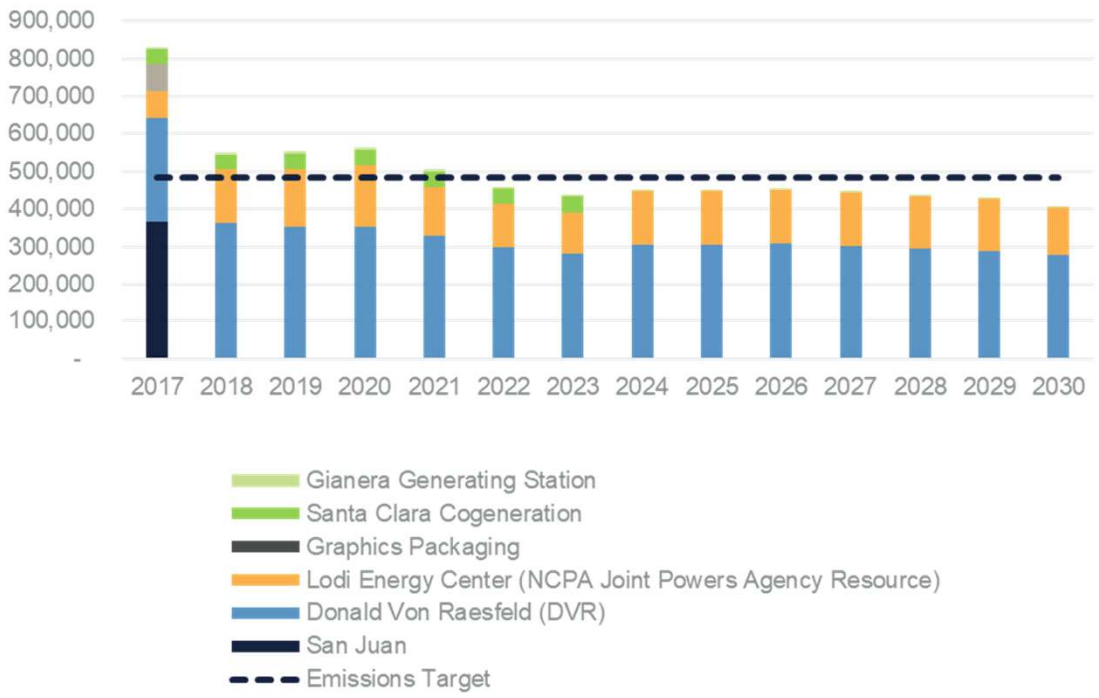
- Anticipate future building codes to ban gas in homes and businesses

Greenhouse Gas Emissions (GHG)

- Emissions Requirement
  - Executive Order requires emissions to be 40% below 1990
  - Carbon neutrality (net-zero carbon) by 2045
  - California Air Resources Board (CARB) set individual electric targets
    - SVP's 2030 planning reduction target is between 275- 485 MMTCO2e
- SVP Actions to date
  - 2017 - Divest form San Juan Coal – 2017
  - 2018 - Divest from in-town 27 MW Graphic Packaging natural gas contract – 2017
  - 2023 – Closure of SVP owned in-town 7MW natural gas plant

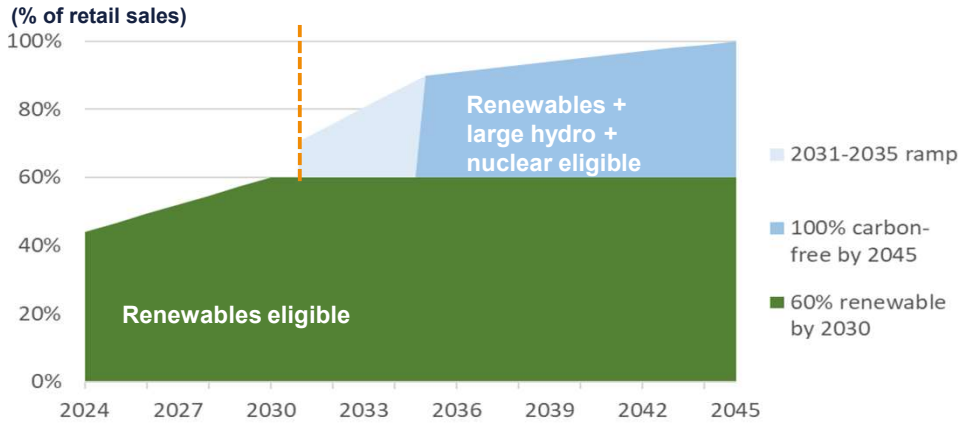
SVP Emissions Reductions

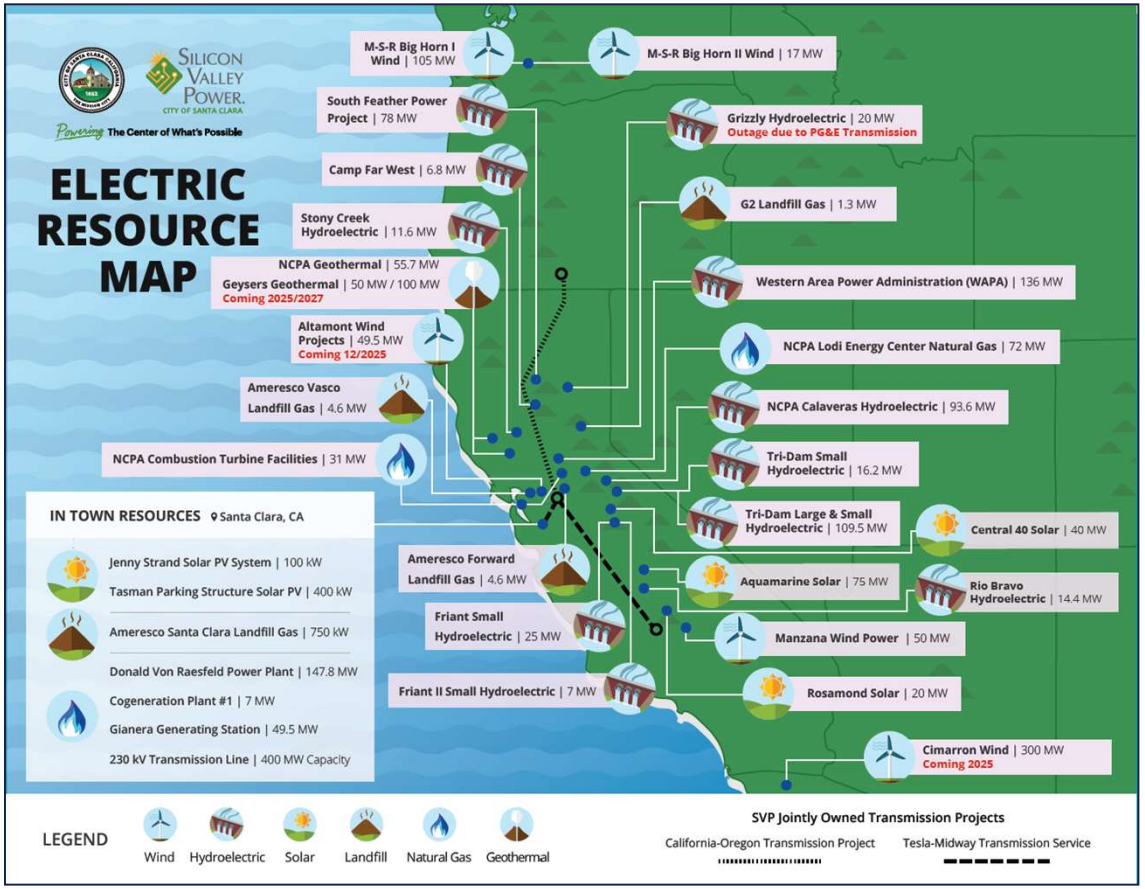
- On target to hit the high emissions target reduction below 485,000 MTCO2e before 2030
- Reduced more than 50% since 2017



Renewable and Clean Energy Targets

- SVP is required to meet California's Renewable Portfolio Standards (RPS) and Clean Energy Targets set by SB 100 and SB 1020:
  - 60% renewable by 2030
  - 90% and 95% by 2035 and 2040 from clean energy, respectively
  - 100% from clean energy by 2045





Diverse Portfolio of Resources

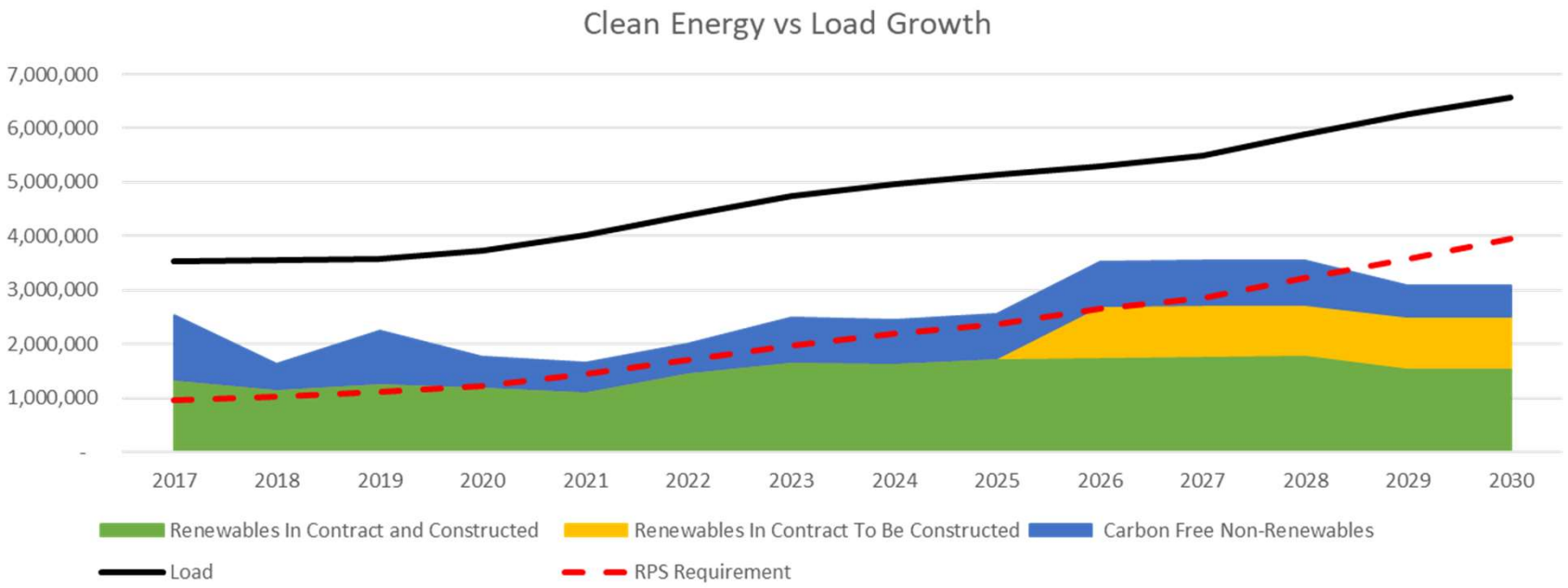
- Fuel Type – Large and Small Hydroelectric, Geothermal, Natural Gas, Wind and Solar
- Location- Throughout western United States– State of Washington, California, and soon Mexico

Current Power Negotiations

Technology	MW	Projected Online Date	Contract Status
Wind	50	2025	Executed**
Wind	300	2026	Executed**
Solar / BESS	600 / 350	Existing	Preliminary Investigation
Solar	50	2026	Preliminary Investigation
Solar / BESS	100 / 100	2026	Preliminary Investigation
Solar	100	2026	Preliminary Investigation
Solar	100	2027	Preliminary Investigation
Solar	137	2029	In Negotiation

- The market prices for Renewable Energy Credits (RECs) has skyrocketed from $12 to over $70 in last 2 years
- Supply Chain, Inflation, Interconnection, Permitting Delays, and Cost of Capital are driving up project costs nearly 50%

Clean Energy – Load Growth



Modeling Scenarios on GHG emission reduction and resource options

- SVP designed scenarios to analyze the impact of alternative GHG emission reduction targets and resource availability

Scenarios	GHG Emission Reduction	Resource Availability
Base	GHG emission reduction targets consistent with CARB requirements	Varying new resource options
Santa Clara Climate Action Plan	Accelerated GHG emission reduction targets in line with the Santa Clara Climate Action Plan	Varying new resource options

SVP Resource Options for the Future

- SVP considers a broad range of technologies to meet its future demand and regulatory requirements
  - Mature technologies are considered in all scenarios while emerging technologies are only available in selected scenarios

Category	Technologies
Mature Technologies	Wind (onshore and offshore)
	Solar
	Storage
	Natural Gas
	Geothermal
	Demand Response
Emerging Technologies	Hydrogen Combustion
	Long Duration Storage
	Gas with CCS

Key Risk Factors under Consideration

GHG Emission Target: SVP is required to meet GHG emissions target set by CARB; Potential policy movements might drive accelerated or more stringent target applicable to SVP

Technology Availability: Availability for emerging technologies uncertain and needs to be monitored in current planning process

Resource Costs: Uncertainty surrounding costs for new resource additions

Fuel Prices: Uncertainty surrounding costs for future fuel prices

SVP vs PG&E Rates

Class of Service	SVP Rate Increase 2016-23	PGE Rate Increase 2016-23
Residential	31%	80%
Commercial	29%	65%
Large Comm	32%	77%
Small Indus	32%	81%
Large Indus	28%	77%

Class of Service	SVP Lower 2016	SVP Lower 2023
Residential	46%	60%
Commercial	21%	38%
Large Comm	35%	51%
Small Indus	24%	45%
Large Indus	18%	41%

- Gap has increased significantly
- SVP budgeted rate increases higher the typical the next few years
- Affected by the same market conditions
- Recovering from the historic gas prices (3-4 year recovery period)

Challenges Remain

Silicon Valley Power is committed to delivering reliable, affordable and sustainable energy services to our community.

- Load Growth
  - Economic
  - Electrification
- Renewable Readiness
  - Projects are taking 3-7 years longer to be built
  - Greener faster is costly
- Reliability
  - Integration of Intermittent Renewables
  - Cost to “back up” at peak
- Affordability
  - Inflation, cost of equipment, restricted renewable access, cost of transmission

What's Next?

- Resource Modeling Results/Cost Scenarios
- Survey Results
- October 30, 2023Integrated Resource Plan Draft Release
- November 14, 2023 - City Council Approval in Substantial Form
- December 2023 – February 2024 - Incorporate Feedback, Update Annual Numbers – Finalize Report
- April 1, 2024 -Submit to the California Energy Commission

Further Participation

- Feedback
  - Open Government Survey - communityfeedback.opengov.com/13252
  - E-mail feedback to info@siliconvalleypower.com
- Stay in the loop
  - Sign up for updates at
  - siliconvalleypower.com/SVPNews

Scan to take the survey

Thank you, Questions?

Load Growth – EVs, Building Electrification (BE)

CA Energy Commission Reports

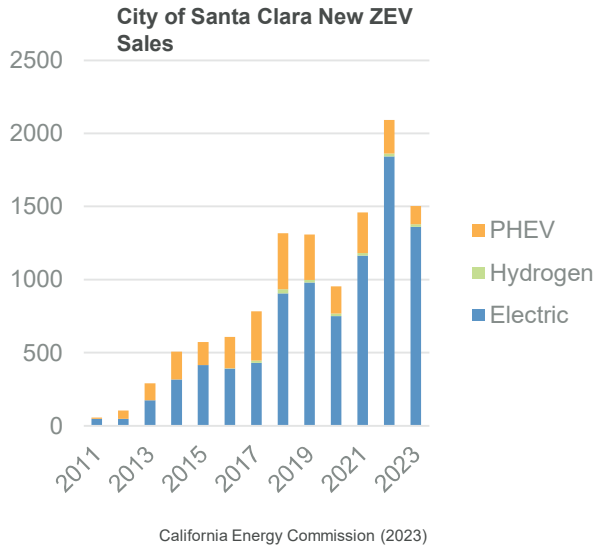
- Santa Clara % of New Light-Duty ZEV Sales: 36% in 2021 and 37% in 2022
- Santa Clara's new light-duty vehicle sales is **above the California average of ~25%**

DMV Registration Data

- EVs are 4.5% (7,245 vehicles) of Santa Clara's vehicle population and hybrids account for 6.67% (10,619 vehicles)
- 2022 ZEV adoption on track with **High Case** Total Cumulative PEV Adoption Forecast, # of Vehicles, in the EV Readiness Community Blueprint

SVP Load Growth Planning

- Transmission Planning 2024/25 EV & BE Load Impacts will be studied under a sensitivity scenario
- SVP assessing incorporating EV data and expected load into our load monitoring
- 20-Year Forecast beginning Q3-Q4 2023 that will include a Spatial Analysis of Light, Medium and Heavy EVs and identify where the load will materialize on SVP's system via City GIS parcel map



California Energy Commission (2023)

FYI – Difference between Net-Zero and Zero-Carbon