Santa Rosa EV Masterplan

Board of Public Utilities

November 6th, 2025

City of Santa Rosa

NV5

cté

PROJECT TEAM

Organization	Staff Member	Title
City of Santa Rosa	Peter Martin	Deputy Director, Water Resources
	Madee Brandt	Sustainability Representative
NV5 **Consultant** Infrastructure, Financials, Resiliency	Brent Johnson	Vice President
	Arthur Tseng	Project Manager
	Andrew Meyer	Data Analyst
cte **Subconsultant** Fleet, Energy Analysis	Aaron Wright	Project Manager
	Maddie Henderson	Data Analyst

PROJECT BACKGROUND

- Council Work Plan FY 2023/24: Initiate development of City-wide Fleet Electrification Master Plan:
  - Development of RFP and Award in April 2024
  - Obtained $210,000 grant from Federal Energy Efficiency and Conservation Block Program, remainder from one-time general funds
  - Water Department is Project Manager, teams from fleet services and all operational departments are supporting
- Council Work Plan FY 2024/25: Complete City-wide Fleet Electrification Master Plan

PROJECT BACKGROUND

GOALS

- A roadmap to compliance with State Advanced Clean Fleet Regulations
- Strategy for continuity of fleet operations, city services
- Evaluate EV charging options during grid outage
- Provide policy recommendations to expand EV charger access

ZEV LOCAL FLEET REGULATIONS

California Advanced Clean Car II

- Sales of class 1-2A vehicles (<8,500 lbs)
- From 2026, increasing % of vehicles sold by dealers must be ZEV
- Fed gov nullified ACC II, CA gov creating ACC III

California Advanced Clean Fleet (ACF)

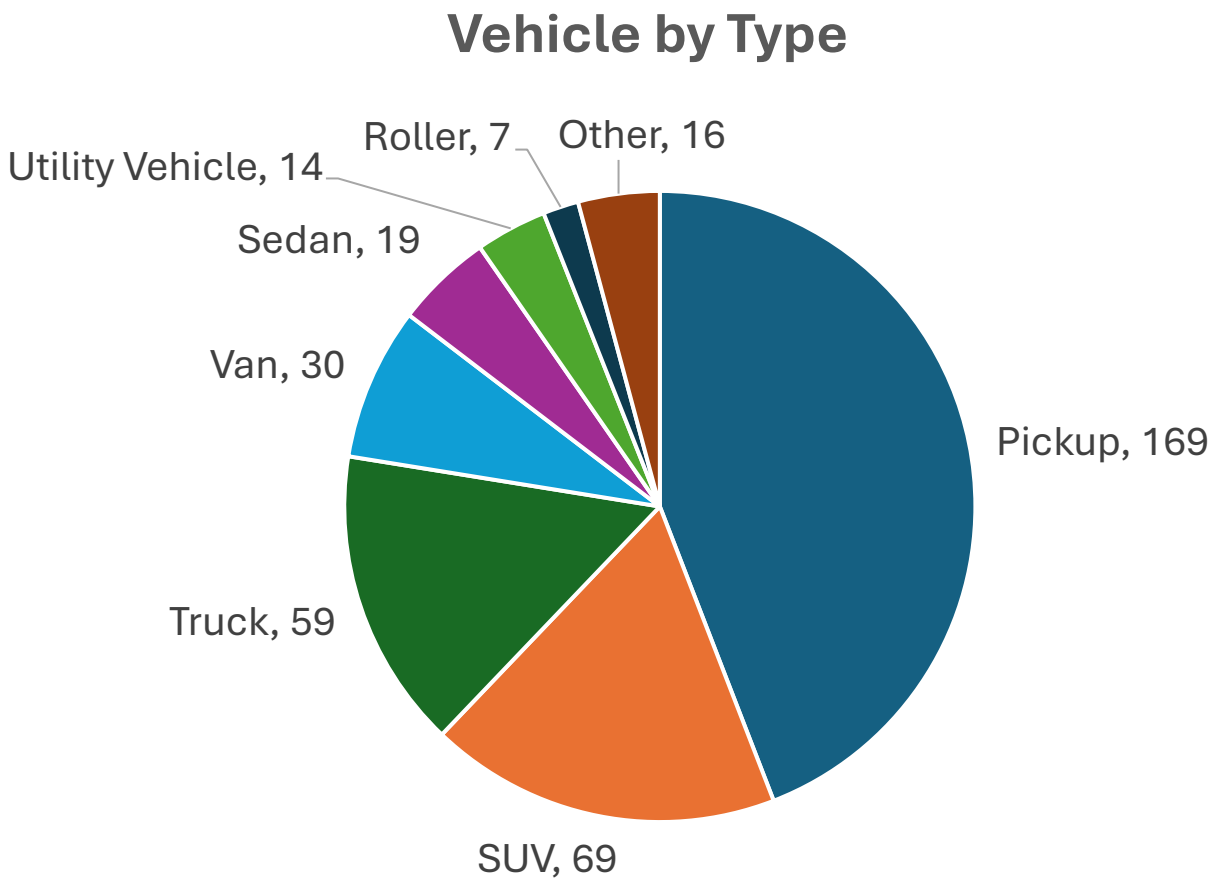
- Purchases of class 2B+ vehicles (>8,501 lbs)
- Regulates local and state government fleets
- Federal and Private fleets no longer included
- Some exemptions

Timeline	Percent ZEV Purchase
From January 1, 2024	50%
From January 1, 2027	100%

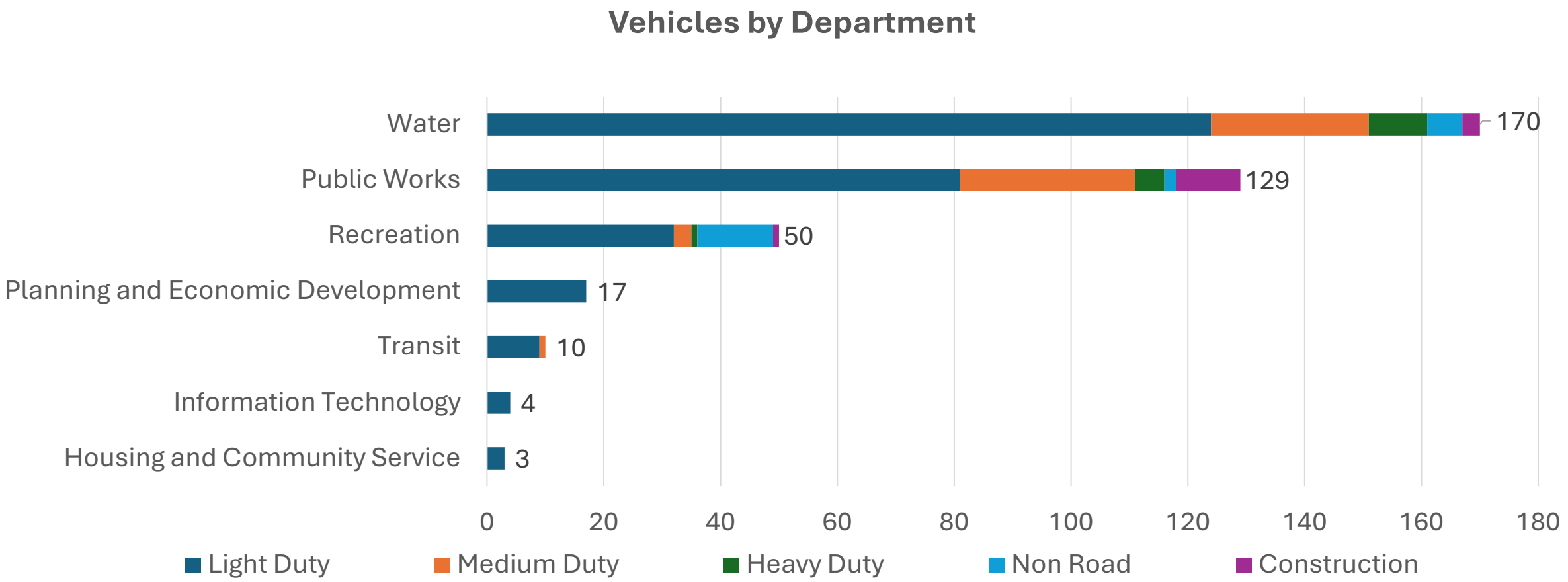
CITY OF SANTA ROSA FLEET VEHICLES

- 383 Total Vehicles*
  - Santa Rosa Water – 45%
  - General Funded Departments – 55%
- 17 Locations
- 7 City Departments
- 93% of vehicles reside at 7 locations

**Does not include emergency or transit vehicles*



CITY OF SANTA ROSA FLEET VEHICLES



PURCHASE SCHEDULE ASSUMPTIONS

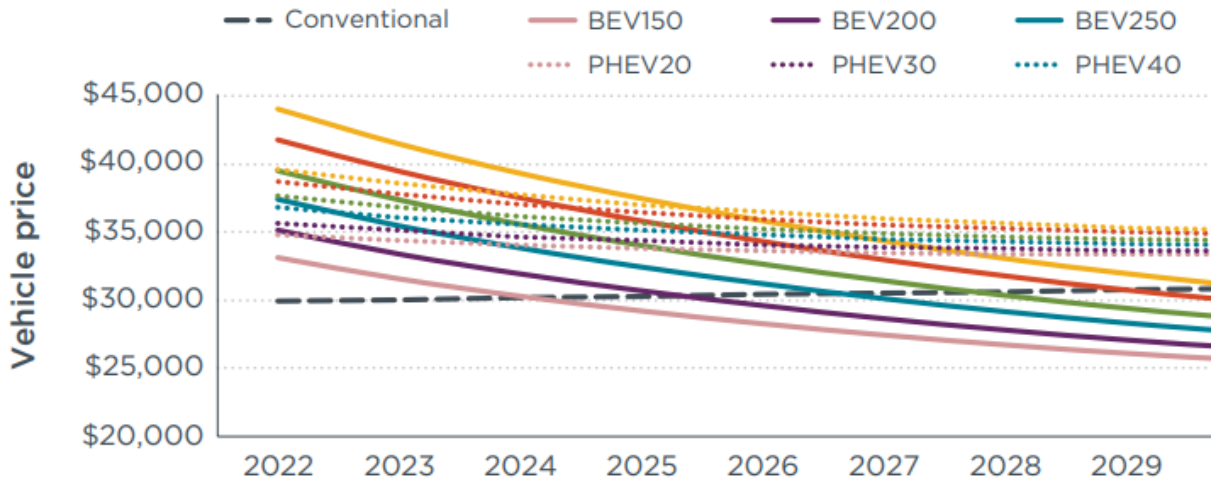
Replacements

- Vehicles are replaced at the end of their planned service life
- Overdue replacements are spread over the first 4 years of the transition
- EVs are purchased if a feasible AND suitable model is available
- Cap of $10M annually, not adjusted for inflation

ACF	2025-2026	2027 Onward
EV %	50%	100%

Costs

- EV cost reference current market prices
- EVs that are not commercially available are assumed to be 2.5x the price of their fossil fuel counterparts in 2025
- Costs projected to the future based on International Council on Clean Transportation studies (graph below)



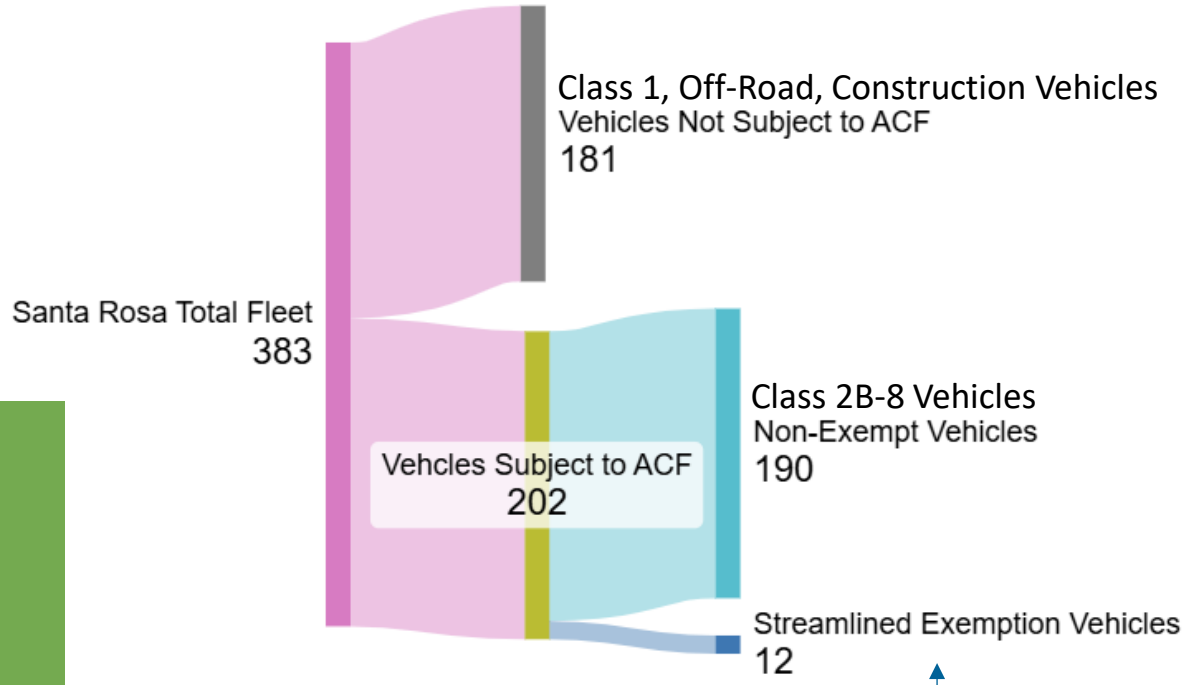
Source: ICCT

ACF COMPLIANCE REALIZATION CHALLENGES

Mismatch between vehicles that CARB considers available as an EV and those that Santa Rosa may consider suitable as an EV.

Santa Rosa considers ¾, 1, 1.5-ton EV pickups not available in 2025 since they aren't commercially sold

CARB considers those EVs available because EV van chassis can be upfit with pickup truck body styles.[1]



CARB granted categorical exemption to very few vehicle types

[1] CARB Exempt Vehicles List

2025 ACF AMENDMENTS

1. Repeal ACF regulations for drayage, federal, and high priority fleets
2. Adopt AB 1594 (2023) required changes
   - Defined traditional utility-specialized vehicles and give them broader access to exemptions
3. Lower overall burden of compliance
   - 50% ZEV acquisition extended to end of 2029
   - Expand AB 1594 flexibility to all state and local government fleets (not just traditional utility-specialized vehicles)
   - Increase exemption applicability for all vehicles
     - ZEV Purchase Exemption - Add criteria to determine whether a vehicle is available as a ZEV (new criteria will ensure ZEV manufacturer is stable and viable)
     - Daily Usage Exemption – Ability to use past vehicle records (Fuel logs or odometer reading OK, previously required daily driving logs)

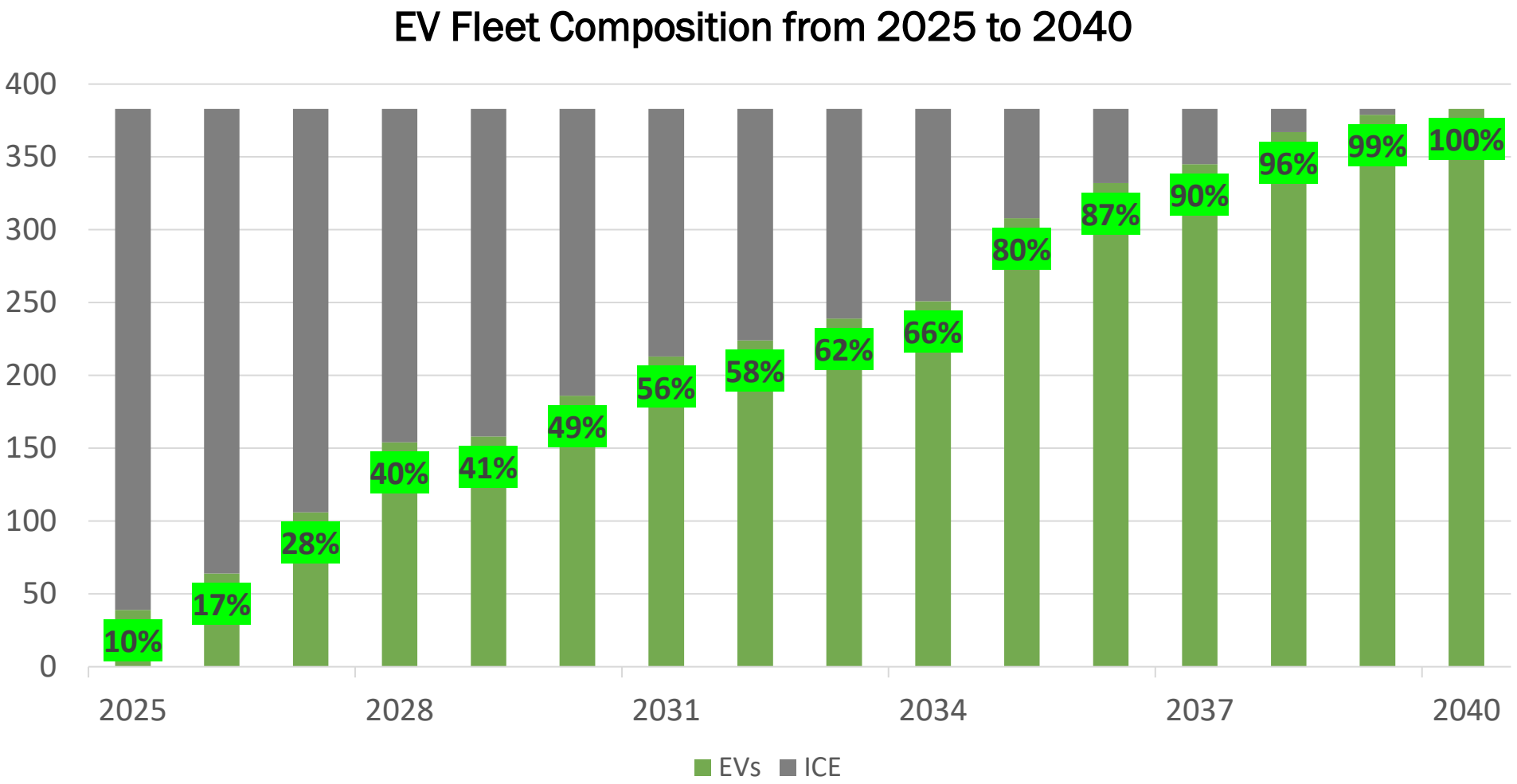
Final rulemaking in 2026, amendments effective before Jan 1, 2027

ACF COMPLIANCE IN CURRENT PLAN

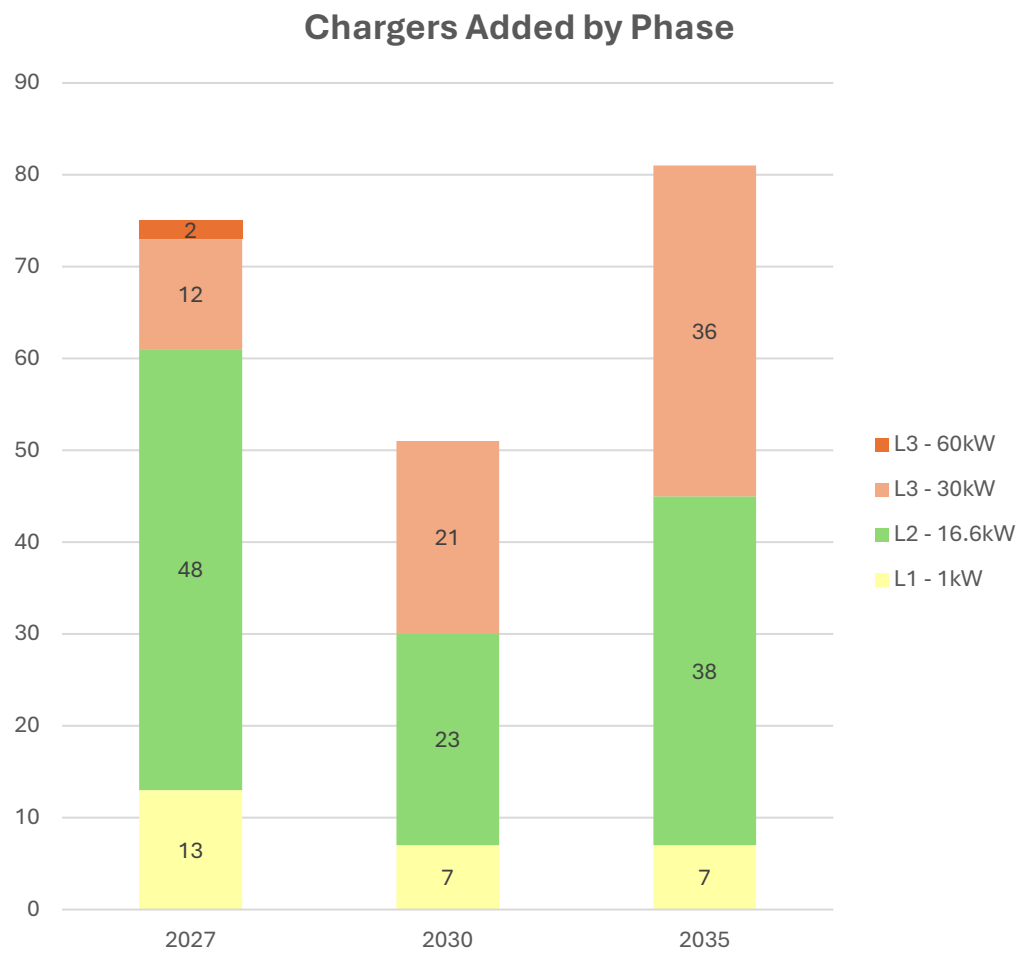
Purchases of ACF-regulated vehicles		2025	2026	2027	2028	2029	2030
ACF Purchase Rules	ZEV Purchase Requirement (Current)	50%		100%			
	ZEV Purchase Requirement (Post 2027 Update)	50%					100%
Non-Exempt	Percent Electric Purchases	8%	10%	53%	78%	17%	100%
	Electric Purchases	3	4	8	31	2	24
	Fossil Fuel Purchases	35	35	7	9	10	0

- ACF compliance is expected to be achievable from 2027.
- Overcompliance (2028) count towards future compliance (2029)

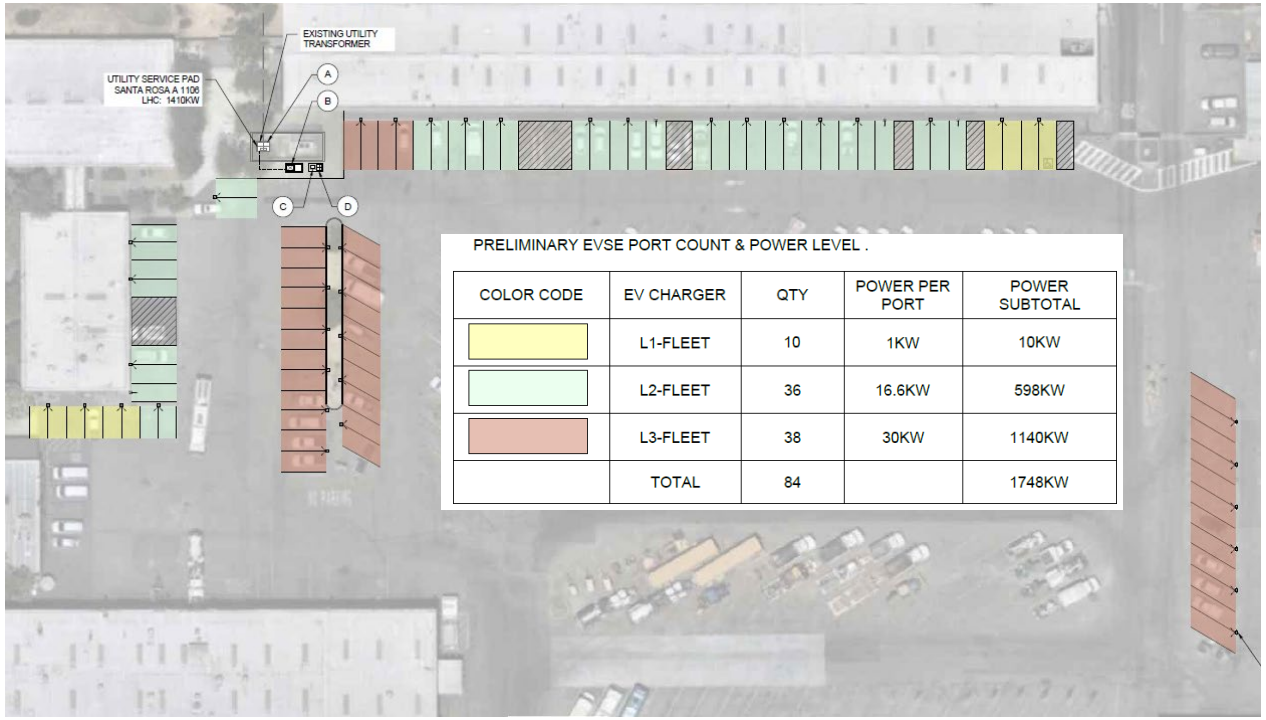
RESULTS – EV ADOPTION TREND



RESULTS – EV CHARGER INSTALLATIONS

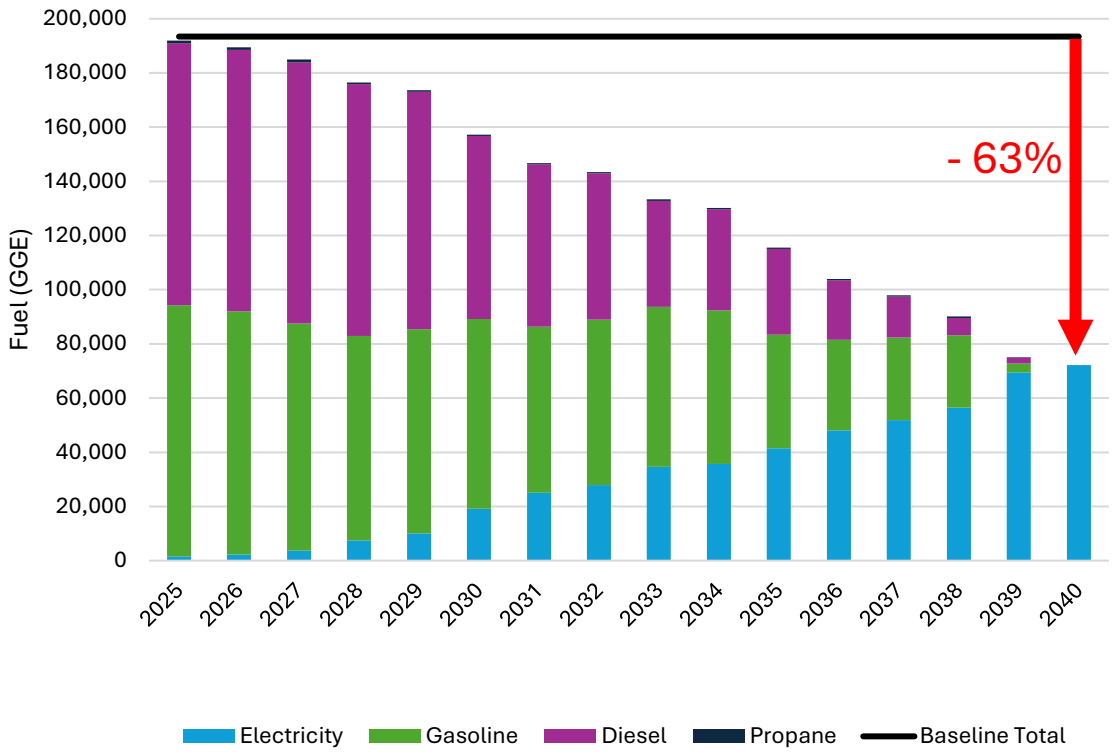


Conceptual layout at MSC North

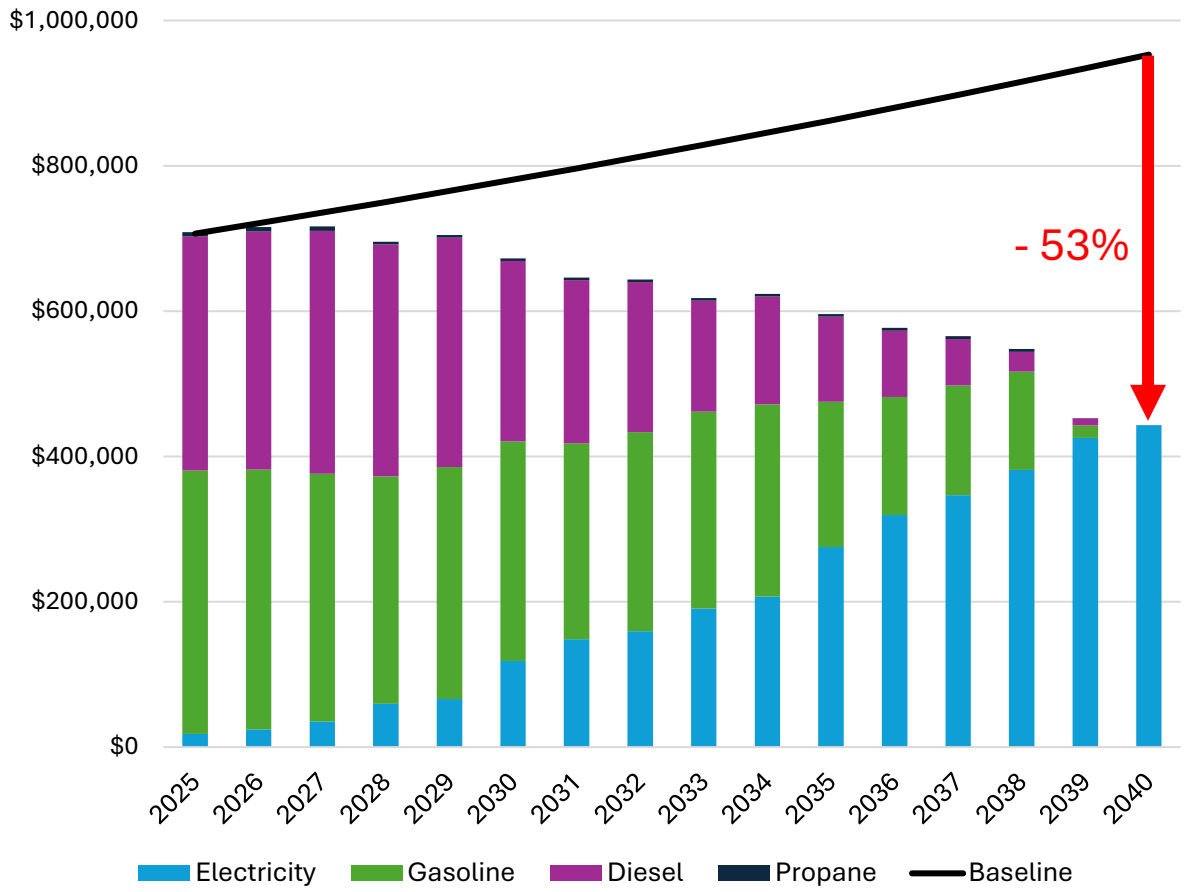


FUEL TRANSITION

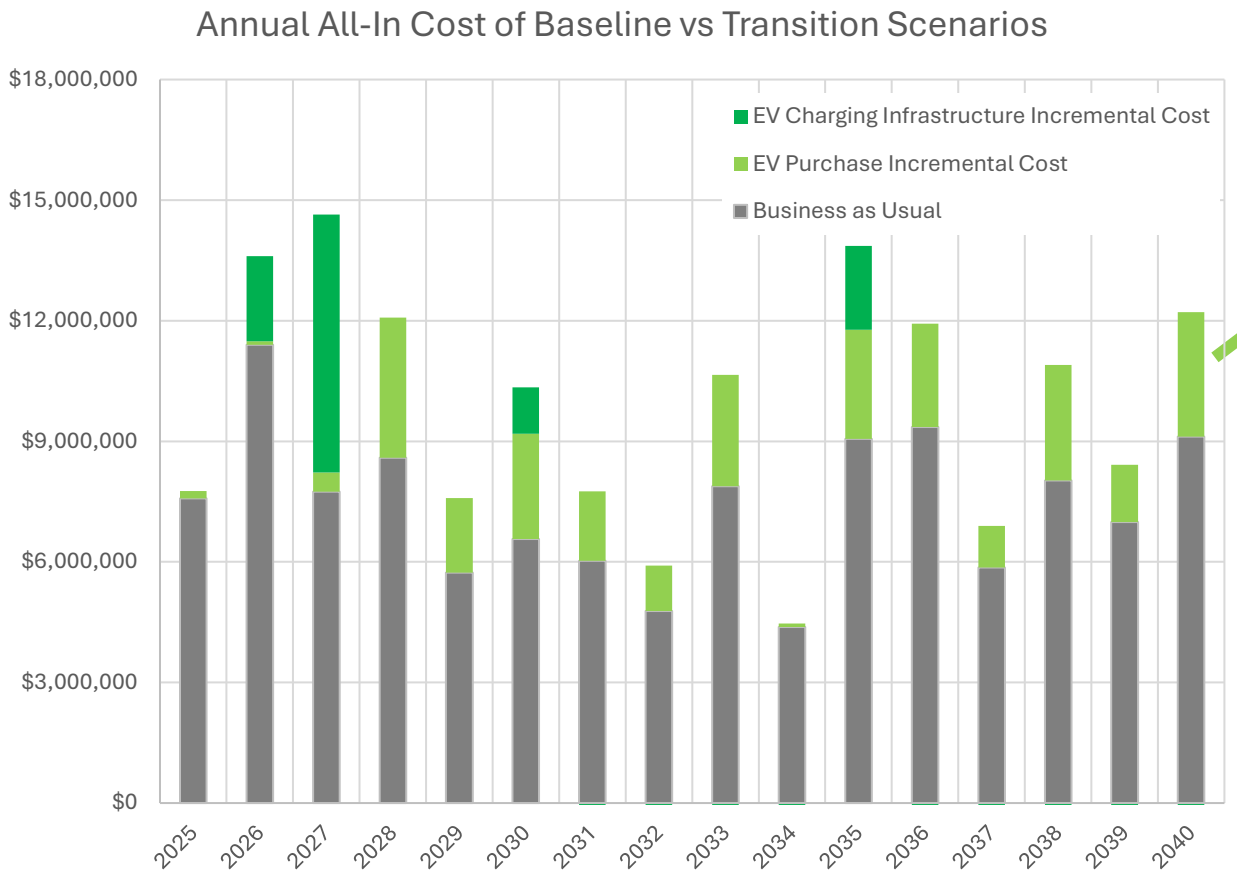
Annual Fuel Consumption (Gasoline Gallon Equivalent)



Annual Fuel Cost



RESULTS – ALL-IN EV ADOPTION COST



Nominal Cost Increase of $38 million
EV Purchase: $28 million
EV Chargers: $10 million

Incentives	Included	Not Included
	PG&E EV Fleet ($0.5 million)	Inflation Reduction Act ($2.4 million)
		Communities in Charge ($0.4 million)
		Incentives from BAAQMD, Sonoma Clean Power, HVIP

MAIN FINDINGS OF FLEET ELECTRIFICATION STUDY

1. 100% EV fleet by 2040 reduces 12.6 million kg of CO2e over the next 15 years.
2. Fleet Electrification costs $38 million from 2025 to 2040 over business as usual.
3. Near-term compliance with ACF is difficult due to vehicle availability and cost.
4. City should pursue all exemptions allowable under ACF.
5. City should standardize a charge management platform and EV charger.
6. City fleet should leverage CityBus EV chargers for near-term charging flexibility.
7. City should update fleet electrification plan to match new ACF adjustments.

RESILIENCY OPTIONS

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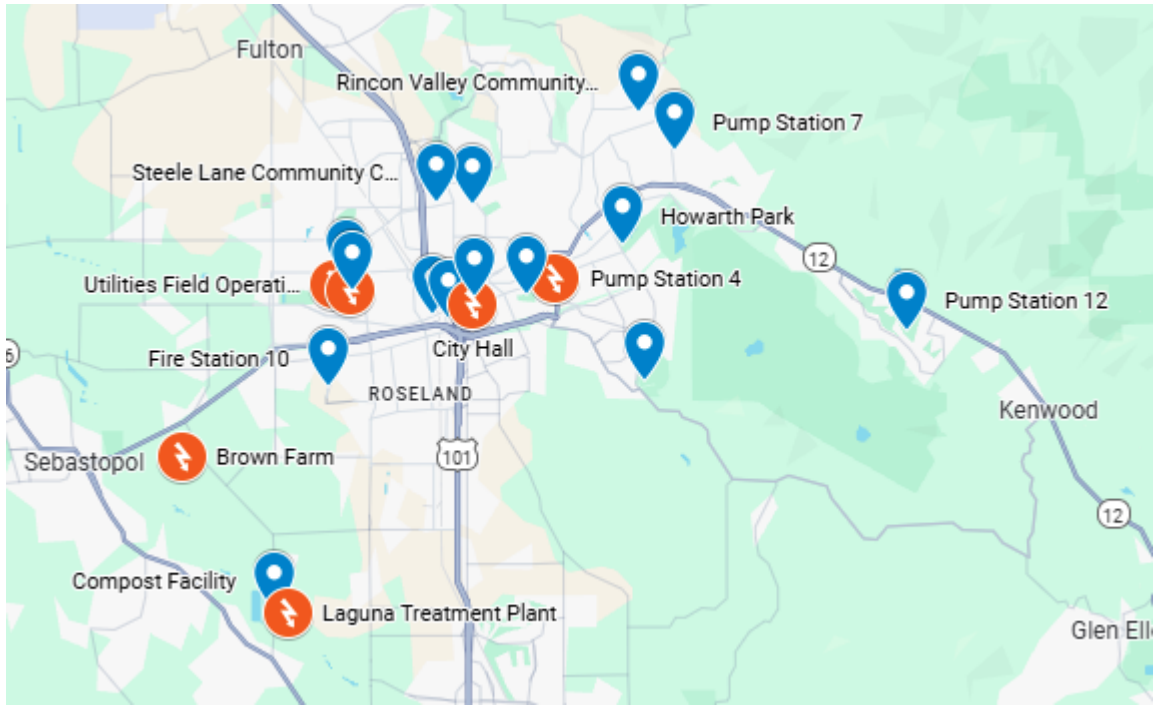
RESILIENCY STUDY OVERVIEW

- 6 backup EV charging locations
- 2 configurations reviewed
  - Solar panels + stationary battery storage + generator
  - Generator Only



EV charging site with backup power

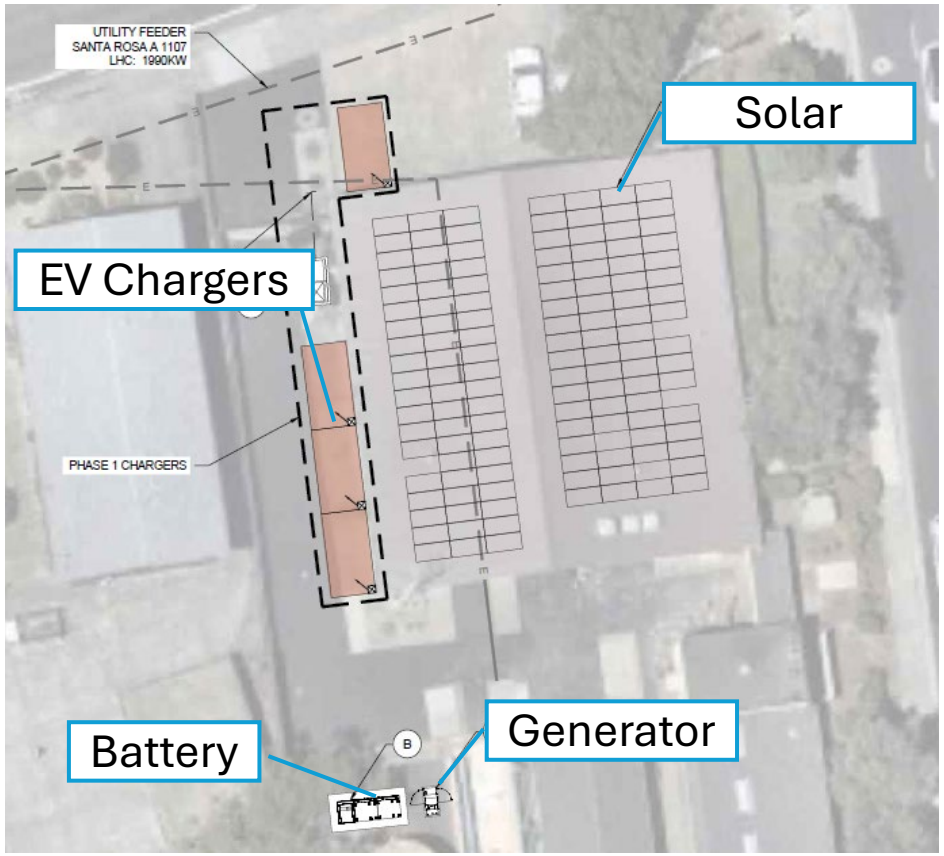
EV charging site without backup power

BACKUP EV CHARGING OPTIONS

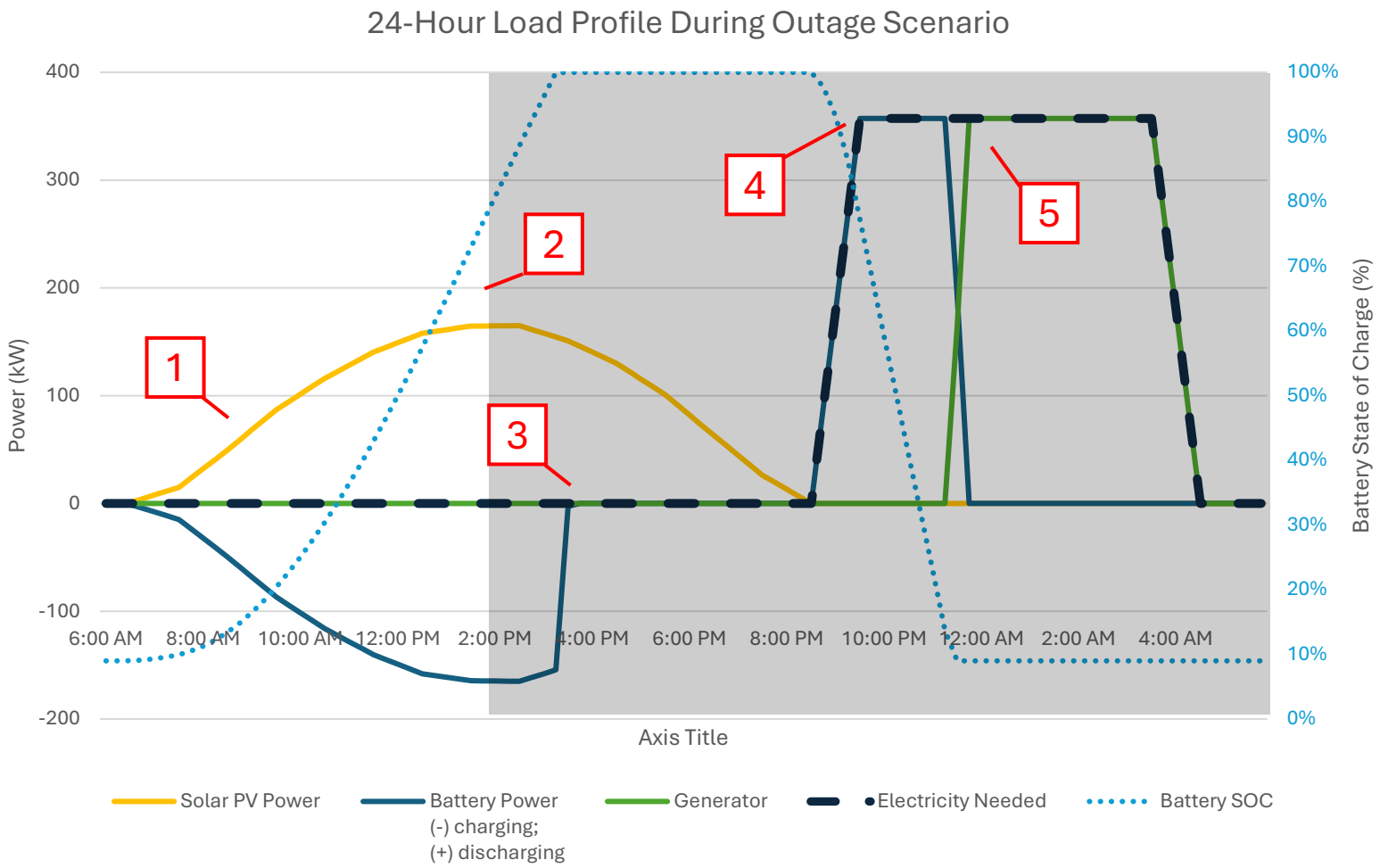
- Department staff provided assumptions on operational needs during power outages.
- Assumes three 1-day outages per year, and one 7-day outage per 4-years.

	Generators all 6 sites	Solar + Battery + Generators all 6 sites
Capital Cost	($2.6 million)	($14.6 million)
25-Year Net Present Value	($3.4 million)	($11.8 million)
Annual GHG Emission (metric tons)	46	27.6

Conceptual layout at Sonoma Ave WTP



EXAMPLE OPERATIONS OF MICROGRID



Sequence of operations

1. Solar power generation charges BESS
2. 2:00 PM: Power outage occurs. Solar panels continues charging battery during outage.
3. 3:30 PM: Battery fully charged, Solar does not export excess energy due to outage
4. 9:00 PM: Vehicles start charging during power outage; Battery begins discharging.
5. 11:45 PM: Battery depleted; generator turns on to finish vehicle charging

MAIN FINDINGS OF EV RESILIENCY STUDY

1. Systems that provide resiliency to grid outages add significant cost.
2. Scenarios did not result in positive savings over a 25-year analysis period.
3. Conventionally fueled internal combustion generators are currently the most cost-effective option to provide EV charging resiliency to the City.
4. City should explore detailed feasibility, regulatory requirements, and costs of installing generators at EV charging depots.
5. Additional resiliency planning and a review of standard operating procedures could further consolidate EV charging sites with backup power

EV CHARGER DEPLOYMENT POLICY

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POLICY STUDY OVERVIEW

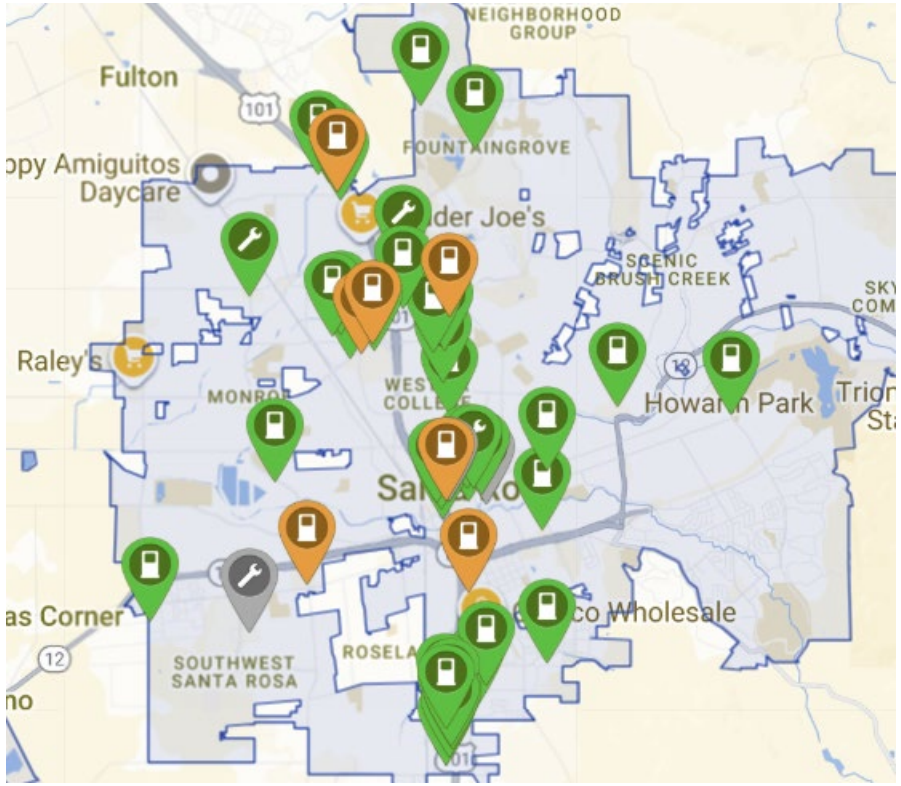
- Planning and Economic Development (PED) seeks recommendations on encouraging private led curbside EV charger deployment in the public right of way.
- Santa Rosa's *General Plan 2050* and *GHG Reduction Strategy* include objectives and measures for increased public EV charging
- NV5 interviewed:
  - EV charger companies (It's Electric, Voltpost)
  - City of Santa Rosa (Planning, Parking)
  - City of San Francisco (SF DPW, SF Environment, SFMTA)
  - City of Alameda

It's Electric EV Charging Station

POLICY STUDY OVERVIEW - RECOMMENDATIONS

- Impact/Development Fees
  - Develop Capital Investment Plan for a city-wide deployment of EV chargers
  - Collect development fees to fund the program
  - Determine priority locations (charging deserts)

- Facilitate Private Agreements for EV Charger Providers
  - Establish permitting pathways for private companies to partner with property owners to install EV chargers on curbside
  - Update regulations to allow installations



EV charger map from PlugShare

POLICY STUDY OVERVIEW – NEXT STEPS

- Develop a Public EV Charging Task Force
- Engage other agencies during planning
  - Sonoma Clean Transportation Authority
  - Metropolitan Transportation Commission
  - Pacific Gas & Electric
  - Sonoma Clean Power
  - Sonoma County
- Create timeline for implementation
  - Planning tool selection
  - Public outreach
  - Implementation
  - Evaluation

Recommendation

It is recommended by Santa Rosa Water that the Board of Utilities, by motion, review the Final Draft Fleet Electrification Master Plan and its findings, and recommend that the City Council accept the Final Draft of the plan

QUESTIONS