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# California Public Agency Fleet Electrification Funding & Challenges

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June 14, 2023  
CCEC Forum

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# Agenda

*Wednesday, June 14th, 10:30 - 11:45 am*

Welcome and Introductions (5 mins)

About ProspectSV and Empower Procurement (7 mins)

Hilary Ego, City of La Mesa (12 mins)

Discussion (6 mins discussion, 2 mins share)

Toto Vu-Duc, City of Watsonville (12 mins)

Discussion (6 mins discussion, 2 mins share)

Rachel Di Franco, City of Fremont (12 mins)

Discussion (6 mins discussion, 2 mins share)

Q & A (5 mins)

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# Making a Carbon-Free World Possible



Expand The Conversation  
About Innovative Technology



Build Peer Networks  
Of Industry & Sustainability Leaders



Spark Real Progress  
With Collaborations & Partnerships



**EMPOWER**  
PROCUREMENT



ProspectSV

*Funded by:*



# Technical Assistance:

*Accelerating procurement best practices for  
lowering costs and carbon emissions*

# Why we are here

Many buyers have ambitious clean energy or GHG reduction goals, which represents a big opportunity for DER sellers. But connecting to the right buyers can be a difficult task.

**GHG Emissions from  
Public Institutions**



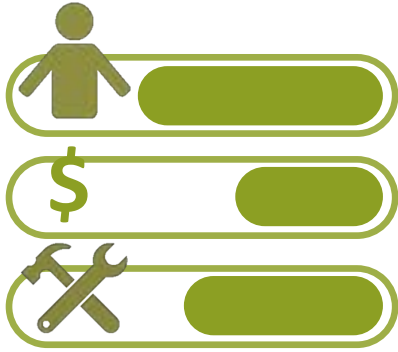
Source: The West Coast Climate and Materials Management Forum

Common pathways for energy-related procurement:



**EMPOWER**  
PROCUREMENT

# Overcoming institutional barriers to clean energy technology adoption:



1. Improve procurement tools



2. Facilitate smoother purchasing processes



3. Provide salient information to the right stakeholders



4. Connect with major influencers



**EMPOWER**  
PROCUREMENT

# Empower Procurement is supported by:



*If you are interested in learning more, visit us at **EmpowerProcurement.com***



**EMPOWER**  
PROCUREMENT



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# The Challenge

Local Government  
and School staff are  
commonly under  
resourced and over  
exerted

The EV and Charging  
Infrastructure markets  
are quickly evolving  
and highly dynamic

Many financial and  
technical resources  
exist but access  
requires time and  
effort



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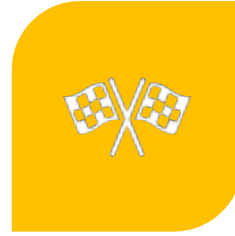
# E-Fleet Technical Assistance Solution Tasks



**TASK 1:** Assessment



**TASK 2:** Initial  
Recommendations  
& Review



**TASK 3:** Final  
Recommendations



**TASK 4:** Share  
Findings

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# Task 1: Assessment



Kickoff  
Meeting



Assess  
Current Fleet



Conduct  
TCO Analysis



Assess Funding  
Mechanisms



Gather Basic  
Infrastructure  
Information



Assess  
Procurement  
Processes &  
Guidelines

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## Task 2: Initial Recommendations & Review



Identify appropriate  
EV types/vendors  
based on your  
priorities & needs



Review of draft TCO  
findings



Identify charging  
systems & outline  
basic plan for  
charging  
infrastructure



Map available  
incentives, public  
contracts & other  
procurement  
support options



Identify potential  
further technical  
needs, vendors,  
systems, or tools

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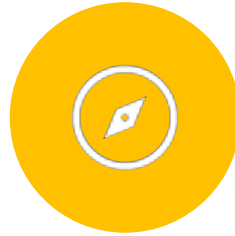
## Task 3: Final Recommendations



Provide recommendations  
& help clarify next steps in  
procurement



Provide a list of applicable  
incentive/grant programs



Model EV policy language



Provide final  
recommendations

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## Task 4: Share Findings



Share resources with Peer Forum Members: event recordings, funding opportunities, contact lists, etc.



Include findings on Empower Procurement website resources: purchasing specifications, model policy language, etc.

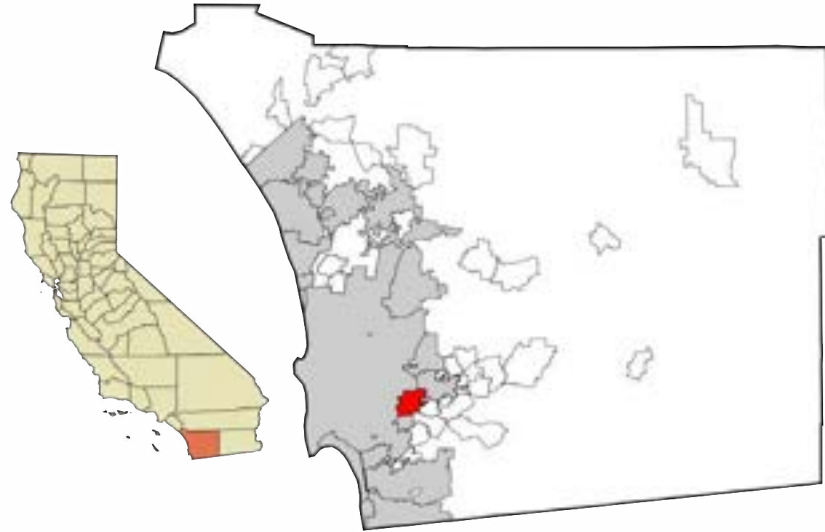
**<https://empowerprocurement.com/>**



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# City of La Mesa Background

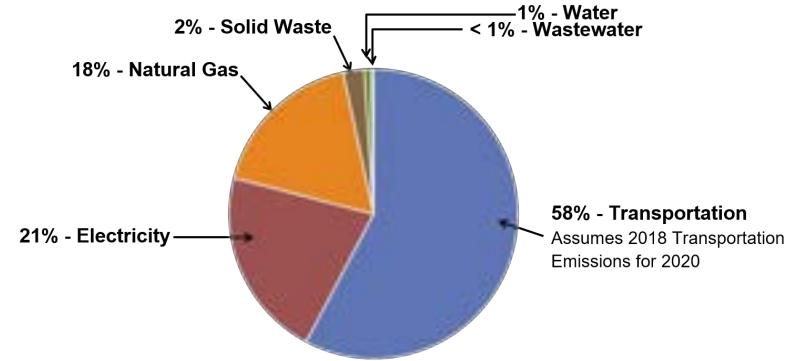
- San Diego County
- 60,000 residents
- 9 sq miles
- [Video](#)





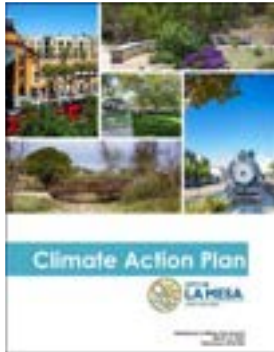
# La Mesa Climate Action Plan

- Adopted in 2018
- Implementation
- Key Players
- Currently being updated



■ On-Road Transportation ■ Electricity ■ Natural Gas ■ Solid Waste ■ Water ■ Wastewater

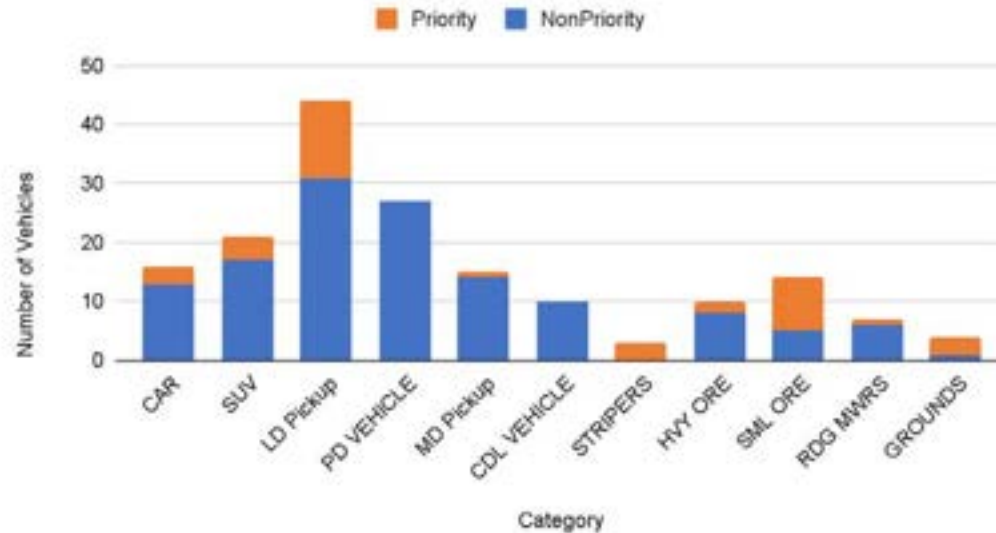
Source: La Mesa 2018 Climate Action Plan, SANDAG, Energy Policy Initiatives Center University of San Diego



# La Mesa Fleet Electrification Planning



Vehicle Count and Priority



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# CAP Transportation Measure Progress

- Measure T-5: Alternative Refueling Infrastructure Development
- 10 chargers installed at City Hall and 4 at Community Center
- Energy Program with ESCO to include EV charging infrastructure



# CAP Transportation Measure Progress

- Measure T-6: Municipal Fleet Transition
- Meetings with PW, Finance, and CAP staff
- First EVs added to fleet in Dec 2022



Door Decal

CLEAN ENERGY FLEET



Charging Port Decal



Bumper Decal

electric ⚡ LA MESA

electric ⚡ LA MESA



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# CAP Transportation Measure Challenges

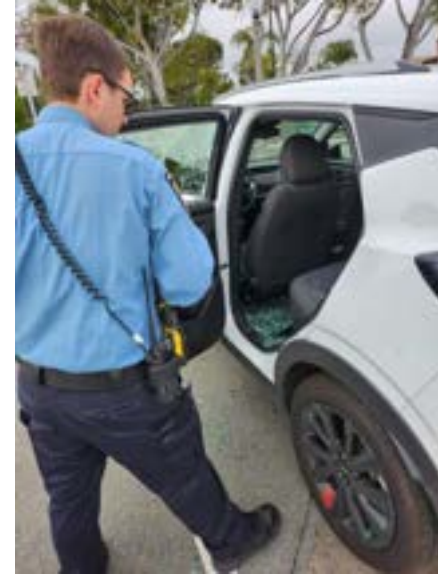
- Measure T-5: Alternative Refueling Infrastructure Development
- \$ Budget and Funding
- Staff capacity
- Vandalism



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# CAP Transportation Measure Challenges

- Measure T-6: Municipal Fleet Transition
- EV myth education
- Staff education
- Fleet replacement schedule
- Community education
- Vandalism





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# City of La Mesa Next Steps

- Fleet Replacement Schedule Analysis
- EV Master Plan (fleet & public charging)
- Municipal EV Infrastructure with ESCO
- EV Education with staff and community
- CivicSpark Fellow and College Corps Fellow projects
- CAP Update to be completed in early 2024





# Thank You!

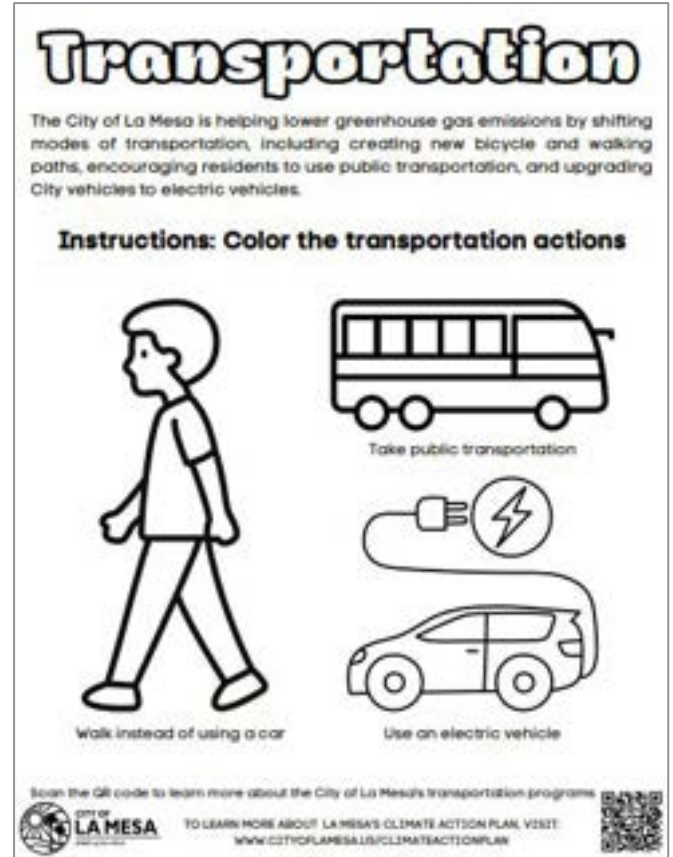
Hilary Ego

Environmental Program Manager

[hego@cityoflamesa.us](mailto:hego@cityoflamesa.us)

Check out our website for resources!

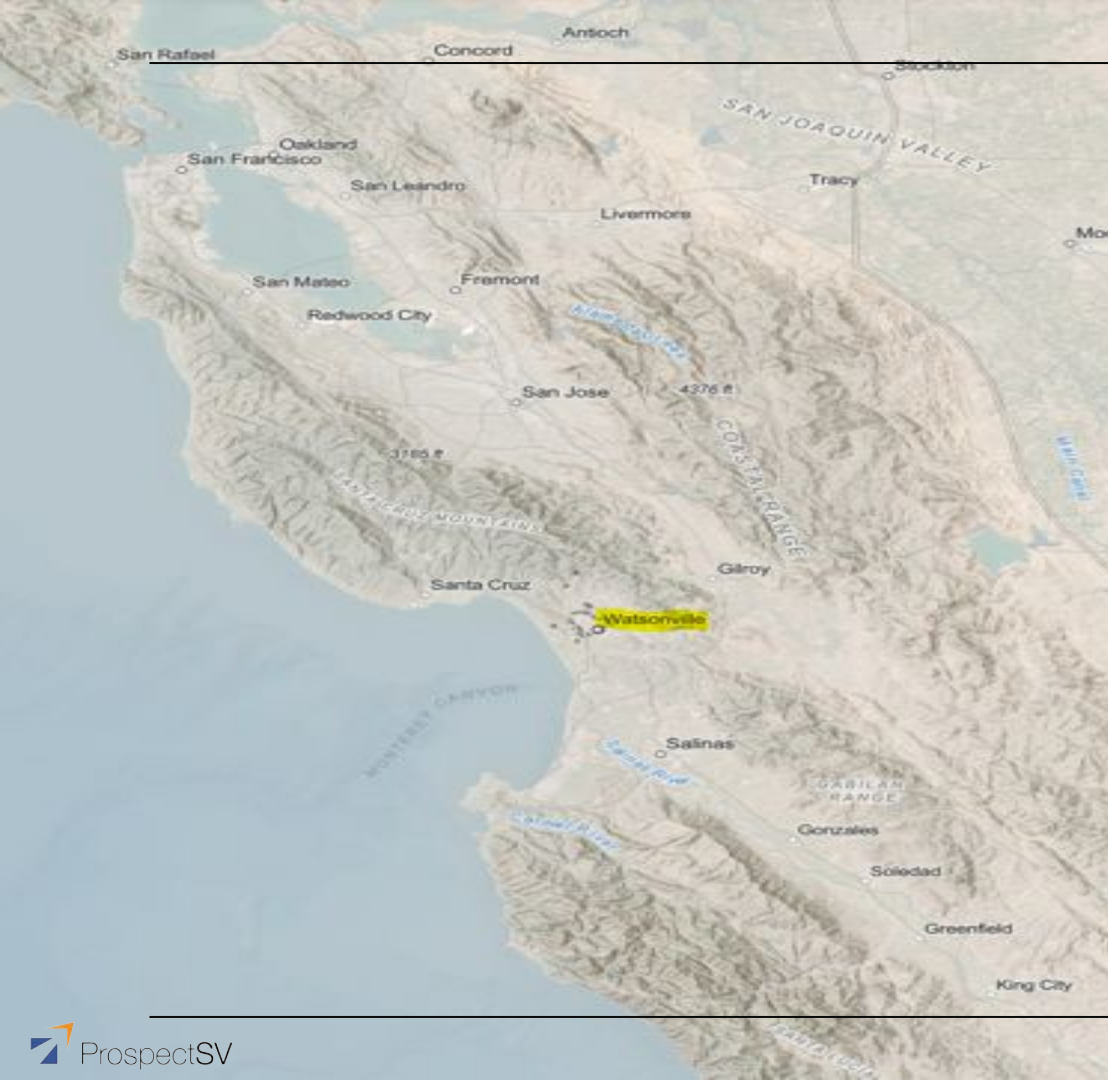
[www.cityoflamesa.us/climateactionplan](http://www.cityoflamesa.us/climateactionplan)



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# Discussion

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**Toto Vu-Duc**

Sr Environmental Projects Analyst  
[toto.vuduc@watsonville.gov](mailto:toto.vuduc@watsonville.gov)

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# What I'll cover in section

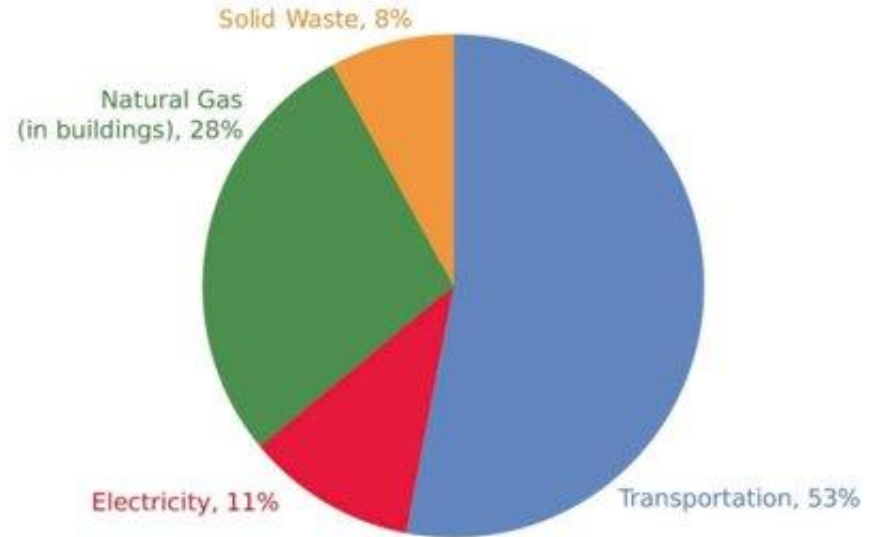


1. Watsonville Context
2. Fleet Electrification: Journey – OR – Burger?
3. Progress (Analysis –OR– "Buns")
4. Barriers & Challenges
5. Wins & Successes
6. Next Steps

# City of Watsonville



**Watsonville Emissions**





# Electrification Road

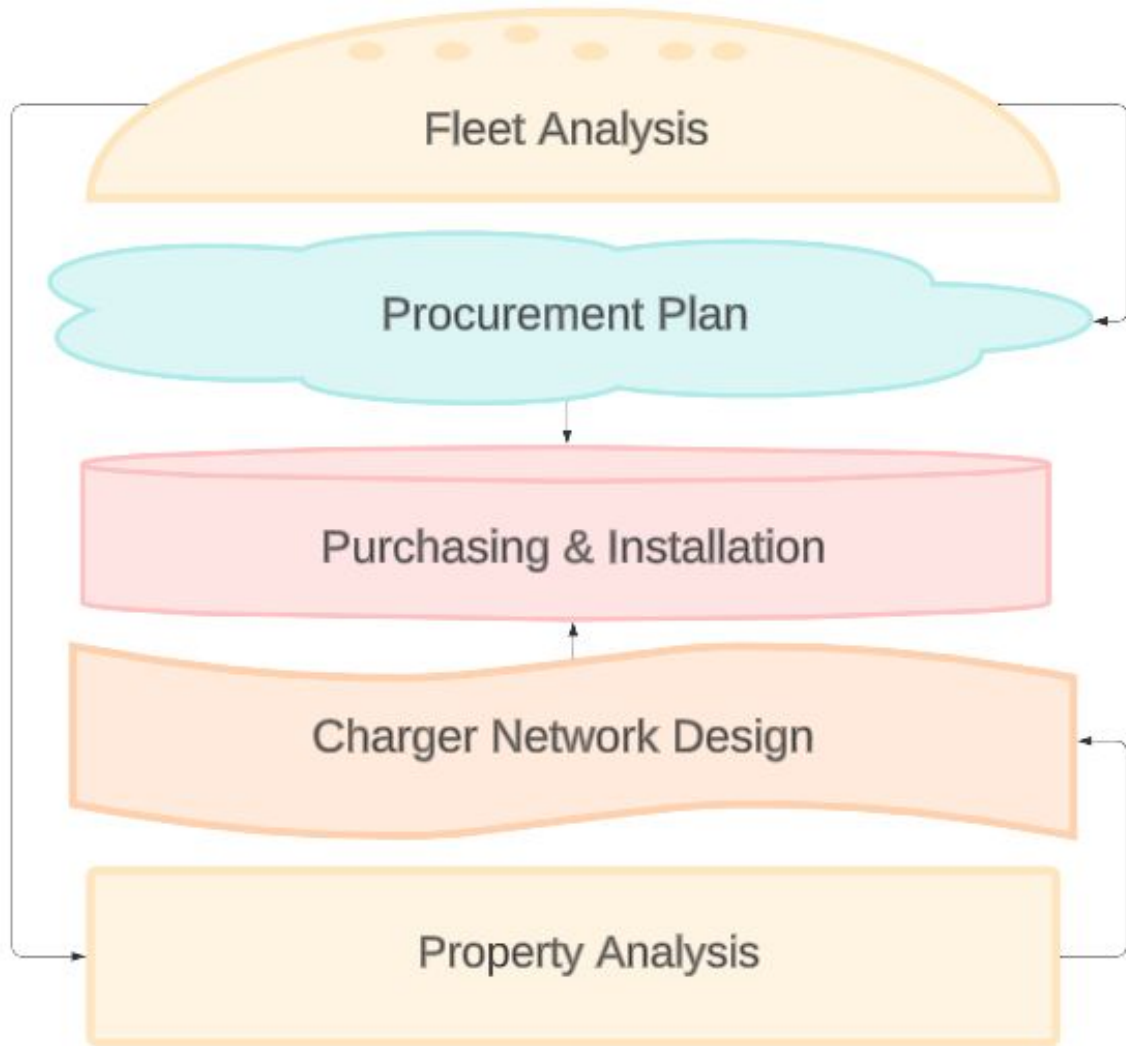


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# Electrification Ingredients

It's a sandwich, not a road!

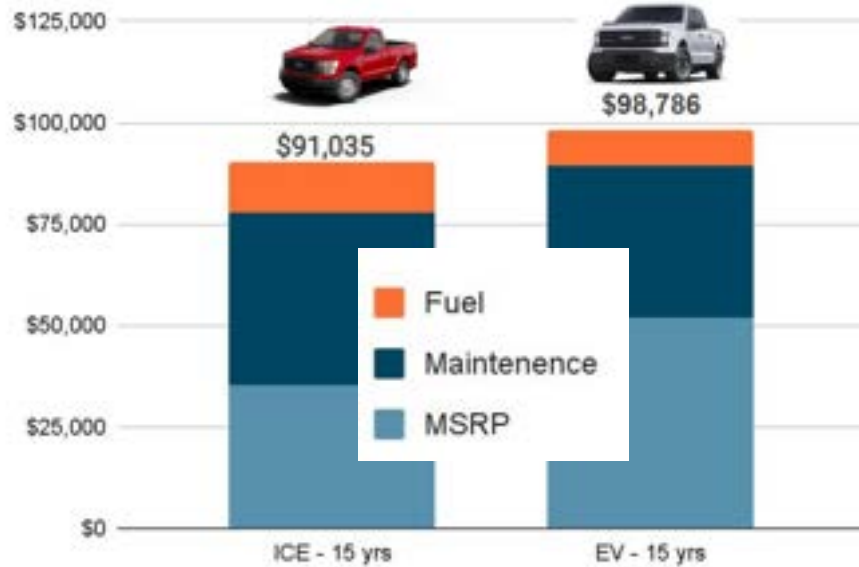
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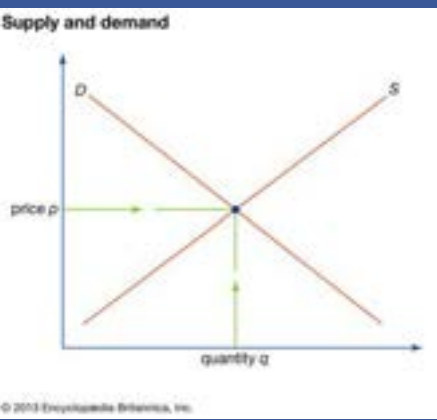




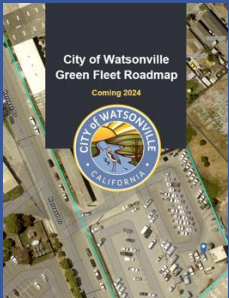
# Where we are: Analysis / “Buns”

Total Cost of Ownership Analysis





# Barriers & Challenges





# Wins & Successes



Central Coast  
Community  
Energy



3Cprime®

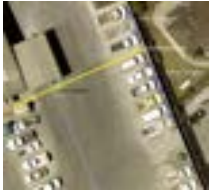


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# Next Steps



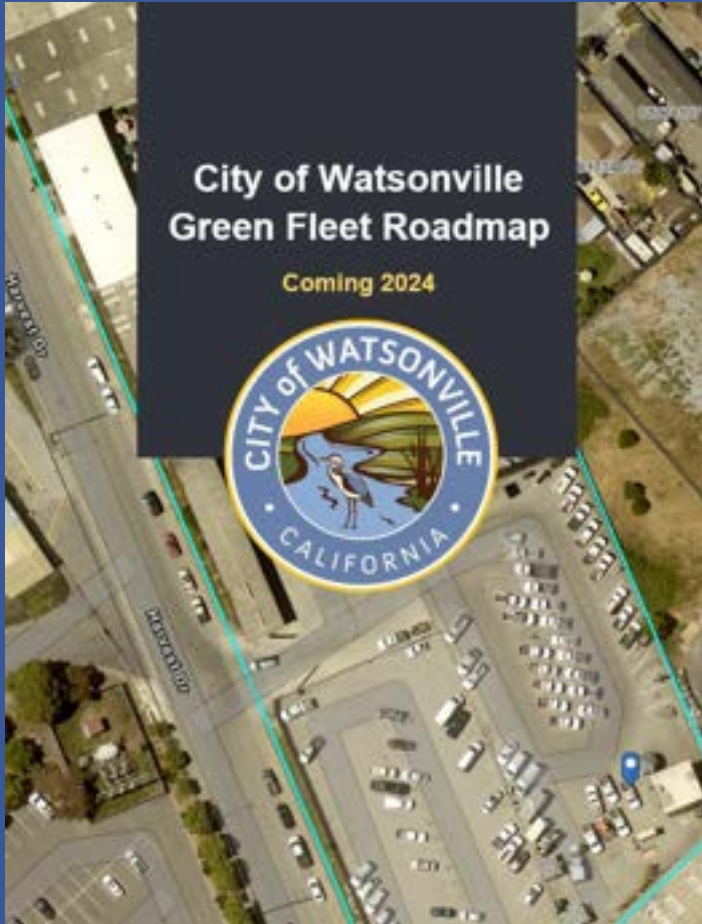
Charger Network Map\*



User Needs & Pilot Learnings



Budget Integration: Procurement



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# THANKS!

**Toto Vu-Duc**

Sr Environmental Projects Analyst, Public Works  
[toto.vuduc@watsonville.gov](mailto:toto.vuduc@watsonville.gov)

<https://www.cityofwatsonville.org/1764/Learn-About-Climate-Action-Plan>  
<https://cityofwatsonville.org/>



# Polling Questions

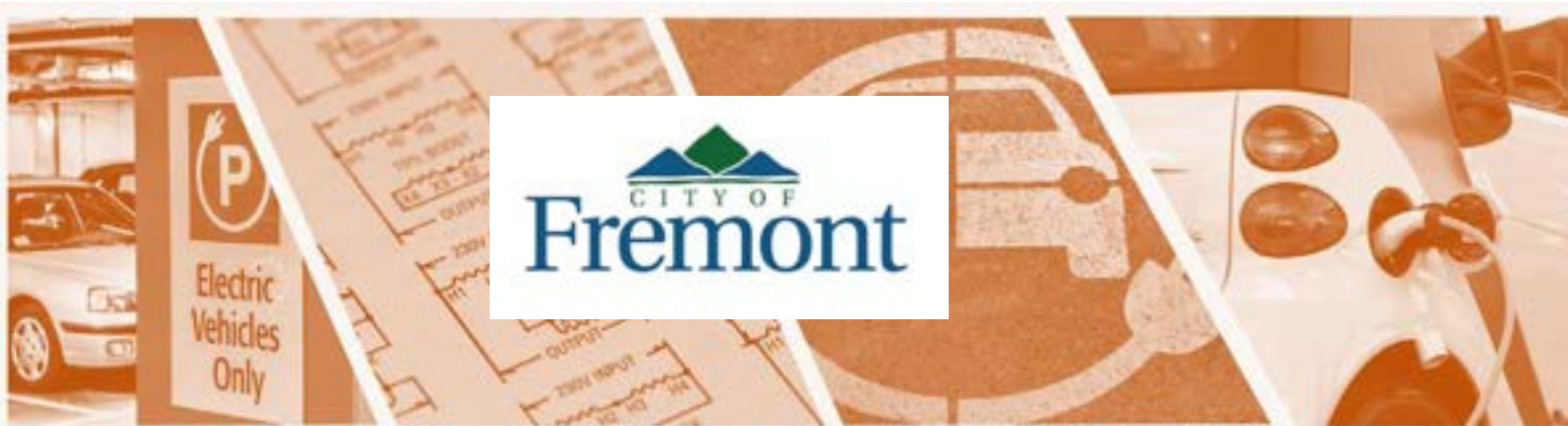
1. How many of you have agency-approved fleet electrification goals?
  1. Are you confident you'll reach those goals?
  2. Is your goal fully electric?
  3. Does your goal allow for hydrogen fuel?
2. Does your agency have a sustainable procurement policy?
  1. Does it apply to vehicle purchasing?
3. Has anyone purchased EVs?
4. Installed Chargers?
5. Planning this year?
6. Are you familiar with the Sourcewell local government purchasing collaborative?

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# Discussion

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# City of Fremont Municipal Fleet Electrification Study

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# BACKGROUND

Funded through the Bay Area Air Quality Management District Climate Protection Grant program (\$245K)

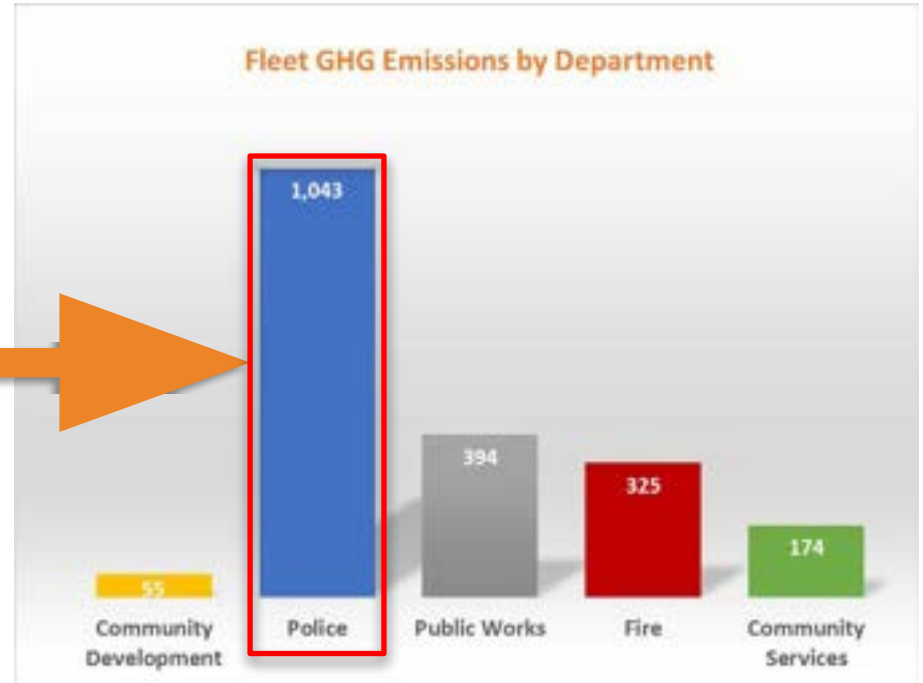
Purpose: To help the City of Fremont think strategically about ways to achieve robust decarbonization across fleet and facilities, develop free tools & share conclusions and best practices with the region

Supports Air District goals of reducing air pollution and the impacts of climate change

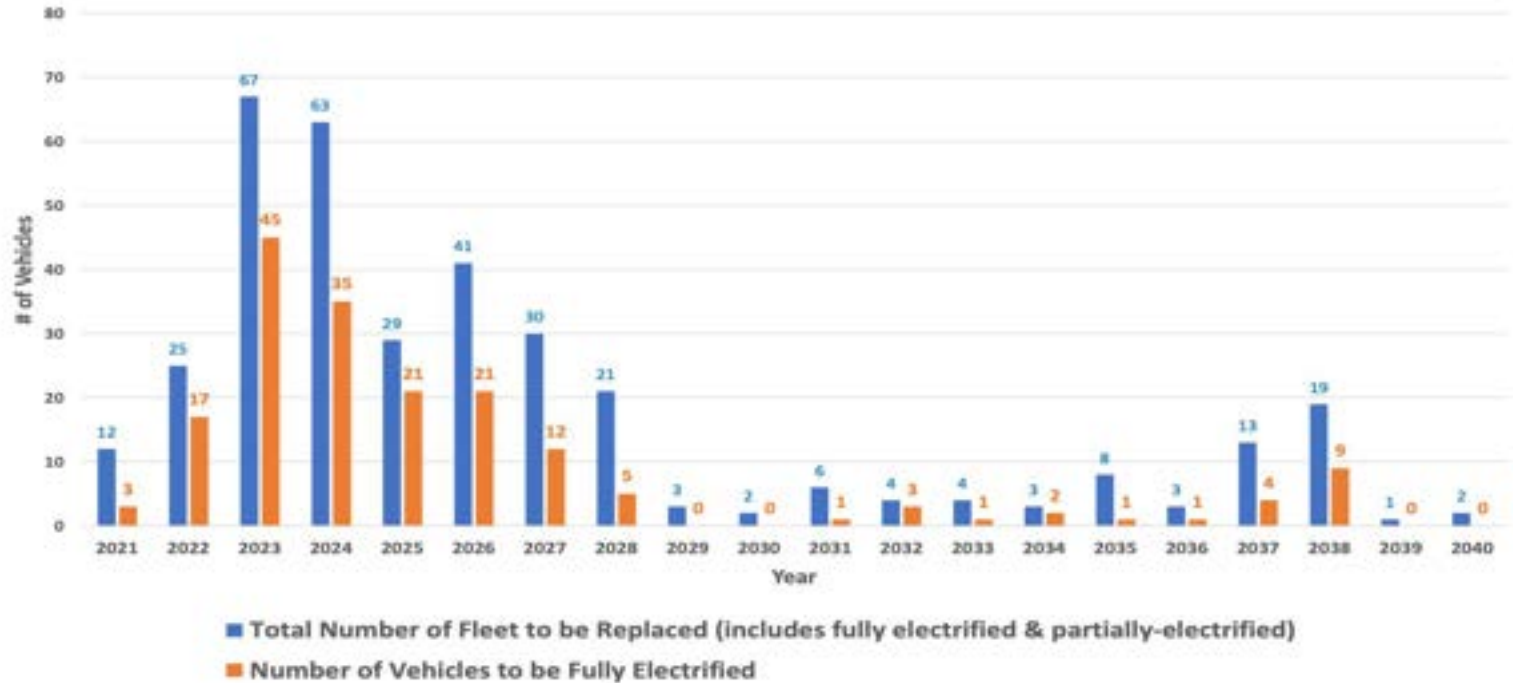


BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT

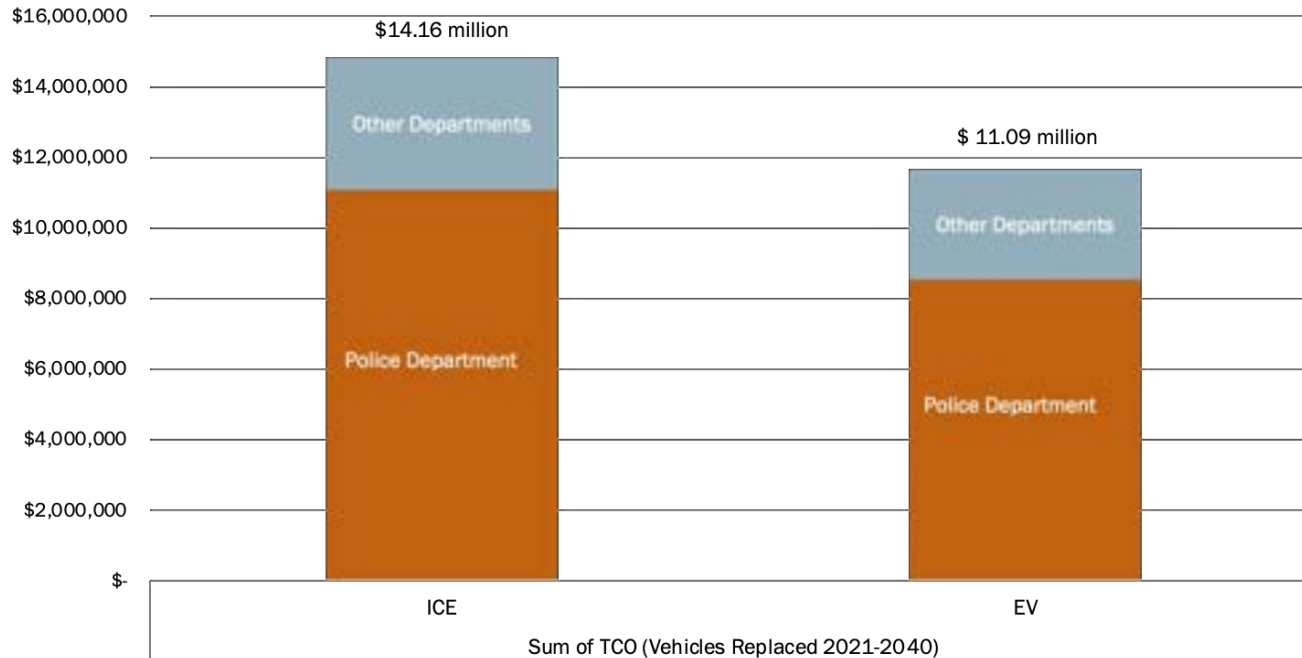
# ENVIRONMENTAL IMPACT OF CITY FLEET VEHICLES



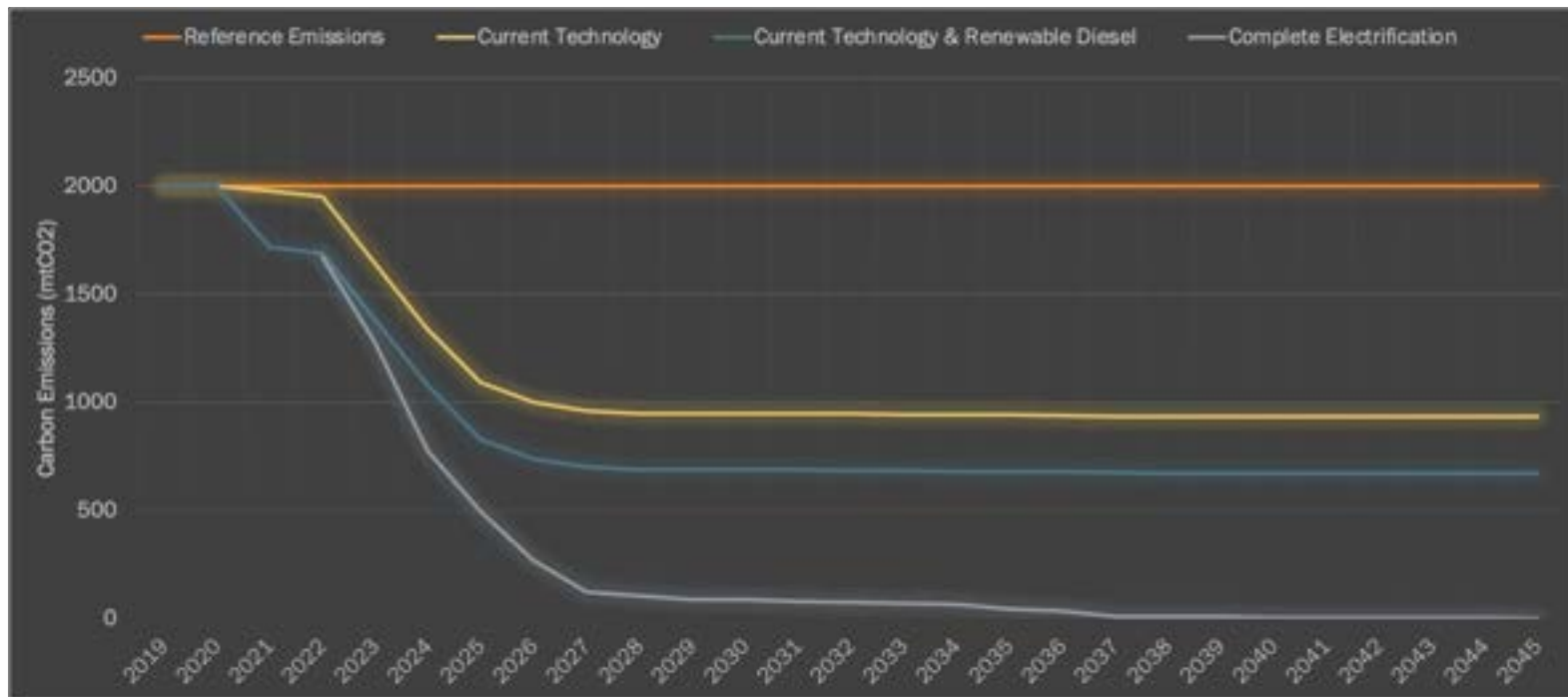
# VEHICLE REPLACEMENT TIMELINE (ENTIRE STUDIED FLEET)



# TOTAL COST OF VEHICLE OWNERSHIP (2021 – 2040)

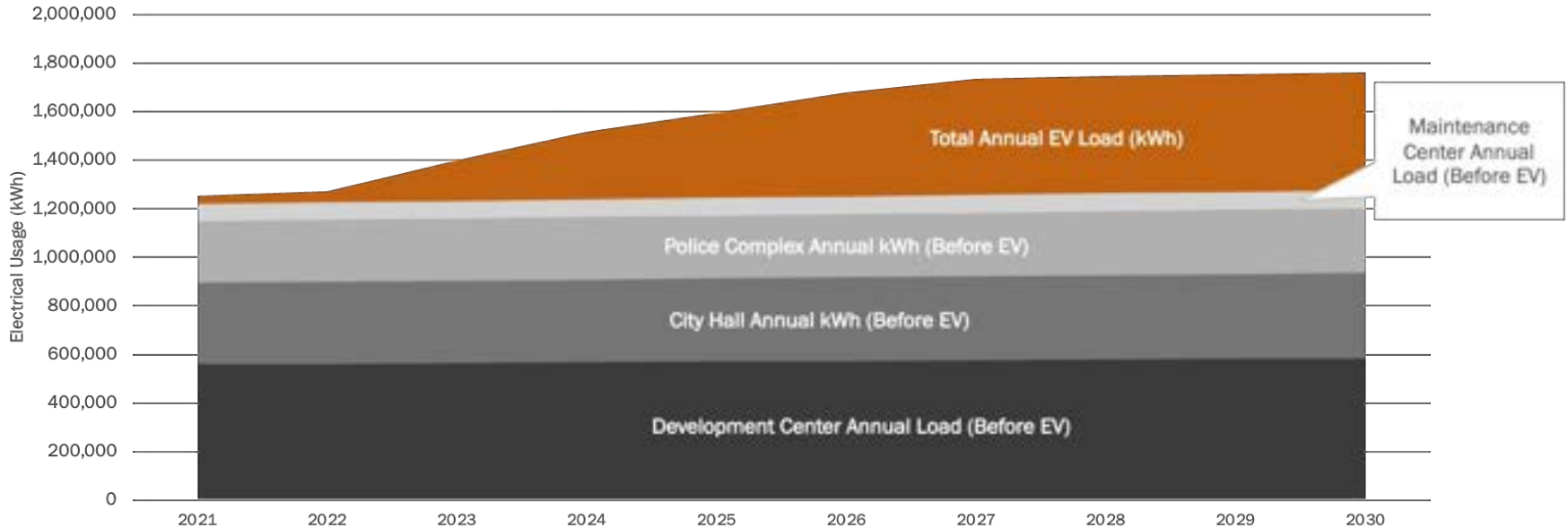


# POTENTIAL GHG EMISSIONS REDUCTIONS



# PROJECTED ELECTRICAL LOAD GROWTH FROM EVS

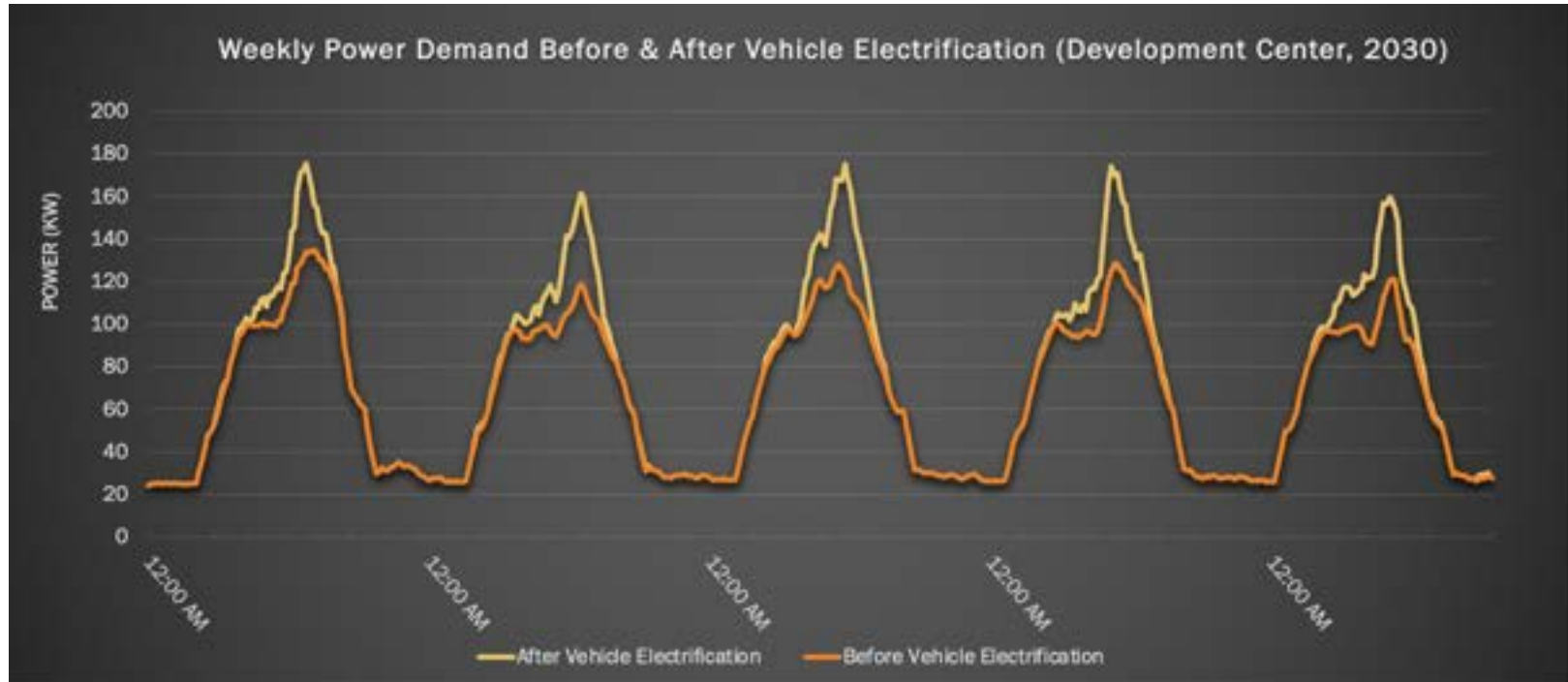
Cumulative Vehicle Electrification & Annual Electricity Load



Expected electrification results in a 38% load growth through 2030 at priority facilities



# IMPACT OF VEHICLE ELECTRIFICATION ON LOAD PROFILE



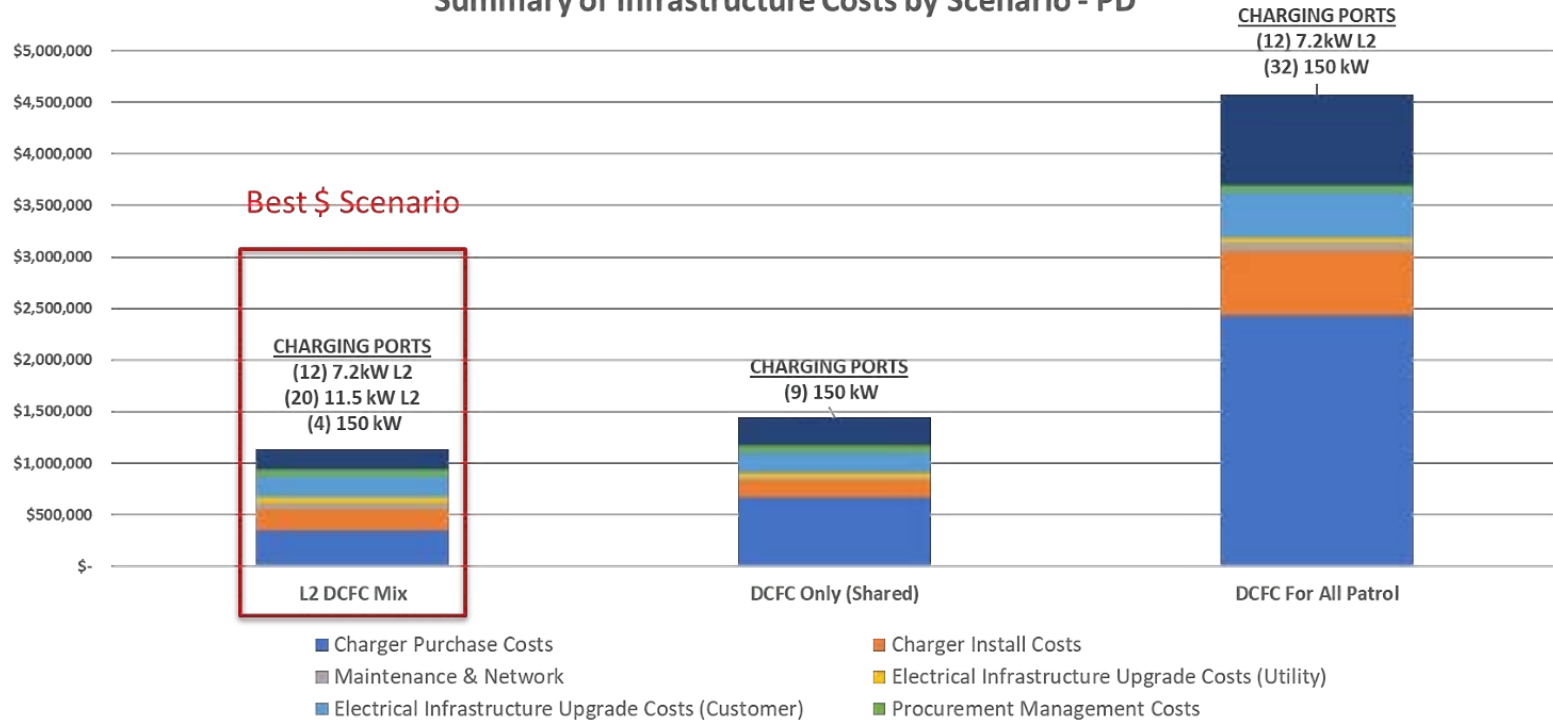
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# FLEET CHARGING SCENARIOS

- **Rotational Charging (with PHEVs):** charging occurs during same 8-hour period overnight; high number of PHEVs included
  - **Unmanaged Charging:** charging determined only by vehicle duty cycles – e.g. charging begins when vehicles return to facility
  - **Managed Charging:** charging actively managed by software to enable charging during low-cost times (avoidance of TOU / peak demand charges when feasible)
-

# EV INFRASTRUCTURE NEEDS (POLICE FACILITY)

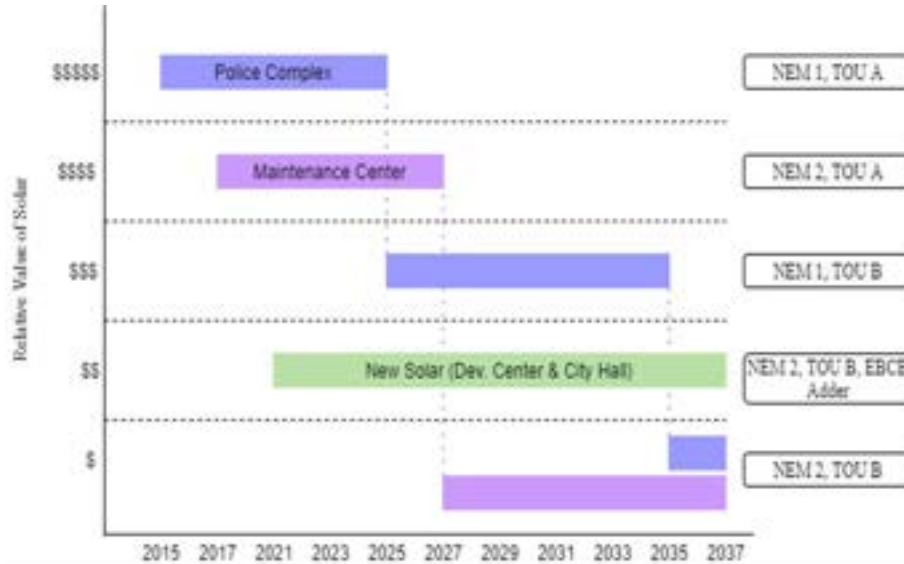
Summary of Infrastructure Costs by Scenario - PD



*Note: Public Works engineering costs & procurement management costs NOT included.*

# ONSITE SOLAR + EV CHARGING INFRASTRUCTURE

Onsite Solar PV Systems

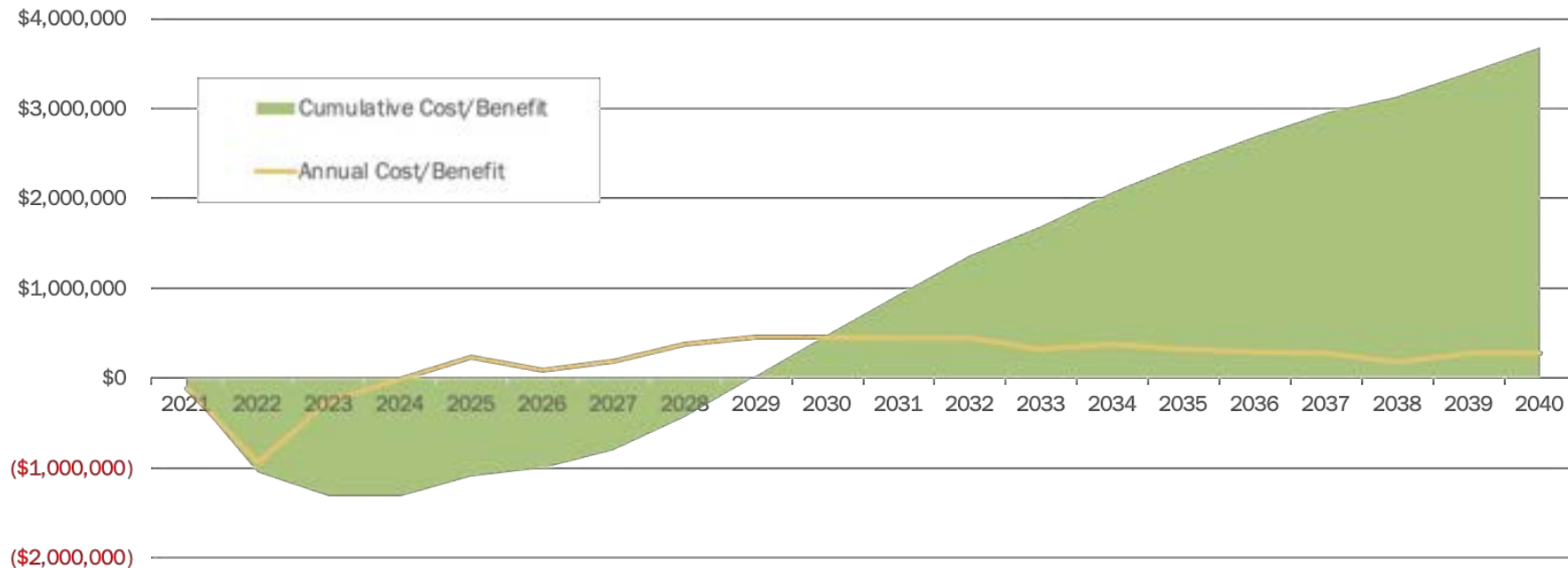


**Levelized Cost of Charging:** Total cost of serving EV load (\$) divided by the total load served (kWh)

Facility	Best Charging Strategy	10-year LCOC (\$/kWh)
Police Complex	<b>Metering:</b> Building meter <b>DER:</b> Existing, do not install more <b>Charge Management:</b> Managed	\$0.173
Maintenance Center	<b>Metering:</b> Building meter <b>DER:</b> Existing, do not install more <b>Charge Management:</b> Managed	\$0.168
City Hall	<b>Metering:</b> Separately metered EV charging <b>DER:</b> Install solar <b>Charge Management:</b> Managed	\$0.22
Development Center	<b>Metering:</b> Separately metered EV charging <b>DER:</b> Install solar <b>Charge Management:</b> Managed	\$0.182

# SIMPLE PAYBACK OF FLEET ELECTRIFICATION

Fleet Electrification Cash Flows - Police Complex



*Assumes electrification of all pick-up trucks. Does not include savings from existing solar. Assumes solar PPA. Includes procurement soft costs but does not include Public Works engineering costs.*

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# KEY FINDINGS

- **~1/3 of City's fleet** can be replaced with EVs available at time of study, resulting in **~\$3 million in savings** during vehicle lifetime
  - The City can achieve a **54% reduction in fleet emissions by 2030**
  - **Capital investment in EV charging infrastructure** is necessary for robust fleet electrification and requires electric service upgrades
  - **Cost of charging is dependent on many factors**, including charging times, charger types, existing/future onsite PV, utility rate structures, load management strategies, etc.
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# NEXT STEPS FOR THE CITY OF FREMONT

Incorporate EV suitability analysis into vehicle replacement schedule

Include EV infrastructure in Capital Improvement Program  
*(\$5M in 2023/24 CIP)*

Consider emerging technologies as part of infrastructure build-out (ProspectSV open call for battery-backed/boosted EV charging )





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## RESOURCE: <https://EVFleet.tools>

1. Municipal Fleet Electrification Planning Tool
2. Facilities Assessment Tool
3. Best Practices Guide
4. Resources on:
  - “EV First” Purchasing Policies
  - Telematics
  - Licensed EV Identification tools
  - EV Procurement
  - Smart & Managed Charging



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# Discussion

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**Q & A**

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# THANKS!

## **Contact Information**

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