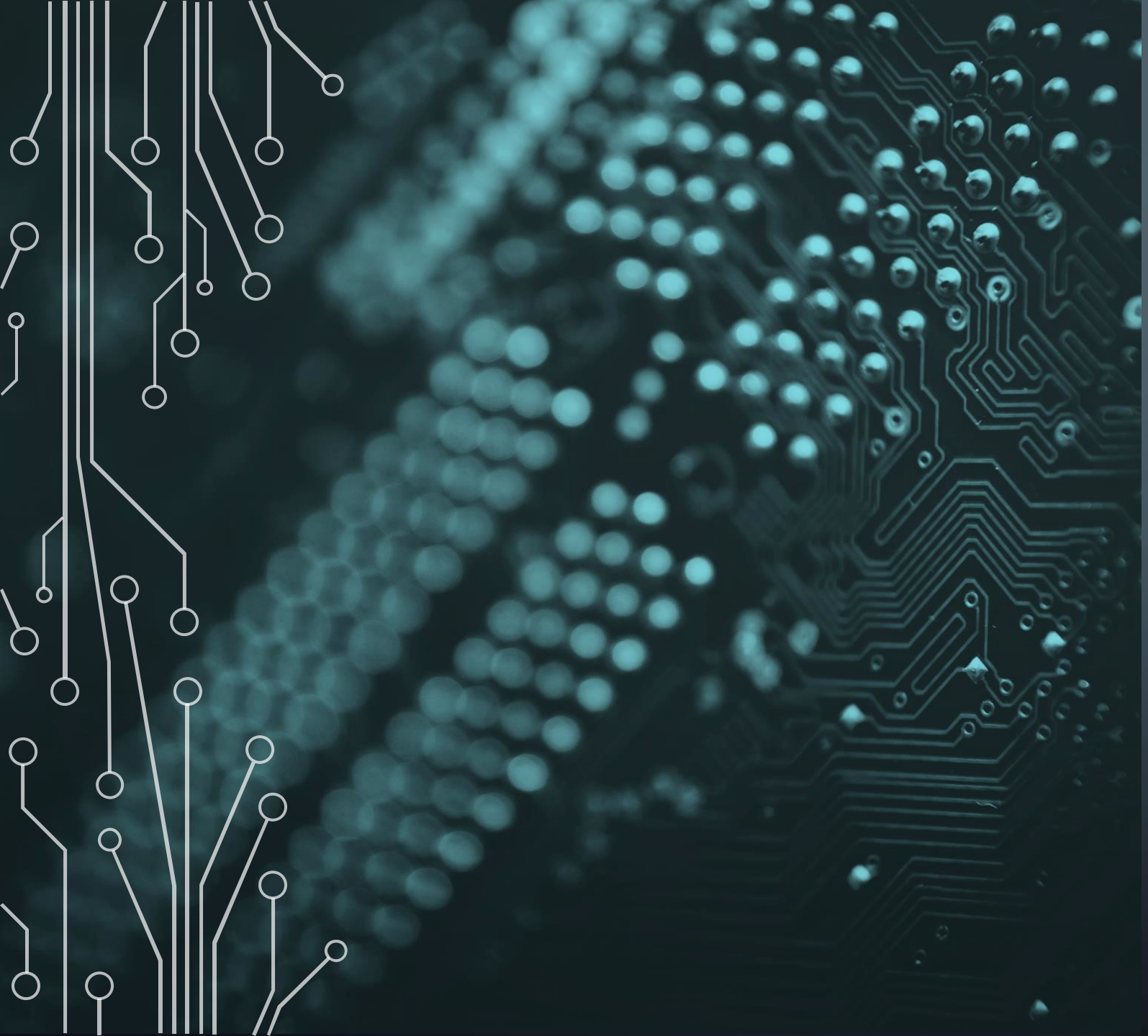
STRATEGY FOR ELECTRIC VEHICLE TRANSITION

GSA FLEET SERVICES

CHRISTOPHER MELTON, DEPUTY DIRECTOR

Exhibit 2



FOCUS AREAS

- Fleet Analysis
- Infrastructure
- Cost/Benefit
- Transition Plan

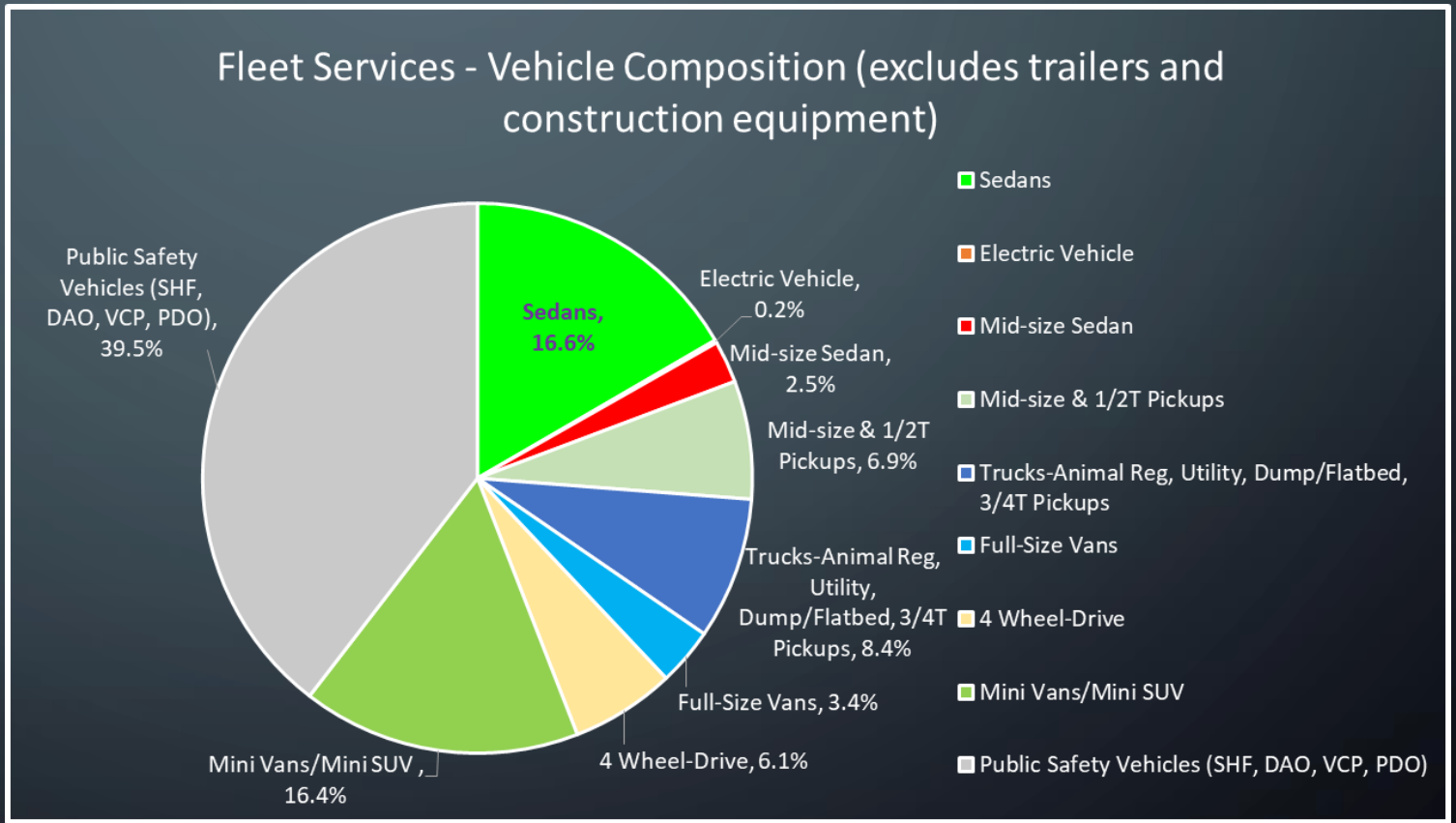
STATE GOALS AND COUNTY POLICY

- State Goals and Mandates
  - GHG Reductions
  - Petroleum Reduction
  - Zero Emissions Vehicle (ZEV) Mandates
- County Policies
  - Alternative Fuel Vehicles
  - Cost Effective
  - Total Cost of Ownership (TCO)

FLEET ANALYSIS

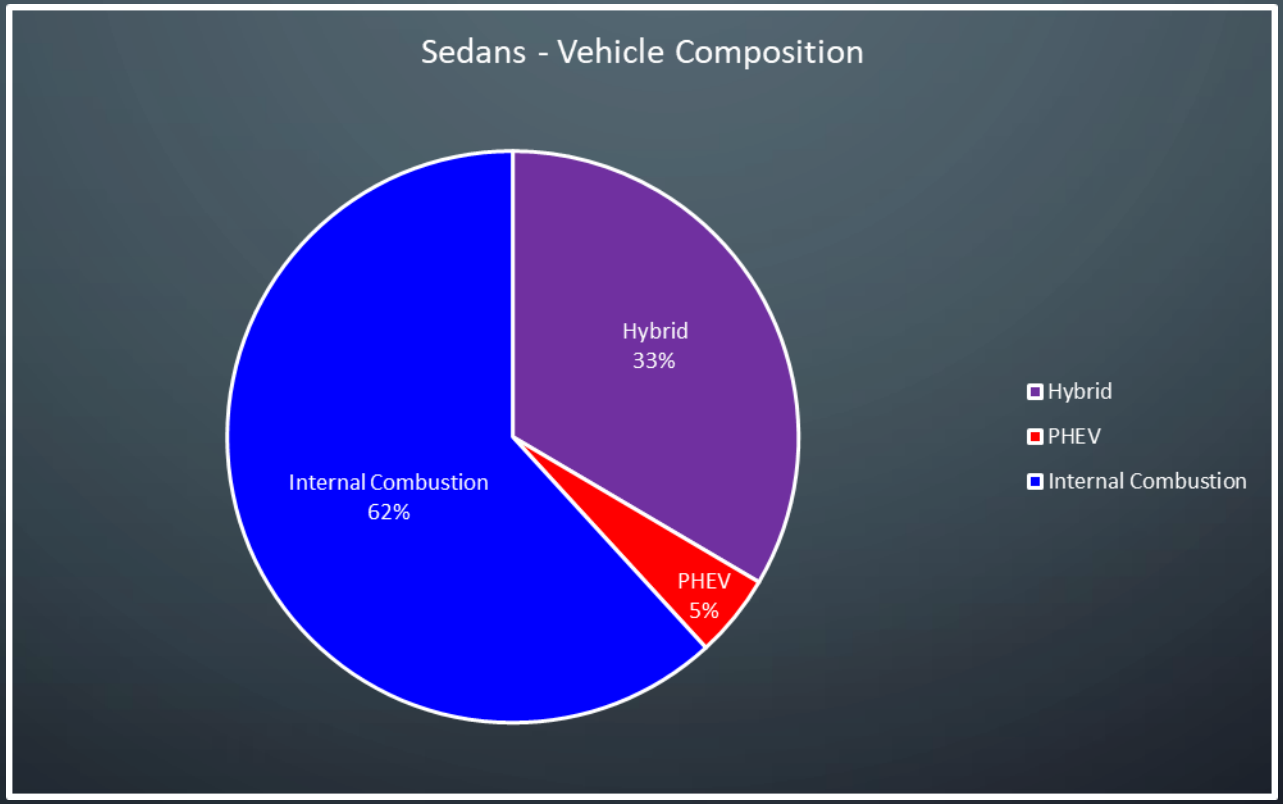
- Light-Duty Vehicles

DESCRIPTION	COUNT	%
Sedans	201	16.6%
Electric Vehicle	2	0.2%
Mid-size Sedan	30	2.5%
Mid-size & 1/2T Pickups	84	6.9%
Trucks-Animal Reg., Utility, Dump/Flatbed, 3/4T Pickups	101	8.4%
Full-Size Vans	41	3.4%
4 Wheel-Drive	74	6.1%
Mini Vans/Mini SUV	198	16.4%
Public Safety Vehicles (SHF, DAO, VCP, PDO)	478	39.5%
TOTALS	**1209**	**100.0%**



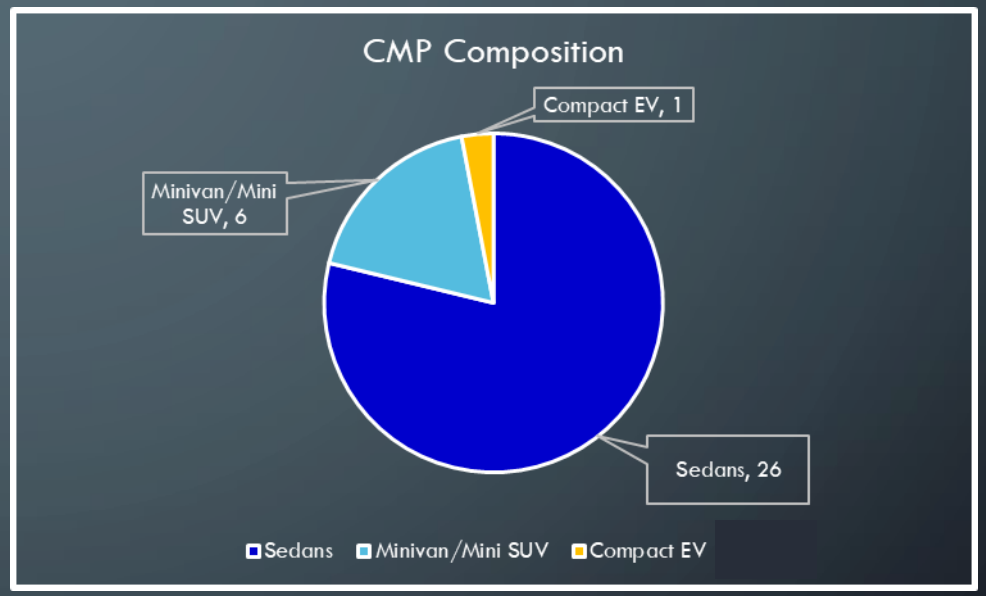
FLEET ANALYSIS (CONT'D)

- Sedans



EV SELECTION CRITERIA

- High Utilization
- Density of Demand
- Captivity of Demand
- Market Available EVs to Meet Mission



Utilization and Cost per Mile - Motor Pool	Average Utilization %	Vehicle Count	% of Vehicles	CAP Cost per Mile	TOTAL Cost per Mile
CMP	72.2%	33	49%	$ 0.21	**$ 0.40**
RMP	63.0%	34	51%	$ 0.25	**$ 0.57**
Overall Motor Pool	**67.6%**	67			

EV SELECTION CRITERIA (CONT'D)

EV Attributes by Type: Countywide	Sedans	Minivans/Mini SUVs
Utilization (60%+)	NO	NO
Density of Demand	NO	YES
Captivity of Demand	YES	NO
Market Available EV Options	YES	NO
EV Attributes by Type: CMP	**Sedans**	**Minivans/Mini SUVs**
Utilization (60%+)	YES	YES
Density of Demand	YES	YES
Captivity of Demand	YES	NO
Market Available EV Options	YES	NO

VEHICLE SELECTION – CHEVROLET BOLT

Model (200 mile range minimum)	Est. MPG(e)	Estimated Range	Acquisition Cost*
2019 Ford Focus SE (Internal combustion) NJPA	31	558	$22,804
2019 Nissan Leaf EV (62kw) NJPA	108	226	$36,550
2019 Hyundai Kona EV NJPA	120	258	$36,950
2019 Chevrolet Bolt EV (State Contract)	**119**	**238**	**$34,933**
2019 Kia Niro EV MSRP	112	239	$38,500

*2019 prices are exclusive of any potential rebates, manufacturers' incentives, or tax credits, but include applicable sales tax.

- GM Certified Repair Facility
  - In-house repairs
  - Access to repair libraries and vehicle-specific tools
- State Contract Pricing
  - $2,999 discount over NJPA

INFRASTRUCTURE

- Adding 7 dual-port charging stations for 14 new CMP EVs
  - GSA Fleet requires 1:1 ratio (plugs to cars) for charging capacity
  - Substantial infrastructure required
- GSA F&M estimate for infrastructure installation
  - **$418,000** design, permits, materials, labor, chargers, installation
- SCE Charge Ready Program
  - **$327,000** design, permits, materials and labor infrastructure costs
  - $83,668 new chargers and installation paid by County, after $7,332 SCE rebate

COST/BENEFIT ASSESSMENT

- Reduced Fossil Fuel Usage

CMP Vehicles to be Replaced with EVs	
Average annual miles per CMP Sedan	9,444
Avg. MPG per CMP Sedan	28
Avg. gallons of Gasoline per CMP Sedan	**337**
Est. Gasoline Price per Gallon (PPG)	$3.29
Est. Annual Gasoline Costs per Vehicle	$1,110
Est. Annual Electricity Costs per Vehicle	$357
Est. Annual Fuel Savings per Vehicle*	**$753**

- $1,110 @ 14 EVs = **$15,540** annual gasoline savings
- $357 @ 14 EVs = **$4,998** estimated annual electricity costs
- **$10,542** annual fuel savings

COST / BENEFIT ASSESSMENT (CONT'D)

- Reduction in GHG Emissions

Compact Sedan Fuel Economy Estimates	Fuel Economy	Annual Average CMP Sedan Miles	Est. CO_2 Annual Emissions (lbs./vehicle)
Internal Combustion	28 mpg	9,444	8,536
Zero Emission EV (MPGe)	118 mpg(e)	9,444	0
		CO_2 Reductions (per vehicle):	(-8,536)

- 8,536 lbs. CO_2 @ 14 EVs = 119,504 lbs. decrease in annual CO_2 emissions
- 119,504 lbs. = ***54 metric tons*** decrease in annual CO_2 emissions

COST/BENEFIT ASSESSMENT (CONT'D)

- Cost Considerations
  - Reduction in Maintenance Costs @ 37% reduction factor*

GSA Fleet Internal Combustion O&M Costs - Actuals	Compact Sedans
3-Year Average Annual O&M	$1,083

Industry Average Estimated O&M Costs	Compact Sedans
Average Estimated Annual O&M per Vehicle	$682

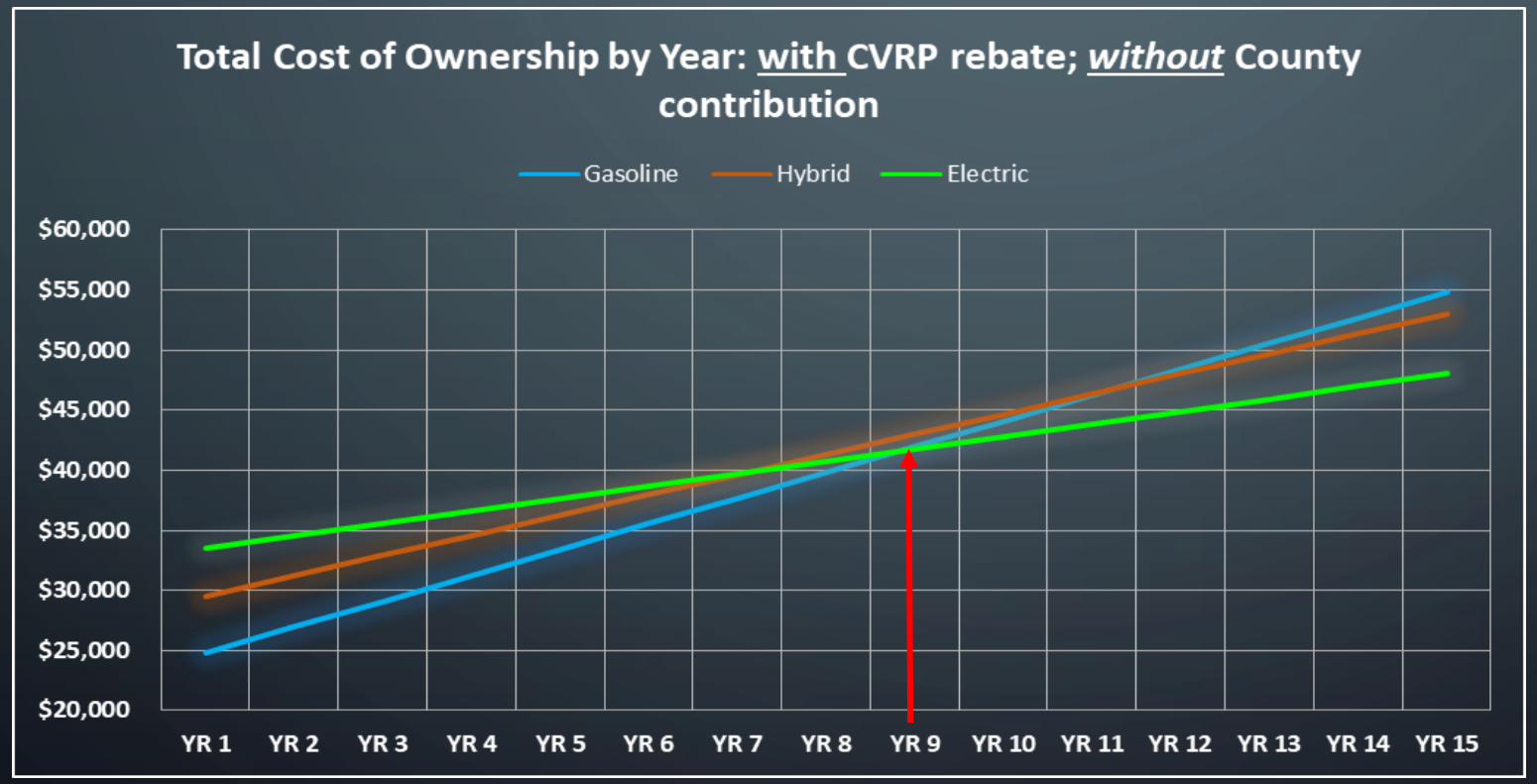
Estimated O&M Cost Savings with EVs	Compact Sedans
Average Estimated O&M savings per vehicles	**$401**

- $401 @ 14 EVs = $5,614 annual savings

- *EV maintenance costs derived from the following: Electric Power Research Institute (EPRI), 2013; University of Michigan's Transportation Research Institute, 2018; InsideEVs "*CAP HPI EV Servicing Costs Report*", 2018; GSA Fleet Services 3 year average actual EV costs.

EV BREAK EVEN POINT

- Total Cost of Ownership (TCO); <u>without</u> County Contribution

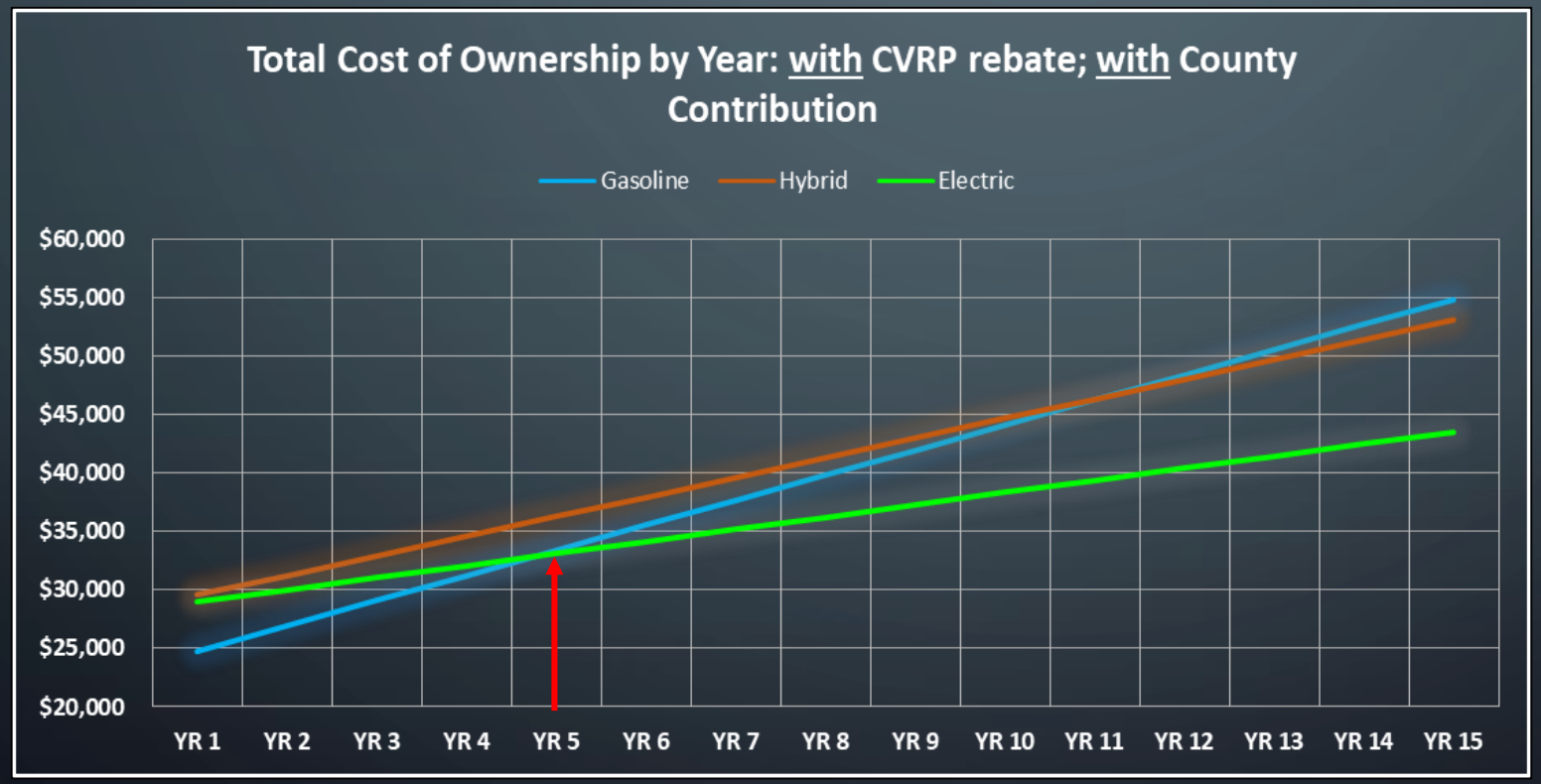


Inputs	
CVRP Rebate	$ (2,500)
Contribution	$0
Fuel Cost	$ 2.77/gallon
Electricity Cost	$0.15/kWh
Est. Maintenance Savings (EV)	$401/EV
Miles per Year	9,444

- Does not include end-of-life cost analysis
- EVs have significantly reduced resale value compared to equivalent internal combustion vehicles

EV BREAK EVEN POINT

- Total Cost of Ownership (TCO); with County Contribution



Inputs	
CVRP Rebate	$ (2,500)
Contribution	$(4,500)
Fuel Cost	$ 2.77/gallon
Electricity Cost	$0.15/kWh
Est. Maintenance Savings (EV)	$401/EV
Miles per Year	9,444

- Does not include end-of-life cost analysis
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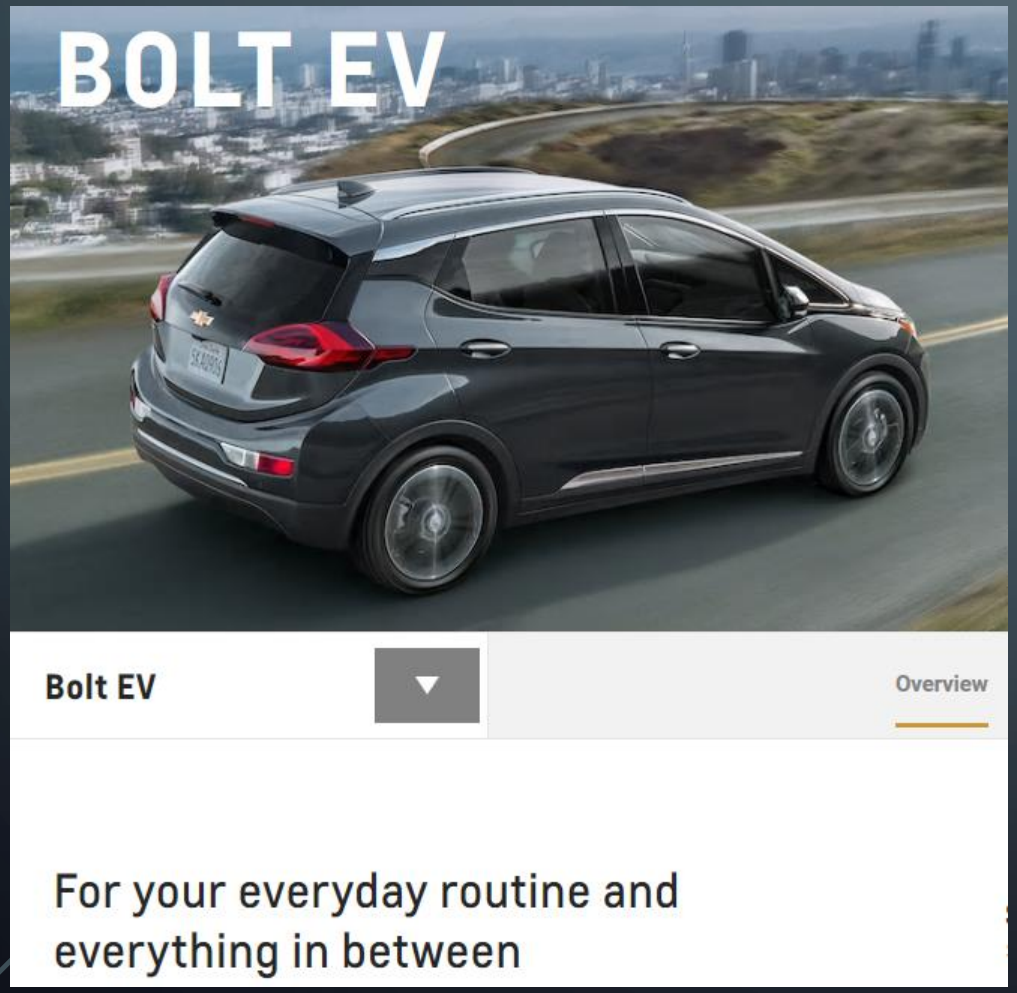
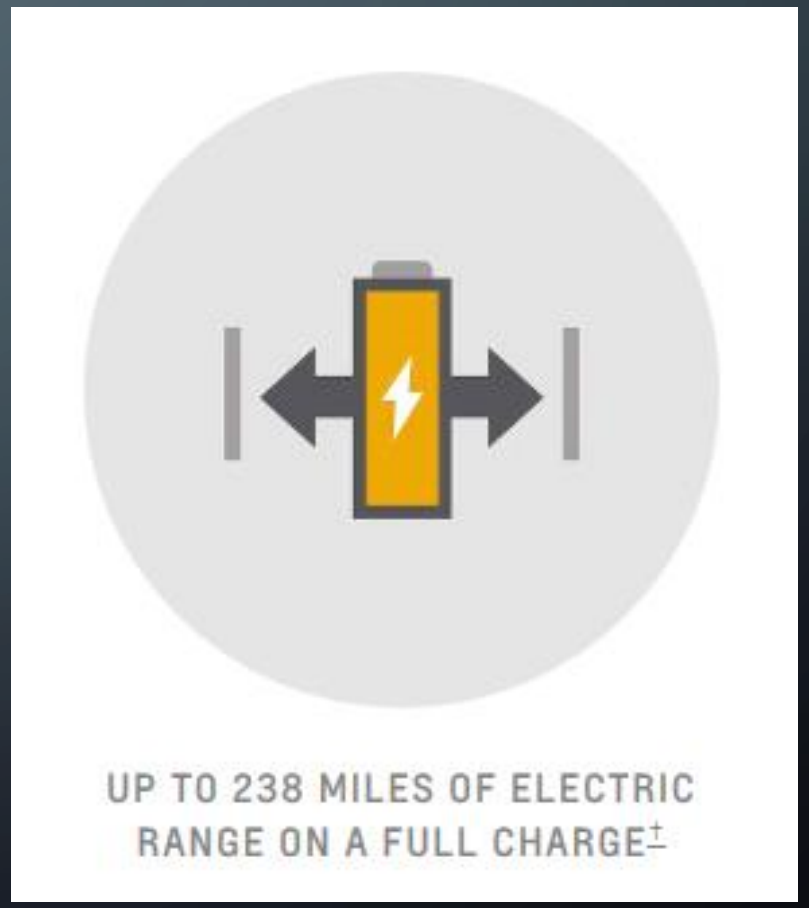
DRIVER/BEHAVIOR CONSIDERATIONS

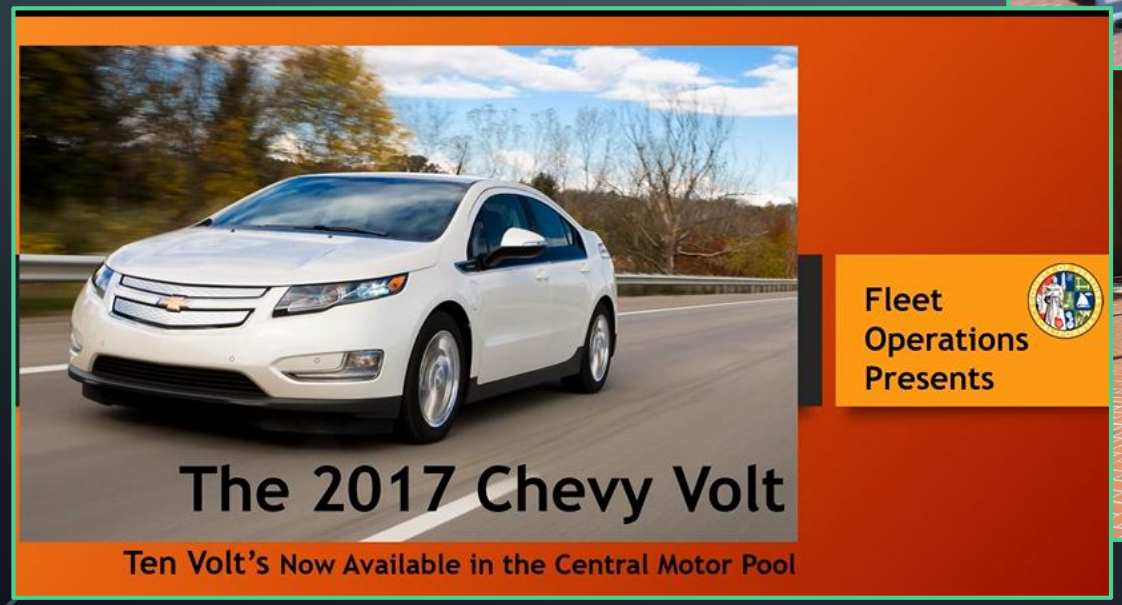


- Range Anxiety



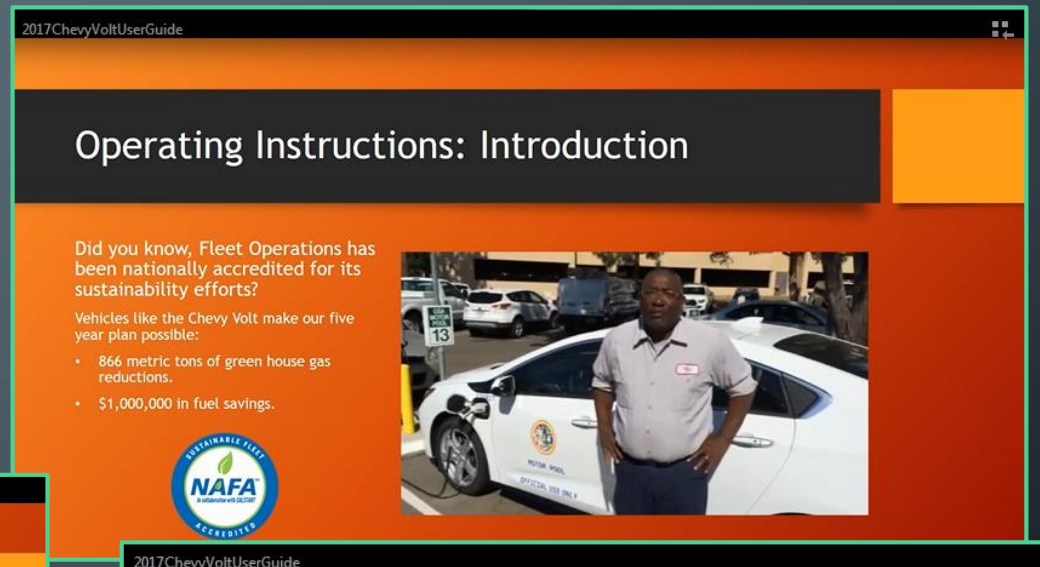
DRIVER/BEHAVIOR CONSIDERATIONS

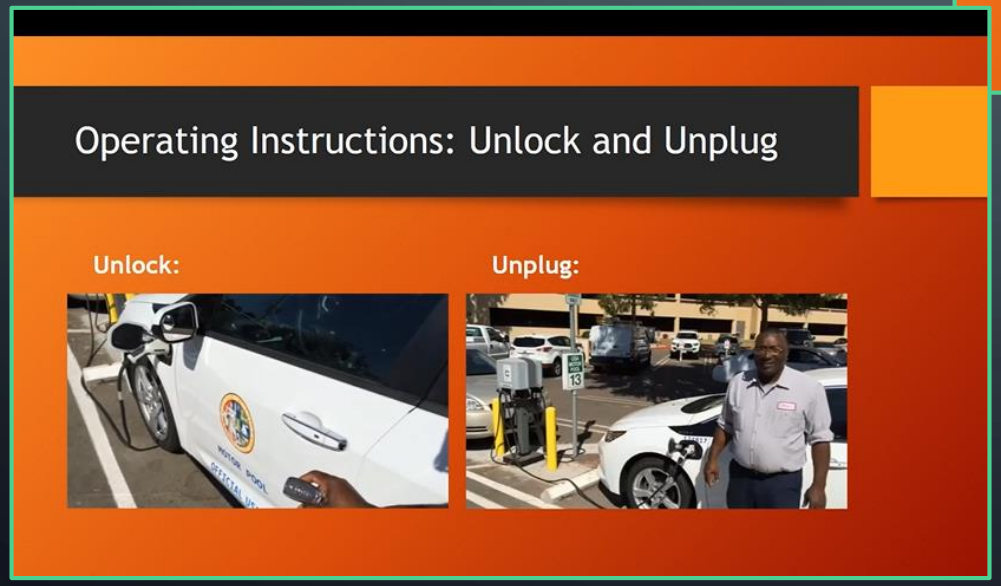
- Driver Unfamiliarity
  - Introduction of new vehicles available in CMP
  - Promote trials, use, and education



DRIVER/BEHAVIOR CONSIDERATIONS (CONT'D)

Fleet Services will continue to offer online training and tutorials in the selection and use of all EV & PHEV vehicles



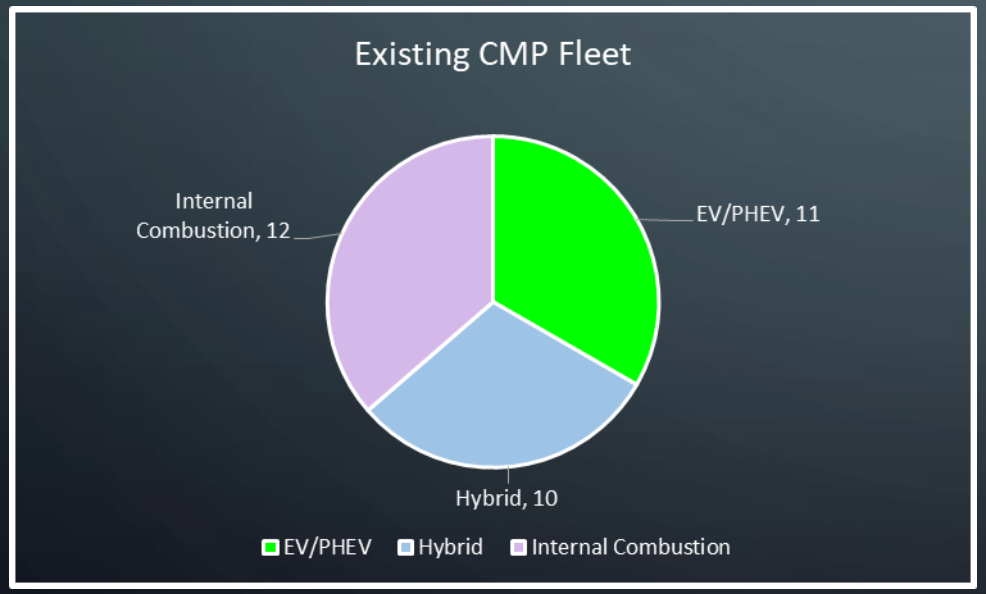


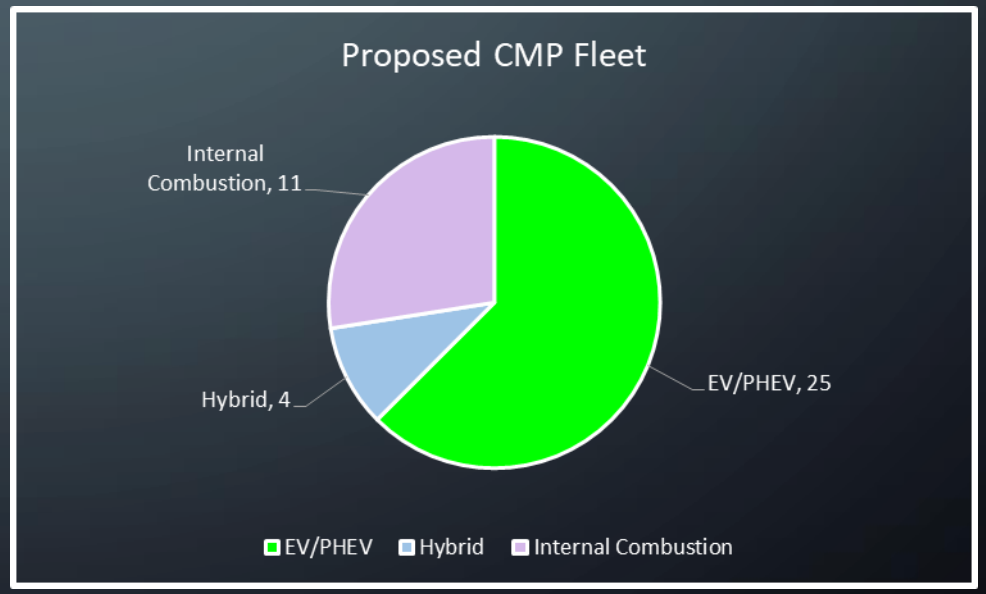
TECHNICIAN TRAINING

- GM Certified Repair Facility
  - In-house repairs
  - Access to vehicle repair libraries and vehicle-specific tools
- Tools and Training
  - Additional tool purchases estimated to cost ~$11,000
  - Additional training estimated to cost ~$24,500-$35,000
    - Cost sharing opportunities with neighboring fleets by conducting joint training sessions.
  - These costs will be absorbed in the GSA Fleet Services O&M budget

TRANSITION

- Targeted, Measured and Phased approach
- Central Motor Pool is first step in EV transition strategy





TRANSITION (CONT'D)

- Future Phases
  - Remote Motor Pools
  - Light-Duty Truck Fleet
  - County Agency Assigned Vehicles
  - Emerging Technology

CONCLUSION

- <u>Fleet Analysis</u>:
  - CMP is ideal for electrification
  - Infrastructure:
    - CMP has existing infrastructure and opportunity to expand
  - Opportunities
    - SCE *Charge Ready Program*
    - State of CA *Clean Vehicle Rebate Program*

CONCLUSION (CONT'D)

- Receive and File GSA Fleet Services' Strategy for EV Transition
- Authorize GSA Director to Sign SCE Agreement
- Approval of Grant of Easement
- Approval of Contribution
  - $143,668
    - $63,000 to Offset Higher Price of14 EVs @ $4,500/EV
    - $83,668 for 7 Dual-Port Charging Stations/Installation
- Approval of Budgetary Transactions

CLOSING / SUMMARY

QUESTIONS?