

Electric Utility Commission

November 18, 2019

Item 20





# Agenda

- **Fleet Executive Overview**
- **Fleet Mobility Strategy**
- **Fleet Mobility Services Update**
- **Austin Energy Update**
- **Capital Metro Update**
- **Programs and Market Conditions**
- **Next Steps**



# Fleet Mobility Services: Mobility Strategy

Fleet Mobility Services Strategy: Lead, design and incorporate "**Sharing, electric vehicles, telematics and autonomous mobility services**" for City employees by providing cost effective, accessible forms of modality to transport employees, tools and equipment to conduct the business of the City.

Primary goals: Reduce transportation costs, traffic congestion and under-utilized fleet assets while improving the health, environment, safety and livability of Austin.

## Fleet Mobility Policy

- City vehicle travel use prioritization policy to align with mobility strategy

## Connected Vehicle Program

- GPS and advanced telematics FY20
- Savings in safety, fuel, maintenance and productivity

## Drive High Utilization Rates

- High VMT/vehicle increases ROI and lowers cost per mile
- Reduced under-utilized fleet

## Use of Central Rental Pool

- Lower fleet asset investment; economies of scale
- Shared use among Departments

## Alternative Fuels

- **Fleet Electrification 330 by 2020**
- Biodiesel, CNG, Propane, E85
- Renewable diesel

## Fleet Optimization Program

- Improve ROI during useful life
- Tailored optimization strategy for each department

## Sharing Programs

- Employee shuttle program
- Employee ride sharing public, private partnerships

## Grant Opportunities

- VW Settlement – TCEQ Grant
- CNG Expansion – TCEQ Grant
- Biodiesel Expansion – TCEQ Grant

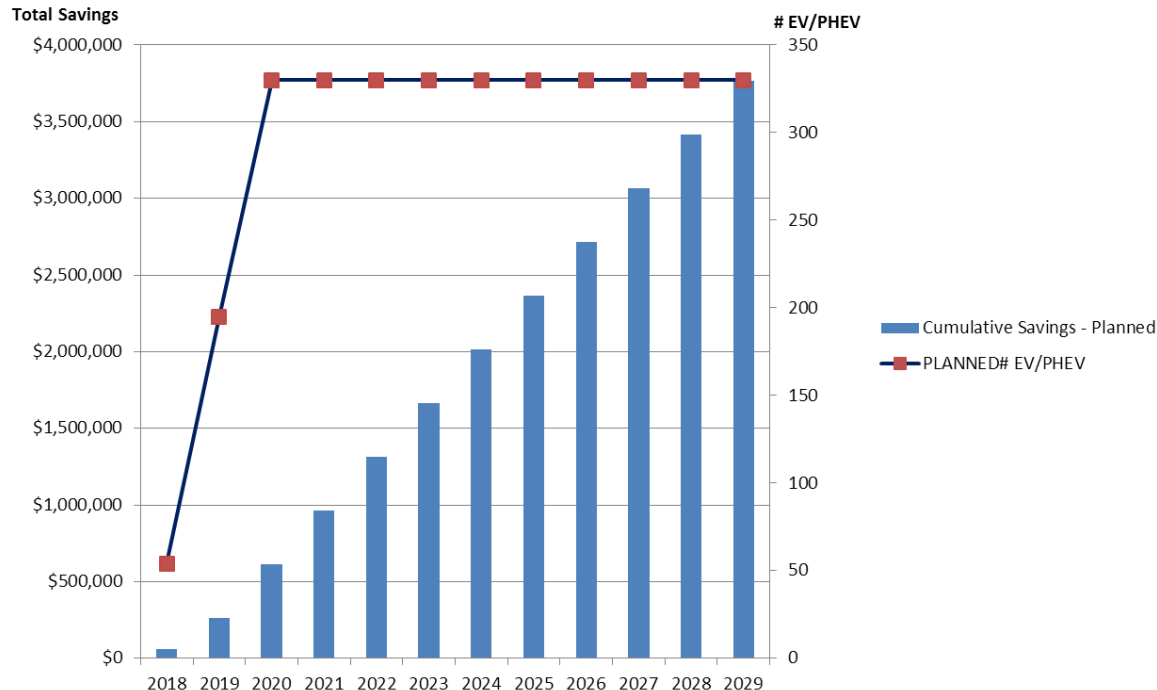
# FLEET ELECTRIFICATION

# Fleet Mobility Services: Electrification Initial Plan

## Fleet Electrification Analysis and Plan: \$3.5M Savings 10 years

- In 2016 Council passed a resolution to assess opportunities to electrify the COA fleet in response to a Smart Cities Challenge
- Recommendations:
  - Replacement of 330 gas powered vehicles with EV and PHEV vehicles
  - Expand charging station infrastructure as needed
  - Fund charging infrastructure through interdepartmental fuel surcharge

Annual Operating Cost Savings - 330 EV/PHEV vehicles



# Fleet Mobility Services: Electrification and Charging Infrastructure

## SCOPE / OBJECTIVE

### Objective: Fleet Electrification and Charging Infrastructure Buildout

- 2016 Council Resolution to assess opportunities to electrify COA fleet in response to Smart Cities Challenge
- Carbon neutrality for City of Austin operations by 2020
- Net-zero community-wide greenhouse gases by 2050
- Replace 330 gas vehicles with EV, PHEV vehicles by 2020

### Recommendations:

- Replacement of 330 gas vehicles with EV and PHEV vehicles
- Expand charging station infrastructure as needed
- Fund charging infrastructure through interdepartmental fuel surcharge

## DEPARTMENT / SAVINGS

### Sponsoring Departments: Fleet Mobility Services, Austin Energy

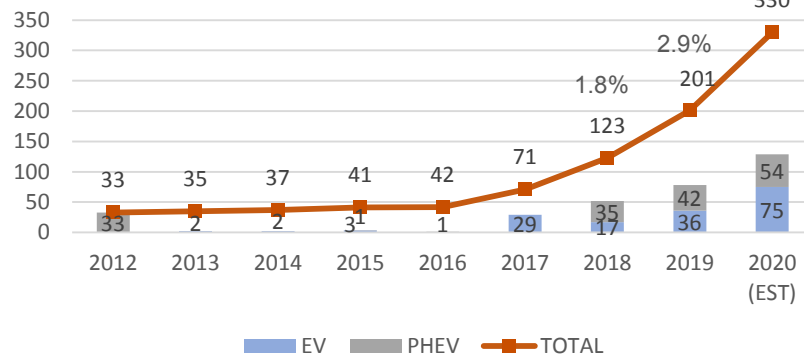
- Executive Sponsor: Jennifer Walls
- Project Team Leadership: Karl Popham, Cameron Freberg, Will O'Connor
- Project Managers: Yuejiao Liu, Darlene Berghammer

### Savings Opportunity:

- \$3.5M over 10 years
- CO2 Reduction: 1,250 metric tons CO2 emissions per year

## STATUS / METRICS

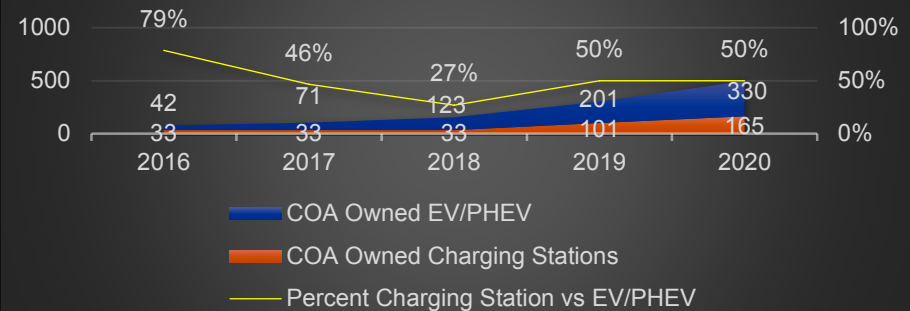
### EV/PHEV ACQUISITIONS 2012 - 2020



- 2019: 71 EV/PHEV purchases
- 2020: 129 EV/PHEV remaining purchases
- Annual CO2 Emissions offset 1,250 metric tons

## STATUS / METRICS

### Charging Infrastructure



- 2019: 101 charging stations required to be at 2/1 ratio
- Charging equipment is on site
- Contractor has been ChargePoint Certified

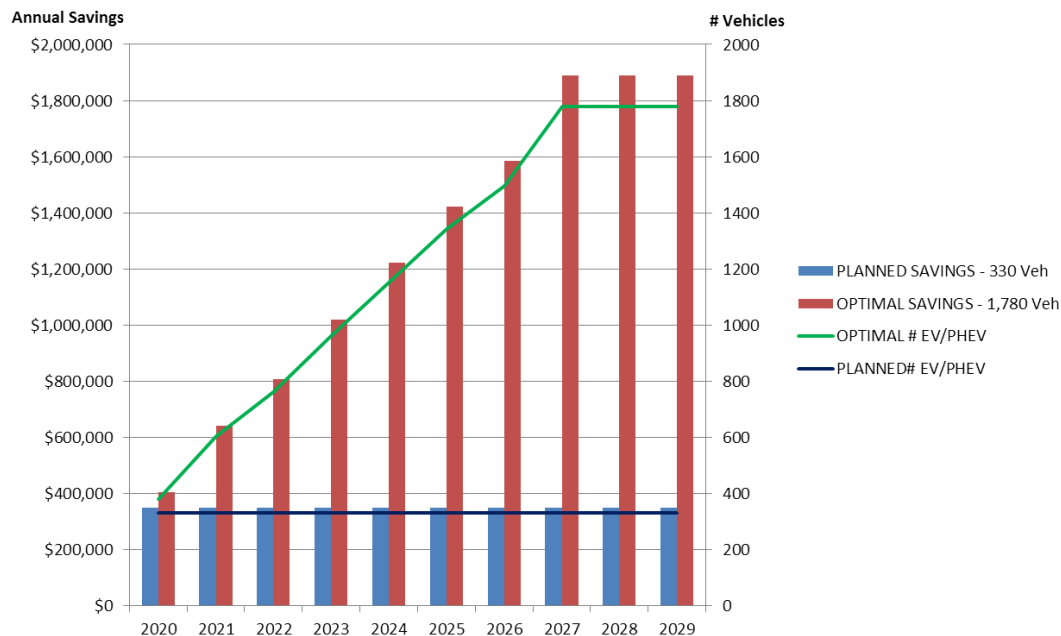


# Fleet Mobility Services: Electrification Next Steps

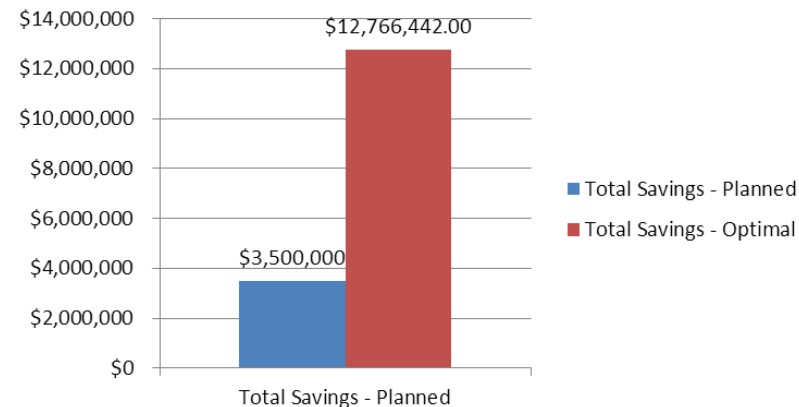
## Fleet Electrification Plan: Light Duty Potential

- Current fleet size is 6,652 units; light duty size is 2,213 or 33%
- Estimated 1,780 light duty units could potentially be replaced with EV/PHEV as part of normal replacement cycle over next 10 years
- Light duty EV/PHEV sedans and SUVs are available today for purchase, viable options for pickups and vans expected to be available starting 2021 or sooner
- Potential for much higher operational cost savings over next 10 years – up to \$12.8M cumulative

EV/PHEV Annual Operating Cost Savings



10 Yr Operating Cost Savings Comparison



## City Fleet Charging Infrastructure

- 2 City Fleet Hubs installed, 5 additional locations with design complete
- Phased and batched rollout approach
- Up to 32 DC Fast\*\* publicly available fast chargers through FY20 will supplement depot charging



APD Central/East Station



\* Level 2: 6 kW = 25 miles of range per hour (RPH)

\*\* DC Fast: 62 kW = 250 miles of range per hour (RPH)



## Capital Metro Charging Infrastructure

- Former Serta warehouse on McNeil drive to become electric bus charging depot
- 10 Buses for initial rollout 40' & 60' models
- Transportation Electrification Rate Design
- Infrastructure Planning (approx. 1MW per 10 buses)



# ***Fleet Mobility Services: National Procurement Collaboration***

## **Climate Mayors Council**

- City of Austin is working with the Climate Mayors Council and the Electrification Coalition which are a national organization of cities and private enterprise that are leading the EV transition to improve equitable access to EVs for all cities and influence vehicle market to meet cities' needs

## **Status:**

- **City of Austin, led by Mayor Adler, Fleet Mobility Services and the Office of Sustainability**, joined 19 cities and 2 counties as founding member of Climate Mayors Electric Vehicle Purchasing Cooperative to reduce acquisition costs, lower GHG emissions and promote use of EV/PHEV vehicles
- City of Austin committed to purchase 71 (18%) out of total 376 EV/PHEVs in FY19 and another 129 in FY20 for average savings of over \$1,300 per EV/PHEV

## **Building Strong Relationships:**

- OEMs
- Charging station manufacturers/installers
- Fleet service providers
- Regional Councils of Government
- City, State, Federal Government Fleet organizations



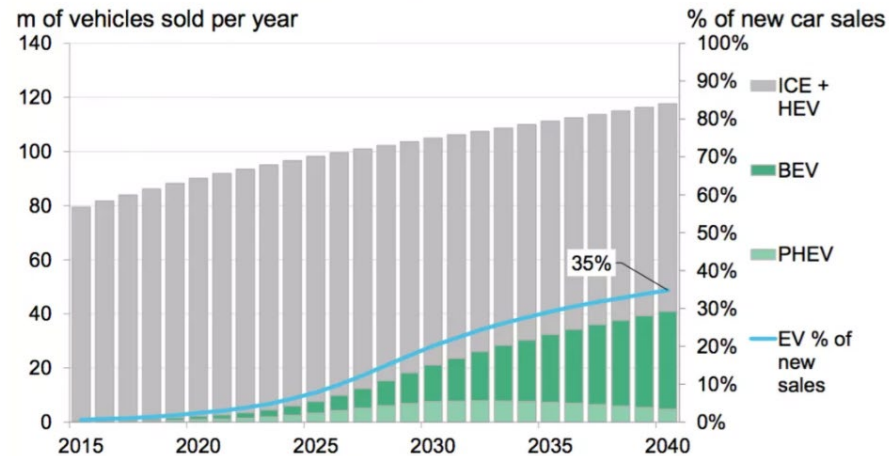
# Fleet Mobility Services: Electric Vehicle Market Status

## City of Austin EV Purchases Pacing Ahead of Market

- Market: EV/PHEV sales are up greater than 25% year over year but are only 1.1% of total vehicle sales
- COA Fleet: 2019 purchases are at 11.4% (71) units of the total fleet purchases (624)
- EV/PHEV will represent close to 25% of all vehicle sales in the next 10 years



**Figure 1: Global LDV and EV yearly sales, 2015 – 2040 (m vehicles sold per year, %)**

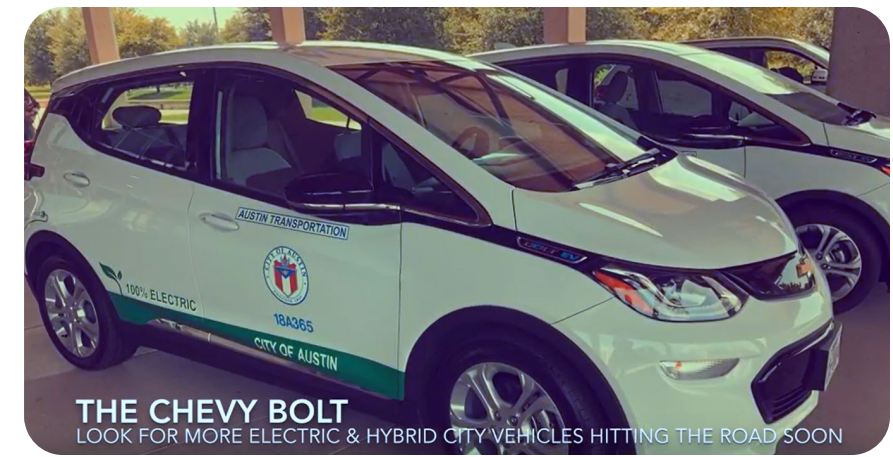


Source: Bloomberg New Energy Finance Note: ICE+HEV = internal combustion engine and hybrid vehicles, BEV = battery electric vehicles, PHEV = plug-in hybrid electric vehicles.

# Fleet Mobility Services: Electric Vehicle Test Drive

**Fleet Mobility Services conducted EV test drives for city management**

**Austin City Manager Spencer Cronk drove a 100% electric Bolt**





# Fleet Mobility Services: Electric Vehicles



# ***Fleet Mobility Services: The Future of Fleet Electrification***

## **Opportunities of Fleet Electrification**

- The cost of EV/PHEV will likely decrease each year moving forward
- EV/PHEV expansion into the light and heavy duty fleet segment
- Improved Battery life
- Improved travel distance on a single charge
- Significant expansion of charging infrastructure
- Reduction in charge time as DC Fast charging expands – becoming more similar to regular fueling
- EV batteries and power storage management becoming bi-directional and having the ability to push unused power back to the grid

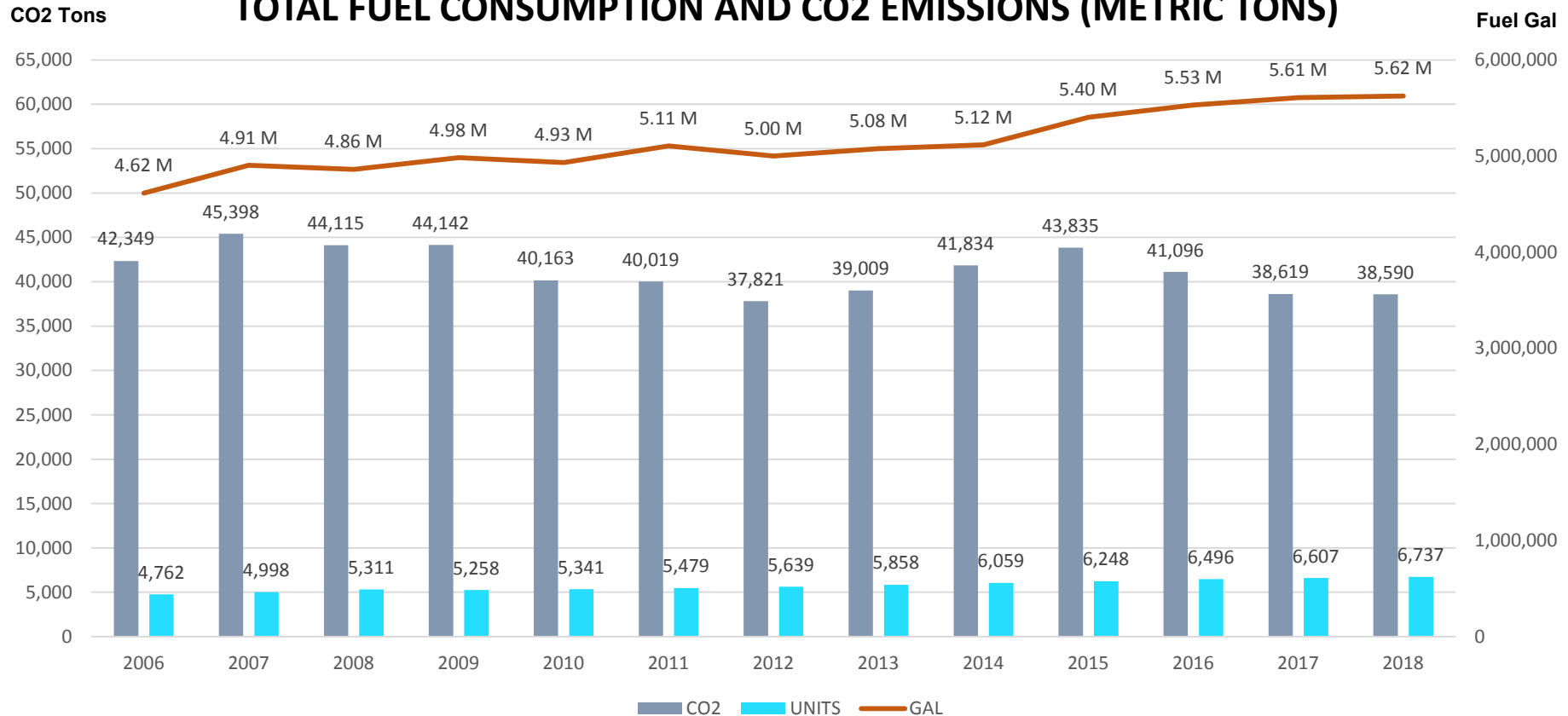
## **Challenges of Fleet Electrification**

- Department culture change management (range anxiety)
- Charging station infrastructure build rate
- Fast charge strategic placement
- OEM build of the truck segment and heavy duty equipment
- Maintenance Technician Training
- Monitor/maximize EV utilization, charging patterns, project cost / economics

Questions?

# APPENDIX : CO2 EMISSIONS

## TOTAL FUEL CONSUMPTION AND CO2 EMISSIONS (METRIC TONS)



- Fleet size has grown 41% or 1,975 units since 2006
- Fuel usage has increased 22% or about 1 million gallons
- Overall carbon emissions lower by 15% or 6,808 metric tons by using low-carbon alternative fuels