FMS Fleet Mobility Services

Connected, Sustainable, Data-Driven Fleet

Fleet Electrification Update

Fleet Analytics

Resource Management Commission

October 15, 2019

ITEM 3

Emerging Technologies

Agenda

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

Fleet Services: Mobility Strategy

Fleet Services Mobility 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

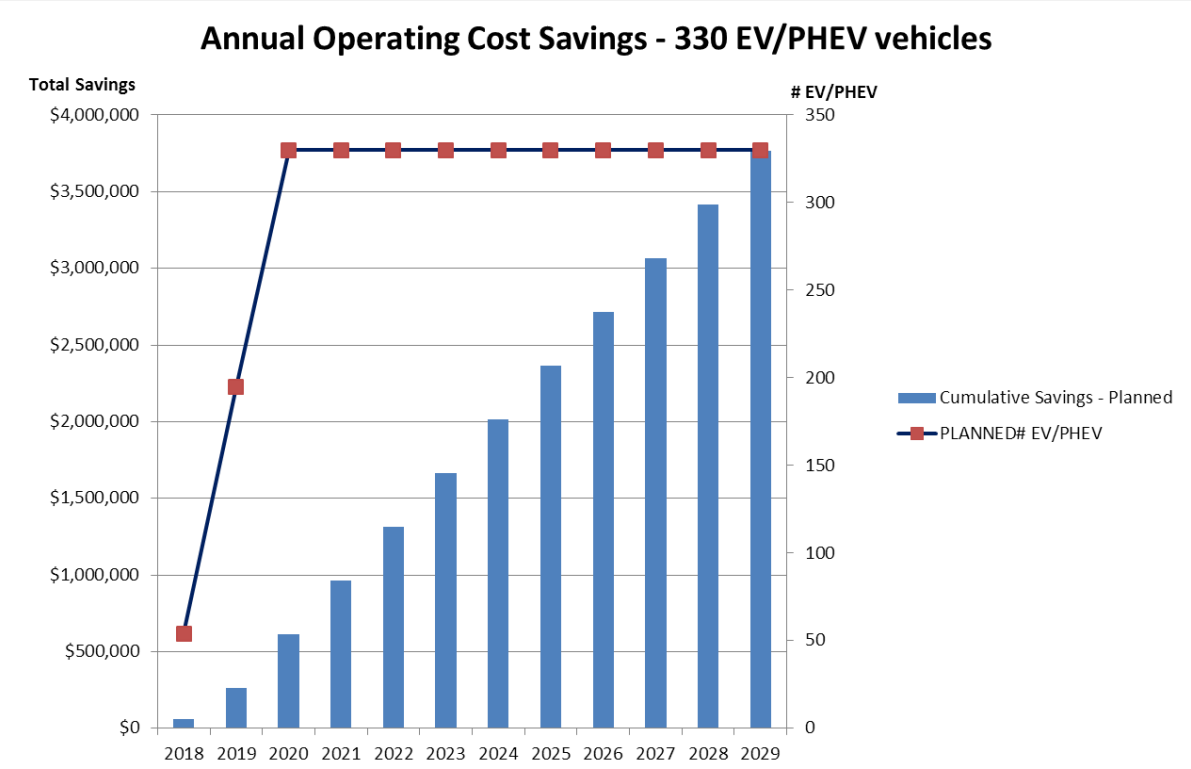
FLEET ELECTRIFICATION

Fleet 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



Fleet Services: Electrification and Charging Infrastructure

SCOPE / OBJECTIVE

Objective: Fleet Electrification & 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

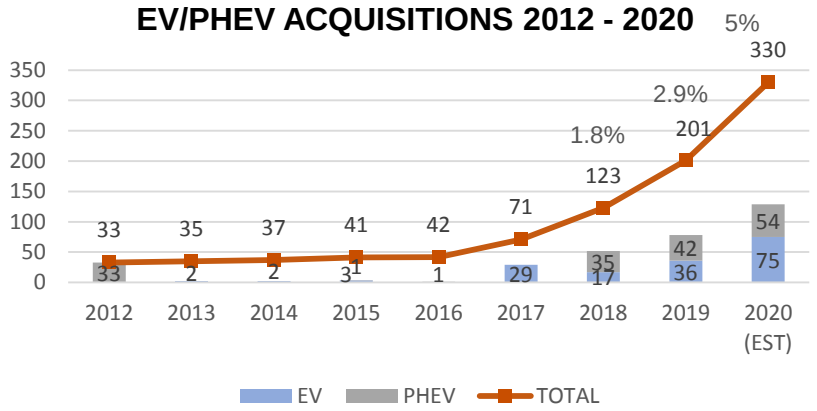
Sponsoring Departments: Fleet Services, Austin Energy

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

Savings Opportunity:

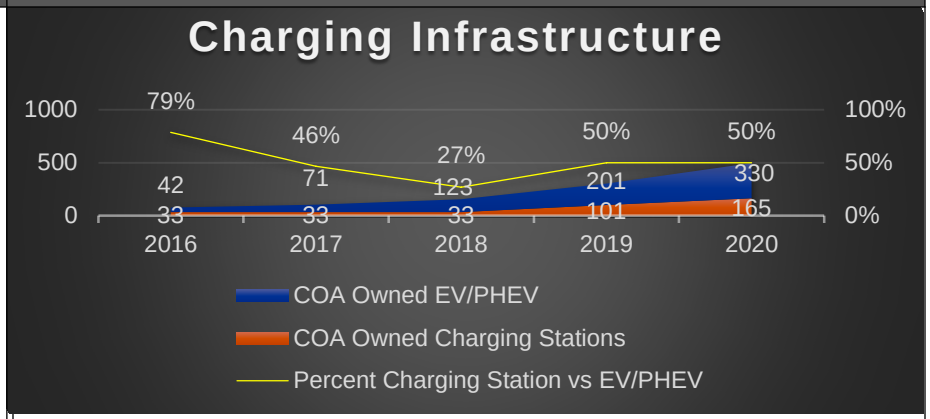
- $3.5M over 10 years
- CO2 Reduction: 1,250 metric tons CO2 emissions per year

STATUS / METRICS



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

STATUS / METRICS

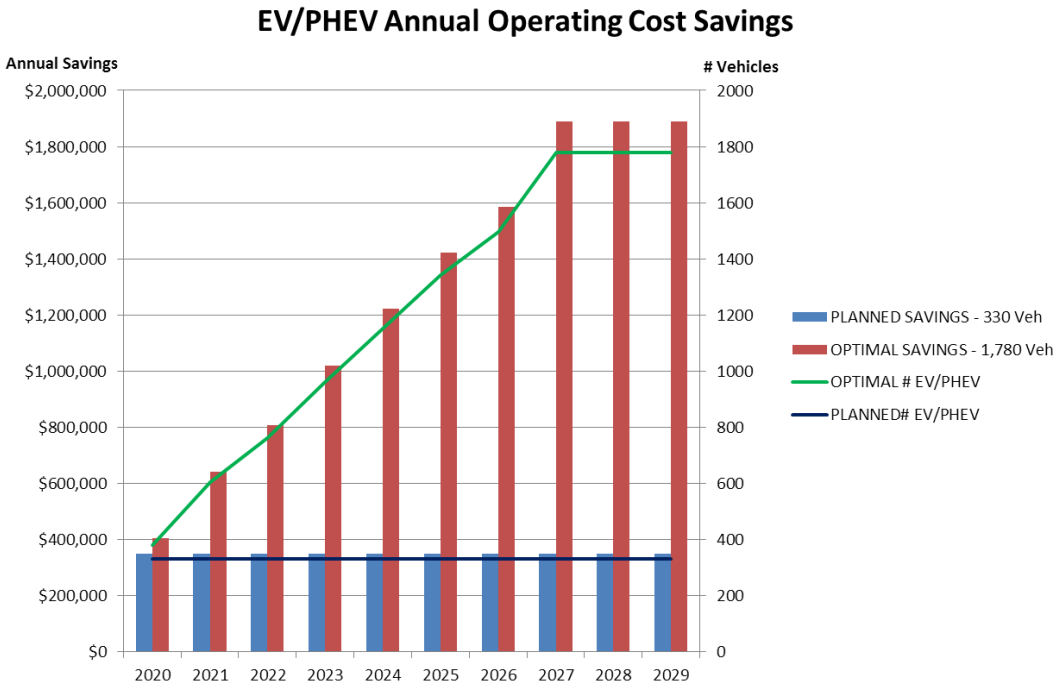


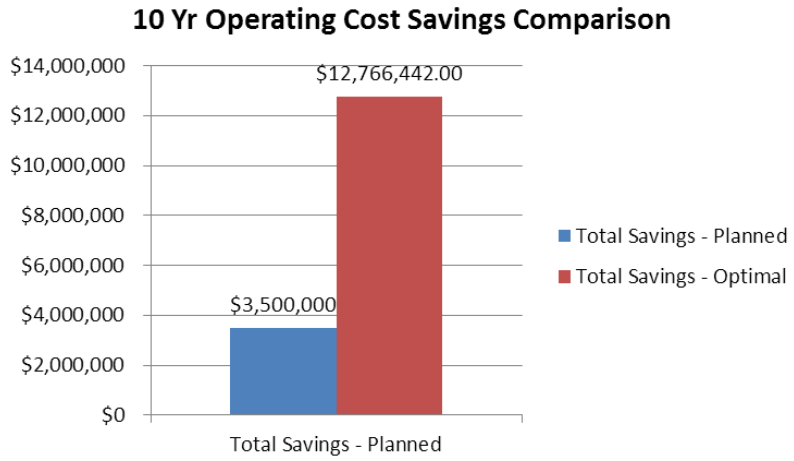
- 2019: 101 charging stations required to be at 2/1 ratio
- Charging equipment is on site
- Contractor has been ChargePoint Certified

Fleet 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**





City Fleet Charging Infrastructure

- 28 Level 2* site locations identified for FY19 fleet rollout plan
- Up to 35 DC Fast** publicly available fast chargers through FY20 will supplement depot charging

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

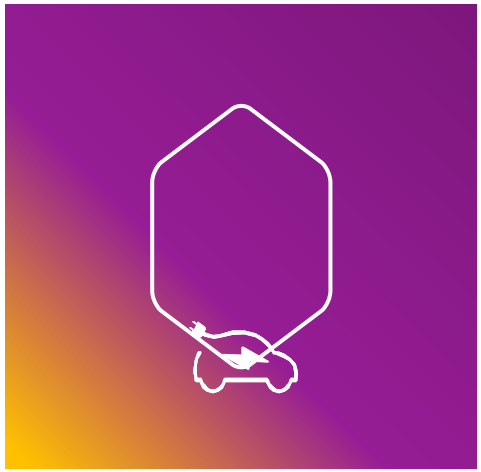
** DC Fast: 62 kW = 250 miles of range per hour (RPH)

Capital Metro: Charging Infrastructure

Capital Metro Charging Infrastructure

- Former Serta warehouse on McNeil Drive to become electric bus charging depot
- 60 kW DC fast chargers to fuel electric buses
- Transportation Electrification Rate Design
- Infrastructure Planning

200
Capital Metro buses to convert to electric



Fleet 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 Services and 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

Electrification Coalition

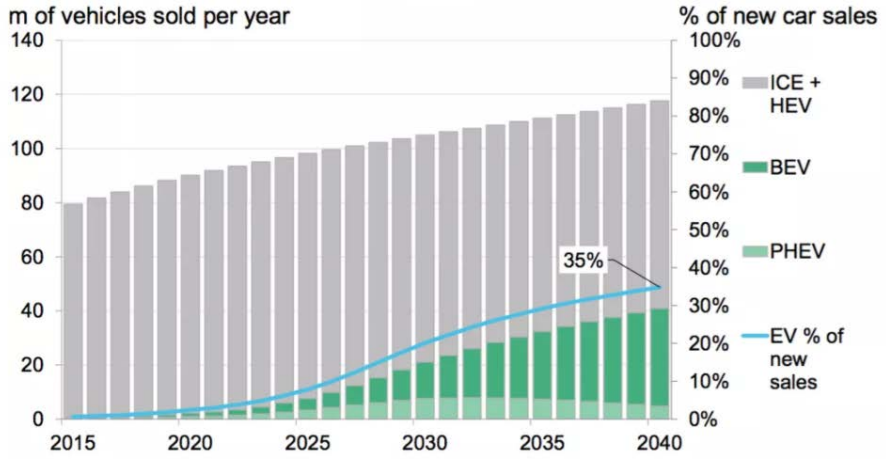
CLIMATE MAYORS

Fleet 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, %)

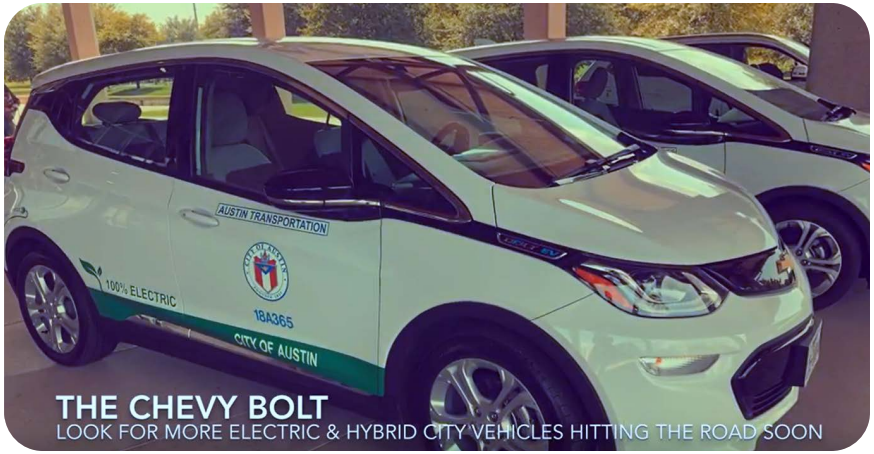


Source: Bloomberg New Energy Finance Note: ICE+HEV = internal combustion engine and hybrid vehicles, BEV = battery electric vehicles, PHEV = plug-in hybrid electric vehicles.

Fleet Services: Electric Vehicle Test Drive

Fleet Services conducted EV test drives for city management

Austin City Manager Spencer Cronk drove a 100% electric Bolt



Fleet Services: Electric Vehicles

Fleet Services: The Future of Fleet Electrification

Opportunities of Fleet Electrification

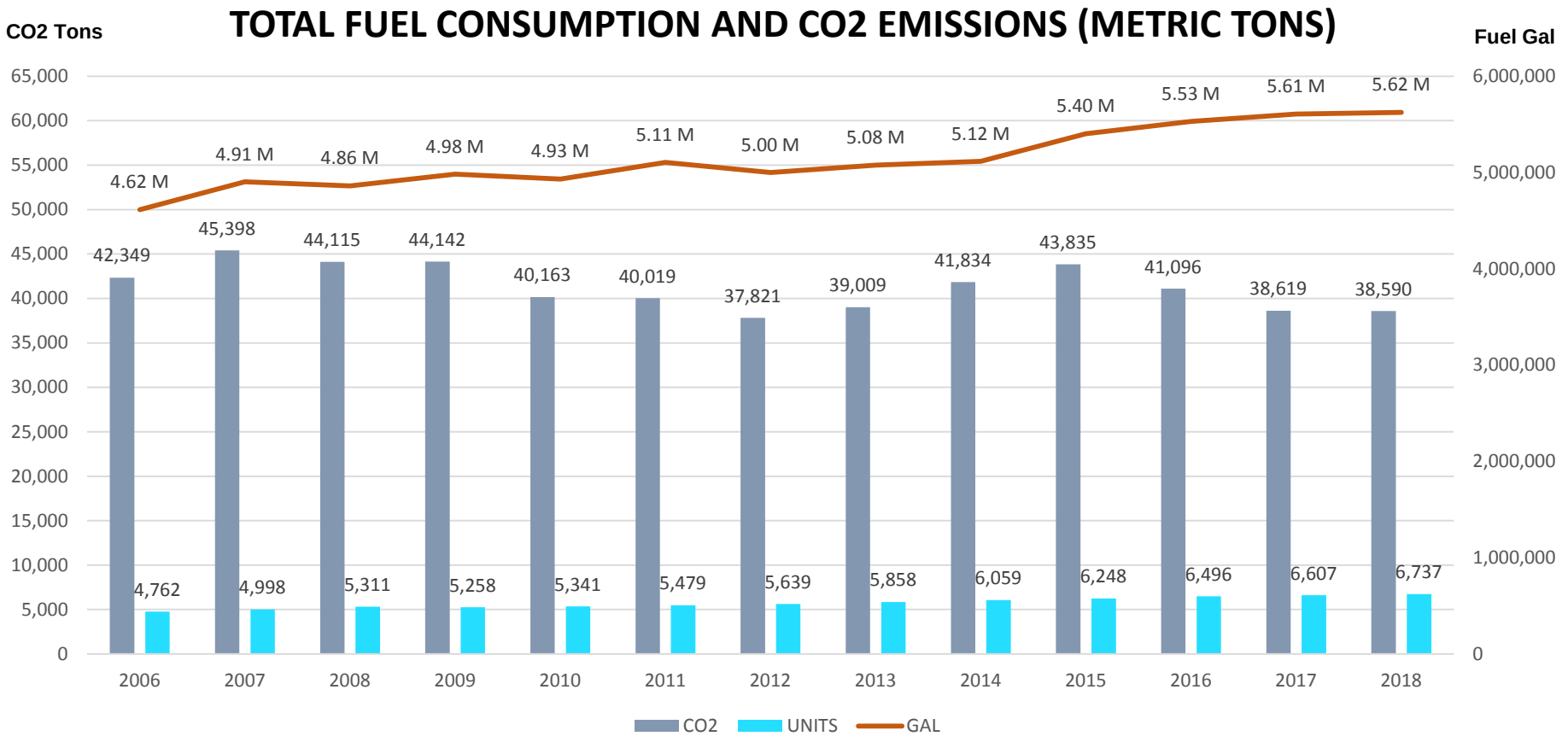
- The cost of EV/PHEV will likely decrease each year moving forward
- EV/PHEV expansion into the light and heavy duty fleet segment
- Improved Battery life
- Improved travel distance on a single charge
- Significant expansion of charging infrastructure
- Reduction in charge time as DC Fast charging expands – 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



- 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