

FLEETS FOR THE FUTURE

Procurement Kickoff

April 20, 2017

AFV Odyssey at Earth Day Texas – Dallas, TX

North Central Texas Council of Governments (NCTCOG)

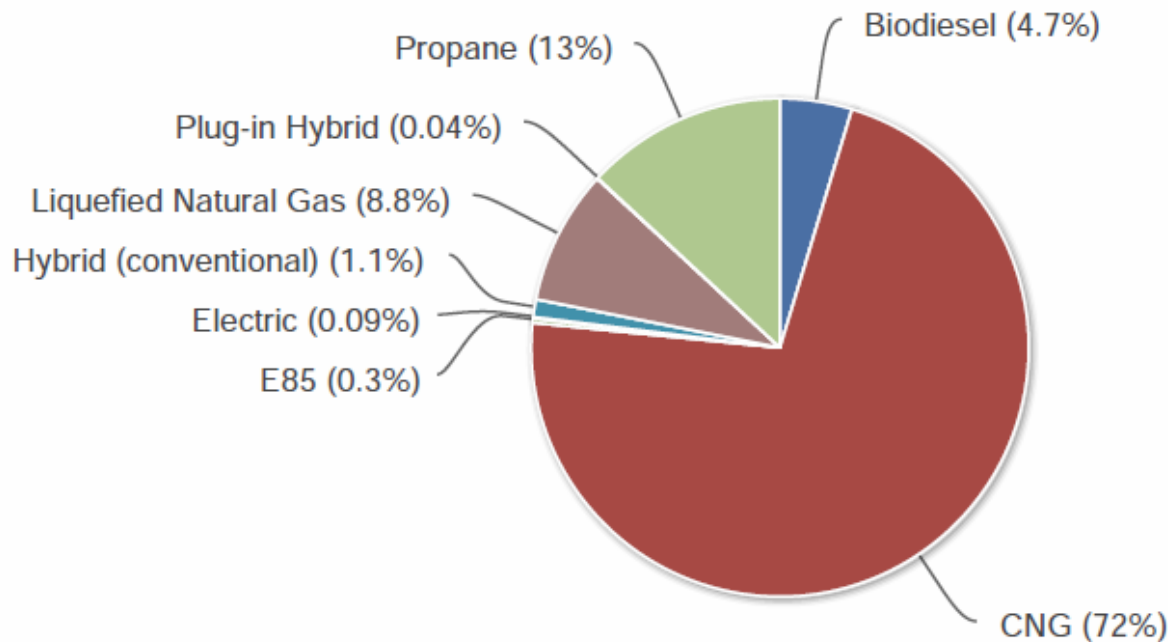
Lori Clark, Principal Air Quality Planner

Bailey Muller, Air Quality Planner



Dallas-Fort Worth Clean Cities 2016 Gallons of Gasoline Equivalent Reduced by Fuel Type for Alternative Fuel Projects

24,968,855 gallons



**Existing Alternative
Fueling Stations in
the DFW Region:**



38



746



78

Agenda

I

Project Overview

II

Fleet Transition Planning for AFVs

III

Guide to Financing AFVs

IV

Procurement Best Practices: By Fuel Type

V

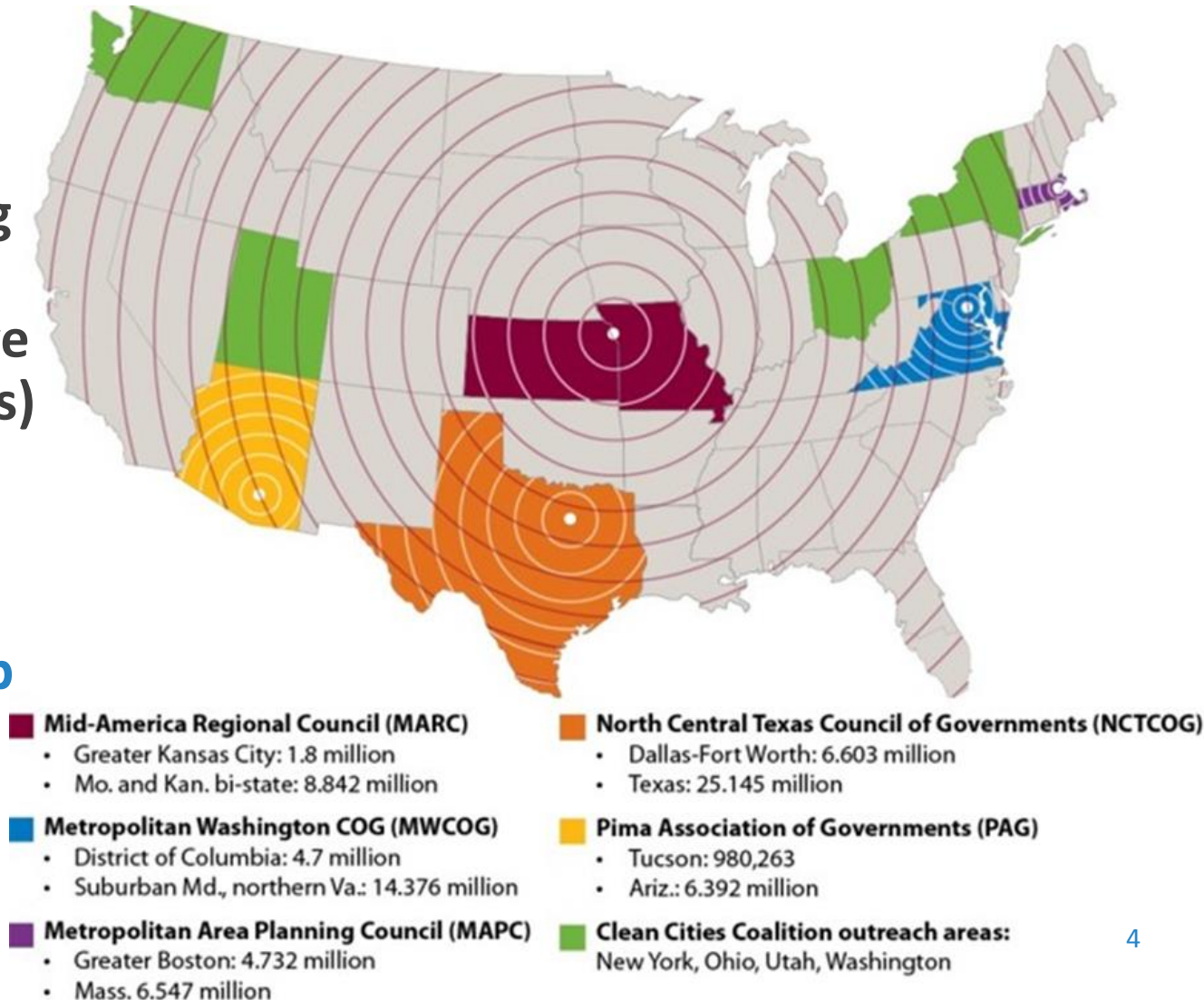
Regional Cooperative Procurement

I Project Overview



Focuses on reducing the incremental costs of alternative fuel vehicles (AFVs) and supporting infrastructure.

National Partnership



II

Fleet Transition Planning for AFVs *Considerations*

Advantages

Total Cost of
Ownership
(TCO) Approach

Importance of
Maintenance
Costs

Sustainability
Initiatives

Return on
Investment

High Utilization
Rates

Lower Fuel
Prices

Feasibility

Use of Central
Parking Facilities

Route
Predictability

II

Fleet Transition Planning for AFVs

Managing AFV Deployment

Driver Training

Ensures drivers are confident operating and refueling new technology

Maintenance Tech. Training

Ensures maintenance personnel are trained to perform diagnostics, maintenance and repairs on new technology

Data Management

Management Information System (MIS) tracks inventory and operations

Telematics

Vehicle operational data can be an invaluable management tool

III

Guide to Financing AFVs *The Opportunity & the Challenge*

Creating a compelling financial case

Determine the AFV technologies that fit your vehicle sizes and use cases

Conduct financial analysis, include infrastructure needs

Results demonstrate AFVs as a wise investment

Financing the initiative

Understand your organizational budget and procurement rules

Operating vs capital budgets

What options are available to you?

- Outright purchase
- Leasing
- Cooperative purchasing
- Others: 3rd party financing, green/revolving loans

III

Guide to Financing AFVs *Summary of AFV Financing Opportunities*

Procurement Type	Best Practices	Questions/Concerns
Commercial Leasing	<ul style="list-style-type: none"> • Ability to monetize tax credits • Variety of lease options 	<ul style="list-style-type: none"> • Uncertain cost structure • Uncertain implementation of tax credit monetization
Municipal/Capital Lease	<ul style="list-style-type: none"> • Ability to monetize tax credits • “Lease-to-own” structure • Termination for non-appropriation 	<ul style="list-style-type: none"> • Inability to use debt to finance
State Bid Procurement	<ul style="list-style-type: none"> • Regional/Local specificity • Bulk discounts: 8-10% off MSRP 	<ul style="list-style-type: none"> • Limited vehicle selection
Cooperative Purchasing	<ul style="list-style-type: none"> • Bulk procurement discounts 	<ul style="list-style-type: none"> • Ability to monetize tax credits • Lack of experience with vehicles
3 rd Party Financing	<ul style="list-style-type: none"> • Ability to monetize tax credits • Performance contracting • Bundling EV + EVSE + Operational costs 	<ul style="list-style-type: none"> • Nascent market • Access may be very limited

III

Guide to Financing AFVs *Bundling Vehicles, Fuel and Infrastructure*

Bundled Procurement Best Practices

- Solution when complexity of deployment is beyond technical capacity or time available to fleet team
- Carefully evaluate the TCO of bundled proposals to ensure that a fair deal is being negotiated on the individual components

Benefits

- Enables efficiencies of vertical integration, for instance when the fuel provider also installs the refueling infrastructure
- Simplifies the procurement process

Drawbacks

- May not allow for picking the best provider for each specific subcomponent of your AFV project

IV

Procurement Best Practices

Gaseous Fuels



IV

Procurement Best Practices *Gaseous Fuels: Key Attributes & Best Applications*

Return-to-base operations, repetitive route, or pre-set geographic operating areas

Higher fuel use -> better economics



Vehicle type	Fuel consumption
Transit buses	11-13k DGE/year
Refuse/Concrete trucks, plows	7.5-10k DGE/year
Municipal sweepers	5-6k DGE/year
Shuttles	5.5-7.5k GGE/year
Taxis, police cars	4.5-5.5k GGE/year
School buses	2.5-3k GGE/year
Utility trucks, high-mileage pick-ups	2-2.5k GGE/year
Sedan, utility/telecom van, PWD pick-ups	1.2-1.5k GGE/year

IV

Procurement Best Practices

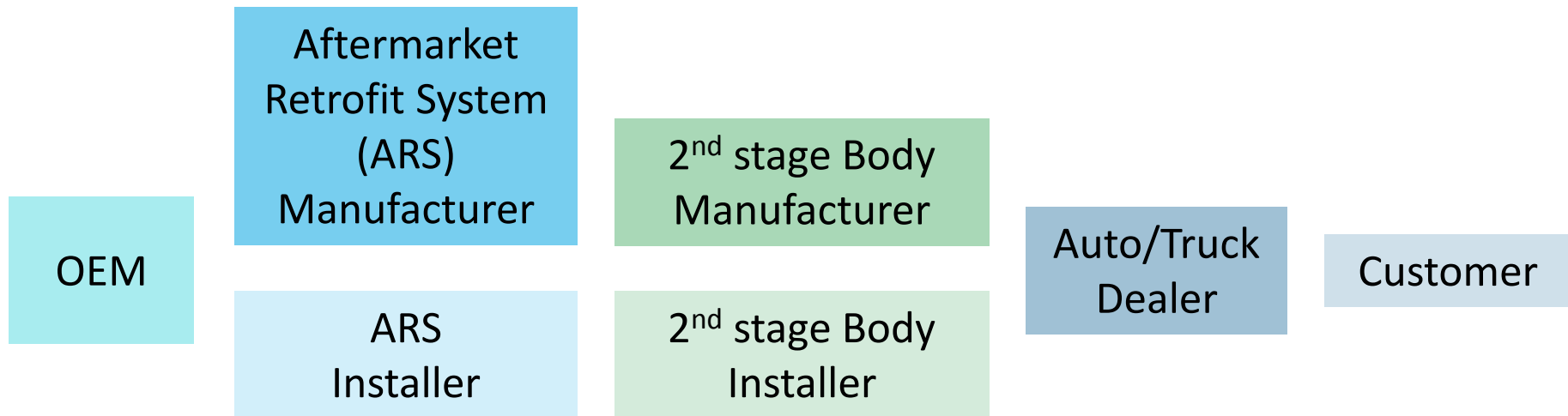
Gaseous Fuels: Municipal Applications

Vehicle type	Configurations	Providers	Fuel options
Sedan/SUV/crossover	Sub-compact through full size; police pursuit vehicle option	Aftermarket	CNG or propane
Pickup trucks	½-ton, ¾-ton, 1-ton, with multiple cab-chassis and bed configurations	Aftermarket	CNG or propane
Light duty vans (Class 1-2)	Multiple cab-chassis and cutaway options; cargo and passenger configurations	Aftermarket	CNG or propane
Class 3-6 work trucks (e.g., utility trucks, dump-plow trucks, service step-vans)	Cab-chassis, cutaway and strip-chassis configurations for additional upfitting	Aftermarket	CNG or propane
Class 4-6 shuttle buses:	Cab-chassis and cutaway configurations; strip-chassis options for trolleys	Aftermarket	CNG or propane
School buses	Type A, C and D	OEM	CNG or propane
Refuse trucks	Cab-forward (CF), cab-over-engine (COE) and conventional	OEM	CNG only
Transit buses	30', 35' and 40' transit buses, 60' articulated buses and 45' commuter coaches	OEM	CNG for all types, propane for buses less than 35'
Street sweepers		OEM	CNG or propane;

IV

Procurement Best Practices

Gaseous Fuels: Build Process



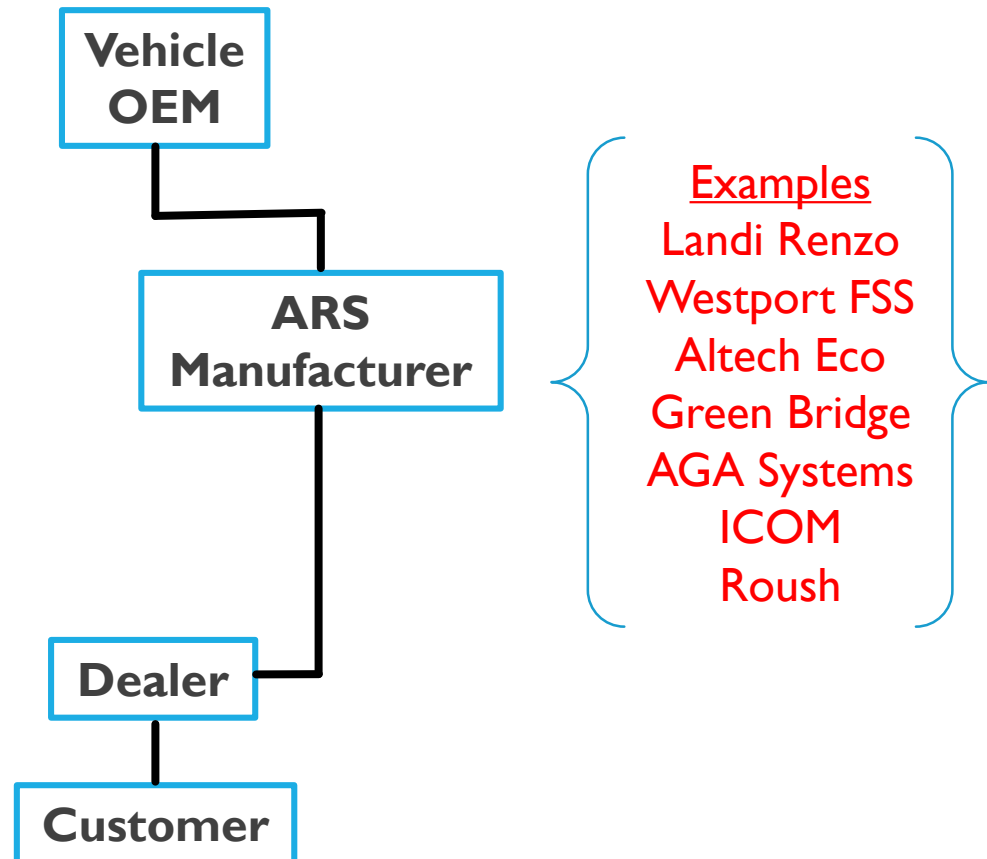
**Process is generally different for HDVs than LDVs and MDVs

IV

Procurement Best Practices

Gaseous Fuels: Build Process

Light-Duty ARS Scenario 1

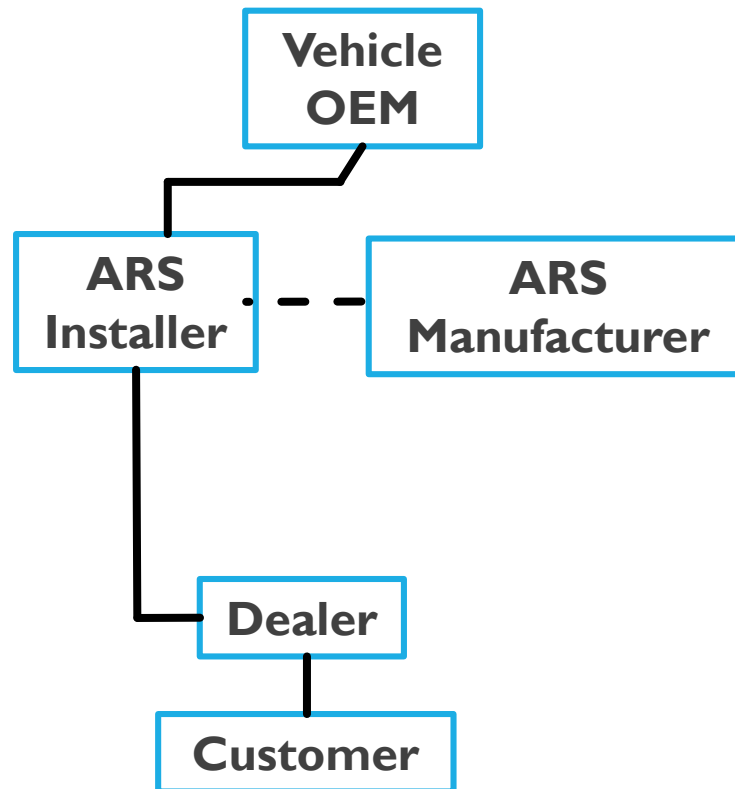


IV

Procurement Best Practices *Gaseous Fuels: Build Process*

Light-Duty ARS Scenario 2

Examples
A-I Auto.
Alt Fuel Inn.
Coastal AFS
AVT Services
Cusson Auto.



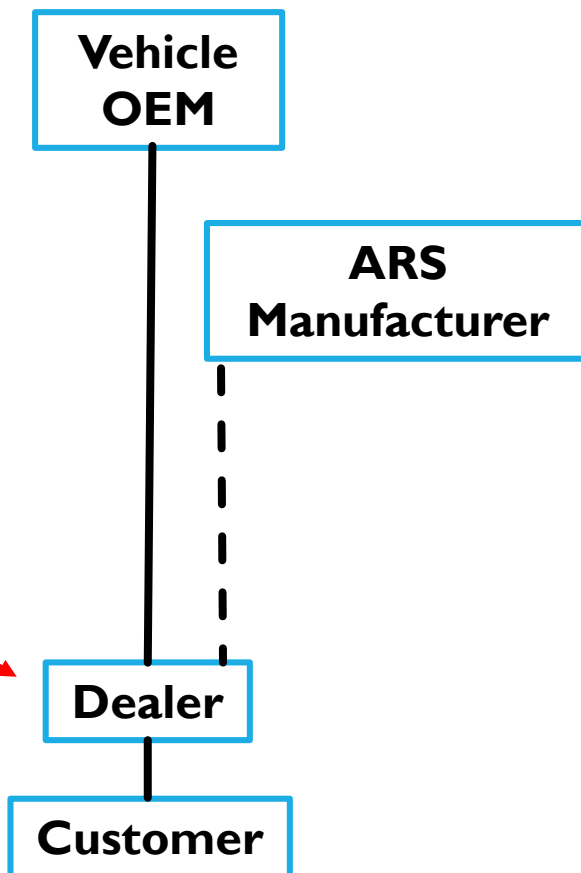
IV

Procurement Best Practices

Gaseous Fuels: Build Process

Light-Duty ARS Scenario 3

Alternatively, the installation partner may be an OEM dealer, trained by the ARS mfr.



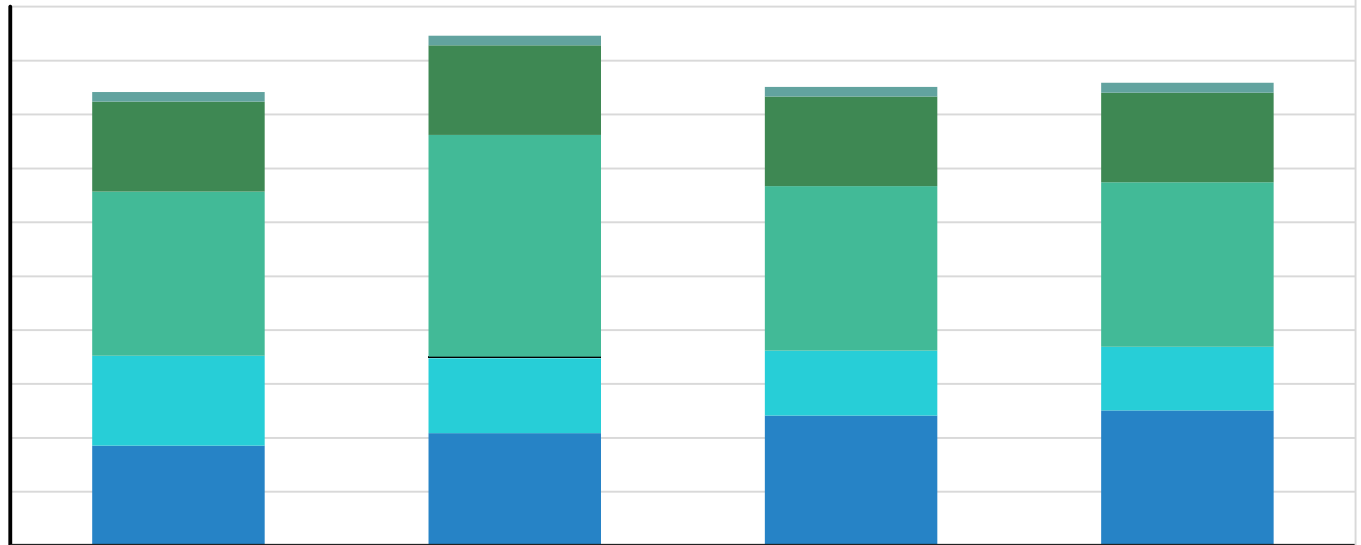
IV

Procurement Best Practices

Gaseous Fuels: Total Cost of Ownership

Total Cost of Ownership Passenger Truck

\$100,000
\$90,000
\$80,000
\$70,000
\$60,000
\$50,000
\$40,000
\$30,000
\$20,000
\$10,000
\$0



Gasoline

Diesel

LPG

CNG

License and Registration

\$1,801

\$1,801

\$1,801

\$1,801

Insurance

\$16,633

\$16,633

\$16,633

\$16,633

Maintenance and Repair

\$30,488

\$41,101

\$30,488

\$30,488

Diesel Exhaust Fluid

\$0

\$305

\$0

\$0

Fuel

\$16,648

\$13,873

\$12,043

\$11,843

Depreciation

\$18,590

\$20,914

\$24,167

\$25,097

Financing

\$0

\$0

\$0

\$0

IV

Procurement Best Practices *Electric Vehicles*



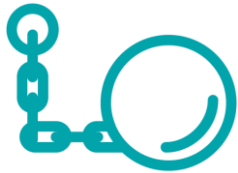
IV

Procurement Best Practices

Electric Vehicles: Myth Busting



Too Expensive



Not Enough Range



Charge Times

IV

Procurement Best Practices

Electric Vehicles: Myth Busting



Not Enough
Selection



Cold Weather
Operability



EV's are Slow

IV

Procurement Best Practices

Electric Vehicles: Applications for Light-Duty

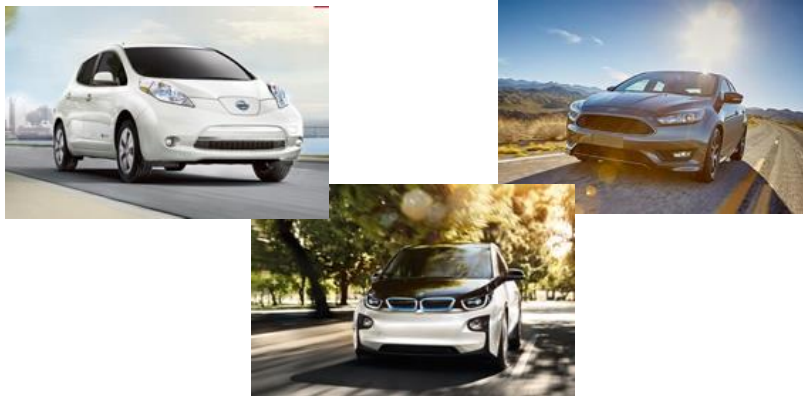
Battery Electric Vehicle (BEV)

Subcompact and compact sedans

Not a lot of cargo space

Can seat 4 adults comfortably

Well suited for urban settings with lots of stop-and-go traffic and where speeds generally remain below 45 MPH



Plug-In Hybrid Electric Vehicle (PHEV)

Compact and midsize sedans

Medium amounts of cargo space

Can seat 4-5 adults comfortably

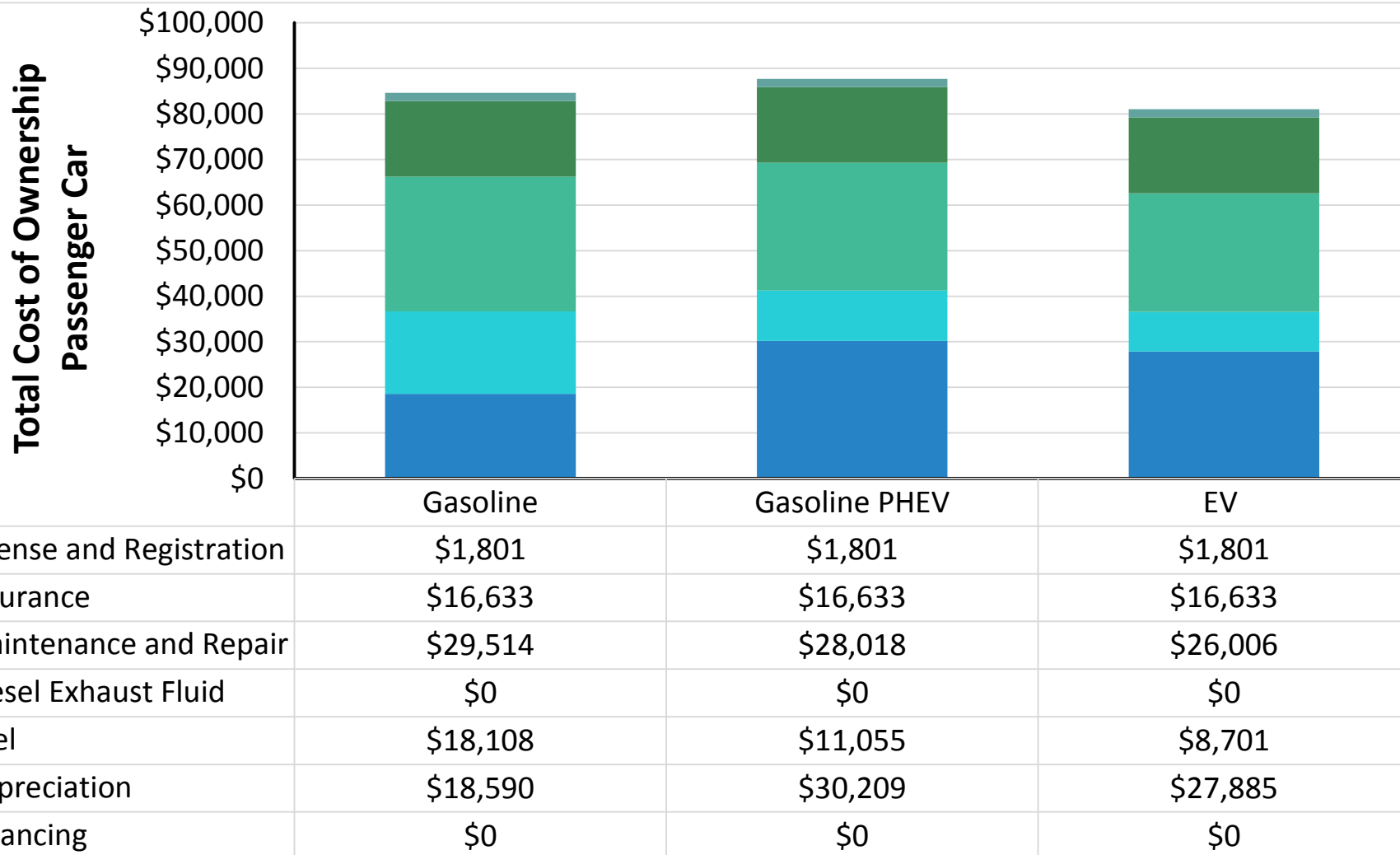
Well suited for a wide range of activities with the gasoline engine as backup when the battery power is depleted



IV

Procurement Best Practices

Electric Vehicles: Total Cost of Ownership



IV

Procurement Best Practices

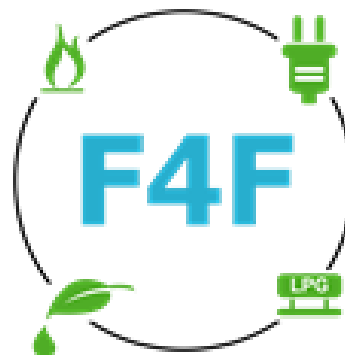
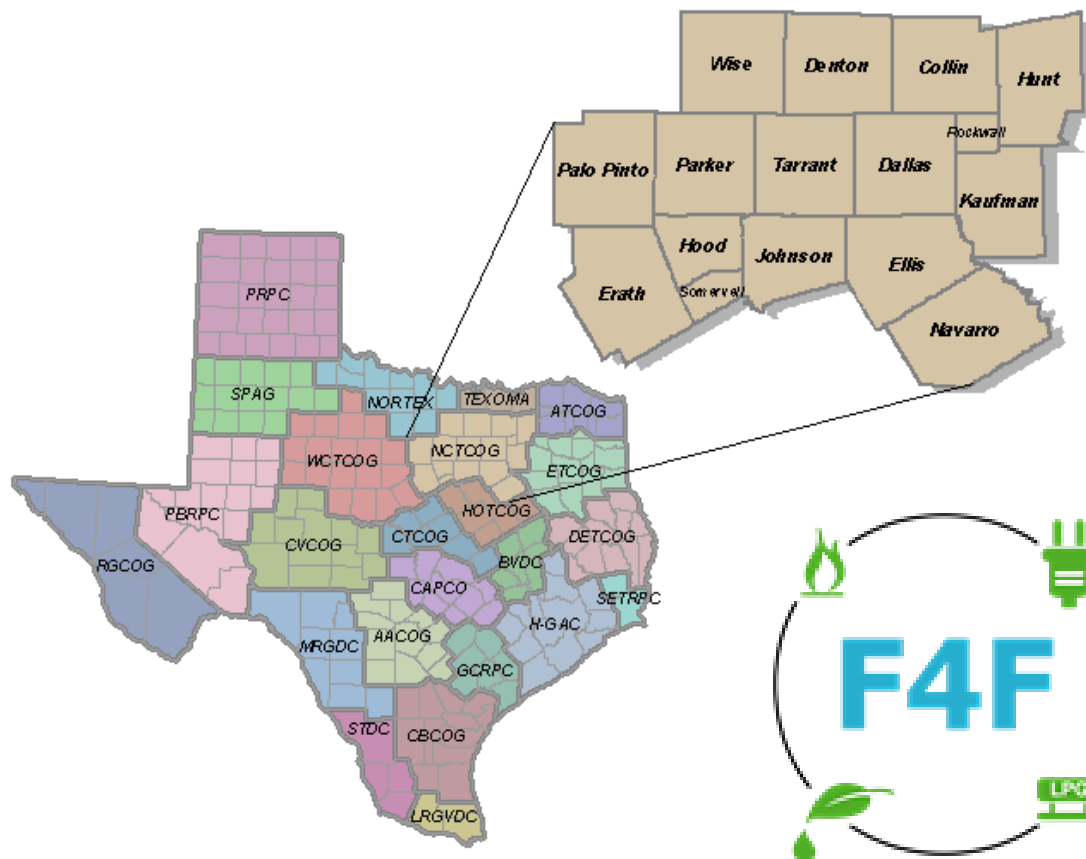
Electric Vehicles: Total Cost of Ownership

Make/Model				
	Nissan Leaf	Ford Focus	Chevy Volt	Ford Focus
Category	BEV	BEV	PHEV	ICE
Battery Size	30 kWh	23 kWh	18.4 kWh	2.0 L - V4
MSRP	\$34,200	\$29,170	\$33,170	\$23,225
Incremental Cost	\$10,975	\$5,945	\$9,945	\$0
All-Electric Range	107 miles	76 miles	53 miles	n/a
EPA MPG Rating	112 MPGe	105 MPGe	106 MPGe	31 MPG
Charge Time (240v)	8 hours	4 hours	4 hours	n/a
Est. Annual Fuel Cost	\$550	\$600	\$800	\$1,000
TCO/mi	\$0.46	\$0.42	\$0.46	\$0.41
TCO/mi (w/ TC)	\$0.39	\$0.35	\$0.40	\$0.41
TCO/mi (w/ TC & \$3.50 gas)	\$0.39	\$0.35	\$0.41	\$0.45
TCO/mi (\$3.5 gas & 15k mi)	\$0.36	\$0.33	\$0.38	\$0.36

Estimates are based on an example with the \$7,500 federal credit. Fuel costs are estimated at \$0.12/kWh and \$2.24 / gallon. Use assumes 12k miles per year over 10 years. Estimates will vary significantly when adjusted for specific local circumstances. TC = Tax Credit.

V

Regional Cooperative Procurement





V

Regional Cooperative Procurement

Focusing on local public fleets

Organizing the cooperative procurement of select vehicles to obtain volume discounts that fleets could not access individually

Releasing a vehicle bid RFP to confirm vehicle specs with unique tiered-volume pricing

Executing in Fall 2017

V

Regional Cooperative Procurement *Anticipated Vehicles*



Propane Vehicles



Electric Vehicles (EV)

Plug-In Hybrid Electric Vehicles (PHEV)



Natural Gas Vehicles

Both Light-Duty and Heavy-Duty Options Available

V

Regional Cooperative Procurement *Anticipated Process*

**Fleet signs anticipated vehicle purchase
commitment with NCTCOG**

Summer 2017



**NCTCOG pools vehicle purchase commitments
from participating fleets**

Late September 2017



**NCTCOG procures vehicles through vehicle bid
contract to obtain volume discounts**

October 2017



**Each participating fleet coordinates directly
with vendor for purchase order**

November 2017

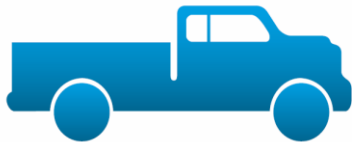


Regional Cooperative Procurement

How to Get Involved

Action Steps:

1. **Analyze your fleet's needs**
2. **Coordinate with Procurement and Fleet Staff to confirm procurement possibilities**
3. **Complete the Soft Commitment Form**



For more information on the project, visit: www.nctcog.org/f4f



Regional Cooperative Procurement

How to Get Involved

Attend Our Fleets for the Future Bootcamp

When: **May 24, 2017** from 10 am - 2 pm

Where: North Central Texas Council of
Governments (NCTCOG) in Arlington



**Lunch will
be provided!**

RSVP to bmuller@nctcog.org or (817)695-9299 by May 17



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**North Central Texas
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