

# Factors to Consider with Alternative Fuels

## Broward County Transit

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# What makes an Alternative Energy Adoption Successful?

- Reduced emissions without increasing cost or losing efficiency.
- Total Cost of Ownership or ROI realized before end of the lifecycle.
- Similar (or better) performance than the original fuel without compromising range.
- High-volume supply of energy domestically produced.



# How does Propane Autogas fit?

- Most cost-effective energy source to reduce NOx emissions.
- Lowest cost-of-ownership of any fuel.
- Comparable or improved performance without compromising range.
- The most flexible fueling infrastructure.
- U.S. production = 28 billion gallons in 2019.
  - 9 billion used domestically.
  - 19 billion gallons exported.



# What do you need to consider?

- Manage Fears & Misconceptions
- Vehicle type (OEM system/After Market)
- Fueling Infrastructure
- Benefits to the environment
- Budget impact – Capital & Operating





# Manage Fears and Misconceptions?



# Vehicle Type – OEM/After-Market Conversion



**Ford E-450 DRW Cutaway - 65 Qty**

**Model Years:** 2014 - 2015  
**Engine Size:** 6.8L V10 (2V)  
**Tank Size:** Aft-Axle: 41 usable gallons  
**Fuel System:** Roush Cleantech – Propane \$17K



**Ford Transit Cutaway - 162 Qty**

**Model Years:** 2019 - 2020  
**Engine Size:** 3.7L V6/ 3.5L Turbo  
**Tank Size:** 24 usable gallons  
**Fuel System:** ICOM North America – Propane  
**FDOT Cost \$16K**



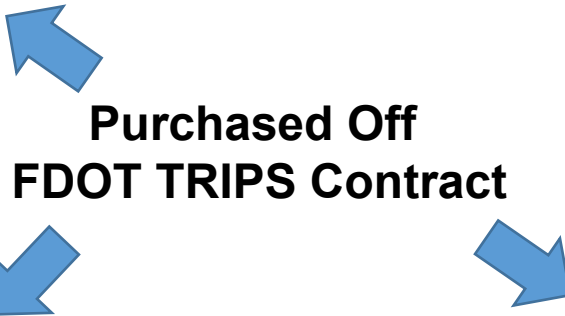
**Ford Taurus– 44 Qty**

**Model Year:** 2018  
**Engine Size:** 3.7L V6  
**Fuel System:** ICOM N.America – Bi-fuel  
Propane/Gasoline - \$8K



**Mobility Ventures MV-1 – 65 Qty**

**Model Year:** 2015/2016  
**Engine Size:** 4.6L V6  
**Fuel System:** Gasoline



**Purchased Off  
FDOT TRIPS Contract**





# Fueling Infrastructure

## Mobile Refueling

**Best Option:** For fleets with limited space for on-site infrastructure.

Good option for evaluating Propane as a fuel source if your plans are uncertain about investing in infrastructure.

- Mobile fueling can be arranged by a local propane retailer.
- A scheduled time can be arranged for your retailer to come on-site and refuel your fleet vehicles one by one.



# Temporary Fueling Infrastructure

- **Best Option:** Fleet is in the process of building permanent refueling infrastructure.
- **Includes:** Exact setup varies, but generally includes a dispenser and fuel tank mounted on a trailer.

This option keeps fleets fueled with a temporary, self-contained refueling setup.

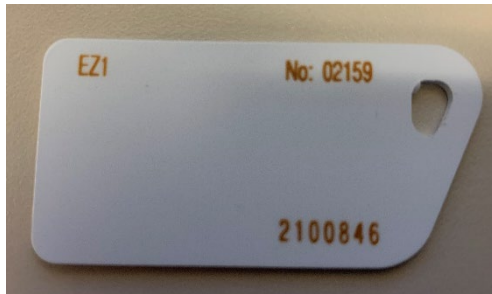
- A propane retailer owns all the equipment, and your fleet refuels using the tank and dispenser for as long as necessary.









*Costs and situations vary; talk to an area propane retailer for more details.*





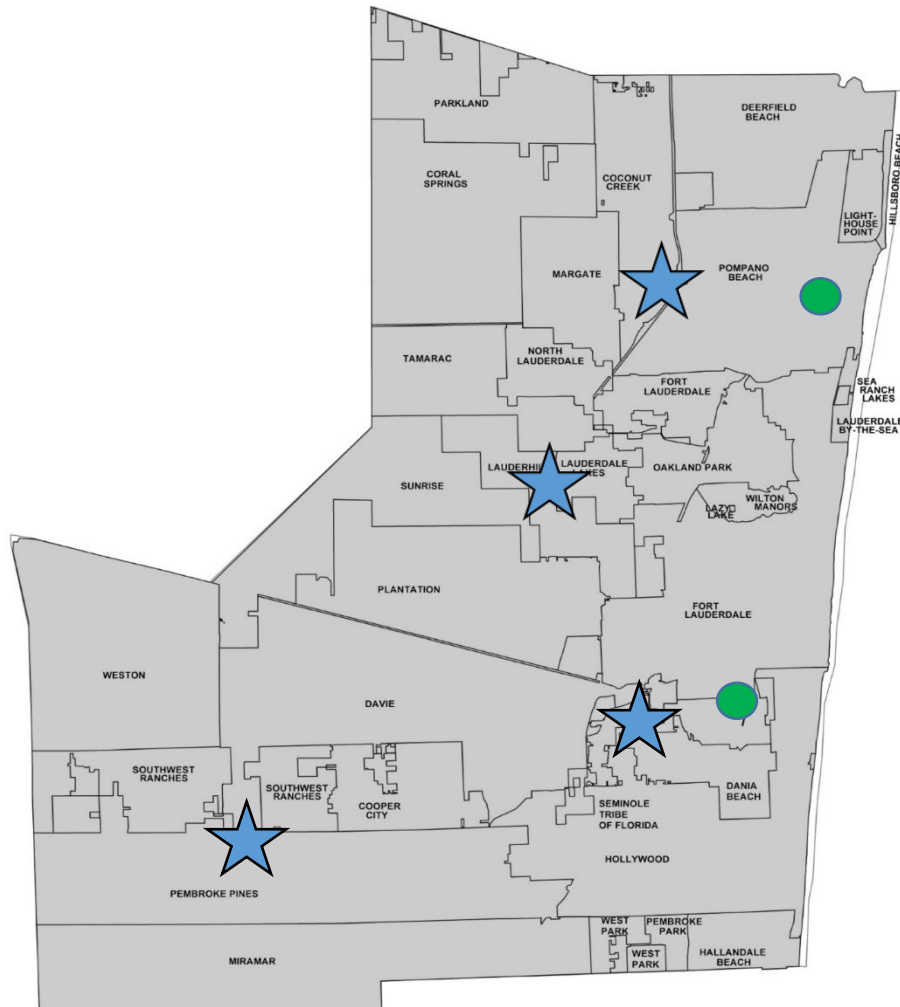
# Fueling Infrastructure



-  Tickets
-  Reports
-  Diagnostic
-  Manage
-  Registration
-  Sign Out
-  Website Instructions
- 

Location	Employee	Vehicle	Odometer	Equipmen	Date/Time	Product	Ticket	Gross	Net
LSF	{unknown}	P0099	268533	PAFD00019	22-03-07 08:21	PROPANE	34432	27.67	27.67
LSF	{unknown}	P0335	95507	PAFD00019	22-03-07 07:45	PROPANE	34431	17.27	17.27
LSF	{unknown}	P0054	258907	PAFD00022	22-03-07 07:43	PROPANE	86783	38.34	38.34
LSF	{unknown}	P0235	125356	PAFD00019	22-03-07 07:34	PROPANE	34430	11.88	11.88
LSF	{unknown}	P0113	262676	PAFD00019	22-03-07 07:19	PROPANE	34429	29.79	29.79
LSF	{unknown}	P0018	280042	PAFD00019	22-03-07 07:14	PROPANE	34428	22.79	22.79
LSF	{unknown}	P0135	242983	PAFD00019	22-03-07 07:10	PROPANE	34427	15.94	15.94
LSF	{unknown}	P0020	264863	PAFD00019	22-03-07 07:05	PROPANE	34426	34.36	34.36
LSF	{unknown}	P0100	264768	PAFD00022	22-03-07 07:00	PROPANE	86782	35.96	35.96
LSF	{unknown}	P0386	94564	PAFD00019	22-03-07 06:57	PROPANE	34425	16.40	16.40
LSF	{unknown}	P0008	282060	PAFD00019	22-03-07 06:54	PROPANE	34424	2.82	2.82

# Fueling Infrastructure



Broward County, FL  
471 Sq. Miles



# Benefits the environment

## It's Clean

- 24% reduction in Greenhouse Gas (GHG) emissions.
- 20% reduction in Nitrogen Oxide (NOx) emissions.
- 60% reduction in Carbon Monoxide (CO) emissions.

and

**It's getting cleaner!**





# Benefits the environment



## Emissions Calculator

Ford E-450

Emissions Reductions	Gasoline	Propane	Difference
Total Vehicle Life (miles)	250,000	250,000	
Average Miles per Gallon	7.00	5.95	
Gallons of Fuel Used Over Life of Vehicle	35,714.29	42,016.81	(6,302.52)
Carbon Mass per Gallon Fuel (lb. / gal.)	5.10	3.47	
Mass of CO2 per Gallon Fuel (lb. / gal.)	18.70	12.72	
Total lbs. of CO2 Produced During Vehicle Life	667,857.22	534,453.82	133,403.40
Fewer lbs. of CO2 Produced Using Propane Autogas			133,403

That's 18,409,614 Fewer lbs. over 5 years.



# Today's Fuel Prices

BPN Pricing & Supply | February 16, 2023

## PRINCIPAL AVERAGES FEBRUARY 16, 2023

Mont Belvieu .....	94.422
Kearney .....	87.486
Conway .....	83.448
Los Angeles.....	185.333
Selkirk.....	112.231
Apex.....	98.461
Hattiesburg.....	90.740

## AAA GAS PRICES

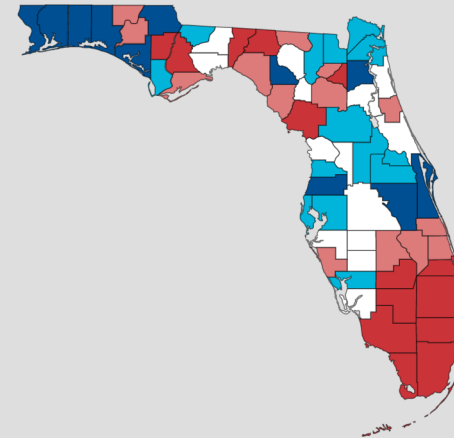
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National Average  
**\$3.402** ▾  
Price as of  
2/21/23

Today's AAA  
Florida Avg  
**\$3.317** ▲  
Price as of  
2/21/23



County Retail Prices  
3.546 to 3.380  
3.379 to 3.319  
3.318 to 3.281  
3.280 to 3.249  
3.248 to 3.132

County average gas prices are updated daily to reflect changes in price. For metro averages, [click here](#).

Propane is \$1.42 vs. Gasoline \$3.31



# Budget impact

	Propane Gallons	Gasoline Equivalent (85%)	Savings
2015	1,226,048	1,042,141	
2016	1,415,286	1,202,993	
2017	1,474,924	1,253,685	
2018	1,571,064	1,335,404	
2019	1,516,090	1,288,677	
2020	681,890	579,607	
2021	609,929	518,440	
2022	778,564	661,779	
<b>Total Gallons</b>	9,273,795	7,882,726	-1,391,069
<b>Total Cost</b>	\$12,194,009.98	\$21,835,150.66	\$9,641,140.68
<b>Cost per Gallon</b>	\$1.31	\$2.77	\$1.46
<b>Alteranative Fuel Tax Credit</b>	(\$3,743,467.00)	0	(\$3,743,467.00)
<b>Total Net Cost</b>	\$8,450,542.98	\$21,835,150.66	\$13,384,607.68
<b>Net Cost per Gallon</b>	\$0.91	\$2.77	\$1.86







Questions?

