ROUSH®
CLEANTECH

BLUE BIRD

BLUE BIRD
PROPANE POWERED VISION

January 19, 2012

800.59.ROUSH

ROUSHcleantech.com

ROUSH® CLEANTECH

WHAT IS PROPANE AUTOGAS?

Clean. Domestic. Abundant. Safe.

Background

ROUSH CLEANTECH

Discovered in 1910

- Dr. Walter O. Snelling

First used as an engine fuel in 1913

Composition

- Propane = C_3H_8
- Gasoline = C_8H_{18}

Sources

- 60% from natural gas refining
- 40% from petroleum refining
- 97% from North American sources

What Is Propane Autogas?

ROUSH CLEANTECH

Clean

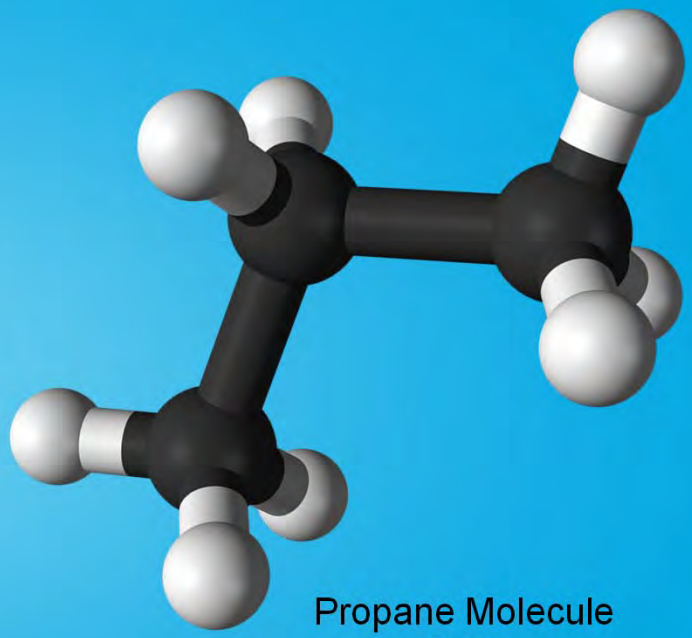
- 24% reduction in Greenhouse Gas (GHG) emissions
- 20% reduction in Nitrogen Oxide (NOx) emissions
- 60% reduction in Carbon Monoxide (CO) emissions

Domestic

- 90% of propane used in U.S. comes from U.S.
- 7% of propane used in U.S. comes from Canada

Abundant

- Most refueling infrastructure of any alternative fuel
- Major natural gas shale found in northeast U.S.
- Powers over 17 million vehicles worldwide



Propane Molecule
(C_3H_8)

Safe

- Low pressure (~ 200 psig)
- Narrow flammability range
- Fuel tanks are 20 times more puncture resistant than gasoline

What Is Propane Autogas?

ROUSH CLEANTECH

On-Site Refueling:

Ford Michigan Assembly Plant (MI)

AmeriGas Propane Tank

Shell (AZ)

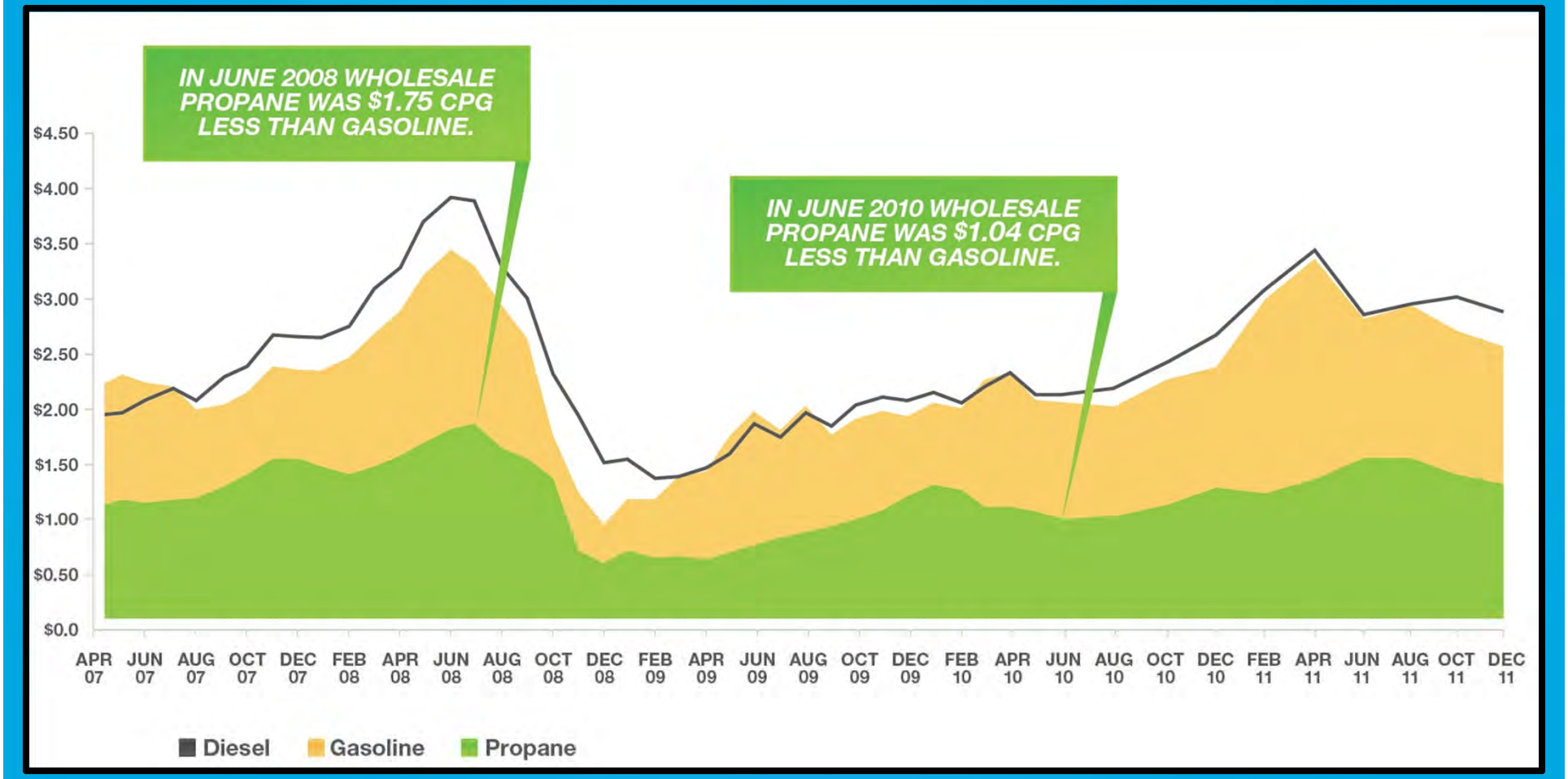

La Pine School District (OR)

ROUSH CleanTech (MI)

Heritage Propane Tank

Average Price of Propane

ROUSH CLEANTECH



ROUSH®
CLEANTECH

ROUSH CLEANTECH

Company Background & History

ROUSH Enterprises Brand Portfolio

ROUSH CLEANTECH

Roush Fenway Racing

- Dominant NASCAR Sprint Cup racing team

ROUSH Performance

- Industry leading high performance vehicles

ROUSH Life Sciences

- Setting a new standard in medical equipment design, manufacturing, and engineering

ROUSH Industries

- OEM quality manufacturing, engineering, prototyping, and design capabilities

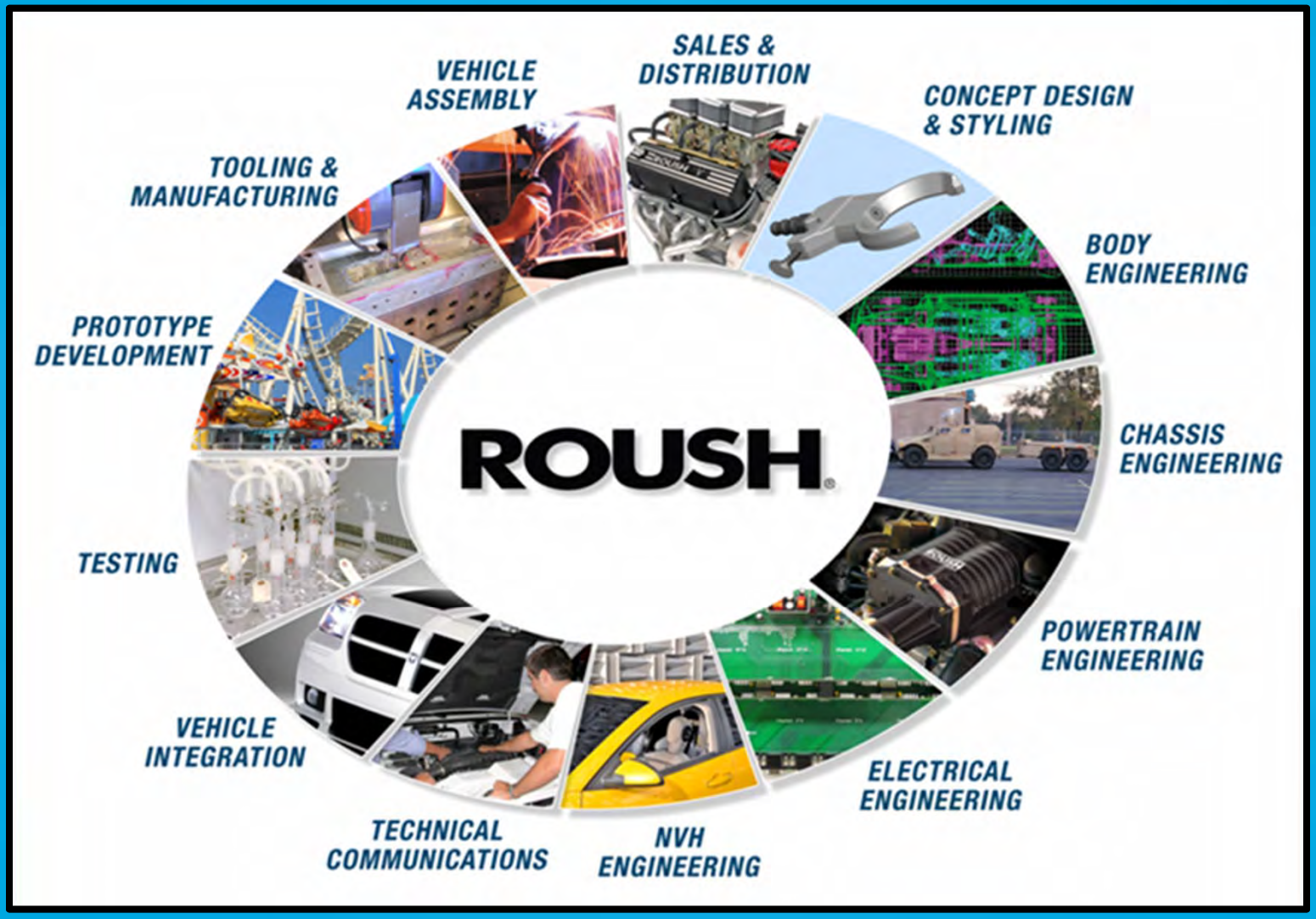
ROUSH Enterprises Brand Portfolio

ROUSH CleanTech

- Dedicated to developing quality alternative fuel solutions
- Propane autogas focus
- EPA and CARB certification ability
- Platform customization to suit customer needs
- Reduces operating costs, carbon footprint
- OEM support through Ford and BPN dealers
- Creating opportunities for partner companies
- Using American fuel and American technology

Corporate Overview

ROUSH CLEANTECH



Corporate Wheel of Capability

ROUSH® CLEANTECH

SYSTEM OVERVIEW & PERFORMANCE:

The Zero Compromise Alternative Fuel Solution

Fuel System Design

ROUSH CLEANTECH

Features:

- Dedicated fuel system.
- Completely replaces factory gasoline fuel system.
- Features OEM quality & design.
- EPA and CARB certified.
- Easy to install, service and maintain.

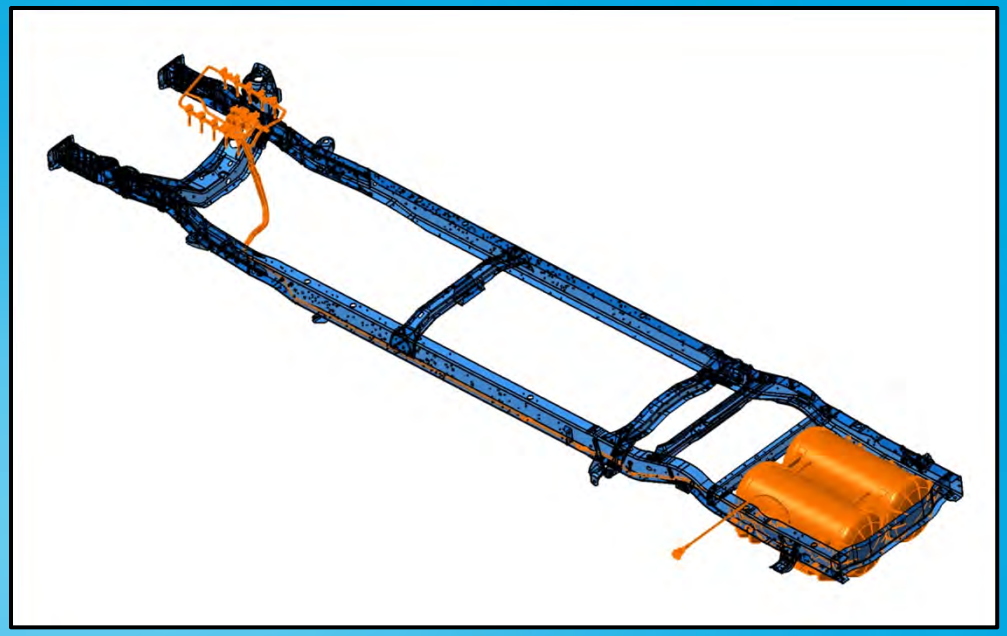
System Overview

Fuel Rail Assembly

- Fuel Rails
- Fuel Injectors
- Injection Press. / Temp. Sensor

Fuel Line Assembly

- Fuel Lines
- Flow Control Solenoid



2011 Ford E-450 DRW Cutaway Fuel System

Fuel Tank Assembly

- Fuel Tank
- Fuel Pump
- Fuel Level Sensor

Powertrain Control System

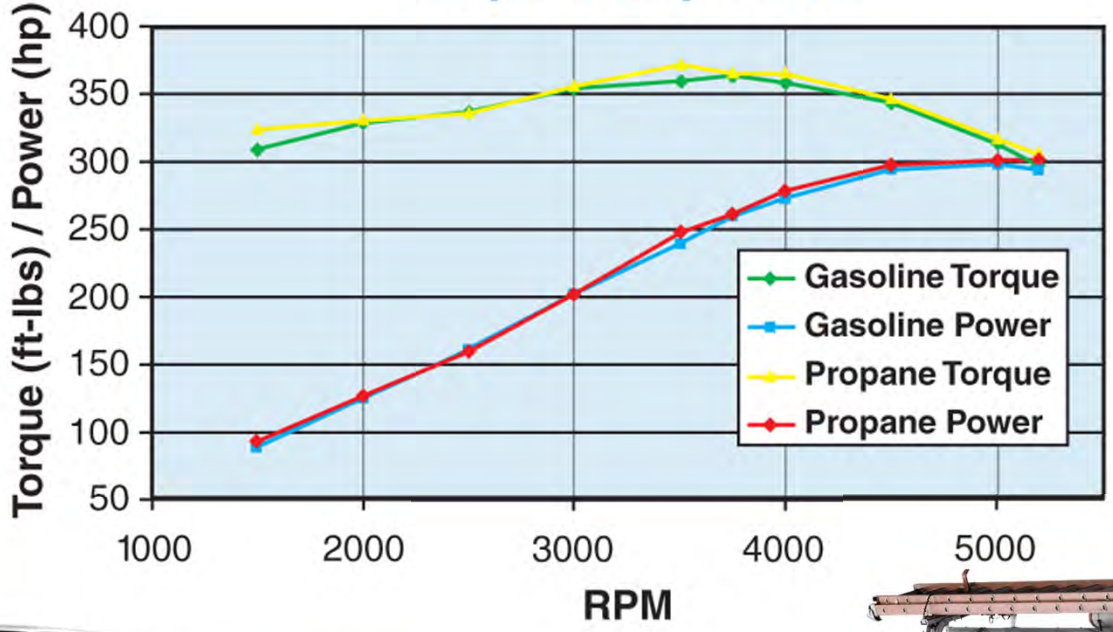
- PCM Calibration
- Wiring Harness

Performance

ROUSH CLEANTECH

2012 Ford E-250 w/ 5.4L V8 Engine

Gasoline/Propane Power and Torque Comparison



800.59.ROUSH

ROUSHcleantech.com

Next Generation Propane-Powered Vision

Smart Solution

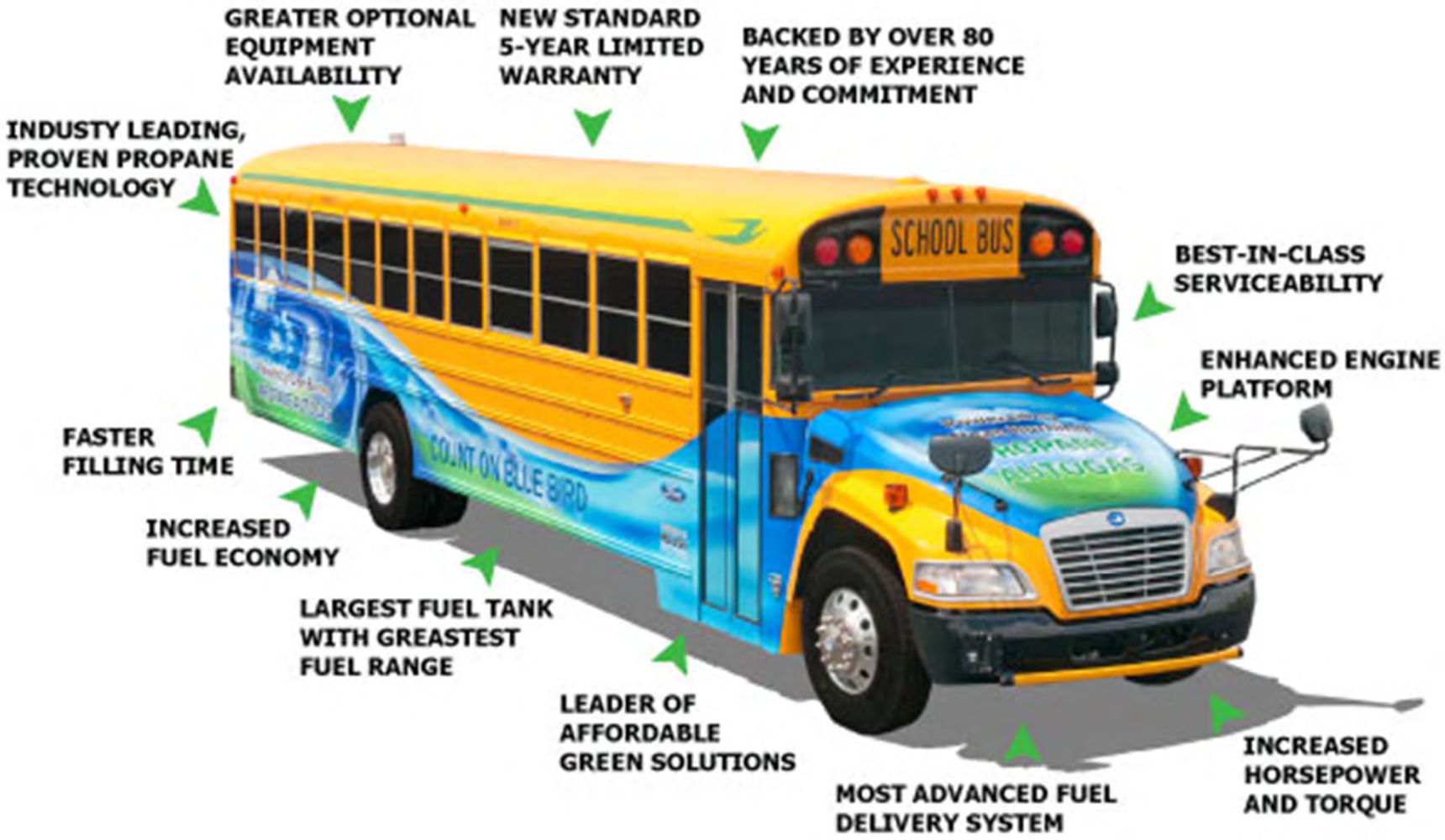
Product Overview

BLUE BIRD

Ford

ROUSH CLEANTECH

Designed with Customers in Mind



Development Partners

- Blue Bird Corporation
- Propane Education Research Council (PERC)
- Railroad Commission of Texas
- Roush
- Ford

Development Strategy

- Utilize our highest volume school bus Types C Vision and successfully have it operate on propane instead of diesel
- Remain designed and engineered to the same exacting standards and meet School Bus Federal Motor Vehicle Safety Standards
- Provide lowest incremental cost alternative fuel powered large school bus
- The result: Fully integrated Type C, OEM propane-powered school buses

Safe, Affordable Green Transportation

Propane – Testing

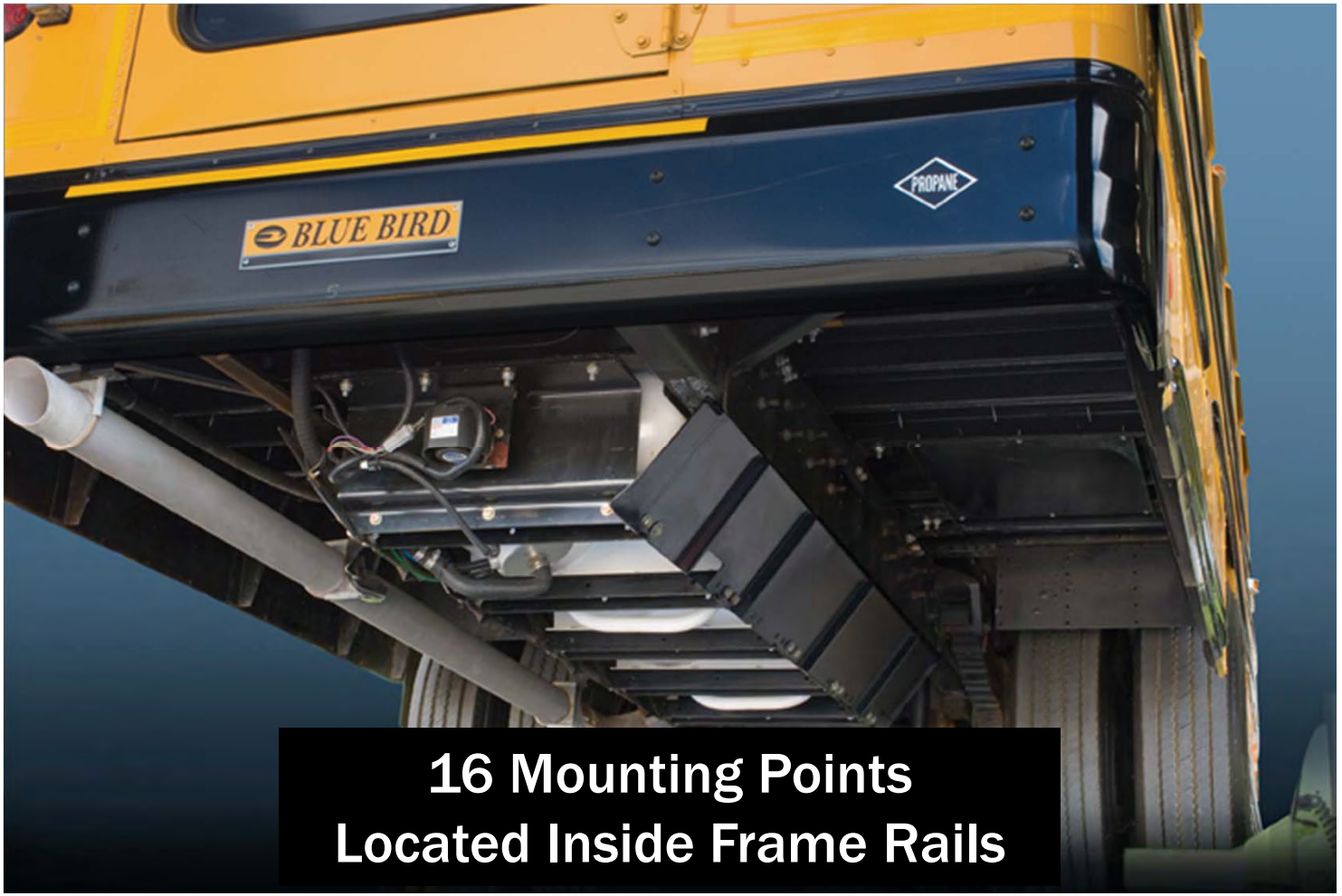
- 4,000 lbs @ 40 MPH
- Angled Side and Rear Impact
- 220 PSI Tank Pressure
- CMVSS 301.1 Protocol
- No Leakage or No Pressure Drop in 30 Minute Test

Blue Bird Vision

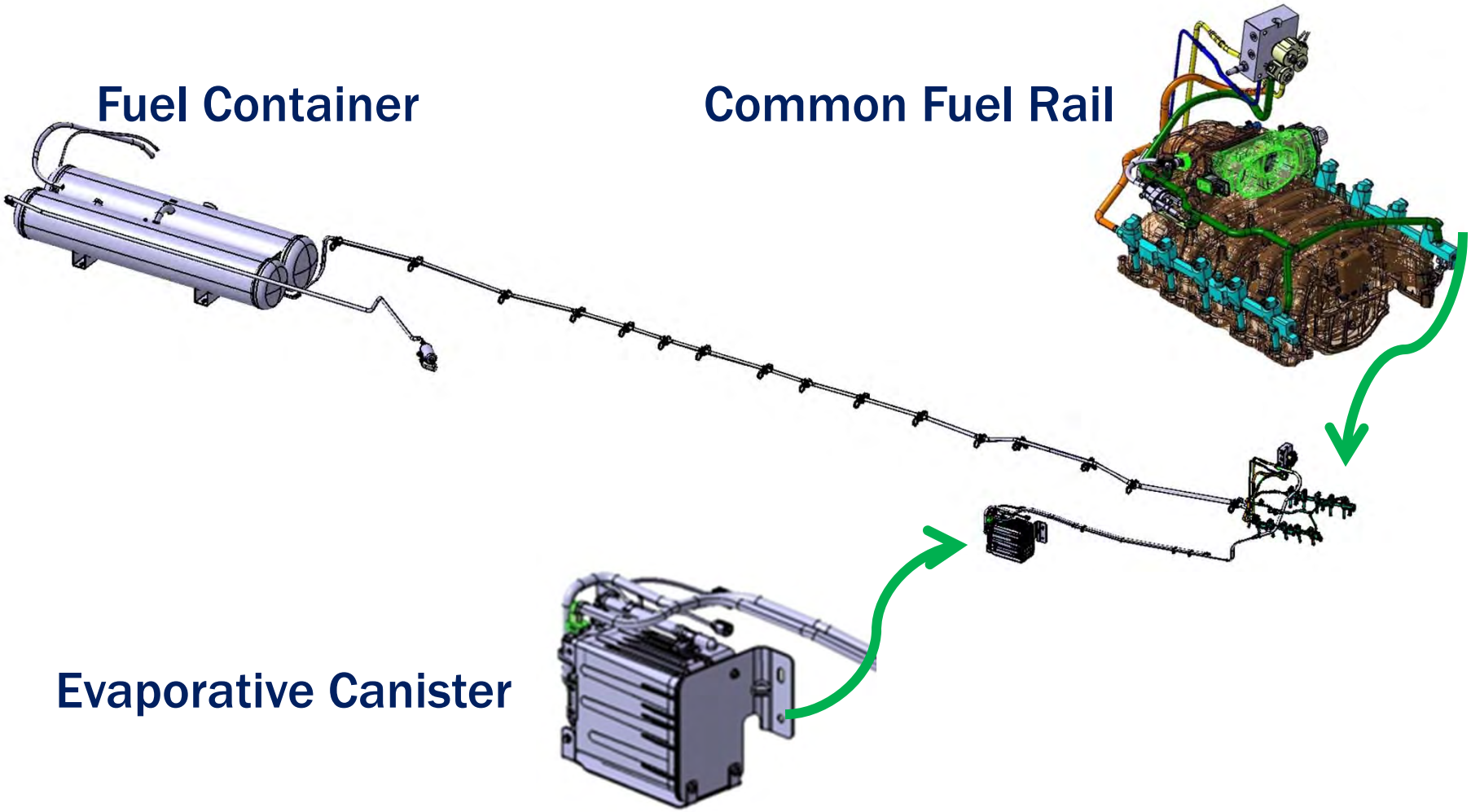
Propane – Fuel System

- 67 Gallon capacity
- Carbon Steel
- 2X the Required Thickness for ASME Certification
- 312 PSI Working Pressure
- Burst Pressure = 5X Working Pressure

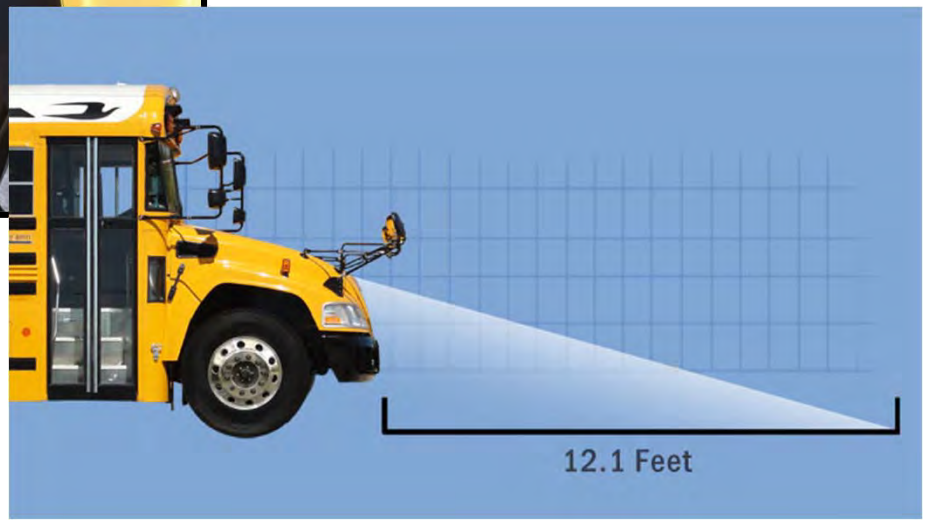
Propane – Fuel System



Propane Fuel System
Simple Design



Propane Engine Packaging



Blue Bird Vision – Type C School Bus Propane-Powered

- Capacities up to 77
- Wheelbases: 189” – 280”
- GVWR Up to 33,000 lb.
- LPG Engine configuration in partnership with Ford & Roush
- Low emission vehicle certification
- 362 HP
- Automatic Transmission
- Fuel Range ~300 miles

Engine & Fuel System Coverage

Engine and Propane Fuel System Coverage

5 year / 100,000 miles


WORLD FAMOUS
ALASKA HIGHWAY

Why propane for the School Bus Industry?

- Propane is the #1 alternative fuel for school bus purchases (industry's most popular alternative fuel)
- Over 17 million vehicles operate on propane, worldwide
- Propane is a viable, domestically produced fuel
- Readily available and affordable propane fueling station infrastructure throughout North America
- Clean-burning alternative fuel lowers operating and maintenance costs

Why our Next Generation Propane-Powered Vision is the right solution?

- 5-year/100,000 mile engine and propane system coverage
- Powered by industry leaders, Ford and ROUSH CleanTech
- ROUSH CleanTech's proven propane technology, backed by more than 35 years of engineering expertise
- Enhanced and Proven Engine Platform: The Ford 6.8L is a regular production engine and is already in use in on-highway vehicles
- Increased horsepower and torque
- Largest available fuel tank
- Ergonomic engine design with greater engine compartment space for easier maintenance access
- Most advanced fuel delivery system

Why choose Blue Bird for Propane and Alternative Fuel?

- Blue Bird is the leader of Affordable Green Solutions in the School Bus Industry
- Blue Bird has over twice as many registered alternative-fuel school buses on the road than all our competitors combined
- Blue Bird is the only manufacturer to offer a large Type C school bus powered by propane along with a Type A propane-powered school bus
- Blue Bird provides Alternative – Fuel solutions with the highest return on investment
- Blue Bird has had OEM propane-powered school buses on the road since 1998

Blue Bird North American Alternative Fuel Markets

Alberta	DC	Maine	Nevada	Texas
Alaska	Florida	Michigan	New York	Utah
Alabama	Georgia	Minnesota	Ohio	Virginia
Arkansas	Iowa	Missouri	Oklahoma	Vermont
Arizona	Idaho	Montana	Ontario	Washington
British Columbia	Illinois	North Carolina	Oregon	Wisconsin
California	Kansas	New Hampshire	Pennsylvania	West Virginia
Colorado	Mass.	New Jersey	S. Carolina	
Connecticut	Maryland	New Mexico	Tennessee	

3 Provinces, 39 States and D.C.

Alternative Fuels
Fit for School Bus Market

- Common Body Lengths, Passenger Capacities & Options Available:
  - Conventional Propane – 6 Wheelbases from 189” – 280” and Up to 77 Passengers
  - Air Conditioning
  - Skirt Mounted Luggage Compartments
  - Spring or Air Ride Suspensions
  - Wheelchair Lifts
  - Flat Floor

Alternative Fuels
Fit for School Bus Market

- Propane provides a safe, attractive and viable fuel choice amidst rising diesel fuel prices
- Lowers operating and maintenance costs
- Utilizes a domestically produced fuel
- Meets School Bus FMVSS & CMVSS, including CMVSS 301.1 Fuel System Integrity for Propane
- Meets 2010 EPA Emissions
- Established propane distribution network public/private retail outlets in the US and Canada for easy infrastructure solutions
- No sacrifice in performance for alternative fuels – performs excellently including cold starts at -40 and steep grades


SCHOOL BUS
Powered by Clean Burning
PROPANE AUTOGAS
COUNT ON BLUE BIRD
Ford
ROUSH
Powered by
PROPANE
AUTOGAS

ROUSH®
CLEANTECH

WHITE FLEET
PRODUCT OVERVIEW:

Pickups | Vans & Wagons | Cutaway Vans
Chassis Cab | School Bus

Product Overview – Vans & Wagons

ROUSH CLEANTECH

Ford E-150 / E-250 / E-350

Model Years: 2009 – 2012

Engine Size: 5.4L V8 (2V)

Applications:
All cargo configurations
All passenger configurations
Single rear wheel cutaway

Tank Sizes:
Mid-Ship: 25 gallons
In-Cab: 46 gallons

Order Availability:
Ford Ship Through
Conversion Kits

Certification:
EPA
CARB

Product Overview – Vans & Wagons

ROUSH CLEANTECH

Ford E-450 DRW Cutaway

Model Years: 2009 – 2012

Engine Size: 6.8L V10 (2V)

Applications: Dual rear wheel cutaway
5-speed auto transmission

Tank Sizes: Aft-Axle: 41 gallons

Order Availability: Ford Ship Through
Conversion Kits

Certification: EPA
CARB

Class A Propane G5 by Micro Bird

ROUSH CLEANTECH

Ford E-450 DRW Cutaway

MICRO BIRD by GIRARDIN

Model Years:	2009 – 2012
Engine Size:	6.8L V10
Applications:	Dual rear wheel cutaway 5-speed auto transmission
Tank Sizes:	Aft-Axle: 41 gallons
Order Availability:	Now
Certification:	EPA CARB

New in 2012 – Ford F-250 / F-350

ROUSH CLEANTECH

Ford F-250 / F-350

Model Years:	2012
Engine Size:	6.2L V8 (3V)
Applications:	All bed configurations All cab configurations
Tank Sizes:	Under-Bed: 25 gallons In-Bed: 49 gallons
Order Availability:	Ford Ship Through Conversion Kits
Certification:	EPA CARB
Available	Q2, 2012

Product Overview – Chassis Cab

ROUSH CLEANTECH

Ford F-450 / F-550

Model Years:	2011 - 2012
Engine Size:	6.8L V10 (3V)
Tank Sizes:	Aft-Axle: 19.5 gallons Aft-Cab: 49.5 gallons In-Bed: 41 gallons
Order Availability:	Ford Ship Through Conversion Kits
Certification:	EPA CARB
Available:	Q1, 2013

Product Overview - Future

ROUSH CLEANTECH

Ford F-650

6.8L V10 (3V)

Ford F-650

Ford F-59 Strip Chassis

6.8L V10 (3V)

Ford F-59 Strip Chassis

Ford Transit

TBD Powertrain

Ford F-150

3.7L V6

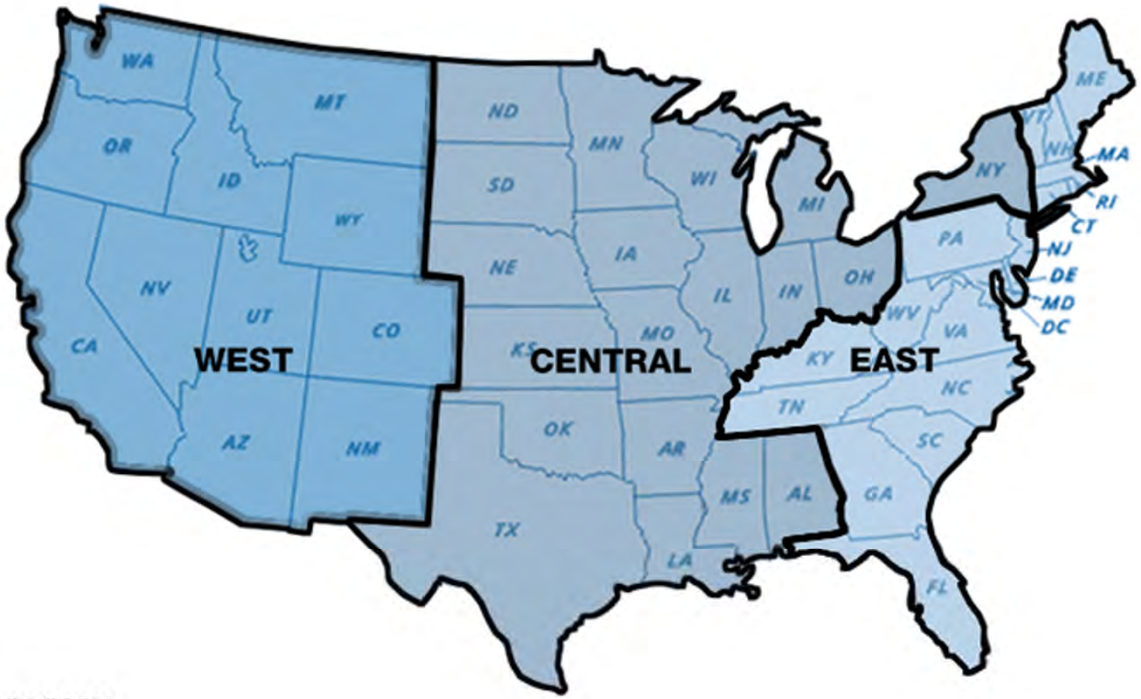
Ford Transit

Sales Territories

ROUSH CLEANTECH

Sales Territories

Government / School / Propane



Territory Managers:

West:	Brad Beauchamp	- 734.679.2756 -	brad.beauchamp@roush.com
Central:	Robert Little	- 734.679.7526 -	robert.little@roush.com
East:	Chelsea Jenkins	- 734.812.1965 -	chelsea.jenkins@roush.com

10.28.2011

ROUSH® CLEANTECH

CONTACT US:

800.59.ROUSH

ROUSHcleantech.com