



# ALTERNATIVE FUEL VEHICLE TECHNOLOGY UPDATE

June 1, 2017

*Tucker Perkins*



# NO<sub>x</sub> EMISSIONS – PROPANE AUTOGAS VS. DIESEL

**MORE THAN**

**92%**

REDUCTION

**WHEN REPLACING PRE-2007  
DIESEL BUSES WITH  
NEW PROPANE BUSES.**

**MORE THAN**

**11%**

REDUCTION

**WHEN PURCHASING A NEW  
PROPANE BUS INSTEAD OF  
A NEW DIESEL BUS.**

**81%**

REDUCTION

**WHEN PURCHASING A NEW,  
BEST-IN-CLASS FOR NO<sub>x</sub> EMISSIONS  
PROPANE BUS INSTEAD OF A  
NEW DIESEL BUS.**

# PROPANE AUTOGAS EMISSIONS PROFILE

## LIGHT-DUTY VEHICLES

### GHG EMISSIONS

SIMILAR TO DIESEL,  
**14% BETTER THAN GASOLINE**

### NO<sub>x</sub> EMISSIONS

**57% BETTER THAN DIESEL,**  
**6% BETTER THAN GASOLINE**

## MEDIUM-DUTY VEHICLES

### GHG EMISSIONS

**7% BETTER THAN DIESEL,**  
**27% BETTER THAN GASOLINE**

### NO<sub>x</sub> EMISSIONS

**18% BETTER THAN DIESEL,**  
**31% BETTER THAN GASOLINE**



# EMISSIONS

# LESS NOISE

# INVESTMENT





PROPANE

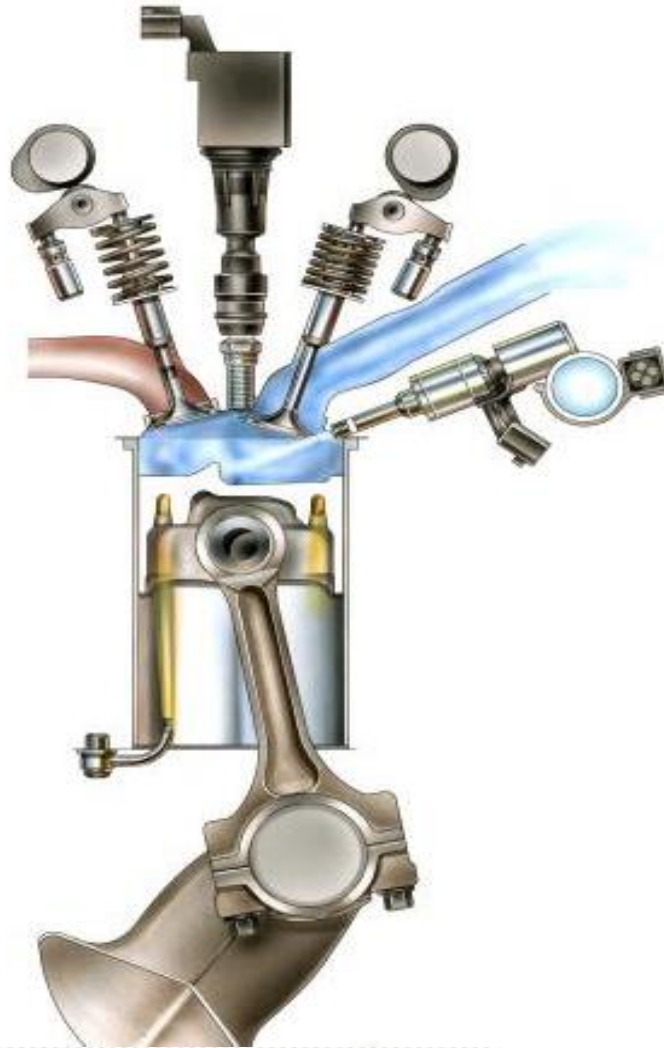
PROPANE EDUCATION & RESEARCH COUNCIL

# DEVELOPING TECHNOLOGIES





# DIRECT INJECTION





# Propane Autogas Medium-duty Options



**ROUSH**<sup>®</sup>

## ROUSH Industries

OEM manufacturing, engineering, prototyping and design



## Roush Fenway Racing

NASCAR racing team(s)



## ROUSH Performance

Industry leading high performance vehicles

**ROUSH**<sup>®</sup>  
CLEANTECH

## ROUSH CleanTech

Propane autogas powered commercial vehicles.



- Medium duty Ford trucks, chassis cabs, cutaways, and stripped chassis; and Blue Bird Type A and C school bus.
- Factory Ford warranty maintained.
- No loss of HP / torque / towing capacity.
- Serviceable with existing diagnostic equipment.
- EPA & CARB Certified.



Ford F-53 / F-59

Ford E-450

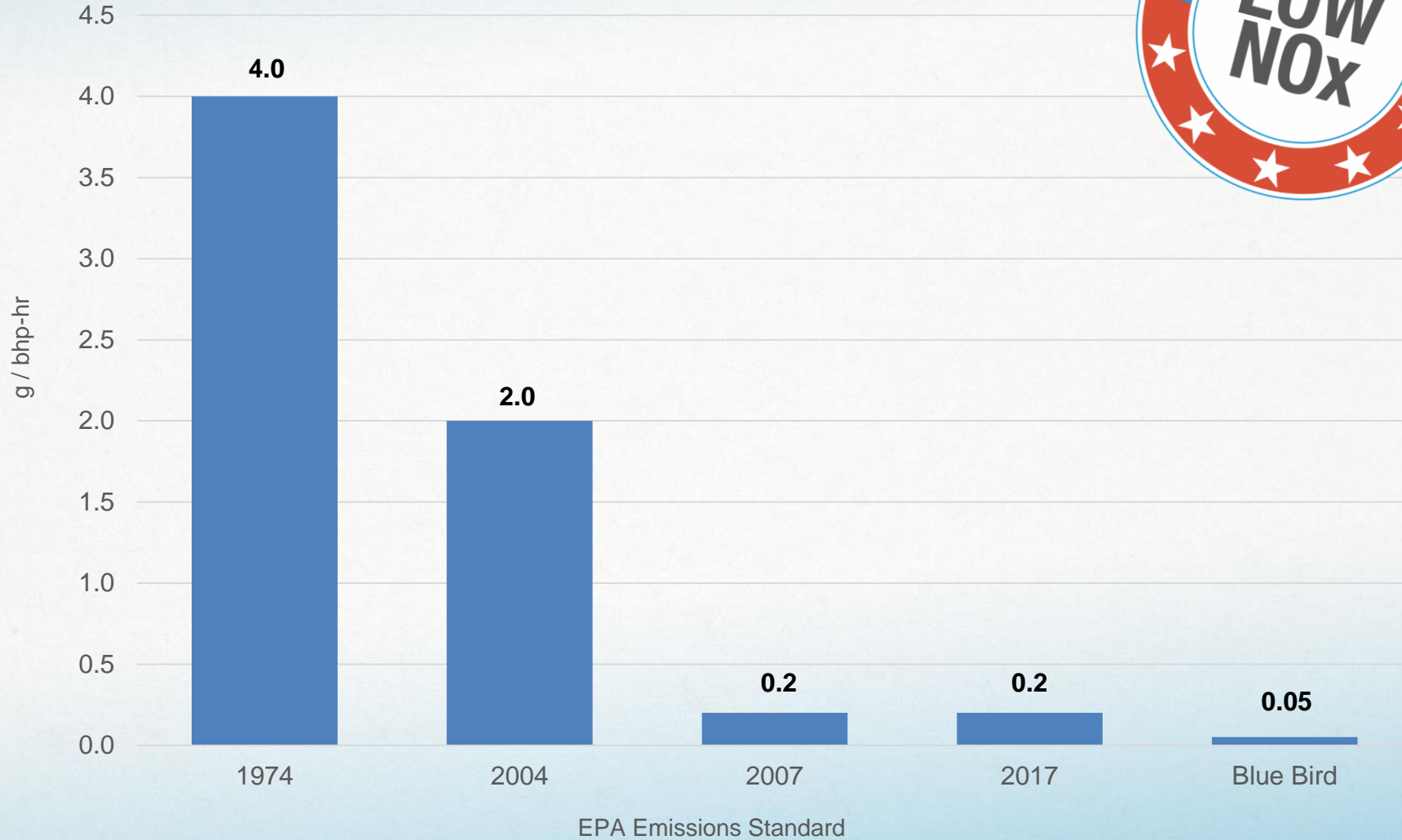
Ford F-450/550

Ford F-650/750

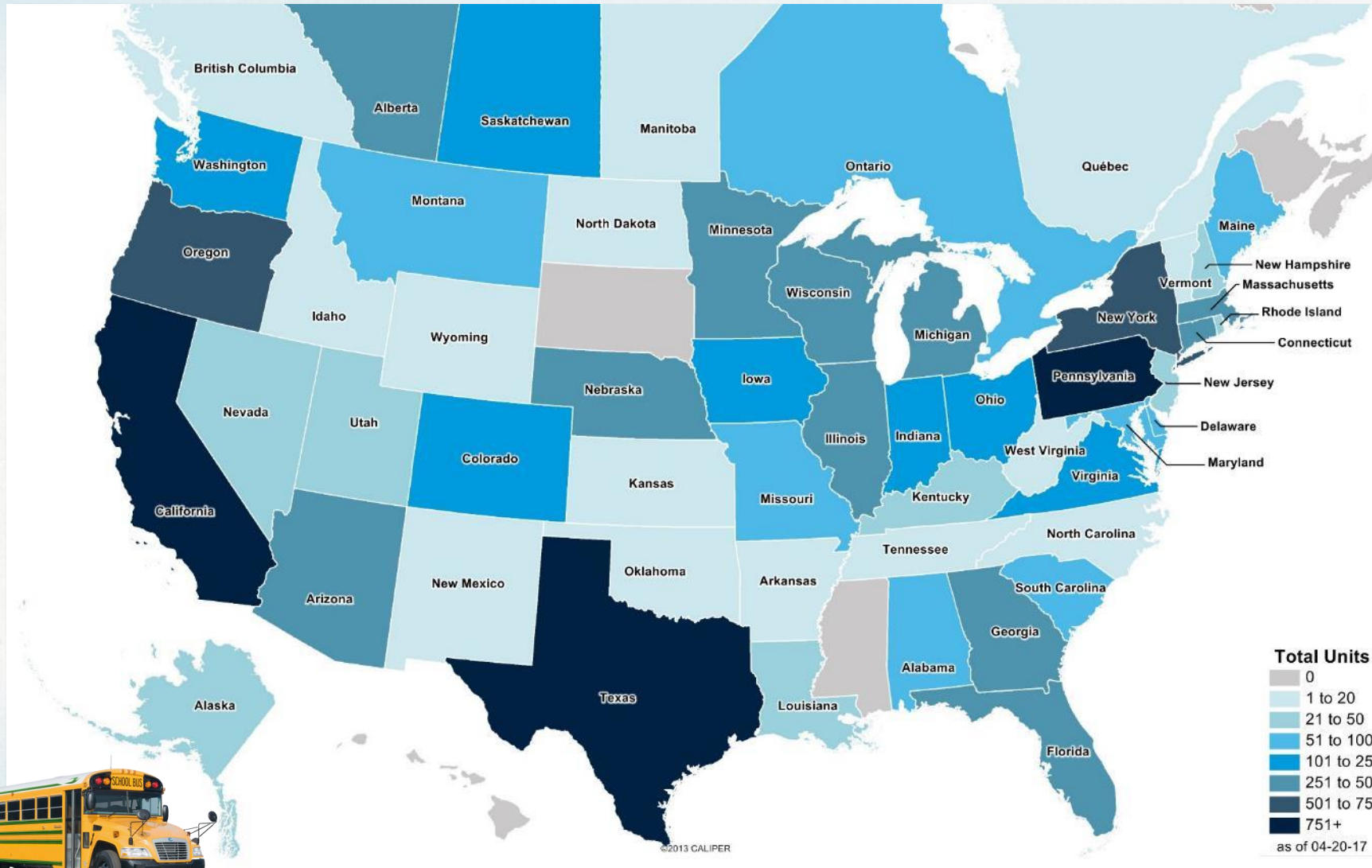
Blue Bird Vision

Micro Bird G5

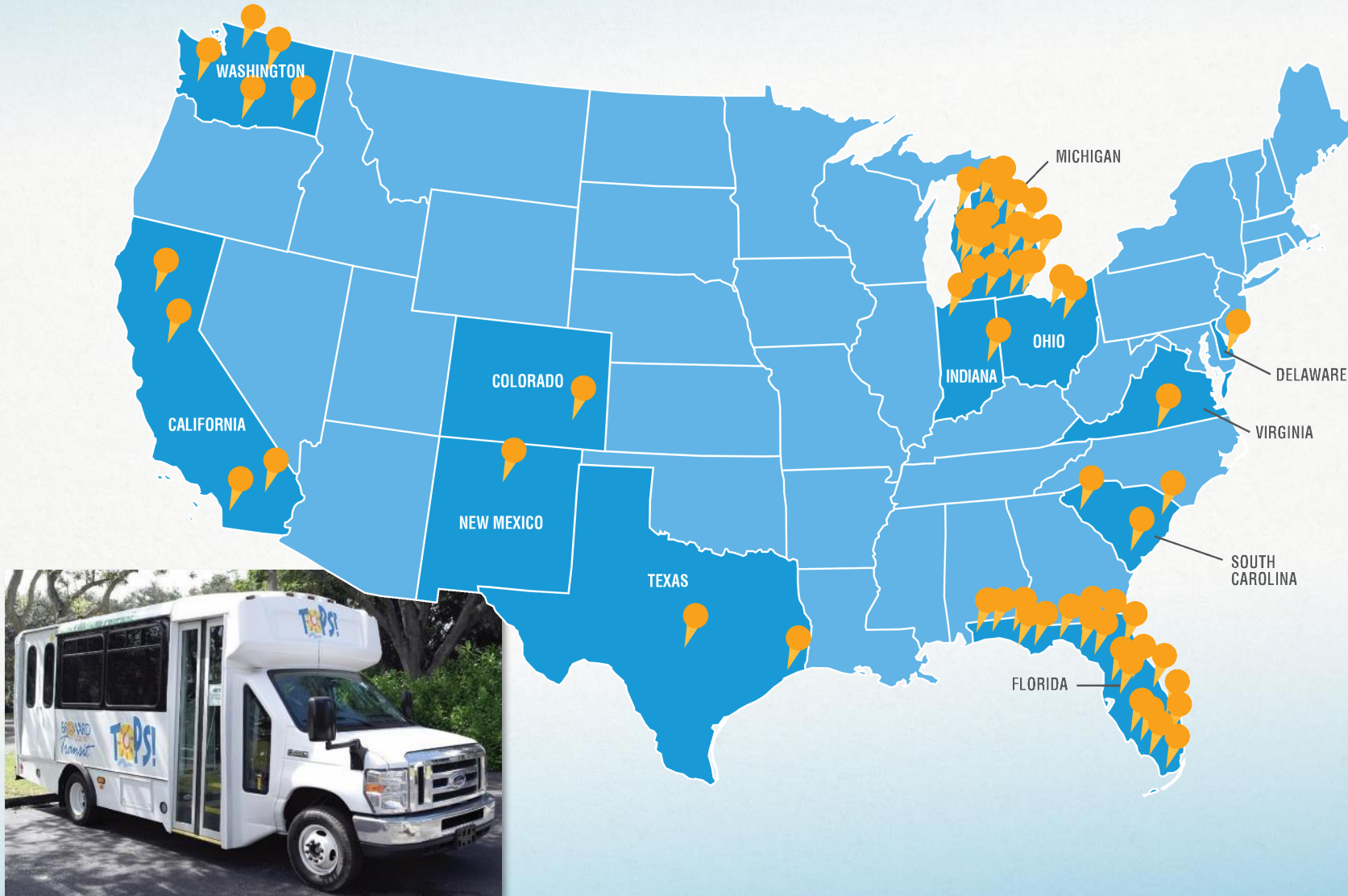
# Low NOx Certified



# Propane School Bus Deployments



# Paratransit Buses





# Food & Beverage Delivery Trucks





**THANK YOU**

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