

# Clean Start

DOE Clean Cities ARRA \$12.3M Funding

National Liquid Propane Refueling Network &  
Green Jobs Program

**COMING SOON**



# What Is It?

- 184 LPG Public-Access Refueling Stations
  - 10 each in the following metropolitan areas:
    - Dallas/Ft. Worth, Austin/San Antonio, Houston, Atlanta, Chicago, Indianapolis, Seattle, Denver Los Angeles, Sacramento-East Bay, San Diego, Phoenix, St. Louis, Oklahoma City, Orlando (qty. 3), Louisiana IH-10; *(pending - Honolulu - Portland)*
  - 31 upgrade sites including 13- CA / CEC Sites
- One Vehicle Service Center in Each Area
  - 3 to 4 in CA / GM & Freightliner Dealers
- LPG Training for Veterans & "At Risk" Service Technicians



# Clean Start Stations...



# Clean Start California Partners...

## **DELTA LIQUID ELERGY**

Phone: (805) 391-3810

*SQAQMD & SAC-East Bay Stations*

Ted Olsen: [tedo@deltaliquidenergy.com](mailto:tedo@deltaliquidenergy.com)

## **EXPO PROPANE**

Phone: (562)984-2800

*SAN DIEGO Stations*

Steve Moore:

[stevem@expopropane.com](mailto:stevem@expopropane.com)



...other CS regions:  
Amerigas and Ferrellgas



# Training?

- The Clean Fuel Service Centers program will provide advanced Alternative Fuel training:
  - Propane-Autogas & CNG safety-training for infrastructure and vehicle system installation; as well as E85, Biodiesel, Hybrids & H2...
- Accredited Courses will be offered as a online-hybrid & classroom and hands on training courses, *as well as accredited CDROM courses for fuel and vehicle technologies...*
- Training sessions will be offered at Texas State Technical College in Waco, Texas as well as across the nation based at Clean Start service & Accredited Class training centers such as Community Colleges like Rio Hondo...
- And...it's **FREE** .....

# Updates and Clean Start Presentation



Copies of presentations will be available on the [Public Solutions Group](#) Facebook page.





# What is Available in OEM Propane Vehicles for 2011 and Beyond...

**PROPANE**  
*EXCEPTIONAL ENERGY™*



- GM Announces LPG for 2012
- Blue Bird School Buses 2008-2012...
- Collins School Bus 2011...
- Thomas School Bus (2012)
- Workhorse Stepvan Chassis 2010...
- Freightliner S2 2012  
<19000 to 33500GVW>
- *Roush / Ford products...*



**SEQUENT SYSTEM TECHNOLOGY**

Propane and CNG Systems Coming Soon...



# CLEANFUEL

USA

Order today?



[www.publicsolutionsgroup.com](http://www.publicsolutionsgroup.com)





## Collins Type-A Cutaway Platform New For 2010



- LAUSD and (12) other CA Districts
  - Durham Transportation
  - First Student (First Group)
  - Student Transportation of America
  - Atlantic Express
- GM - LPI - 8.1L / 2,000 plus in operation and going strong...



Clean Start



**G4500 & G3500**



**2500 & 3500 HD**



**GM 6.0L  
LPI®**

**Model  
Year**

**LPI - Vehicle Platform**

**ORDER BANK**

2010-  
2011  
2012

6.0L Chevy & GMC Cutaway G Van Chassis  
6.0L Chevy & GMC Sierra Silverado Chassis  
Bed Delete Option...

**Order Window Open**

**2<sup>nd</sup> QTR 2012 MY**

 **LIQUID PROPANE INJECTION**



**Clean Start**



**2500 & 3500 HD**



**GM 6.0L  
LPI®  
Rollout**



**Model  
Year**

**LPI – GM Vehicle Platform**

**ORDER BANK OPEN**

2012

- 6.0L Workhorse Chassis
- 6.0L Collins Type-A Cutaway School Bus
- 6.0L Chevy & GMC Sierra Silverado Pick-Up Trucks  
2500 & 3500 HD
- 6.0L Chevy & GMC Savanna/Express Cargo Vans

2011-2012

2<sup>nd</sup> QTR 2012

2<sup>nd</sup> QTR 2012





**GM / Isuzu NPR /Cab Forward  
6.0L**



 **LIQUID PROPANE INJECTION**

Soon to be Announced...

**2012**

# New for 2012 / Fall 2011 Release... GM 8L / Freightliner S2 Chassis





# Cost Effective

**6.L Med-Light Duty Truck – Fuel Cost**  
**14,200 lbs. GVWR**  
**30,000 Miles per Year**  
**Fuel at Fleet Price**

- Diesel \$4.50
- Gasoline \$4.00
- LPI – Propane \$2.10

**Fed Fuel Credit -\$0.50**  
**Net LP-AutoGas \$1.60**

### Annual Fuel Savings

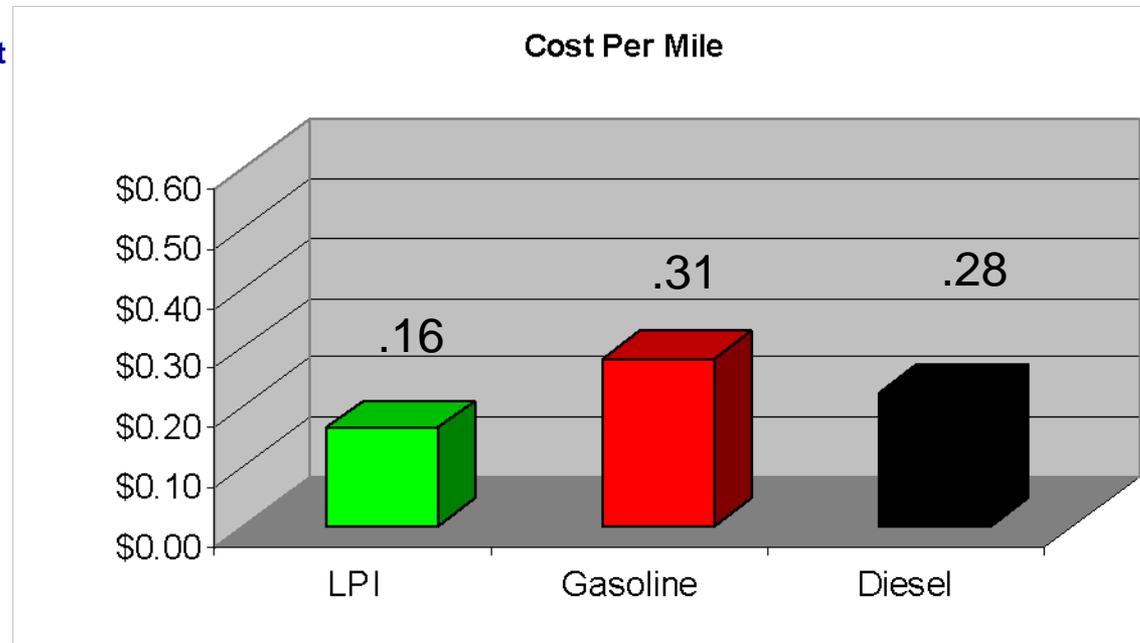
**LPI vs. Gasoline = \$3,459**

**LPI vs. Diesel = \$1,725**

### Fuel Savings Over 7 Years

**LPI vs. Gasoline = \$24,212**

**LPI vs. Diesel = \$12,078**



Propane fuel price reflects the VETC Tax Credits  
Prices will vary based on local conditions



# CAPACITY

ISO 9001

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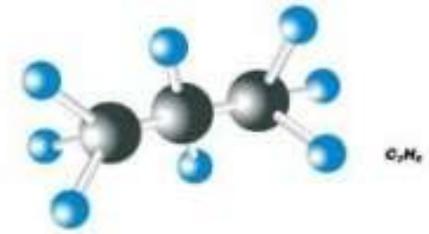


## Capacity Propane Terminal Prot Tractor...

- **GM 8L / 2012 MY**
  - Propane-AutoGas Prot Tractor
    - Funded by PERC, Capacity and CFU.
- **Current R&D Projects...**
  - **6L PHEV**
    - Propane-Autogas / PHEV
  - **6L Series Hydraulic Hybrid (EPA Technology)**
    - Propane-AutoGas / Series Hydraulic Hybrid



# Why Propane?



## The Propane-AutoGas Advantage:

- Still the most widely available and lowest cost domestically produced alternative fuel in AMERICA...
- Non-toxic, reduces - GHG, PM, NOx....is not a ground contaminant or Ozone threat !
- Abundant supply and here in CA and the U.S. as a byproduct / net exports 2009-2011...
  - 50% comes from natural gas & 50% from refining oil
- Similar MPG as gasoline (same tank size and weight and fill time as gasoline & diesel
- Supports Energy Independence, Emission Reduction & Petroleum Displacement
- **DME - BioFuel PATH TO MARKET...**



# Back to the Future...

- Propane Oldest Alternative Fuel
- BioPropane Blend with DME
  - Dimethyl Ether from Syngas / Biomass / Black Liquor
  - BioPropane - 15% AutoGas / 85% DME for LSI Engines
  - BioDME for Compression Ignited Engines (diesel path)
- Infrastructure ASME & UL Certification - Listing
  - Transport Components
  - Storage Tank Components
  - Refueling Dispensers (UL Listing)
- BioDME & BioPropane Vehicle Fuel Systems
  - LPI & DFI Feasibility / Testing / Soak Testing
  - Wildcard - Combining LP & DME Biofuels with PHEV & Hydraulic Hybrids
- Working towards a LA Ports Demonstration Project...

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Network & Green Jobs Program

## Questions:

Contact:

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