Transitioning Fleets to Cleaner Fuels and Vehicles

February 21, 2019
Transportation Energy Partners

- Provides policy support to the nation’s Clean Cities Coalitions & our 15,000 stakeholders
- Keeps coalitions & stakeholders informed of key policies, programs, & funding opportunities
- Educates decision makers about the importance of advancing markets for clean vehicles and fuels
Today’s Presenters

Karen Fleig, EarthX

Nancy Luong, Dallas-Fort Worth Clean Cities

Frank Granados, Medical and Fire District, Rio Rico, AZ

Marcela Arizpuro, Director of Food Service & Transportation, Amphitheater Public Schools, Tucson, AZ

Mike Sullivan, Director of Fleet Management & Maintenance, Central Freight Lines, Fort Worth, TX

Ken Brown, Transportation Energy Partners
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Tree World • EarthxKids Area & more!

For more information & FREE admission, register at EarthX.org by March 31st.
Clean Cities was created by the Department of Energy (DOE) to Address the Requirements of the Energy Policy Act (EPAct) of 1992:

- To advance the nation’s economic, environmental, and energy security by supporting local practices that contribute to affordability, economic growth, and national security
- Partners with public and private fleets
- Alternative fuel neutral

www.dfwcleancities.org
Clean Transportation Workshop at EarthX

*Sirens, Schools and Shippers: Solutions for Fleets that Serve our Community*

Friday April 26, 2019
8:00 am – 12:00 Noon central time
Fair Park, Dallas Texas
Save the Date

Important Webinar

Maximizing Federal Funding for Clean Transportation Programs

Wednesday February 27
3:00-4:00 pm eastern time
AFVs for Healthy Neighborhoods
Frank Granados
Rio Rico Medical and Fire District
Waste cooking oil dumped in the desert was polluting the Santa Cruz River and impacting the Santa Cruz County wastewater treatment plant.

Government grant funded the construction of two biodiesel plants – at a Rio Rico fire station and at a university in Nogales, Sonora.
The program was successful until the grant monies ran out and then it slowed down to a trickle.
We partnered with our community asking them to not throw away used vegetable oil that would end up at the landfill, but rather to drop it off at our fire stations.
We were amazed at the community response. Residents started dropping off 16 oz. repurposed water bottles and 5 gallon containers filled with used oil.
At first it was enough to make a few batches a month of biodiesel.
We were soon delighted to have a used oil storage problem!
Oil is moved from storage tanks
Into modified water heaters
Not just fighting fires and saving lives, we make biodiesel, to save money and the air we breathe.
B20 Ambulance
This wildland truck can use B50
We sold off gas vehicles and purchased used diesel vehicles.
30,000 Reasons we committed to a biodiesel program
We realized over a 20% savings on fuel.
Our Plan for 2019

- Purchasing a blender dispenser fuel machine to enable us to run B100, B50, B20 and B5 in our fleet!

- All Diesel engines will be running a blend of Biodiesel!
Sustainability

- We are giving away extra oil to others in need of waste vegetable oil for their private or fleet use.
- Over 300+ gallons donated each month by our community plus our restaurant donors.
- We are driving through neighborhoods with 30,000 pound fire trucks are greatly reducing the amount of Carbon Dioxide, Hydro Carbons and Particulate Matter.
It works! Our relationship with our neighbors is second to none!
Not just our Rio Rico neighbors but our neighbors to the south are also involved.
Thank You
Propane Buses

Marcela Arizpuro, MA
Director of Food Service and Transportation
District Background

- Located Tucson, AZ
- 112 square miles
- 21 school sites
- $1,481,088 annual miles travel
- Transport 6,000 students
- Routes 376 AM/PM
- Fuel Buses:
  - 25 Propane, 109 Diesel, 3 gas
Why propane buses?

• Objective 1-
  • Explore alternative fuel technology to generate clean energy.

• Objective 2-
  • Reduce diesel fuel costs.
Transition challenges

• Challenges

• Operators were distrustful of new technology due to poor execution and implementation of routing software.

• Limited input from operators when purchasing propane buses.

• Requires operators to fuel twice a day.
Transition challenges cont’d

• Terrain - Tucson elevation is 2,389 feet. The northern part of the school district is 3,123 feet.

• New Director
Moving forward

• Meet with all stakeholders and just listen and gather information.

• I ask the following questions:
  • What type of buses do you want to operate?
  • What type of buses do you want to work on?

• Communicate the objectives, benefits of propane buses and train personnel.
Intent vs. Impact

- Significant noise level difference between diesel and propane buses are beneficial to special education students.

- Enhanced relationship with community members due to lower noise level.
Environmental benefits

• Propane is actually a no-spill fuel — the buses use a closed-loop fuel system. *

• Reduction of Nitrogen oxide, known as NOx, is a compound found in vehicle tailpipe emissions that is toxic to humans.

• NOx emissions by over 1,000 pounds and particulate matter by nearly 10 pounds each year when compared with the 2009 diesel buses they replaced. *

*Retrieved from: Propane Clean America and Rousch Clean Technology
Environmental benefits cont’d

- **Emissions: Reduced**
  - Propane autogas burns far cleaner than diesel, with less harmful emissions:
    - Up to 20 percent less nitrogen oxide
    - Up to 60 percent less carbon monoxide
    - Up to 24 percent fewer greenhouse gas emissions
    - Fewer particulate emissions

Retrieved from https://www.roushcleantech.com/blue-bird-vision-propane/
Environmental Benefits Cont’d

*Retrieved from Roush-bus driver flyer
What is next?

• Research electric bus technology.

• Explore possibility of transitioning white fleet vehicles to propane.

• Continue to explore alternative models to support students in their educational journey.
Sources

• Roush Clean Tech
  • https://www.roushcleantech.com/blue-bird-vision-propane/

• Propane Clean America
  • https://propane.com/propane-uses/school-transportation/resource-kit-for-school-parents/

• School Bus Fleet
  • https://www.schoolbusfleet.com/blogpost/sbfblog/728302/5-more-propane-benefits-for-school-buses
Leading the Sustainable Future
# The Central Portfolio of Services

<table>
<thead>
<tr>
<th><strong>LTL</strong></th>
<th><strong>Customer Care Center</strong></th>
<th><strong>Transportation Services</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inter-Regional</strong></td>
<td>Centralized Customer Care Center in addition to regional satellite care centers to provide real-time, local responsiveness. Consistent training and access to the most current technology available, provides you with a Customer Care Department that can be your one call answer team.</td>
<td><strong>Dedicated Fleets</strong></td>
</tr>
<tr>
<td>20 State - Footprint</td>
<td></td>
<td>Central Freight has the resources and equipment to provide dedicated moves to meet our customer needs.</td>
</tr>
<tr>
<td>80 Terminals – 25 in Texas</td>
<td></td>
<td><strong>Pool Distribution</strong></td>
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<table>
<thead>
<tr>
<th><strong>Truckload</strong></th>
<th><strong>Guaranteed</strong></th>
<th><strong>Expedited</strong></th>
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<tbody>
<tr>
<td><strong>Specific Lane Capacity</strong></td>
<td><strong>Simply Guaranteed</strong></td>
<td><strong>Priority One</strong></td>
</tr>
<tr>
<td><strong>Swift-Coast to Coast</strong></td>
<td>Use <em>Simply Guaranteed</em> when you need guaranteed on-time delivery by noon or 5:00 PM within our network-<strong>guaranteed</strong>. on/line claim filing</td>
<td>Use <em>Priority One</em> for your customized transportation solutions throughout the world.</td>
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<tr>
<td><strong>TransMex-Mexico</strong></td>
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<tr>
<th><strong>Specialized</strong></th>
<th><strong>Warehouse Services</strong></th>
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<tbody>
<tr>
<td><strong>3PL</strong></td>
<td>Terminals with capacity for warehousing, inventory control and final distribution.</td>
</tr>
<tr>
<td><strong>Retail</strong></td>
<td></td>
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<tr>
<td><strong>Chemical</strong></td>
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<tr>
<td><strong>Fortune 500</strong></td>
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<td><strong>Automotive</strong></td>
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<td><strong>Oil &amp; Gas</strong></td>
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<td><strong>Industrial - Manufacturing</strong></td>
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<td><strong>single Source Logistics Provider</strong></td>
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Central Freight Fleet Dynamics

- 1237 Company Tractors
- 747 Owner Operators
- 8653 Trailers
- 200 CNG Tractors
- 3 CNG Fueling Stations
Compressed Natural Gas (CNG) Tractors

Central Freight Lines is committed to a sustainable environmentally favorable solution as we continue to grown in your community.

CNG’s produce 22 percent less greenhouse gases than comparable diesel vehicles and 29 percent less than comparable gasoline vehicles.

In one year Central Freight Lines reduced NOx emissions by 77,545 tons with the use of CNG vehicles.
### Monthly Fuel Economics

#### 170 P&D Tractors

<table>
<thead>
<tr>
<th></th>
<th>Diesel</th>
<th>CNG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miles Driven per Month (35,000/yr avg)</td>
<td>2,900</td>
<td>2,900</td>
</tr>
<tr>
<td>Fuel Economy (MPG)</td>
<td>6.7</td>
<td>6.0</td>
</tr>
<tr>
<td>Fuel Usage (Gallons per Month)</td>
<td>433</td>
<td>483</td>
</tr>
<tr>
<td>Diesel Cost Per Month/DGE (2018 Avg)</td>
<td>$2.68</td>
<td>$1.50</td>
</tr>
<tr>
<td>NG Fuel Savings per DGE</td>
<td>-</td>
<td>$1.18</td>
</tr>
<tr>
<td>Monthly Fuel Savings</td>
<td>-</td>
<td>$570</td>
</tr>
<tr>
<td>Yearly Fuel Savings/unit in 2018</td>
<td>-</td>
<td>$6,844</td>
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<tr>
<td><strong>Total P&amp;D Fleet Fuel Savings 2018</strong></td>
<td></td>
<td><strong>$1,163,480</strong></td>
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#### 30 Line Haul Tractors

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<tr>
<th></th>
<th>Diesel</th>
<th>CNG</th>
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<tbody>
<tr>
<td>Miles Driven per Month (80,000/yr avg)</td>
<td>6,500</td>
<td>6,500</td>
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<tr>
<td>Fuel Economy (MPG)</td>
<td>7.3</td>
<td>6.75</td>
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<tr>
<td>Fuel Usage (Gallons per Month)</td>
<td>890</td>
<td>963</td>
</tr>
<tr>
<td>Diesel Cost Per Month (2018 Avg)</td>
<td>$2.68</td>
<td>$1.50</td>
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<td>-</td>
<td>$1.18</td>
</tr>
<tr>
<td>Monthly Fuel Savings</td>
<td>-</td>
<td>$1,136</td>
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<tr>
<td>Yearly Fuel Savings/unit in 2018</td>
<td>-</td>
<td>$13,636</td>
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<tr>
<td><strong>Total Line Haul Fleet Fuel Savings 2018</strong></td>
<td></td>
<td><strong>$409,066.67</strong></td>
</tr>
</tbody>
</table>

**Total CNG Fleet Fuel System Savings** $1,572,548
Fleet Innovators in Sustainability

- 2018 Top 50 Green Fleets in America- HD Trucking Magazine
- 2017 Lone Stare NGV Award
- 2016 ACT Expo Fleet Award, Leading Carrier
- 2016 Purchases 100 CNG Freightliner Cascadia, 12 Liter
- 2015 Top 50 Green Fleets in America-HD Trucking Magazine
- 2015 Fort Worth and San Antonio CNG station opening
- 2015 Purchased 55 CNG Freightliner Cascadia, 12 Liter
- 2014 Houston CNG Station Opens, Largest Volume for CNG only station in US
- 2014 Purchased 100 CNG Freightliner, 9 Liter
- 2013 Purchase 13 CNG Peterbilt Trucks, Houston
- 2011 SmartWay Transportation Partner
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