Leon County Schools
Compressed Natural Gas for School Buses

EXECUTIVE SUMMARY

Four years ago, when concerns about carbon emissions were reaching critical mass along with the price of gasoline, Superintendent of Schools Jackie Pons realized that the district’s diesel-powered fleet of more than 200 buses was tough on air quality and Leon County taxpayers. He instructed his staff to find a smarter option.

A year later, with the backing of the Economic Development Council, Sustainable Tallahassee, the County Commission and Leon County Sheriff Larry Campbell, the School Board applied for a U.S. Environmental Protection Agency grant of $350,000 to buy eight buses powered by compressed natural gas (CNG), a much cleaner and less expensive alternative than either gasoline or diesel. The district fleet now includes 14 CNG buses and will soon add 30 more. To fuel these school buses LCS has constructed a fast-fill CNG fueling station at the LCS bus maintenance facility located on the east side of Tallahassee on Conner Boulevard.

This was only the first phase of a long-term plan to replace Leon County Schools’ diesel-powered fleet with CNG buses – substantially reducing the district’s carbon footprint without costing taxpayers more money in the long run and relying on a domestic source of energy at the same time. Superintendent Pons has said that he does not want to buy even one more diesel-powered for the district. It’s not good enough to talk about the benefits of going green, he says. It’s time to do it.

LCS has now entered the second phase of the CNG plan. At LCS Lively Technical Center, the auto mechanics curriculum has been supplemented with CNG for vehicle training. Lively Tech is also certified to instruct students to complete CNG conversions on automobiles. Additionally, a second west-side, fast-fill CNG/Liquified Natural Gas fueling station will be operational on July 1, 2012. This fueling station will be a private/public partnership with a private sector supplier and will be open to the public.

Several vehicle fleets throughout the country and abroad already have converted to CNG, and the EPA has said the cleanest internal-combustion personal vehicle on the road today is powered by CNG. “Some day in the future, I hope everyone in the Tallahassee area will have the option of buying CNG for their own cars and trucks,” Superintendent Pons said. That day is now.
FAQ on CNG-powered school buses:

1. What are the environmental benefits? Natural gas is the cleanest-burning alternative fuel currently available. According to the U.S. Department of Energy’s National Renewable Energy Laboratory, CNG buses produce from 49 to 63 percent lower nitrogen oxide emissions. These include nitrogen dioxide, which is linked to several adverse respiratory effects. In addition, CNG buses produce up to 84 percent less particulate matter than diesels and virtually no visible particulate matter or soot at the tailpipe. Greenhouse gas emissions of carbon dioxide are estimated to be from 20 to 25 percent lower with CNG buses. Finally, CNG buses are considerably less noisy than diesel-powered buses. That’s good not only for the students riding the buses, but also the neighborhoods where students catch the bus and are dropped off.

2. Are CNG buses safe? No vehicle is collision-proof. But according to the Clean Vehicle Education Foundation’s Technology Committee Bulletin (January 2008), fleets fueled by natural gas have a better safety record than those powered by gasoline. Based on a survey of more than 8,300 natural-gas fleet vehicles that traveled more than 178 million miles, the injury rate was 37 percent lower than fleets running on gasoline. There were no fatalities recorded in the survey versus 1.28 deaths per 100 million miles for gasoline fleets. Further, the cylinders that contain the CNG are considerably thicker and stronger than gasoline or diesel tanks, designed not to rupture when fully fueled more than six times daily every day of the year — far more frequently than they will be fueled in practice. In the highly unlikely event that a cylinder were to rupture, the nontoxic natural gas vapors would simply dissipate into the air instead of forming a highly flammable liquid pool on the road, as would be the case with a leaking diesel tank. Moreover, CNG buses are equipped with gas detectors and other on-board safety equipment to protect passengers.

3. Are CNG buses a good deal for taxpayers? Absolutely, despite the fact that an 84-passenger CNG bus costs roughly $28,000 more than a diesel bus. CNG buses last about 25 percent longer. Amortized over 16 years, a CNG bus equals about $10,200 per year while a diesel bus, amortized over 12 years, equals $11,250 annually. In that respect, CNG buses are actually less costly. But the real savings are in fuel costs. In a recent local comparison, the gallon equivalent to diesel of CNG was $1.34 while diesel fuel was $3.77. That is 64-percent less expensive. District buses that run on diesel average 4,000 gallons of fuel annually. At $3.77, the annual cost is $15,080. If that same bus were instead running on CNG, the annual fuel cost at the time the survey was conducted would have been $5,360. This is a difference of $9,720 (fueling infrastructure not included).

4. Is there a bigger picture? Isn’t there always? It’s easy to foresee a day in the not-too-distant future when emissions standards are even more stringent and school districts and other large fleet operators required by law to further reduce their carbon footprint. Superintendent Pons strongly believes that a gradual long-term conversion plan of the district’s fleet will save taxpayers’ money. Plus, unlike gasoline and diesel fuel, the vast majority of natural gas used in this country comes from North America. By converting the district’s fleet to CNG, we’ll reduce our dependence on a source of fuel whose supply is politically and geographically volatile. But this isn’t solely a financial issue; it’s also about our Leon County environment. The American Lung Association gives Florida a grade of only C for soot pollution. Likewise, the American Lung Association gave Leon County only a mediocre grade of C in its 2009 “State of the Air” report. A grade of C is considered “average” — hardly good enough for this community, which prides itself on its quality of life. The beginning of a Leon County Schools CNG bus fleet puts promises about going green into action.
From October 2006 through December 2009, CNG was even lower than conventional fuels with the help of a U.S. federal excise tax credit of $.50 per GGE for CNG or liquid gallon of LNG. Both the House and Senate have extended this provision through the end of 2010 and the extension is retroactive back to the beginning of 2010. In addition, the NAT GAS Act (H.R. 1835, S. 1408), if enacted, would extend the $0.50 credit for CNG and LNG for a number of years.

However, even without the tax credit, the pricing of natural gas is projected to remain extremely favorable compared to diesel, with diesel averaging $3.75 per gallon in 2035 while natural gas is projected at $1.75 per diesel gallon equivalent (DGE).

**Future Cost Projections in the U.S.**

**Figure 5. Projected U.S. Diesel and CNG Retail Fuel Price, 2007-2035**

![Projected U.S. Diesel and CNG Retail Fuel Price](image)

Source: U.S. EIA Annual Energy Outlook 2010 with Projections to 2035
http://www.eia.doe.gov/oiaf/aeo/graphic_data.html (Figure 21: U.S. delivered energy prices for Diesel and Natural Gas transportation fuels)

The chart above clearly illustrates the decoupling of the natural gas price from crude oil required to make diesel fuel. The average diesel price moving forward is subject to wild fluctuations caused by conditions in the oil producing nations of the world, including: civil unrest, OPEC production levels and natural disasters. Also, costs continue to rise for conventional drilling operations and other liabilities like the oil spill in the Gulf will continue to drive prices higher.
Leon County Schools Concept Proposal

Diesel

Bus cost:

\[
\frac{135,000}{12 \text{ years}} \times 84 \text{ passenger transit} = 11,250
\]

CNG

\[
\frac{165,000}{16 \text{ years}} \times 84 \text{ passenger transit} = 10,312
\]

Fuel cost:

\[
20\text{gal} \times 180\text{ days} \times \$3.55 = 12,780
\]
\[
25\text{gal} \times 180\text{ days} \times \$3.55 = 15,975
\]

\[
20\text{gal} \times 180\text{ days} \times \$2.40 = 8,640
\]
\[
25\text{gal} \times 180\text{ days} \times \$2.40 = 10,800
\]

Total annual cost = $24,030 - $27,225

Total annual cost = $18,952 - $21,112

$5,078 - $6,103 annually less costly to operate a CNG bus.
## OPTIONAL EQUIPMENT
Based on Department of Education

<table>
<thead>
<tr>
<th>84 Passenger Type D RE WITHOUT LIFT</th>
<th>Blue Bird</th>
<th>Thomas</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit Base Price</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(C1A) Front Tow Hooks</td>
<td>$108,012.00</td>
<td>$106,486.00</td>
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<tr>
<td>(C1B) Rear Tow Hooks</td>
<td>$118.00</td>
<td>Standard</td>
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<tr>
<td>(C2) Spare Disc Wheel</td>
<td>$45.00</td>
<td>$80.00</td>
<td></td>
</tr>
<tr>
<td>(C3) Auto Tran Warranty (5yrs)</td>
<td>$109.00</td>
<td>$168.00</td>
<td></td>
</tr>
<tr>
<td>(C6B) 270 Amp L/N 4864 Alternator</td>
<td>$668.00</td>
<td>$300.00</td>
<td></td>
</tr>
<tr>
<td>(C7) Transynd Fluid</td>
<td>Standard</td>
<td>Standard</td>
<td></td>
</tr>
</tbody>
</table>

| (C10) Air Ride Rear Suspension    | $1,075.00      | $2,944.00    | (both rear/ front)                                                   |
| (C11) Silicone Only Heater Engine | N/A            | Standard     |                                                                      |
| coolant hoses                      |                |              |                                                                      |
| (B4) 77" High Headroom            | $301.00        | $525.00      |                                                                      |
| (B5A) Intercom/PA                  | N/A            | $508.00      |                                                                      |
| (B6) Locking Door at Fuel Tank    | Standard       | $10.00       |                                                                      |
| (B7B) IMMI Child Safety Seat (for 8) | N/A            | $5,208.00    |                                                                      |
| (B7A) CE White Integrated Seat (for 8) | $2,296.00 | N/A          |                                                                      |
| (B17) Red Light Emergency Door    | $13.00         | $10.00       |                                                                      |
| (B18) Underseat Rear Heater       | $460.00        | $420.00      |                                                                      |

Cummins ISLG 280hp/900lb

| Cummins ISLG 280/900TBB is not in Florida Purchasing Guide |

| Cummins ISLG 250/730lb | $24,888 | N/A |

RAC Air Conditioning RS-46 Bitzer 4NFC (Y) (645cc)

| Carrier Air Conditioning DC-350 05G | $17,400.00 | $19,380.00 | 3 year warranty |

Carrier Additional 2 Year Warranty

| Delivery Region 2 (surcharge included) | $1,530.00 | $1,680.00 |

TOTAL COST

| $159,325.00 | $163,209.00 | Thomas cost include RAC A/C only |

Source: Based on DOE 2010/2011 Florida Bus Pricing Guide

**Notes:** Optional Equipment are based on previous CNG Bus purchases. Radios, Camera Systems, and GPS units prices are not included. Blue Bird Engine cost in Florida Bus Pricing guide differ from price that was submitted.
## Recap of CNG Bus Purchase

<table>
<thead>
<tr>
<th>Count</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>84 capacity Rear Engine Type D</td>
<td>$4,175,882.00</td>
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<tr>
<td>6</td>
<td>72 capacity Rear Engine Type D</td>
<td>$1,072,170.60</td>
</tr>
<tr>
<td></td>
<td><strong>Total Cost</strong></td>
<td><strong>$5,248,052.60</strong></td>
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</tbody>
</table>

### Contractor Options

<table>
<thead>
<tr>
<th>Count</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>SEON Camera</td>
<td>$134,040.00</td>
</tr>
<tr>
<td>30</td>
<td>SEON Camera Installation</td>
<td>$26,250.00</td>
</tr>
<tr>
<td>30</td>
<td>ICOM IDAS Mobil Radios</td>
<td>$21,933.00</td>
</tr>
<tr>
<td>30</td>
<td>GPS</td>
<td>$16,800.00</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>$199,023.00</strong></td>
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</tbody>
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## ESE CNG BUS PURCHASE

<table>
<thead>
<tr>
<th>Option</th>
<th>Quantity</th>
<th>Description</th>
<th>Unit Price</th>
<th>Extended Price</th>
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</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td>Base Price, 72 Capacity Type D Rear Engine WITH lift</td>
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<td>$667,116.00</td>
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<tr>
<td>6</td>
<td></td>
<td>Carrier Air Conditioning WITH EXTENDED WARRANTY (5yr)</td>
<td>$22,020.00</td>
<td>$132,120.00</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Engine Option Cummins ISLG 2800hp/900lb</td>
<td>$27,180.00</td>
<td>$163,080.00</td>
</tr>
<tr>
<td>C7</td>
<td>6</td>
<td>Transynd Fluid</td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td>C6B</td>
<td>6</td>
<td>270 AMP L/N 4864 Alternator</td>
<td>$300.00</td>
<td>$1,800.00</td>
</tr>
<tr>
<td>C12</td>
<td>6</td>
<td>Straight Floor</td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td>C10</td>
<td>6</td>
<td>Air Ride Rear Suspension REAR AND FRONT</td>
<td>$2,944.00</td>
<td>$17,664.00</td>
</tr>
<tr>
<td>C1A</td>
<td>6</td>
<td>Front Tow Hooks</td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td>C1B</td>
<td>6</td>
<td>Rear Tow Hooks</td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td>B17</td>
<td>6</td>
<td>Red Light Emergency Door</td>
<td>$80.00</td>
<td>$480.00</td>
</tr>
<tr>
<td>B27</td>
<td>6</td>
<td>Intercom/PA</td>
<td>$10.00</td>
<td>$60.00</td>
</tr>
<tr>
<td>B5A</td>
<td>6</td>
<td>Delivery to Leon County Schools</td>
<td>$168.00</td>
<td>$1,008.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fill assembly is to be a Staubli GMV 09, High Pressure fast fill assembly. It is backwards compatible to slow fill. The Connection is any HGV1 compatible connection. Left and right side filler assembly is included in packaged as priced</td>
<td>$651.00</td>
<td>$31,248.00</td>
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<tr>
<td>B7B</td>
<td>48</td>
<td>IMMI Child Safety Seat (8 per bus)</td>
<td>Standard</td>
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<tr>
<td>C3</td>
<td>6</td>
<td>Auto Trans Warranty (5 yr. UNLIMITED)</td>
<td>$420.00</td>
<td>$2,520.00</td>
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<tr>
<td>B18</td>
<td>6</td>
<td>Underseat Rear Heater</td>
<td>Standard</td>
<td></td>
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<tr>
<td>B19</td>
<td>6</td>
<td>Tailpipe through bumber</td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td>B27</td>
<td>6</td>
<td>Driver’s Seat with Integrated Seat Belt</td>
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<td>$2,130.00</td>
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<td></td>
<td></td>
<td>Add Seat Belt Extender</td>
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<td>$3,048.00</td>
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<td></td>
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<td>TOTAL CONTRACTOR OPTION COST= $5761.10</td>
<td>$1,680.00</td>
<td>$10,080.00</td>
</tr>
</tbody>
</table>

**MATTHEW BUS TOTAL**

|          |          | $167,502.00 | $1,032,354.00 |

**"NON-BUS CONTRACTOR OPTIONS"**

<table>
<thead>
<tr>
<th>Option</th>
<th>Quantity</th>
<th>Description</th>
<th>Unit Price</th>
<th>Extended Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td>SEON Camera System</td>
<td>$4,468.00</td>
<td>$26,808.00</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>SEON Camera System (INSTALLATION)</td>
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<tr>
<td>6</td>
<td></td>
<td>ICOM IDAS Mobil Digital Radio (including installation)</td>
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<td>$4,398.60</td>
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<tr>
<td>6</td>
<td></td>
<td>GPS Device</td>
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<td>$3,360.00</td>
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</tbody>
</table>

**TOTAL CONTRACTOR OPTION COST= $5761.10**

**TOTAL BUS COST**

<p>|          |          | $174,138.10 | $1,072,170.60 |</p>
<table>
<thead>
<tr>
<th>Option</th>
<th>Quantity</th>
<th>Description</th>
<th>Unit Price</th>
<th>Extended Price</th>
</tr>
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<tbody>
<tr>
<td>24</td>
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<td>Base Price, 84 Capacity Type D Rear Engine WITHOUT lift</td>
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<td>$2,555,646.00</td>
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<tr>
<td>24</td>
<td></td>
<td>Carrier Air Conditioning WITH EXTENDED WARRANTY (5yr)</td>
<td>$22,020.00</td>
<td>$528,480.00</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>Engine Option Cummins ISLG 2800hp/900lb</td>
<td>$27,180.00</td>
<td>$652,320.00</td>
</tr>
<tr>
<td>C7</td>
<td>24</td>
<td>Transynd Fluid</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>C6B</td>
<td>24</td>
<td>270 AMP L/N 4864 Alternator</td>
<td>$300.00</td>
<td>$7,200.00</td>
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<tr>
<td>C12</td>
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<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>C10</td>
<td>24</td>
<td>Air Ride Rear Suspension REAR AND FRONT</td>
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<td>$70,656.00</td>
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<tr>
<td>C1A</td>
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<td>Front Tow Hooks</td>
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<td>C1B</td>
<td>24</td>
<td>Rear Tow Hooks</td>
<td>$80.00</td>
<td>$1,920.00</td>
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<tr>
<td>B17</td>
<td>24</td>
<td>Red Light Emergency Door</td>
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<td>$240.00</td>
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<td>C2</td>
<td>24</td>
<td>Spare Disc Wheel</td>
<td>$168.00</td>
<td>$4,032.00</td>
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<tr>
<td>B7B</td>
<td>192</td>
<td>IMMI Child Safety Seat (8 per bus)</td>
<td>$651.00</td>
<td>$124,992.00</td>
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<tr>
<td>C3</td>
<td>24</td>
<td>Auto Trans Warranty (5 yr. UNLIMITED)</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>B18</td>
<td>24</td>
<td>Underseat Rear Heater</td>
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<td>B19</td>
<td>24</td>
<td>Tailpipe through bumper</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>B27</td>
<td>24</td>
<td>Driver's Seat with Integrated Seat Belt</td>
<td>$355.00</td>
<td>$8,520.00</td>
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<td>B5A</td>
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<td>Intercom/PA</td>
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<td>$12,192.00</td>
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<tr>
<td></td>
<td></td>
<td>Delivery to Leon County Schools</td>
<td>$1,680.00</td>
<td>$40,320.00</td>
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<td>It is backwards compatible to slow fill. The Connection is any HGV1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>compatible connection. Left and right side filler assembly is included in</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>packaged as priced</td>
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**MATTHEWS BUS TOTAL**  
$162,802.00  
$4,016,616.00

"NON-BUS CONTRACTOR OPTIONS"

<table>
<thead>
<tr>
<th>Option</th>
<th>Quantity</th>
<th>Description</th>
<th>Unit Price</th>
<th>Extended Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td></td>
<td>SEON Camera System</td>
<td>$4,468.00</td>
<td>$107,232.00</td>
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<tr>
<td>24</td>
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<td>SEON Camera System (INSTALLATION)</td>
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<td>$21,000.00</td>
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<tr>
<td>24</td>
<td></td>
<td>ICOM IDAS Mobil Digital Radio (including installation)</td>
<td>$733.10</td>
<td>$17,594.00</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>GPS Device</td>
<td>$560.00</td>
<td>$13,440.00</td>
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</table>

**TOTAL CONTRACTOR OPTIONS = $5761.10**  
$159,266.00

**TOTAL BUS COST**  
$169,438.10  
$4,175,882.00
How Safe are Natural Gas Vehicles?

Natural gas is an environmentally clean, plentiful, low-cost, domestically produced fuel for motor vehicles. But is it a safe fuel?

Any motor vehicle fuel can be dangerous if handled improperly. Fuels contain energy which must be released by burning. Gasoline is a potentially dangerous fuel, but, over time, we have learned to use it safely. The same is true of natural gas. Natural gas safely generates our electricity, heats our homes and cooks our meals. But, like gasoline, natural gas must be understood and respected to be used safely.

Natural gas is a naturally occurring fuel which requires very little processing before use. Chemically it normally consists of over 90% methane with smaller amounts of ethane, propane, butane, carbon dioxide and other trace gases. The high methane content gives natural gas its high octane rating (120-130) and clean-burning characteristics, allowing high engine efficiency and low emissions.

As with all vehicle fuels, natural gas can be used safely if simple, common sense procedures are followed. In fact, natural gas has safety advantages compared to gasoline and diesel: it is non-toxic, and has no potential for ground or water contamination in the event of a fuel release. An odorant is added to provide a distinctive and intentionally disagreeable smell which is easy to recognize. The odor is detectable at one-fifth of the gas’ lower flammability limit.

Natural gas vehicles have an excellent safety record for two primary reasons: the properties of the fuel itself and the integrity of the natural gas vehicle and its fuel delivery system.

Natural gas has a very limited range of flammability – it will not burn in concentrations below about 5% or above about 15% when mixed with air. Gasoline and diesel burn at much lower concentrations and ignite at lower temperatures. Although it takes very little energy to ignite a flammable mixture of air and natural gas, gasoline, or diesel, natural gas burns at a somewhat lower temperature.
<table>
<thead>
<tr>
<th>Property</th>
<th>Natural Gas</th>
<th>Gasoline</th>
<th>Diesel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability Limits (volume % in air)</td>
<td>5-15</td>
<td>1.4-7.6</td>
<td>0.6-5.5</td>
</tr>
<tr>
<td>Autoignition Temperature (°F)</td>
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<td>572</td>
<td>446</td>
</tr>
<tr>
<td>Minimum Ignition Energy in Air (10^-8 BTU)</td>
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<td>0.23</td>
<td>0.23</td>
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<tr>
<td>Peak Flame Temperature (°F)</td>
<td>3423</td>
<td>3591</td>
<td>3729</td>
</tr>
</tbody>
</table>

Source: Murphy, Michael J., Properties of Alternative Fuels, Federal Transit Administration, 1994

From the gas field to the vehicle’s engine, natural gas requires very little processing to make it suitable for use as a fuel. Gasoline and diesel must be processed from crude oil in large and complex oil refineries. After water vapor, sulfur and heavy hydrocarbons are removed, natural gas flows by pipeline (the safest way to transport energy) directly to the fueling station where it is compressed for use. Alternatively it may be liquefied at cryogenic temperatures on site or at a central facility and delivered by truck. Gasoline and diesel are delivered to fueling stations by tank trucks over the highway.

At a compressed natural gas fueling station the gas is compressed before being provided to vehicles at 3000 to 3600 pounds per square inch (psi). Stations can deliver a “fast fill” to vehicles in minutes or, using a “slow fill” strategy, in a few hours to overnight.

Although the use of high storage pressures might appear dangerous, compression, storage and fueling of natural gas vehicles meet stringent industry and government safety standards. Remember that high-pressure gases are used safely every day in industrial and medical applications.

Natural gas powered vehicles are designed and built to be safe both in normal operation and in crashes. New natural gas vehicles are subjected to the same federal government crash tests as other vehicles. Natural gas vehicle fuel systems must meet Federal Motor Vehicle Safety Standards 303 and 304. Natural gas cylinders are much thicker and stronger than gasoline or diesel tanks. Cylinders are designed not to rupture when fully fueled over six times a day, 365 days a year, far beyond what they will see in service. Industry standards test them far beyond normal environmental and service damage risks. Cylinders must even withstand a bonfire test and penetration by a 30-caliber bullet without rupture!

No matter what the fuel, fueling stations, indoor parking structures and repair garages must be built to ensure high levels of safety. Requirements for facilities handling natural gas and natural gas vehicles may differ from those for gasoline or diesel vehicles. For example, leaking diesel and gasoline form puddles on the floor. Natural gas normally rises toward the ceiling and disperses. Therefore the danger of fire would be greatest near the floor for liquid fuels and near the ceiling for natural gas.

Time has proven natural gas vehicles to be safe in actual operation. Based on a survey of 8,331 natural gas utility, school, municipal and business fleet vehicles (NGVs) that traveled 178.3 million miles:

- The NGV fleet vehicle injury rate was 37% lower than the gasoline fleet vehicle rate.
- There were no fatalities compared with 1.28 deaths per 100 million miles for gasoline fleet vehicles.
• The collision rate for NGV fleet vehicles was 31% lower than the rate for gasoline fleet vehicles
• The fleet of 8,331 NGVs was involved in seven fire incidents, only one of which was directly attributable to failure of the natural gas fuel system.

Natural gas vehicles were first commercialized after World War II in Italy. There are now over seven million in use worldwide. Natural gas vehicles have been used in the US since the early 1980s, with over 90,000 in use today. Yet there has been only one fatality in the US caused by an NGV fueling system failure in all that time.

Even more important than statistics is the confidence that natural gas vehicle users feel. One in five new transit buses are natural gas powered, with about 10,000 transit buses and community shuttles in service. Police in Rocky Hill, CT report “the safety record of the (NGV) cars has been excellent.” The Department of Energy states that “after rigorous testing... (the King County, Washington police) found their... (compressed natural gas) cars to be as safe and reliable as conventional vehicles”

Not only are transit agencies and police using natural gas vehicles, more and more school buses are now powered by natural gas. In 1996 the Department of Energy worked with a major school bus supplier to develop “an ultra-safe and low-emission” natural gas powered school bus. School buses from that manufacturer and others, using that engine (or other natural-gas engines), are in widespread use today.

How do natural gas vehicles behave in crashes? The strength of the natural gas cylinders and fuel system generally avoids any leakage or fire. For example an accident involving a CNG-powered pick-up...proved to be a testimonial to the safety of CNG tanks. As reported in the May 1995 edition of Automotive Fleet:

When the 1992 CNG pick-up was broadsided in Midland, Texas, the most vulnerable part of the fueling system bore the brunt of the hit. While the force drove an imprint of the tank safety valve into the side of the truck, the CNG tanks did not rupture, and driver Jimmy Oden walked away.

And in a tragic 1998 accident, a stopped bi-fueled Honda (a vehicle which could run on either natural gas or gasoline) was impacted by another vehicle moving at nearly 100 mph and a fire fed by gasoline broke out. The 50-liter natural gas fuel tank was intact and remained secured in its support brackets. (Reported in a June 1998 BC Gas press release).

Nationwide Insurance, in looking at the safety of natural gas buses in a fleet, concluded as long ago as 1992 that “…the natural gas powered vehicles will be the safest vehicles in your fleet and (we) have no reservations about insuring them.” (Palmer, Pat, Nationwide Insurance, letter to Kenneth E. Bauman Bus, Inc., September 10, 1992)

In summary, technical data, appropriate safety regulations and years of experience show natural gas vehicles to be as safe as, or safer than, conventionally fueled vehicles.
New school buses mean cleaner air, lower bills

Your Leon County School District on Thursday will take a bold step by introducing to our community a much cleaner and less expensive fuel source for our school bus fleet: compressed natural gas. In doing so, we hope to eventually make available this cleaner fuel to all citizens, private business owners and other governmental agencies.

Compressed natural gas, or CNG, is not a new technology. It's commonly used in vehicles on the West Coast and in the Northeast. It's relatively unknown in Tallahassee, however, and therefore requires some explanation.

CNG for a natural gas vehicle emits 90 percent less particulate matter than a school bus in our current diesel fleet. Nitrogen oxide emissions are also considerably lower. Further, the U.S. Environmental Protection Agency has said the cleanest internal-combustion personal vehicles on the road today are powered by CNG.

In plain English, this means you can walk to the back of a CNG bus and not smell a thing. Our asthmatic schoolchildren and their parents will be pleased.

According to the Clean Vehicle Education Foundation Technology Committee Bulletin from January 2008, fleets fueled by natural gas have a better safety record than those powered by gasoline. In fact, the injury rate among people in vehicles powered by CNG is 47 percent lower than in gasoline-fueled vehicles.

Because of the added protection of the natural gas cylinder, combined with the fact that natural gas is lighter than air and dissipates quickly, accidents involving a natural gas vehicle are far less likely to involve fire.

CNG is substantially less expensive than diesel. In recent history, the cost of natural gas for vehicles has averaged about half the cost of diesel. Depending on the supplier, the volume of need and the distance of a bus route, my staff estimates a $4,000 to $6,000 savings in fuel cost annually per bus.

While a CNG bus may cost $27,000 more than its diesel equivalent, the CNG bus has a 33-percent longer life cycle (12-year replacement for a diesel bus, 16 years for a CNG bus). Factoring the longer life cycle with the lower fuel cost, the payback is extremely attractive, and the decision to gradually replace our older diesel fleet with a new CNG fleet becomes a no-brainer.

From a global perspective, we can no longer sit on our hands and wait for someone else to address our nation's dependence on foreign fuel. Natural gas is not a foreign fuel. More than 90 percent of our natural gas needs are met domestically. Natural gas reserves are measured by centuries and not decades. Natural gas will not fiend the Gulf of Mexico.

I hope you will join with the Leon County School Board and me as we take this step toward weaning ourselves from our addiction to foreign oil.

Join us from 30 to 11 a.m. Thursday for a ribbon-cutting to celebrate the opening of the new Leon County Schools CNG fueling station at the district bus maintenance facility on Conner Boulevard near Lincoln High School (park at Lincoln).

Come ride one of our eight new CNG buses and see for yourself how quiet and odor-free it is.

Representatives from the bus manufacturer and fueling station installers will be on hand to answer any questions you may have. Learn more about this economically and environmentally bold initiative toward a greener future.

Where is support for a soldier?
OUR OPINION

Leading the way

School buses run on new fuel and energetic ideas

In August, Leon County Schools Superintendent Jackie Pons and his staff introduced the public eight school buses fueled by compressed natural gas. It represented an innovative and bold move by the district to begin reducing the particulate matter generated by the big yellow buses now powered by diesel fuel.

By the end of this month, 14 buses running on compressed natural gas will be in operation. The district has even built a compressed natural gas fueling station at its bus compound on Connor Boulevard near Tom Brown Park, the first of its kind in Florida owned and operated by a school district. An open house to demonstrate the ease of charging up the buses that idle like a Lexus drew rave reviews.

Now comes the next part: The Leon County School District wants to lease property that it owns at Capital Circle and West Pensacola Street to a company that will build a compressed natural gas fast-fill station. The school district is currently seeking bids for designing, building and operating the fueling station.

The idea is well worth this community's support. Mr. Pons and his staff think this would be the first such operation in the state, which would be great for Tallahassee, as it would represent a tangible factor in our efforts to be a cleaner community.

It would be a reminder that we are a community of change agents and, for our children, it would help reinforce their belief that we all get to help save the environment. Already, the children riding the new buses feel they're on something special.

We believe there are other benefits. The new compressed natural gas station near Tom Brown Park is available for buses parked at the nearby compound. The district has two other bus compounds, one at Gene Cox Stadium and another near Appleyard Drive. Instead of transporting new CNG-powered buses across town to what's called the Connor Lakes station, the district would use the new site at Pensacola and Capital Circle.

Another benefit is that a full-fledged compressed natural gas station would be available to fleet operations of private businesses nearby, and it would be available for the public to stop by and (natural) gas up.

Manny Joanos, the energy czar who has been instrumental in saving the school district nearly $1 million annually in energy costs, said there seems to be a market for such a station. Government and private entities are looking to convert their fleets away from diesel and gasoline dependencies, Mr. Joanos said.

So far, support has been offered by large users such as Florida State University, which wants to add CNG vehicles, Waste Management and others. Twenty firms have requested applications to bid on owning, designing, operating and maintaining the operation. They include M of Tallahassee, Childers Construction Co., Clean Energy Fuels, Ajax Construction and Albritton-Williams. Applications are due at the end of this month, and a review committee will select a contractor by December. The goal is to have the plant built by July 2012.

To all those who are eager to see great ideas for energy efficiency and a cleaner environment realized, now is the time to let the school district know it has your support.
Contract with nopetro approved

Compressed natural gas offers savings of about $5,000 per bus to school district

By Ashley Ames
Democrat staff writer

The Leon County School District took another step toward lowering its fuel costs, as the school board voted unanimously to approve the district’s contract with nopetro to provide a second compressed natural gas facility. Leon County Superintendent Jackie Pons, who called the approval of the contract “historic,” said it would allow the district to begin a conversion to compressed natural gas buses.

“We’ll be moving in the direction of purchasing CNG buses from now on.”

The district will be purchasing 30 additional CNG buses this year, which will increase the total CNG fleet to 44.

LCSD spokesman Chris Petley said that using compressed natural gas, which costs about 40 percent less than traditional fuel, will save an estimated $5,000 per bus in running costs.

Nopetro was given the green light from the board in late 2010 to develop a plan to design, build and operate the new CNG facility, which will be located on Capitol Circle Northwest near the airport.

The facility will be built on district-owned land at no cost to the county, Petley said. Part of the contract includes the use of a certain number of gallons of the compressed natural gas by the county, which has 14 CNG buses. The district also will get a royalty whenever nopetro makes a sale to a private company, said Jorge Herrera, CEO of nopetro.

Petley said the district is training local mechanics at Lively Technical Center to work on CNG vehicles and convert traditional engines to be CNG compatible. The new facility will be open to the public as well, setting it aside from the district-owned-and-operated CNG station built last year. The contract’s

See GAS, Page 2
Fuel forecast good

Fleet operators expect savings with Tallahassee CNG facility

By Dave Hodges
Democrat business editor

With a fleet of 40 medium and heavy-duty trucks at his construction company, Sandco President Steve Ghazvini watches fuel prices closely. He is more than ready for an alternative to diesel fuel and gasoline, he says.

In the coming months, a partnership involving the Leon County School District and private company Nopetro of Tallahassee will make compressed natural gas available for school district vehicles as well as those of local companies and consumers.

Using CNG, fleet operators and motorists can save up to 40 percent across the cost of gasoline.

While use of alternative fuels as substitutes for petroleum has been discussed and debated for years, Ghazvini and others say it’s time for implementation.

"This is an untapped resource," he added, "but as a citizen, as a nation and a community, we need to start somewhere."

GLENN BEL/DEMOCRAT

At Leon County School District’s maintenance yard on Conner Boulevard, mechanic Hank Hall tops off the fuel for a school bus that runs on compressed natural gas. The school district and private company Nopetro will partner in the planning and development of a CNG fueling facility expected to open in August 2012. Below, a rendering shows what the Nopetro facility will look like.

NEW TO ONLINE

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■ Subscribers, activate your online account now. For help, see News/Page 2.
■ E-edition users, click here to see a 7-photo gallery of CNG users:
www.tallahassee.com/compressednaturalgas
School board to negotiate with nopetro to build new natural gas fueling station

By Eriicka Berlinger
DEMOCRAT STAFF WRITER

The Leon County School Board approved a recommendation Tuesday to begin negotiating with a local company to build the first compressed natural gas fueling station.

A new company, nopetro, was awarded the right to work with the school district to design, build and operate the facility, to be used for school buses as well as private cars.

The project, to be located on Capital Circle Northwest, is a private and public sector partnership, said Manny Joanos, director of energy for schools. The district will donate the land for the fueling station in exchange for use of the station at a lesser cost.

The district currently has 14 buses that run on natural gas and hopes to expand by 10 buses each year until its entire fleet runs on the cleaner, cheaper gas.

A committee comprised of business leaders and school officials chose to negotiate with nopetro, who presented an approach to the station that included a convenience store and a liquid natural-gas fueling area for larger trucks.

Plans were put on hold when California-based Clean Energy, the other company that submitted a proposal to the committee, filed a protest when learning of the district’s decision. The company, however, lifted its protest after its concerns were expressed.

Clean Energy representative James Harger wrote in a letter to the district, “Clean Energy is confident that as a result of their negotiations with nopetro, Leon County Schools will determine that nopetro is unqualified.”

As the district enters negotiations with nopetro, Joanos said the concerns will be addressed but that “nopetro was chosen for a reason.”

“In negotiations, nopetro will have to show assurance that they can deliver a product and nail down pricing,” Joanos said.

Board Chair Dee Crumpler said he trusted the process for choosing the company.

“The process worked itself,” Crumpler said. “I’m excited about this project not only for the school district, but for the community.”

12/15/2010
Companies vie for gas station contract with Leon Schools

By Brcka Berlinger
DEMOCRAT STAFF WRITER

Leon County Schools Energy Director Manny Joanos is determined to see the school district be a catalyst for bringing compressed natural gas to Tallahassee.

The district is one step closer to its goal. A committee met Wednesday to hear presentations from both businesses wanting to create a project to build a natural-gas fueling station for work fleets and public use.

The committee of principals and business leaders will choose between Clean Energy, a company based out of California and founded by well-known oil and gas executive T. Boone Pickens; and Nopetro, a young company with headquarters in Tallahassee.

The project, to be located on Capital Circle Northwest, is a private and public sector partnership, said Joanos. The district will donate the land for the fueling station in exchange for use of the station at a lesser cost. Each company also promised the district royalties for each gallon sold.

The district currently has 14 buses that run on natural gas and hopes to expand by 10 buses each year until its entire fleet runs on the cleaner, cheaper gas.

The chosen company will build, operate, market and maintain the station.

"We are in the business of teaching children. They are the ones that know what they are doing," Joanos said.

Clean Energy boasted to the committee their experience of operating more than 200 natural-gas fueling stations across the U.S. They proposed building a more modest station that was self-operating with no need for attendants.

"There is no other company that has more experience," said Mark Riley, Clean Energy's east coast general manager.

Nopetro's approach to the station included a convenience store and also a liquid natural-gas fueling area for larger trucks.

"What we are doing here is going to be the benchmark for the nation," said Nopetro co-founder Jorge Herrera.

Compressed natural-gas vehicles, seen more in California, are slowly creeping eastward. Florida businesses are seeing the trends but are reluctant to buy new fleets of vehicles without a way to fuel them.

This fueling station can change that for local businesses.

"The infrastructure needs to be in place before the alternative can happen," said Kim Williams, committee member and president of Murpnan Supply Company.

The committee scored each company on categories that included site plan, equipment and qualifications. The scores will be tallied and the recommendation be taken to the superintendent. The school board will vote on Nov. 16 whether to accept the recommendation and begin contract negotiations with the chosen company.

"Gas" from Page 1 / LOCAL

get its sixth parking garage with at least 1,000 parking spaces on the southwest corner of the university.
Lively Technical Center
and
Leon County Schools
proudly announce
Green Technologies CNG Conversion Training Curriculum
to be integrated into the
Lively Automotive Service Technology Program
Please join us for a Press Conference and Reception
Lively Automotive Classroom Facility
500 North Appleyard Drive
Building 10, Room 130
Wednesday, April 13, 2011 at 10:00 a.m.
Lively to teach CNG systems, service

By Dave Hodges
DEMOCRAT BUSINESS EDITOR

Leon County Schools moved another step closer Wednesday to its ambitious alternative-fuel goals with the addition of a compressed natural gas curriculum to train automotive technicians at Lively Technical Center.

"Compressed natural gas for cars, trucks and buses is cleaner, cheaper and it's domestic," school Superintendent Jackie Pons told the gathering of business leaders, elected officials and educators during a news conference at the center.

The Lively program will teach students to service CNG vehicles. Lively is also certified in CNG conversions for vehicle owners who want that capability added to their cars or trucks.

Since 2008, the district has bought 14 CNG school buses. Pons said he would be proposing to the school board July 1 the purchase of another 30. "These CNG buses will save the district between $200,000 and $250,000 per year," he added.

A diesel-powered bus requiring 4,000 gallons of fuel in a typical year costs $15,080, based on a per-gallon price of $3.77, according to the district. That same equivalent amount of CNG costs $5,360 — a reduction of $9,720 in expenses.

The district now has a CNG fueling facility on Conner Boulevard, the first of its kind in the Southeast. There are plans for a second filling facility on Capital Circle Northwest where the public will be able to purchase CNG. That one will be privately operated.

Larry Strom, owner of Champion Chevrolet and University Buick Cadillac GMC, praised the school district's efforts. He said GM is producing the GMC Savana van and its companion vehicle, the Chevrolet Express, that come from the factory ready to burn CNG. "This is another approach that I think will be dynamic," he said of the fuel option.

Lively instructor Gregory Hoover said a CNG conversion costs about $9,500, much of that attributable to the price of the fuel tank, which can be reused in subsequent conversions.
Monetizing Methane
Westport to Start Cutting Checks to Natural Gas Truck Operators Participating in Canadian Firm’s Global Carbon Finance Program

“We’re now able to monetize the carbon emission for our customers,” says Westport Innovations sustainability and environmental performance director Karen Hamberg. She has helped the Canadian company craft a Global Carbon Finance program to pay operators of Westport-powered natural gas trucks for the carbon emissions they reduce based on the value of carbon on voluntary trading markets (Fe-F, April 12).

First checks will be cut this autumn, Hamberg told Fe-F at the CAPCOA climate conference in San Francisco last week. ‘The Carbon Glory’

Given a conservative figure of $20 per ton of carbon emissions saved and a rough 40 tons per truck per year, the program could be worth some $800 per year per truck to operators. And although carbon prices are expected to be “all over the map” (and thus could go higher), Hamberg points out that “the customer gets what we call The Carbon Glory.” The program applies to Cummins Westport engines too, she notes.

Grütter Consulting helped Westport secure its international Voluntary Carbon Standard registration.

“The validation exercise was rigorous,” Hamberg said at CAPCOA.

Westport Innovations,
Karen Hamberg, 604-718-6463; khamberg@westport.com; www.westport.com

Biomethane Boosts Georgia CNG
Compressed natural gas fueling is about to get a big boost in the Atlanta area, with a Clean Cities-backed landfill gas project accounting for much of the increase.

Feds Float New Mileage Labels
New stickers for new light duty vehicles would impart more information, and may include a grading system with plug-in hybrid electric vehicles rated A+ (CNG gets an A).

Propel Expands in California
Propel Fuels targets the alternative fuel vehicles that on the road now, offering E85 ethanol at a discount in places where it hasn’t been available, as well as B5 biodiesel.

Sacramento-based Propel is taking advantage of more than $10 million in federal and state government support, last week opening a fueling station in Oakland that’s to be the first of 75 new ones in California for E85 and biodiesel.

Better Place
Battery swapping will launch in Israel then Denmark as vociferous EV advocate pursues conventional advanced charging opportunities in the U.S.

better place
Gaseous Fuels

A First for Florida
The first coordinated effort to bring compressed natural gas-fueled school buses to Florida has been executed successfully in Tallahassee, where Leon County has fielded eight Thomas Built CNG buses and expects to deploy six more before the end of this month.

That's nearly 10% of the organization's fleet of 180 buses, says fleet chief Manny Joanos. His plan is to replace about ten diesel buses per year with CNG vehicles, while at the same time working to expand a new CNG station to serve university, state and other fleets, and eventually allow full public access.

Leon's new station was built by Birmingham, Ala.-based Phoenix Energy with Ingersoll-Rand compressors and Tulsa Gas Technology dispensers. Matthews Buses, which supplied the Thomas Built HDX 84 vehicles with Cummins Westport ISL G engines, says fuel costs could be as low as half the cost for diesel, with dramatic emission reductions.

Leon County District Schools, Manny Joanos, 850-559-3404; joanosm@leon.schoo.net; www.leon.schoo.net

Phoenix Energy, president Ken Hyde, 205-453-0241; kenhyde@phoenixenergycorp.net; www.phoenixenergycorp.net

Matthews Buses (Orlando), Pete Fenderson, 407-219-3820, ext 427; pfenderson@matthewsbuses.com; www.matthewsbuses.com

Landi Renzo Opening in Torrance
Landi Renzo USA will celebrate the grand opening of its new facility in Torrance, Calif. — and its acquisition of Baytech — this Thursday, September 9.

Landi Renzo USA, VP Matt Weiss, 310-257-9481; mobile 310-570-7408; mweiss@landiusa.com; landi.it

A Million Miles a Month
There are 114 compressed natural gas-fueled taxis in San Francisco each logging more than 8,000 miles per month, notes John Janes of San Francisco Ford.

That's a conservative total of more than 900,000 miles, and probably a solid million.

There are another 80 CNG-fueled shared-ride vans, logging a conservative 4,000 miles a month, with some driving much more.

The tally is probably better than 1.5 million miles per month, for San Francisco and its airport alone, every month — an impressive figure that doesn't include the City's hundreds of hybrids.

San Francisco Ford, John Janes, 510-593-6500; taximan_10@yahoo.com; www.sanfranciscoford.com

SuperShuttle Tests Gaseous Fuels
The SuperShuttle airport shared-ride service is evaluating aftermarket gaseous fuel vehicles, operating converted Ford vans on propane in Phoenix and on compressed natural gas in San Francisco. SuperShuttle was provided with five dedicated-propane Ford vans by Roush Industries for testing in Phoenix — and has purchased an additional eight, says senior operations VP Dave Bird.

In San Francisco, SuperShuttle is currently operating 29 Ford E-350 vans upfitted for dedicated-CNG operation by BAF Technologies. They too were purchased through SuperShuttle's headquarters office in Phoenix.

SuperShuttle has 35 airport locations serving some 50 cities with approximately 1,800 vans.

SuperShuttle, VP Dave Bird, 480-609-3000; dbird@supershuttle.net; www.supershuttle.net

SuperShuttle (San Francisco), Matt Curwood, 650-246-2785; mcurwood@supershuttle.net

Roush, Todd M auw, 734-466-6501; mobile 248-770-4557; todd.mauw@roush.com; www.switchtopropane.com

BAF-Clean Energy, John Sledge, 714-376-8143; jsledge@baftechnologies.com; baftechnologies.com

First LNG for China Natural Gas
A liquefied natural gas fueling station in Shaanxi Province is the first LNG station for Xi'an-based China Natural Gas (NASDAQ: CHNG). The Hongqing station is to open officially this Thursday, September 9. It "will initially serve as a working model," the company said, "crucial to showcase the market potential of LNG."

for CHNG (at Florida's RedChip), Alexander Nachman, 800-733-2447; alex@redchip.com; naturalgaschina.com

Lincoln Titans for Vietnam CNG
Norway's Hexagon Composites reports that its U.S. subsidiary Lincoln Composites has commissioned four Titan modules for storing and moving compressed natural gas in Vietnam. The Titan module has four composite pressure vessels and can hold more than 10,000 standard cubic meters of gas — 35%-85% more than comparable steel tube trailers, Lincoln says.

It's "a new, more cost effective way to transport CNG," Lincoln president Jack Schimenti said in a release.

Lincoln Composites, Ms Yuichi Yamamoto, 402-326-5586; yamamoto@lincolncomposites.com; lincolncomposites.com

Hexagon Composites (Norway) president Erik Espeset, +47-701-6445; erik.espeset@hexagon.no

TLPA Next Month in Los Angeles
October 28-31, Taxicab, Limousine & Paratransit Association's 92nd Annual Convention & Trade Show at the JW Marriott in Los Angeles, Calif.

TLPA's Spring Conference & Expo will be held April 12-15, 2011 at the Hyatt Regency in Chicago.

TLPA, Jenny Abreu, 301-964-5700; fax 301-984-5703; jabreu@tlpa.org; www.tlpa.org

More Meetings Listings on Page 7
New school buses spell better health

The American Lung Association in Florida applauds Leon County Schools and Superintendent Jackie Pons for their recent announcement concerning its new fleet of compressed natural gas school buses. This bold step will go a long way in improving the air our children breathe by reducing the harmful diesel fumes emitted by old fleets. Advocating for healthy air is a mission of the American Lung Association, and reminding people of the easy steps they can take to protect their health is the most effective way of empowering them to make the changes that lead to improved lung health. We are confident the recent changes in Leon County School buses will help improve our air quality and as these new natural gas fleets are expanded, we will see how changes such as this provide a significant return on investment beyond dollars. We each have the responsibility to actively fight for air by finding new and innovative ways to reduce air pollution. The American Lung Association looks forward to seeing how this change by Leon County Schools will impact our community. To find out more about air pollution and how Leon County fairs, visit www.stateoftheair.org.

Gwen Cooper
gcooper@healthcharitiesfla.org
Ribbon Cutting Ceremony
Leon County Schools
Compressed Natural Gas

Fueling Facility

Join us as we cut the ribbon on the first school district owned and operated CNG Fueling Station in Florida and unveil the beginning of the LCS CNG Bus Fleet!

Thursday, August 12th
3601 Conor Blvd.
10:00-11:00 am

PARKING
Park at Lincoln High School.
One of our CNG Buses will transport you to and from the event site.

RSVP to PetleyC@LeonSchools.net
Leon County Schools gets federal money to buy 'green' school buses

By TaMaryn Waters
Democrat Staff Writer

Thanks to a hefty federal grant, Leon County Schools can buy eight "environmentally friendly" school buses that will be fueled by compressed natural gas instead of diesel gas.

The $347,000 grant allows the district to get a little closer to the long-term goal of having 80 natural-gas school buses and a fueling station geared toward compressed natural gas that will be shared with the community.

Energy Director Manny Joanos said the district was originally turned down for the competitive grant, provided through the Environmental Protection Agency, in April 2008.

However, in February, Joanos said he was notified money might be available because of federal stimulus dollars. So the district was encouraged to try again.

A diesel school bus costs about $110,000 each. Natural-gas buses cost about $140,000.

Joanos said the federal grant will pay $40,000 for each bus. The district will pay $100,000, which he said would have been spent on new school buses even if the district did not receive the grant.

The grant will also go toward replacing six older school buses with newer diesel buses, which are more fuel-efficient.

"The (natural-gas) buses will be much healthier for those who ride on the bus and those who ride behind (them)," said Joanos, who said the buses should arrive in March or April.

Another advantage, he said, is that the district will save about 50 percent in fuel costs.

"Our schools have been focused on researching new technology and finding best practices that help alleviate energy costs and provide service learning opportunities to all of our students," said Leon County Superintendent Jackie Pons. "I am excited to receive this grant that reinforces our focus."

School officials are also hoping to land another federal grant for $5.1 million from the U.S. Department of Energy.

If the district gets it, plans to build a fueling station for compressed natural gas may be solidified. That station would be used for the district's needs, along with community's access to "cleaner burning fuel."

If not, the district will build a scaled-down version of the fueling station geared toward the district's green school buses.

Contact Reporter TaMaryn Waters at (850) 599-2162; e-mail tlwaters@tallahassee.com; or www.twitter.com/TaMarynWaters.
‘Manny the Green’
is on a new mission

When Manny Joanos was a Leon County commissioner and popular restaurateur in the 1990s, who'd have thought that the conservative Republican, who sang the praises of private-property rights and limited government in a government town, would in 2008 be "Manny the Green"?

Not Joanos, 51.

But as energy manager for Leon County Schools, he has a new passion: conservation.

Years ago, he says, he never would have imagined himself a spokesman for environmentalism. But he sees no conflict between his conservatism and conservation, which, after all, share the same etymological root and at their root are about restraint.

"My strength is costs," he says. "I'm conservative about costs."

Good thing, too. The rising cost of energy is eating up the budgets of school districts, governments and businesses alike, so reducing consumption has moved near the top of the priority list. Like every other agency in the state, the district is in the midst of severe financial problems and is trying to cut greenhouse-gas emissions.

After Jackie Pons was elected superintendent almost two years ago, Joanos, who'd been overseeing a work-force development program at Godby High, was assigned the task of reducing energy consumption districtwide.

About a year ago, Pons told him and district engineer Charlie Hines to study ways to cut the 160-bus fleet's fuel costs.

Their research led Joanos to the conclusion that the district needed to begin to convert the fleet from aging, dirty diesel technology to clean, more cost-efficient CNG.

They developed a "scorecard" that measures the costs, reductions of emissions and pros and cons of four fuel sources: diesel, biofuel, a 20-percent/80-percent biofuel-diesel blend, and CNG.

Except for the fact that diesel's easy to obtain and familiar, it lost in almost every respect. The nonblended biofuel was eliminated from consideration because, Joanos said, its performance is unreliable in cold weather.

Buses run OK on the biofuel/diesel blend, he said, but it's costlier than regular diesel and isn't much cleaner.

CNG is substantially less expensive than diesel or the biofuel-diesel blend and much friendlier to the environment, because it produces extremely low levels of particulates. As of June 1, Joanos said, the average cost of a gallon of diesel was $4.71 versus $2.11 for CNG (after conversion from cubic feet, in which it's measured).

The problem is front-end costs. The price of a CNG-burning bus is about 40 percent more than a diesel-powered vehicle, although the average life of a CNG-powered bus is 20 percent to 25 percent longer than diesel-fueled
Leon County School District spells better fuel 'CNG'

Dave Hodges
Democrat Business Editor

Before long, he hopes to have a portion of the vehicles powered by compressed natural gas. At the meeting this week of the Economic Development Council of Tallahassee/Leon County, Pons outlined his plan and asked the council members to fill out and sign letters of support. He is proposing a facility with "fast-fill" capabilities so vehicles can be fueled as quickly as their diesel-powered counterparts are. He also wants private vehicles to have access to the fuel.

CNG, as it's referred to, is cleaner than the diesel fuel used in buses. It also generates the fewest exhaust emissions of any available motor fuel. CNG vehicles require less maintenance and their engines last longer.

As for supply, domestic producers are more than able to provide most of what the U.S. consumes. In 2007, it was 90 percent — mainly from Louisiana, New Mexico, Texas, Oklahoma and Wyoming. By comparison, only about one-fourth of the crude oil we use annually comes from domestic supplies. There's your energy independence, folks.

Fleet operators have been running on CNG for years, including the transit service in Birmingham, Ala. Pons and his staff will visit the fueling facility there during an upcoming trip, he said.

"We are not asking for dollars. We are just spreading the word," he told the EDC members. "We are finding that a lot of individuals in the community are looking at this."

Please see HODGES, 7A

HODGES

From Page 6A

As for other school districts making the switch, he cites the Mansfield, Tex., Independent School District, which has about 30,000 students in the Dallas-Fort Worth area. Mansfield has 20 CNG buses out of a total fleet of 180.

In California, the Los Angeles Unified School District has 173 CNG buses, comprising the largest such fleet in the state.

The local CNG fuel facilities would serve automobiles, small and large trucks, and bus fleets. Pons is adamant about the fuel being available to other Leon County users.

And when budgets are tight and costs keep rising, Pons believes now is the time to convert. Leon County Schools maintains a fleet of more than 180 buses that required a record $1.8 million in fuel during the 2007-08 school year. The CNG equivalent amount is almost half that expense.

So if you see Mr. Pons, tell him yes to CNG. If you want to sign a letter of support, contact the district at 487-7147.
Leon County School District spells better fuel 'CNG'

By Dave Hodges
DEMOCRAT BUSINESS EDITOR

First it was reducing power consumption in the district's schools, then achieving efficiencies in lighting. Now Leon County School Superintendent Jackie Pons and his staff have turned their attention to the bus fleet.

Before long, he hopes to have a portion of the vehicles powered by compressed natural gas.

At the meeting this week of the Economic Development Council of Tallahassee/Leon County, Pons outlined his plan and asked the council members to fill out and sign letters of support. He is proposing a facility with "fast-fill" capabilities so vehicles can be fueled as quickly as their diesel-powered counterparts are. He also wants private vehicles to have access to the fuel.

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So if you see Mr. Pons, tell him yes to CNG. If you want to sign a letter of support, contact the district at 487-7147.
Compressed Natural Gas Alternative Fuel Initiative:  
Letter of Support

From: Sustainable Tallahassee Inc.  
Kastin Duzier, President

Date: 9/24/08

To: Jackie Pons  
2757 West Pensacola St.  
Tallahassee, FL 32304

Dear Superintendent Pons,

I, Kastin Duzier, for Sustainable (PRINT) support the effort to develop a Compressed Natural Gas (CNG) infrastructure within the Tallahassee/Leon County Florida boundary. This support includes the development of CNG fueling stations for automobiles, small and large trucks and bus fleets. I also support industry to provide an inventory of Natural Gas Vehicles (NGV) to include automobiles, small and large trucks and buses for sale to the public.

Sincerely,

Kastin Duzier  
President Sustainable Tallahassee

Additional Comments:  
The Sustainable Tallahassee Board of Directors unanimously supports the LCS effort to develop a CNG infrastructure and to provide an inventory of NGV for our district. Please see attached list of Directors who join me in our support of your efforts.
BOARD MEMBERS:

Kristin Dozier, President. Kristin is vice president and green building adviser for Mad Dog Design & Construction. She is also chair of the Safe and Nurturing Environment Action Team for Whole Child Leon and a member of the WCL Steering Committee.

Bill Berlow, Vice President. Bill is an associate editor at the Tallahassee Democrat and an original catalyst for the Knight Creative Communities Initiative project called Greenovation.

Kathy Bartlett, Treasurer. Kathy is an investment adviser for SunTrust and also was an original Greenovation catalyst.

Jackie Hightower, Secretary. Jackie is a coordinator for Student Support Services and adviser to the Environmental Sciences Student Organization (ESSO) at the Environmental Sciences Institute (ESI) at Florida A&M University and a member of FAMU's Green Coalition.

Mark O'Bryant. Mark is president and CEO of Tallahassee Memorial Healthcare and a Greenovation catalyst.

Stephen Hogue. Stephen is an attorney for the Legislature and, in another volunteer capacity, is president of the Council of Neighborhood Associations.

Frank RyII. Frank is the recently retired executive director of the Florida Chamber of Commerce.

Robin Safley. Robin is a consultant, talk-show host and former chief of staff for then-Education Commissioner Charlie Crist.

Rachelle McClure. Rachelle works for the Florida State University in Interior Design.

Tom Bajorski. Tom is a retired state government employee.

Steve Urse. Steve is the retired executive director of a statewide Prosecuting Attorneys Association and a member of the Big Bend Climate Action Team.

David Byrne. David is Energy Services Director for the City of Tallahassee and a Greenovation catalyst.

Mark Worley. Mark is a state certified general contractor specializing in design/build, construction education and consulting. Past president of the Tallahassee Builders Association and currently on the executive board as Secretary.

Nancy Paul. Nancy is general manager of Marpan Recycling and former superintendent of the Leon County landfill.

Merry Ortega. Merry is director of secondary schools for Leon County Schools and is overseeing the district’s recycling initiative that Greenovation successfully advocated.

Ben Tunnell. Ben works for Shaw Contract Group as a commercial and government specialist.

Jake Kiker. Jake is an attorney with Williams, Gautier, Gwynn, DeLoach & Sorensen, P.A. and an adjunct professor, Florida State University.

Larry Peterson. Larry is special adviser for energy and sustainable planning to Kitson & Partners' Babcock Ranch Community and is retired professor of architecture and former associate dean at Florida A&M University.
May 28, 2009

Janet Laukaitas  
Department of Energy  
National Energy Technology Laboratory  
626 Cochran’s Mill Road  
Pittsburgh, PA 15236

Dear Ms. Laukaitas:

It is my distinct pleasure to write this letter in support of the grant application for Leon County Schools in their effort to implement a clean and energy efficient transportation system. By using these funds to upgrade their school buses from diesel to natural gas, the county will not only contribute to achieving our national goal of reducing our dependence on foreign oil, but also create new jobs and lower transportation costs.

While natural gas fueled buses initially cost roughly $50,000 more than diesel buses, Leon County Schools have the insight to know that this investment will incur a cost savings over the next 15 years. With this grant money, the county would also use these funds to construct a compressed natural gas (CNG) fueling facility that will create new jobs and foster working relationships with other industries. Leon County Schools anticipates this facility will provide for 600,000 gallons of CNG fuel annually, which will be used to fuel 60 CNG school buses by 2014 and as much as 100 buses thereafter.

I appreciate your consideration of this application. This program will provide Leon County Schools with clean and reliable buses and will have a great impact on the local economy.

Please do not hesitate to contact my office if you have further questions.

Sincerely,

Allen Boyd, Jr.  
Member of Congress
October 25, 2010

Mr. Jackie Pons, Superintendent  
Leon County Schools  
2757 West Pensacola Street  
Tallahassee, FL 32304-2998

Re: Compressed Natural Gas Fueling Station

Dear Superintendent Pons:

This letter is to express my support, as the Vice President for Research at Florida State University, for your efforts to transition from gasoline to alternative fuels such as Compressed Natural Gas (CNG) and Liquid Natural Gas (LNG). I have been eager to test the concept of adopting cleaner and cheaper natural gas alternatives. In fact, my office is currently planning the purchase of a vehicle for daily office use that will run on CNG; this will be our test bed for research on gas mileage, fuel availability and maintenance issues. Without a fueling station, we would be unable to manage this effort. Your offer to allow us to utilize your fueling station will bring our plan to fruition.

Once we have demonstrated the proof of concept with regard to CNG vehicles, my hope is that FSU and others in Leon County will begin to convert extensive fleets to CNG or LNG. I commend you and the School Board for your forward thinking with regard to alternative fuels and I hope that FSU will agree to become part of the alternative fuels program in Leon County.

I look forward to working with you on the details of your CNG/LNG fueling station.

Sincerely,

Kirby W. Kemper  
Robert O. Lawton Distinguished  
Professor of Physics &  
Vice President for Research

cc: President Eric Barron  
Alan Peck

3012 Westcott North, The Florida State University, P.O. Box 3061330, Tallahassee, FL 32306-1330  
Telephone 850.644.9694  Fax 850.643.0108  http://www.research.fsu.edu/
May 26, 2009

Honorable Jackie Pons
Superintendent of Schools
2757 West Pensacola Street
Tallahassee, FL 32304-2998

Dear Superintendent Pons:

The Leon County Sheriff’s Office supports the leadership of Leon County Schools in its efforts to create a viable Compressed Natural Gas (CNG) Fueling Facility. We are grateful to be included as a Community Partner in this effort and will consider retrofitting or purchasing new CNG vehicles to convert a portion of our fleet to the cleaner burning natural gas fuel.

The proposed location of the fueling facility at the corner of Capital Circle and Highway 20 will be an optimum location for the Leon County Sheriff’s Office. This location is also very convenient to the I-10 corridor and other major thoroughfares.

At the time this facility becomes available, the Leon County Sheriff’s Office will consider securing 5 CNG vehicles through retrofit or new purchase for our use. Please anticipate and reserve 35,000 cng equivalent gallons annually for our needs.

Sincerely,

Larry Campbell
Sheriff

I.C/ka
Mr. Jackie Pons  
Superintendent of Schools  
2757 West Pensacola Street  
Tallahassee, FL 32304-2998

Dear Superintendent Pons,

I want to congratulate you for your leadership in bringing the proposed LNG and CNG fueling station to our community. As the first public fueling station of its kind in the Southeast region of the United States, this revolutionary undertaking will not only bring more attention to Leon County Schools’ commendable effort to displace diesel fuel consumption with natural gas fuel in its school bus fleet, but will also demonstrate a broader commitment to the County as a whole by providing a natural gas fuel source for heavy and medium-duty trucks, refuse trucks, and cars. As a consequence of this partnership, Leon County’s economy will grow and green jobs will thrive.

I understand that Nopetro is among your short list of qualified vendors to compete for this project. Given the significance of this project, I wanted to let you know that this vendor has taken the time to meet with the County government to learn more about our needs. Through that process Nopetro has inspired my confidence as a competent and conscientious provider in this emerging and exciting endeavor.

In addition to the potential reach of Nopetros’ station to the public at large, the fact that LNG will be available is particularly appealing to the County because of the increased driving range which accompanies this type of fuel. Of the more than 600 vehicles which comprise our fleet, I can envision a substantial portion of those vehicles being replaced by LNG vehicles over the next decade.

Through your achievements to date, Leon County Schools has already emerged as a leader in the promotion of cheaper and greener natural gas fuel. I want to again congratulate you for your efforts to bring the proposed LNG and CNG fueling station to Leon County and the opportunity this affords the County to participate as a partner in the future.

Sincerely,

[Signature]

Vincent S. Long  
Deputy County Administrator

An equal opportunity employer
Leon County
Board of County Commissioners
301 South Monroe Street, Tallahassee, Florida 32301
(850) 606-5502 www.leoncountyfl.gov

April 16, 2009

Honorable Jackie Pons
Superintendent
Leon County Schools
2757 West Pensacola St.
Tallahassee, Fl. 32304

Dear Superintendent Pons,

At the April 9, 2009 Commission Meeting, the Board considered a report regarding using compressed natural gas as an alternative fuel for County vehicles. While the Board does not currently have any vehicles capable of switching to this fuel, and the current conversion costs do not support modifying the Sheriff’s cruisers, the Commission supports the endeavor undertaken by the Leon County Schools to utilize natural gas for its bus fleet, and creating a local market for this fuel.

The Leon County Board of County Commissioners fully endorses the Leon County Schools effort to construct a natural gas fueling facility in order to save fuel costs, and reduce the effects of carbon emissions in our community. As an organization, Leon County will continue to monitor the alternative fuel market, including compressed natural gas, and look for ways to incorporate this sustainable technology into our vehicle fleet. In the future, if the County does purchase compressed natural gas vehicles, it is good to know that the School Board will have a fueling source available. I look forward to working closely with you and the School Board members on other such initiatives. Please let me know if I can be of help to you!

Sincerely,

Bryan Desloge
Chairman

BD/sr:bet

cc: Members of the County Commission
Parvez Alam, County Administrator
Scott Ross, OMB Director

An equal opportunity employer
Compressed Natural Gas Alternative Fuel Initiative: 
Letter of Support

From: [Signature]

Date: 10/23/08

To: Jackie Pons
2757 West Pensacola St.
Tallahassee, FL 32304

Dear Superintendent Pons,

I, [Signature] (PRINT) support the effort to develop a Compressed Natural Gas (CNG) infrastructure within the Tallahassee/Leon County Florida boundary. This support includes the development of CNG fueling stations for automobiles, small and large trucks and bus fleets. I also support industry to provide an inventory of Natural Gas Vehicles (NGV) to include automobiles, small and large trucks and buses for sale to the public.

Sincerely,

[Signature]

Additional Comments:
May 28, 2009

Mr. Jackie Pons  
Superintendent  
Leon County Schools  

Dear Mr. Pons,

Waste Management of Leon County Inc., supports and applauds the leadership of Leon County Schools to create a viable Compressed Natural Gas (CNG) Fueling Facility. Waste Management of Leon County, Inc., is pleased to be considered a Community Partner in this effort and will consider retrofitting and/or purchasing new CNG vehicles in Waste Management of Leon County Inc.'s effort to convert a portion of our fleet to the cleaner burning natural gas fuel.

Waste Management of Leon County Inc., considers the location of the fueling facility to be a convenient location for our business. The corner of Capital Circle and Hwy. 20 is very convenient to the I-10 corridor and other major thoroughfares.

At the time this facility becomes available, Waste Management of Leon County, Inc., will consider acquiring up to 3 CNG vehicles through retrofit or new purchase for our business use. Should we go forward with our plans, we anticipate using up to 30,000 cng equivalent gallons annually for our needs.

Should you have any further questions, please call me at (850) 263-5950.

Sincerely,

[Signature]

Achaya Kelapanda  
District Manager  

C: Keith Harrison  
David McConnell
May 28, 2009

Jackie Pons
Superintendent
Leon County Schools

Dear Mr. Pons,

RAM Construction & Development, LLC supports and applauds the leadership of Leon County Schools to create a viable Compressed Natural Gas (CNG) Fueling Facility. RAM is grateful to be considered a Community Partner in this effort and will consider retrofitting and/or purchase new CNG vehicles in RAM’s effort to convert a portion of our fleet to the cleaner burning natural gas fuel.

RAM considers the location of the fueling facility to be an optimum location for our business. Our central office in Midway is approximately 10 minutes away from the proposed location. The corner of Capital Circle and Hwy. 20 is very convenient to the I-10 corridor, Highway 90 and other major thoroughfares.

At the time this facility becomes available, RAM will consider acquiring up to 3 CNG vehicles through retrofit or new purchase for our business use. Please anticipate and reserve 18,000 cng equivalent gallons annually for our needs.

Sincerely,

Robert H. Annin
President
M OF TALLAHASSEE, INC.
4223 Capital Circle N.W.
Tallahassee, Florida 32303
Office: (850) 562-1022
Fax: (850) 562-8151

May 27, 2009

The Honorable Jackie Pons
Superintendent
Leon County Schools
Tallahassee, Florida

Dear Mr. Pons,

M of Tallahassee, Inc. (M, Inc.) supports and applauds the leadership of Leon County Schools to create a viable Compressed Natural Gas (CNG) Fueling Facility. M of Tallahassee is grateful to be considered a Community Partner in this effort and will consider retrofitting and/or purchasing new CNG vehicles in our effort to convert a portion of our fleet to the cleaner burning natural gas fuel.

M, Inc. considers the location of the fueling facility to be an optimum location for our business. The corner of Capital Circle and Highway 20 is very convenient to the I-10 corridor and other major thoroughfares in Leon County.

At the time this facility becomes available, M, Inc. will consider acquiring up to five (5) CNG vehicles through retrofit or new purchase for our business use. Please anticipate and reserve thirty thousand (30,000) CNG equivalent gallons annually for our needs.

Sincerely,

Emory L. Mayfield
President
Jackie Pons  
Superintendent  
Leon County Schools

Dear Mr. Pons,

Jackson-Cook, LC supports and applauds the leadership of Leon County Schools to create a viable Compressed Natural Gas (CNG) Fueling Facility. Jackson-Cook, LC is grateful to be considered a Community Partner in this effort and commits to retrofitting and/or purchasing new CNG vehicles in Jackson-Cook’s effort to convert a portion of our fleet to the cleaner burning natural gas fuel.

Jackson-Cook, LC considers the location of the fueling facility to be an optimum location for our business. The corner of Capital Circle and Hwy. 20 is very convenient to the I-10 corridor and other major thoroughfares.

At the time this facility becomes available Jackson-Cook will secure 3 CNG vehicles through retrofit or new purchase for out business use. Please anticipate and reserve 4,600 CNG equivalent gallons annually for our needs.

Sincerely,

Jackson-Cook, LC

[Signature]

President

Pledges
May 29, 2009

Jackie Pons
Superintendent
Leon County Schools
Tallahassee, FL

Subject: Compressed Natural Gas Fueling Facility

Dear Mr. Pons:

With the rising cost and limited supply of fuel, our community is compelled to seek alternate solutions to fuel supply. Sandco, Inc. is happy to see the leadership of Leon County Schools taking proactive measures to create a viable Compressed Natural Gas (CNG) Fueling Facility and fully supports this effort. In fact, Sandco will commit as a community partner in this endeavor by converting a portion of our fleet to the cleaner burning natural gas fuel.

The proposed location of the fueling facility meets the needs of our company and is very convenient to the I-10 corridor and other major thoroughfares in our community.

When the facility becomes available, Sandco will consider modification of up to 30 vehicles in our fleet through retrofit or new purchase. Please anticipate and reserve 50,000 cng equivalent gallons annually for our needs.

Sincerely,

[Signature]

Steve Ghazvini
President
October 18, 2010

Jackie Pons
Superintendent
Leon County School District
2757 W. Pensacola St.
Tallahassee, FL 32304

Subject: Letter of Endorsement – CNG and LNG Fueling Station

Dear Superintendent Pons:

As an advocate for natural gas, I fully endorse Nopetro’s plan to develop a CNG and LNG fueling station in Leon County. I have partnered with the company in this effort and will be responsible for site construction. Throughout the last few months, I have worked closely with Nopetro’s officers and I could not be more impressed. Their level of commitment, knowledge, and enthusiasm will secure the success of this project. Needless to say, there is no doubt that Nopetro will be a strong asset to our county.

With respect to the facility itself, Nopetro being able to offer both LNG and CNG is a huge advantage, as using LNG provides trucks with the ability to travel greater than 700 miles with the same power as diesel trucks. Certainly, the cost savings and environmental benefits are compelling, and because of this, SandCo is committed to transition its fleet of heavy duty dump trucks to LNG.

Having worked with countless companies in the past, I consider myself to be a good judge of opportunity and talent and after having worked with Nopetro I can say with full confidence that the Nopetro-LCS facility will be a homerun. Nopetro will put Leon County Schools on the national map, and together we will all witness a local business flourish before our very eyes.

Sincerely,

[Signature]

Steve Ghazvini
President
Natural Gas Fuel Costs – 10 Year History

The wholesale costs and retail prices of natural gas for transportation in North America have been more favorable than traditional liquid fuels for the past decade, and that trend is predicted to continue through the year 2035. Figure 1 depicts a snapshot of key pricing facts.

For the purpose of this report, consider the wellhead pricing to be equivalent to the Henry Hub price that noptero used as a basis in their proposal to LCSD. For the record, one (1) cubic foot of natural gas contains 102 BTU’s. Therefore, 1,000 cu. ft. (MCF) from the well contains 1,020,000 BTU’s while a Decatherm from the Henry Hub contains 1,000,000 BTU’s.

<table>
<thead>
<tr>
<th></th>
<th>10-Year Average</th>
<th>10 Year Low</th>
<th>10 Year High</th>
<th>2010 1st Qtr</th>
<th>Projected 2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Retail ($/GGE)</td>
<td>$1.61</td>
<td>$0.89 (Apr. 2000)</td>
<td>$2.34 (Jul. 2008)</td>
<td>$1.88</td>
<td>$1.85</td>
</tr>
</tbody>
</table>

Over the past decade, the natural gas market has experienced dramatic pricing fluctuations. Because oil and natural gas drilling are so closely linked, many of the market forces that caused fluctuations seen in the oil market also affected the natural gas market. For example, when oil prices surged in mid-2008, natural gas prices also surged to historic highs. Most recently, the natural gas market has been on a downward trend due to several factors. First is the global economic recession, which has negative impact on both production and demand. A second factor is “unconventional gas” sources such as shale gas. Advanced drilling technologies, namely shale fracturing or “fracking” are making these unconventional gas sources more common, which will help disassociate the natural gas and oil markets to some extent and help to keep natural gas prices lower and more stable.

According to the U.S. Energy Information Administration, the wellhead price of natural gas in the United States has ranged from a low of approximately $2.19/mcf to a high of $11.32/mcf over the last decade. See Figure 2. The average wellhead price in 2010 is $4.58/mcf. For CNG as a vehicle fuel, this correlates to a reported $.89 per gasoline gallon equivalent (GGE) in 2000 to the most current average retail price of $1.88/GGE in the first quarter of 2010. See Figure 3.
Figure 2. U.S. Natural Gas Wellhead Price, 2000-2010
Average Wellhead Price in 2010: $4.58/mcf

Source: U.S. EIA [http://tonto.eia.doe.gov/dnav/ng/hist/n9190us3m.htm](http://tonto.eia.doe.gov/dnav/ng/hist/n9190us3m.htm)

Over that same decade, the U.S. retail fuel price average for CNG consistently tracked below all transportation fuels—including gasoline and diesel, as well as other alternative fuels such as E85, LPG, B20 and B100.

Figure 3. U.S. CNG Retail Fuel Price, 2000-2010
Average Retail Price in 2010: $1.88/GGE

From October 2006 through December 2009, CNG was even lower than conventional fuels with the help of a U.S. federal excise tax credit of $0.50 per GGE for CNG or liquid gallon of LNG. Both the House and Senate have extended this provision through the end of 2010 and the extension is retroactive back to the beginning of 2010. In addition, the NAT GAS Act (H.R. 1835, S. 1408), if enacted, would extend the $0.50 credit for CNG and LNG for a number of years.

However, even without the tax credit, the pricing of natural gas is projected to remain extremely favorable compared to diesel, with diesel averaging $3.75 per gallon in 2035 while natural gas is projected at $1.75 per diesel gallon equivalent (DGE).

**Future Cost Projections in the U.S.**

**Figure 5. Projected U.S. Diesel and CNG Retail Fuel Price, 2007-2035**

The chart above clearly illustrates the decoupling of the natural gas price from crude oil required to make diesel fuel. The average diesel price moving forward is subject to wild fluctuations caused by conditions in the oil producing nations of the world, including: civil unrest, OPEC production levels and natural disasters. Also, costs continue to rise for conventional drilling operations and other liabilities like the oil spill in the Gulf will continue to drive prices higher.
According to the U. S. Energy Information Administration’s recent Short Term Energy Outlook, average on highway retail prices for diesel fuel will increase 13.7% in 2011 to $3.40 per gallon and 3.4% in 2012 to $3.52 per gallon. On the other hand, the EIA reported in their 2011 Annual Outlook that the projected cost for natural gas at the Henry Hub has been revised downward from their 2010 and 2009 forecasts. The average cost per decatherm remains below $5.00 until the year 2020 while the average cost per barrel of crude oil will exceed $100.00 by 2018.

Summary

While it is very difficult to forecast spot prices for both natural gas and diesel fuel, the trends are very clear. New sources of natural gas, unrelated to oil reserves, are being discovered while new collection methods are being developed and deployed. Natural gas inventories are at an all time high and the trend that separates gas from oil will continue to decrease the price dependency. Global demand for transportation fuel will rise as developing nations continue to grow and this demand will be met primarily with petroleum products for the foreseeable future. This will most likely result in a continuing upward spiral in the cost of diesel fuel.