

Pittsburgh Region Clean Cities Gazette

"Driving the way toward energy independence"

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Taxi Project a Huge Success

Cranberry Taxi, doing business as Veterans Taxi, has just completed a project under a Pennsylvania Department of Environmental Protection (DEP) Alternative Fuels Incentive Grant (AFIG) Program that converted taxis to run on compressed natural gas. The project was called "Pittsburgh's CNG Taxi Deployment." Through this project the company purchased 28 taxis (19 MV-1s, 6 Ford Transit Connects, and 3 Dodge Grand Caravans). The primary refueling for these vehicles is at the American Natural's station at 73 Carson Street on the South Side, just a few blocks from their offices.



The grant as awarded in 2011 for \$269,000 helped to underwrite the acquisition of 25 vehicles. But the resulting cost savings allowed Cranberry Taxi to purchase 3 additional taxis beyond the original plan, with the approval of PA DEP.

Through the use of the natural gas powered vehicles, Cranberry Taxi expected to reduce its use of gasoline for its total fleet by 75,262 gallons annually. Instead it is on its way to replacing almost

100,000 gallons!

Sales of NG Vehicles to Quadruple

Annual sales of NG trucks and buses to almost quadruple by 2022

North American sales of natural gas trucks and buses are projected to grow by a compound annual rate of 15 percent between 2013 and 2022, while the bus market is expected to grow by a similar 16 percent annually, according to a just released report by Navigant Research, Natural Gas Trucks and Buses. According to Navigant, sales of heavy duty natural gas trucks and buses will grow from 10,044 in 2013 to 36,669 in 2022. For medium-duty natural gas trucks and buses, sales are project to grow from 3,318 to 12,087 during the same period.

North American Annual Sales of Heavy and Medium Duty Trucks and Buses

Dave Hurst, the principal author, says that the heavy-duty market is anticipated to remain larger than the medium duty market because heavy-duty vehicles use more fuel. Accordingly, the payback can be rapid, within 1 to 2 years depending on the type of truck and its usage. The vehicles' incremental costs continue to be largely driven by CNG and LNG storage tanks, which account for between 53 and 76 percent of the total incremental costs of an NGV. Hurst also says that the truck market will grow in particular segments. Natural gas trucks are expected to account for 77 percent of refuse truck sales in 2014, while the day cab tractor market is expected to see natural gas grow from about 4 percent of the market today to 17 percent of the market by 2022.

	2013 Sales	2022 Sales
Heavy-Duty	10,044	36,669
Medium-Duty	3,318	12,087
Combined	13,362	48,756

Natural Gas Prices to Stay Low

A recent article in the Pittsburgh Business Times reports that the price of natural gas could remain in the \$4 to \$5 per million BTUs for at least the next 20 years, according to new research by IHS (a global research company).

Tim Gardener, Vice President of IHS and global head of Power, Gas, Coal and Renewables, said, "Now that technology has greatly expanded our ability to pro-

duce natural gas at relatively low cost, we can look for more ways to capitalize on the economic, efficiency and environmental advantages that natural gas offers."

Converting fleets of trucks to run on natural gas will be one of the biggest areas of potential growth for natural gas, despite the higher upfront cost and not having enough fueling stations.

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CP Industries New CNG Storage

CP Industries Holdings Inc., McKeesport, PA, has been supplying seamless steel pressure vessels for CNG storage at NGV Refueling Stations and for transportation of CNG since the 1970s worldwide. The increased interest in natural gas as a vehicular fuel and an alternative energy source for power generating plants and diesel driven engines has created opportunity for new ideas and solutions.

CP Industries has traditionally offered ASME pressure vessels in a multitude of configurations for NGV refueling station applications. The ASME vessels are U-Stamped and can be provided with CRN for applications in Canada. The storage assemblies can be designed for seismic zones and provided with suitable bracing. The typical configuration for a station utilizes three, 23' long vessels, capable of storing approximately 36,000 SCF of CNG at 5000 psig. CPI has designed a longer vessel for the ground storage applications, thereby reducing the cost per standard cubic feet of CNG stored. Realizing that there are space limitations at some NGV stations and the value of real estate, CPI has designed a three vessel ASME assembly that stores the equivalent amount of CNG utilizing 16'3" long vessels.

CPI has supplied seamless steel DOT-3AAX and ISO1120 UN/USA vessels for installation on tube trailers and modules for transporting CNG. Tube

trailers are being used extensively to transport CNG to locations that are absent pipelines for distribution. CPI has designed a tube trailer specifically for transporting CNG using ISO/UN specified vessels that holds approximately 164,000 scf at 2538 psi. The ISO 1120 UN/USA vessels require a 10 year retest. The DOT 3AAX vessels require a 5 year retest, but there is no finite life as in other designs. CPI can provide vessels suitable for use in Canada and at design pressures to meet the requirements of the end users.

CP Industries is pleased to introduce our new line of Type 1 and Type IV cylinders for on board CNG storage in compliance with ANSI NGV 2 and FMVSS 304. The cylinders can be provided with strap mount or neck mount configurations, with and without valves in a number of sizes. The Type IV cylinders are proudly made in the USA at our McKeesport plant.

CP Industries is committed to provide solutions to the CNG market, and the Type 1 and Type IV cylinders compliment the steel ASME ground storage and ISO/DOT steel transportation line of products. Please visit our website, www.cp-industries.com, or contact us at 412-664-6604 or info@cp-industries.com.



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Two New Board Members for PRCC

On January 8, 2014 the Pittsburgh Region Clean Cities



voted in two new members to the Board of Directors, giving Pittsburgh Region Clean Cities taking the Board to 14 members. Given the importance of the fueling industry to the adoption of alternative fuels, the board decided to seek a second representative for the nat-

ural gas industry and a representative for the propane industry.

While the board was considering whom to appoint, the Executive Director, Rick Price, was approached by Bob Beatty, President and Founder of "O" Ring CNG Fuel Systems LP, who mentioned that he would like to do more for PRCC. His company owns and operates four CNG stations, in Coolsprings, Punxsutawney, Rimersburg, and Brookville, PA. His company has built over 20 stations and has numerous others in process and/or under contract. Rick then took his recommendation to the Board that Bob be elected to one of the vacant seats. He was elected to the Board of Directors at the January meeting.

The other new Board member is Ron Schramm, President of Pro-Gas Inc., with locations in Zelienople and Aliquippa, PA. Ron has been in the propane business for 40 plus years and brings a great deal of knowledge of the propane industry to PRCC. Ron has been a



leader in trying to bring propane to the forefront in the local area. His personal outreach was key to Globe Parking converting their shuttles to propane and installing a number of propane autogas stations in Western, PA. He not only talks the talk, but he walks the walk, as he has a propane van and a flatbed truck that run on propane.

"Both of these new members of the PRCC Board of Directors will help PRCC educate the public about alternative fuels," states PRCC Executive Director, Rick Price. PRCC has one more opening on the Board, ideally for someone with electric vehicle and/or charging station background. Anyone interested should contact Rick Price or Jan Lauer.

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REV LNG Provides Full Service LNG



REV LNG is a full service “Well to Wheel” provider of LNG. We safely and securely handle the entire facet of the LNG logistical supply train from beginning to end.

Today, LNG is the fastest growing alternative to diesel fuel in the United States, especially for high capacity, high horsepower needs. REV LNG services both “on road” and “off road” customers. We actively service 18 wheeler trucks, drilling rigs, asphalt plants, co-generation plants, and soon to be industrial users such as marine and rail applications.

We have the ability to “bundle” a total services package for your company or simply offer “individual” pieces of the LNG supply train to work seamlessly to solve your energy needs.

REV LNG has three main service lines: **Sourcing, Transportation, and Dispensing.**

LNG Sourcing: REV LNG has a portfolio of LNG fuel supply agreements across the country to secure the appropriate quantities of LNG to meet your needs. We can secure spot delivery contracts to decade long service contracts for supply. We have agreements with almost every producer of LNG in the country today. We can tailor design a seamless, reliable, and economic solution to meet your needs.

LNG Transportation: LNG must be transported in a cryogenic vehicle and typically this is done through a 10,000 LNG gallon transport trailer. REV LNG owns a

fleet of new cryogenic tankers that are of the highest quality standards and efficiencies. REV LNG can safely handle all logistics to end user customers whether you are a utility looking for storage tank refilling needs, an E+P company needing drill transport drop off or an on road customer who needs LNG delivered to the highway station. We have millions of safe documented miles hauling LNG for our own fleet as well as third party customers.

LNG Dispensing via our “Instant Infrastructure”: REV LNG utilizes a proprietary “Instant Infrastructure” design to dispense LNG. One of the largest challenges to the natural gas fueling market is lack of infrastructure. It does not matter how great the economic and environmental benefits of LNG are, if you the end user can not secure access to the fuel in a quick, safe, seamless and reliable manner, what good is it? This is exactly the question we asked ourselves and tasked our team to answer.

REV LNG developed a unique and proprietary technology that is substantially more cost effective than building a traditional fixed based “brick and mortar” fueling station. It offers significant advantages in cost and efficiencies for our customers. This “instant Infrastructure” design can be deployed in less than 24 hours and can stay in place for years if necessary. We can design an appropriate size with room for growth and expansion. The unit is extremely compact and can be deployed in the tightest locations where footprint is a concern.

This fuelling solution can be adapted to meet any customers needs whether “on” or “off road”.

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REV LNG Provides Full Service LNG (cont.)

Additionally, REV LNG owns all of this equipment and there is no lease or capital expenditure of the equipment to you the customer. The cost is reflected in a simple price per gallon model the exact same way traditional diesel is modeled today.

REV LNG can create L/CNG Fueling Stations to service both LNG and CNG or only CNG. These stations are part of the REV LNG “Instant Infrastructure” product line. This station can be designed and deployed extremely quickly and without the permitting and infrastructure cost of developing a normal pipeline accessible CNG compression station.

The L/CNG “instant infrastructure” is more economical than traditional “all in” costs of CNG stations and also can be deployed at locations that do not have access to traditional natural gas pipeline service. This gives stranded customers the ability to have CNG and or LNG dispensing options in any location, regardless of proximity to natural gas infrastructure or commodity availability.

Traditional LNG delivery is secured to the station’s tank and pressure regulating allows boil off gas and liquid to be transferred through high pressure vaporization systems and then stored without compression as CNG.

The system has the ability to fuel both CNG and LNG vehicles from the same source tank.

Environmentally Friendly and Green

Natural Gas (LNG) is the cleanest burning fossil based fuel with 50% lower emissions than the next best option. The beauty of LNG’s simplicity is that it burns almost completely, leaving only a small amount of carbon dioxide and water behind ($\text{CH}_4 + 2\text{O}_2 = \text{CO}_2 + 2\text{H}_2\text{O}$)

LNG produces up to 90% lower emissions than gasoline or diesel. Not only does the reduced amount of greenhouse gases by LNG make it the cleanest internal combustible fuel for our environment, it also burns cleaner inside your engine resulting in fewer oil changes and less maintenance. By removing one traditional Diesel 18 wheeler and replacing it with a LNG engine it is the carbon footprint reduction equivalent of removing 324 automobiles off the road.

Safe Fuel

LNG is lighter than air. In the event of a spill, LNG disperses quickly without pooling on the ground. It also has a higher ignition temperature making it less flammable than gasoline or diesel. LNG is also non-toxic and non-corrosive and will not contaminate ground water

Abundant

The United States is sitting on top of more than 25 very large natural gas reservoirs. Some analysts say that it contains three times the energy as the Saudi oil fields. In the last five years, shale reservoirs have revealed natural gas deposits that doubled previously estimated U.S. gas reserves giving us close to a two hundred year supply at current consumption rates. Using America’s vast abundance of domestic natural gas is our best answer for reducing foreign oil dependence while increasing energy and national security.

Call REV LNG at 810-599-1274 to obtain more information or start service today.

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Tri-state Alternative Fueling Expo & Conference

The Advisory Board of the 2014 Tri-State Alternative Fueling Expo & Conference promised an exciting and full conference schedule, and they've delivered! At this year's conference, attendees can hear Sam Smith, Speaker of the PA House of Representatives, and Stephe Yborra, Director of Market Development for NGV America, on the importance of energy independence in America during the keynote addresses! In addition to exciting keynote addresses, there will be Petroleum Reduction Workshops held each day by Pittsburgh Region Clean Cities, a media preview, a job fair for workers seeking employment in the industry, an exhibitor/attendee networking party, a Casino Night party, DEP presentations on funding assistance for alternative fuel projects, and many other great conference speakers. Get your tickets for this revolutionary event today!

Attendees can register online today to reserve a spot at the 2014 Tri-State Alternative Fueling Expo & Conference at <http://alternativefuelingexpo.com/online-registration/>

The conference has a great schedule lined up:

Attendees can participate in the conference to meet leaders in the alternative energy industry who are al-

ready forging the path to success

There will be exhibitors available at the expo to help guide attendees to a greener, more efficient energy solution to fit their transportation needs

And there will be several networking and social events for attendees to meet like-minded folks interested in alternative energy solutions.

This is all in addition to the full-sized CNG fuel station that will be on display and the CNG DeLorean! You don't want to miss this event!

In addition, there is still some space left on the show floor for exhibitors. Interested exhibitors can call Simon Event Management at 1-800-747-5599 to learn more.

Finally, be sure to order great show merchandise when you register online so you can wear it to the show! Items can be purchased as add-ons to online tickets and picked up at the show. Show your support for the green American Fuel Revolution with our apparel line.

Please visit www.alternativefuelingexpo.com for schedules, speakers, events, registration and more information.



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How Cranberry Taxi Is Driving The Cab Industry Crazy

It's hard to make a living driving a cab, particularly in the Pittsburgh area. It's also hard to catch one, unless you're going to or from the airport. But if you're an astute taxi operator, you can still make a good living – netting around \$1,000 a week – without spending hours idling in the airport taxi line waiting for fares to arrive, according to Cranberry resident Robert DeLucia, Sr. He should know. Ever since completing his tour of duty with the Army Military Police back in 1968, DeLucia has supported his family – along with a growing number of others – by becoming a transportation entrepreneur, beginning as a solo cab driver. Today, with more than 80 vehicles in his fleet and an



Need a Cab? There's an app for that. Star Transportation CEO Robert DeLucia, whose operating companies include Cranberry Taxi and Veterans Taxi, uses a whole arsenal advanced technologies to do battle in the fiercely competitive ground transportation business.

assortment of branded transport services operating under the umbrella of his Star Transportation Group, DeLucia takes tremendous satisfaction in hiring and mentoring veterans of more recent armed conflicts. But it's a demanding business, and the challenges never stop. For one thing, there is an entrenched service – Pittsburgh Transportation Group's Yellow Cab, owned by the French company Veolia – which has been fiercely protective of its 100-year grip on licensed taxi service in the Pittsburgh market.

Then there are apps – a variety of software applications for smart phones which match potential riders with car services, on demand. Some of them are perfectly legitimate. But many of them are used by unlicensed, uninsured, and unqualified operators as their primary tool for securing business. Since those operators – variously known as gypsies, renegades, jitneys, predators and cut-rate operators – have much lower business costs, they are able to offer rides for significantly less than licensed taxis. And the use of those apps is exploding. But the greatest challenge of all, according to DeLucia, is that American taxi companies have become their own worst enemies. By refusing short rides, providing too few cabs for major events, cherry-picking work hours, denying rides to certain neighborhoods, and taking passengers on roundabout routes to boost metered fares, the reputation of legitimate taxi service here has suffered, opening the door to newer and friendlier forms of ride sharing.

So in 2005, DeLucia started Classy Cab – a metered service using stretched Chrysler 300s, operated by uniformed drivers for a premium fare. “I knew that if you gave a good quality service with a clean car and a clean, well-spoken driver, you would get a lot of business,” he said. And it's worked. Today his company operates several other services as well, including Star Limousine black car service and Air Star Transportation paratransit access service. But his most ambitious project to date has been the Veterans Taxi service, which currently includes several dozen wheelchair accessible, natural gas powered specialty vehicles built in Indiana – all of which are operated by military veterans.

It is a business he has paired with his Cranberry Taxi service, started in 1985, which now includes more than a dozen vehicles serving passengers in North Hills communities and throughout Butler County. (continued next page)

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Driving The Cab Industry Crazy (cont.)

The mainstay of his Veterans Taxi fleet is the MV-1 – a roomy workhorse of a car patterned after the London taxi and manufactured at the former Hummer plant near South Bend. For DeLucia, who now owns 25 of them, the cars arrive from the factory fully prepped to run on natural gas – much of it extracted from Marcellus Shale wells in Pennsylvania. The cars are designed to last half a million miles or more. But they're expensive: \$55,000 apiece after being outfitted with meters, cameras, and other taxi gear – far more than the retired police cars most taxi companies buy at auction. But DeLucia's approach, involving a combination of innovative technologies – 60 percent of his fleet uses alternative fuels; novel management practices – including split cab leases; and community outreach – particularly to military veterans, is not only making the business work by disrupting established patterns of local taxi service, it is also attracting serious interest from major cities around the country who want him to clone his service there. And now it even has its own app.

Reprinted from Cranberry Today, Winter 2014 newsletter

CCAC to Provide Alt. Fuels Training

Pittsburgh Region Clean Cities (PRCC) and the Community College of Allegheny County-West Hills Center (CCAC) have an agreement to teach alternative fuel classes to try to educate as many people as they can about alternative fuels and alternative technologies.



Remember Sustainable Members of PRCC are eligible for scholarships as part of their membership dues.

Light Duty Natural Gas Vehicles – 8:30am to 4:30pm December 16th and 17th at Oring Training Facility Brookville, PA; Day Classes on April 1st and 2nd from 8:30am to 4:30pm and Evening Classes on April 2nd, 3rd, 9th and 10th from 6:30pm to 10:30pm at CCAC-West Hills Center.

CNG Fuel Inspector Prep Class – Day Classes on January 29th and 30th from 8:30am to 5:00pm and Evening Classes from 6:30pm to 10:30pm on March 18, 20, 25 and 27

Introduction to Hybrid Electric Vehicles – Day Classes from 8:30am to 4:30pm on April 22nd and 23rd and Evening Classes from 6:30pm to 10:30pm on February 18, 20, 25 and 27 at CCAC West Hills Center.

Servicing Hybrid Electric Vehicles – Day Classes from 8:30am to 4:30pm on April 29th and 30th and Evening Classes from 6:30pm to 10:30pm on March 11, 13, 18, and 20 at CCAC West Hills Center.



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PRCC Question of the Month

Question of the Month: *What are the key terms to know when discussing ethanol flexible fuel vehicles (FFVs) and their fueling infrastructure?*

Answer: It is important to know how to “talk the talk” when it comes to FFVs. Becoming familiar with the terms below will help you better understand these vehicles and the associated fueling infrastructure so that you can ask the right questions and make informed decisions.

Flexible Fuel Vehicles

An FFV is a vehicle that has an internal combustion engine and can run on E85 (defined below), gasoline, or a mixture of the two. Except for fuel system and powertrain adjustments that allow the vehicles to run on higher ethanol blends, FFVs are virtually identical to their conventional gasoline vehicle counterparts; however, drivers can expect a slightly lower fuel economy when driving on ethanol compared to gasoline, depending on the ethanol blend.

Types of Ethanol

Ethanol can be categorized into two main types based on the feedstocks used for its production:

- **Starch and sugar-based ethanol:** Produced from feedstocks like corn, wheat, milo, and sugarcane, starch- and sugar-based ethanol makes up the majority of all domestic ethanol production. In fact, corn is the most common ethanol feedstock in the United States. This type of ethanol is manufactured through dry- or wet-mill processing. More than 80% of ethanol plants are dry mills due to lower capital costs. Dry-milling consists of grinding corn into flour and fermenting the mixture, resulting in distiller grain and carbon dioxide co-products. Wet mills separate the starch, protein, and fiber in corn prior to processing these components into products, such as ethanol.
- **Cellulosic ethanol:** Produced from feedstocks like crop and wood residues, dedicated energy crops, and industrial and other wastes, cellulosic ethanol offers advantages over starch- and sugar-based feedstocks (e.g., no concerns with food versus fuel). Feedstock components include cellulose, hemicellulose, and lignin. Because it is more challenging to extract sugars necessary for ethanol production from these feedstocks, cellulosic ethanol is more difficult to manufacture than starch- and sugar-based ethanol. This type of ethanol can be produced through two conversion pathways:
 - **Biochemical:** Feedstocks are pretreated to release hemicellulose sugars and then undergo hydrolysis to break cellulose into sugars. Sugars are fermented into ethanol, and lignin is recovered and used to produce energy to power the process.
 - **Thermochemical:** Heat and chemicals are added to feedstocks to create a mixture of carbon dioxide and hydrogen, also known as syngas. Syngas is then mixed with a catalyst to produce ethanol.

PRCC Sustaining Members



Upcoming Events

- Tri-state Alternative Fueling Expo & Conference—Feb. 18,19,20
- CCAC Training - See page 7 for details



Membership

Pittsburgh Region Clean Cities is always looking for new members! Our job is to help you understand the value and importance of converting to alternative fuels. We can tell you about the incentives available to you for using alternative fuels. We can help guide you through making smart financial and environmental choices about purchasing an alternative fueled vehicle or using an alternative fuel. Become a member, and we can help you assess your fleet and objectives, as well as work with you to acquire funding assistance. If you would like to join and/or volunteer, please contact Rick Price at coordinator@pgh-cleancities.org

Contribute Your News!

We want to showcase your news and successes, and we welcome ideas for articles. Please feel free to contact Rick Price, Executive Director/Coordinator, at 412-735-4114 or at coordinator@pgh-cleancities.org

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