MEASURE: HB 3632
EXHIBIT: I
HOUSE REVENUE COMMITTEE
DATE: 4/25/2011 PAGES: 56
SUBMITTED BY: PACIFIC PROPANE GAS ASSOCIATION

PPGA
PACIFIC PROPANE GAS ASSOCIATION

Representing the Propane Gas Industry for Alaska, Hawaii, Oregon and Washington

House Bill 3632

(Favoring Compressed Natural Gas):

PROPANE Response

Strongly Opposed!

PPGA
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Notebook Index

Tab: **PPGA Statement**

Pacific Propane Gas Association written statement on House Bill 3632

Tab: **Testimony**

Blue Star Gas - Darren Engle *(comments on public policy in HB 3632)*

Ferrellgas - Joe Westby *(school bus fleets)*

Co-Energy Propane - Randy Camp *(small business perspective)*

Written testimony only:

AmeriGas Propane – Don Leonard *(facts about propane)*

McMinnville Gas Company, Inc. *(propane used in rural Oregon)*

Tab: **Propane Documentation**

Propane Autogas Explanation and Chart of Worldwide Distribution

Propane Autogas Vehicle Information

Key Facts About Propane Fleet Vehicles

PERC: National Clean Fleets Partnership

Rousch CleanTech Ford 450

CleanFuel USA

Alternative Fuel Related Links

PPGA
PACIFIC PROPANE GAS ASSOCIATION

Representing the Propane Gas Industry for Alaska, Hawaii, Oregon and Washington

Statement in Opposition to HB 3632

The Pacific Propane Gas Association (PPGA) is opposed to House Bill 3632, which favors compressed natural gas (CNG) in a way that would be harmful to our members who sell propane and to other alternative fuels, as well as to the public. We believe it is bad public policy for the State of Oregon to "pick a winner" and make plans to promote one type of alternative fuel over others.

Propane is a federally recognized clean burning alternative fuel. Propane storage infrastructure is already in place. For fleets such as school buses, refueling stations can be located right in a school bus fleet yard, and do not have be on or near the natural gas gridline. Please see additional information about propane under "Propane Documentation" in this notebook.

HB 3632 would place natural gas first and would force the state to serve as that fuel's marketing arm. This would disadvantage other alternative fuels. The economic situation of some is fragile, and this could exacerbate the demise of potential and exciting new developments. Each alternative fuel has both advantages and challenges, depending on its application.

HB 3632, in favoring a single fuel, interrupts the natural selection process that drives innovation in a free market economy. Government interference of this type skews the market and de-incentives research and development for other alternative fuels. Neither CNG nor propane work in all applications, and CNG refueling isn't practical in all areas of the state. It is critical that options remain open in the marketplace to encourage continued technological development.

Why should the taxes paid by one fuel source be used to fund the State's marketing activities solely for a competitor? Why should the state support large utilities over independent businesses? Our answer is: it shouldn't.

Let CNG compete on its own merits without depending on the state as its marketing arm. Allow other alternative fuels the ability to develop freely. Continue to promote choice for Oregonians. Keep the playing field level.

Vote "no" on HB 3632.

Lana Butterfield, PPGA Oregon lobbyist, 503/819-5800

BLUE STAR GAS

HB 3632 – Strong Opposition
House Revenue Committee
April 25, 2011

Co-Chairs and Members of the Committee:

Good morning. My name is Darren Engle. I am the Director of Marketing for Blue Star Gas, a family-owned propane business led by its third generation of owners. For more than 70 years, we have been successfully delivering propane, providing jobs and paying taxes in the Pacific Northwest. I reside in Grants Pass and have worked in the energy sector for 23 years. I currently serve as the national Vice-Chairman of the Propane Education & Research Council's (PERC) Residential & Commercial Advisory Committee.

The bill before you today (HR 3632) proposes to amend statutes ORS 469.195 and 469.197. These statutes were pioneering legislation; they have enabled our Oregon Department of Energy to promote the efficient use of diverse alternative energy resources and to encourage their conservation. O.D.O.E. staff and energy policy experts have been instrumental in the achievement of these goals and will continue to do so, as long as all alternative fuels compete on a level playing field.

Although my employer is a propane supplier, it is clear to me that each alternative fuel has both advantages and challenges, depending on its application, which I do not have adequate time here to describe in detail. It is equally clear to me that these fuels and vehicle technologies will continue to evolve and compete, delivering value where their effectiveness is proven. Such innovation will only continue if alternative energies continue competing; if special interest advantage is given to one choice, it will be at the expense of the environment, the economy and the electorate.

HB 3632 serves one main purpose: to solely promote the use of natural gas and to disadvantage any and every other option as much as possible. This bill grants natural gas a first position "Priority" in any situation *it could be used*, not just in situations where it is the best choice. If enacted as written, this bill could leave vehicle fleets, schools, and all Oregonians who seek the most effective answer to their unique energy needs, disadvantaged with a "one fuel fits all" solution. Oregon could be left without alternative fuel options. Natural gas could become the ONLY alternative to gasoline in Oregon.

I draw your attention to section four of this bill which further mandates the use of taxpayer dollars: 1) For advertising the availability of compressed natural gas, 2) For facilitating the awarding of loans for natural gas infrastructure, and 3) For developing plans for conversion to natural gas of school bus fleets and transit agency fleets (whether they want to or not). As drafted, this plan must encourage school districts and transit agencies to enter into long term supply contracts, regardless of whether or not natural gas is the most environmentally sound and economical fuel for their application.

The impact for such favoritism will be astronomical to my industry but the benefits to the state will be few. Oregon is composed of mostly rural communities, but much of Oregon is off the natural gas grid. This built-in dysfunctionality will not benefit the citizens of Oregon. This bill is an example of dangerous legislative cherry picking, the kind that skews the natural selection process that otherwise enables innovation and the entrepreneurial mechanisms of a free market economy.

If this bill advantaged only propane - in the same way it currently solely favors natural gas – to the detriment of competitive ability of all other alternative fuels – I assure you I would oppose it. No single fuel is the best solution for every single application. Our best hopes for the future, and for our children's future, will only be served if the right fuel is used in each application where it is the best alternative. All alternative fuels should compete on an even playing field where market position is not driven by market manipulation, but instead is based on merit.

Sadly, this kind of proposed legislation is not a complete surprise, because similar choice-limiting measures are surfacing across the nation; they appear to be the manifestation of the well-known "Pickens Plan." As an Oregonian, I remain optimistic that those of us from the state "that loves dreamers" will not turn our dream of a better future and a free market into a nightmare by enacting this fuel favoritism bill.

Thank you for your time and your diligence in the interest of our Oregon homeland and the best future for our families.

Darren Engle
Blue Star Gas

Ferrellgas

HB 3632

House Revenue Committee
April 25, 2011

Co-Chairs and Members of the Committee:

Good morning. My name is Joe Westby. I am the Northwest Regional Vice President for Ferrellgas. We are an "Employee Owned" propane retailer with approximately 1 million customers in all 50 states, the District of Columbia, and Puerto Rico. I have worked in the propane industry for 22 years. I am an officer with the Pacific Propane Gas Association.

Retail propane is a vibrant industry in the state of Oregon, employing approximately 250 people and serving approximately 30,000 residential, industrial/commercial, and agricultural customers. Put another way, thousands of your constituents rely on propane every day in their homes, at their businesses, and on their farms. Odorized propane's contribution to the state economy is $238 million per year, including both direct and indirect economic effects.

Propane, which is often referred to as "autogas" when used as an engine fuel, powers more than 15 million vehicles in more than 38 million countries, making it the most widely used alternative fuel in the world. For many years, fleets here in Oregon have also enjoyed the economic and environmental benefits of this clean-burning "green" fuel.

One of my company's larger end users is the public school bus fleets. The Portland School District currently operates a fleet of approximately 400 propane buses. The fleet managers at this school district did their homework. They researched the alternative fuels that were available to them, and, like many other fleet managers throughout the state, they chose propane autogas.

Why propane autogas? Unlike compressed natural gas, or CNG, propane is easily transported, and refueling infrastructure can be placed essentially anywhere a fleet manager would like to locate it. In the case of the Portland School District, the refueling infrastructure is located at their bus yards. CNG refueling stations, which can cost 10-15 times as much as propane refueling infrastructure, can only be placed in locations that are plumbed for natural gas. CNG is a tremendous alternative fuel, but it simply cannot be used everywhere.

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Ferrellgas

The time required to refill a propane motor fuel tank is also much less than that of a CNG tank. You can go longer on a tank of fuel with propane as well, thus saving on turnaround time at the pumps and the man hours saved for the refueling process. CNG works with a much higher operating pressure than that of propane, so the equipment is more specialized and the process takes longer. The school bus fleets that we service have enjoyed not only the cost savings that propane has provided their organization, but the ease in which it can be handled by the individual operators. Today's propane pumping systems have evolved into something that requires almost no knowledge of the product and resembles that of filling a standard gasoline tank. This makes it easy for any operator to maintain their fuel tanks on site.

Working with the owners and managers of some of the nation's largest fleets, President Obama recently announced a National Clean Fleets Partnership. Through this initiative, the owners of those large fleets will deploy more than 20,000 vehicles that use any number of alternative fuels. When discussing the partnership, the President specifically mentioned propane autogas. My colleagues and I are pleased to be a part of the conversation that is taking place at the national level. We believe that propane autogas should also remain a part of the conversation and remain on the alternative fuel menu here in Oregon. Our customers—your constituents—deserve that ability to choose.

I am opposed to HB 3632, and I urge you to instead consider legislation that promotes all alternative fuels, including propane autogas.

Thank you for your time.

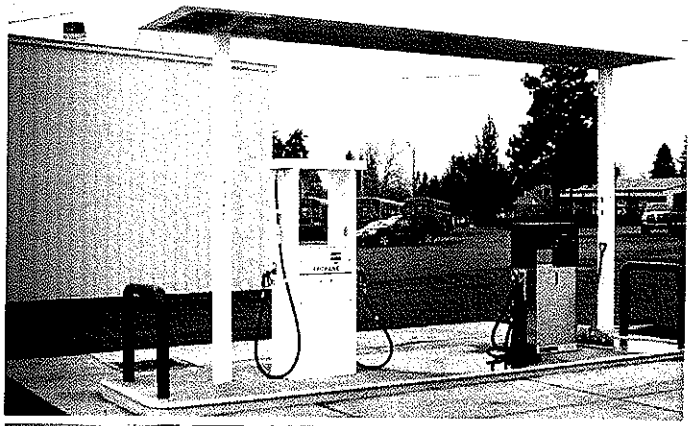
Joe Westby
Ferrellgas
Portland, Oregon

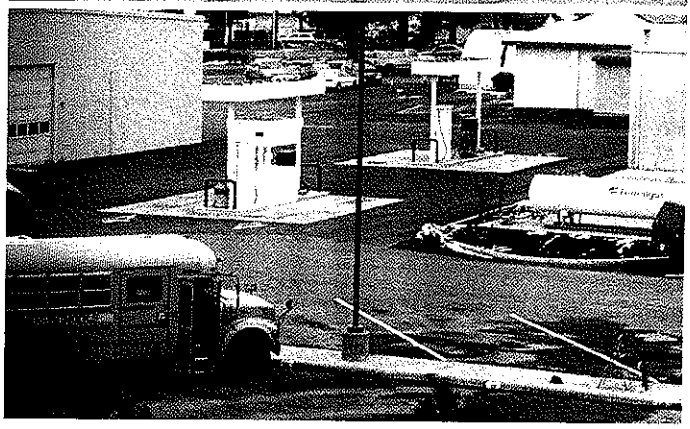
HB 3632
A RESPONSE FROM THE PROPANE INDUSTRY

Why should the state of Oregon become the marketing agent for large utilities while working against independent business people like propane dealers and marketers of other alternative fuels? This is highly unfair, discourages choice, and creates bad public policy.

Propane school buses are already:

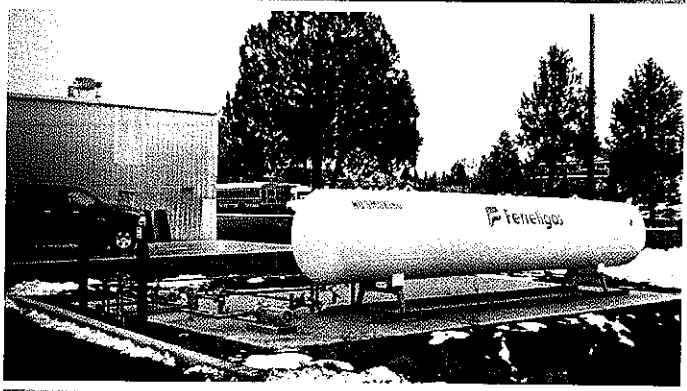
- Used in both urban and rural communities
- Saving school districts money
- Reducing engine down time
- Keeping the environment clean





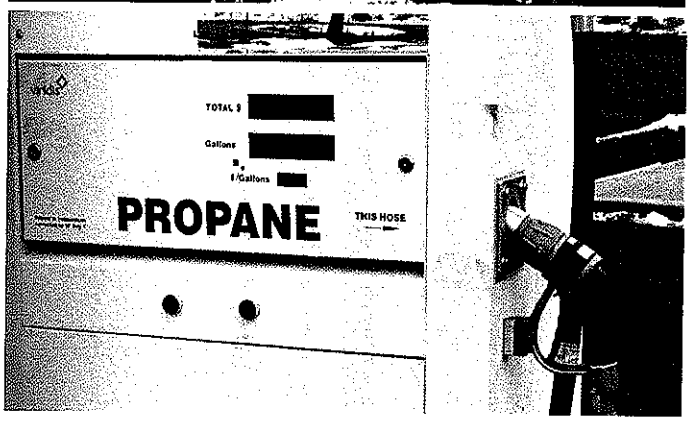
Pictured: Bend/La Pine School District

Portland School District has about 400 propane-powered school buses. Burns, Culver City, and McMinnville School Districts have some propane-powered school buses and are planning to make additional conversions.



Did you know:

- Propane refueling stations can be located within a school bus yard anywhere in Oregon; unlike compressed natural gas, they do not need to be near the natural gas pipeline.
- Infrastructure for a propane refueling station is about $25,000 versus an estimated $400,000 for a natural gas refueling station.
- Compressed natural gas (CNG) buses have to refuel more often than propane.
- Vehicles can go further on a gallon of propane than on a gallon of CNG.



FOR MORE INFORMATION CONTACT

Lana Butterfield • 503.819.5800 (cell)
Pacific Propane Gas Association

April 25, 2011

TO: House Revenue Committee
RE: House Bill 3632 - Preferential treatment for compressed natural gas
Co-Chairs and Members of the Committee:

My name is David Voiles and I am with the Bend-Lapine School District. I am Fleet Manager of the school bus fleet at the Bend-Lapine School District. Our school buses are powered by propane. We have propane refueling stations right in our own yard where our school buses are located, which makes refueling very easy. We think propane for school bus fleets is great because:

1 Propane is clean and abundantly available
2 Propane fueling infrastructure is straight forward and fueling is quick, (no high pressures and slow refueling to deal with)
3 Propane pressures run at a maximum of 300 psi not 3600 psi as with natural gas
4 Extended engine life and oil changes
5 Propane is 99.9% particulate free

I am opposed to House Bill 3632. I do not agree that we should convert our school bus fleet from propane to compressed natural gas. This preferential treatment is not good public policy.

Thank you for your consideration.
Sincerely,
David Voiles
Fleet Manager
Bend-Lapine School District
Bend, Oregon

Portland, Oregon School District

Gets Five 18-Passenger Propane Collins Buses Delivered

"Portland Public Schools started using propane buses in 1983 because of concerns about increasing conventional fuel prices and stricter air quality regulations. ***Today, virtually all of our 325+ district-owned and contracted buses run on propane."***

Andy Liebenguth
Portland Dir., Student Transportation

Built on a dual rear-wheel GM chassis, the ***Collins NEXBUS Propane vehicle*** exhibits excellent cold-weather starting, has a ***range of 300 miles*** and is available in capacities ***of up to 32 passengers***. The 5 buses recently delivered to Portland Public Schools are 18-passenger models.

REASONS CITED FOR GOING 100% PROPANE

- **Fuel Cost Savings:** The average cost has been traditionally less than gasoline.
- **Less Maintenance Costs:** Propane vehicles requires less maintenance and last almost twice as long as those powered by gasoline or diesel.
- **Propane burns cleaner** than gasoline or diesel, with up to 20% less nitrogen oxide, up to 60% less carbon monoxide, 24% fewer greenhouse gas emissions and fewer particulate emissions than gasoline.
- **Propane is Safer:** Propane meets all federal safety standards and propane tanks are 20 times more puncture resistant than gasoline tanks.
- **Propane is readily available**. In addition to existing private fleet fueling arrangements, there are hundreds of public refueling stations for propane in Portland.

Source: CleanFUEL USA; November 17, 2010

PROPANE education & research COUNCIL

CoEnergy Propane

April 23, 2011
House Bill 3632
House Revenue Committee

Co-Chairs and Committee Members:

I am Randy Camp, General Manager of Co-Energy Propane in Corvallis. HB 3632 focuses on natural gas to the detriment of propane, which actually is a derivative of natural gas. In the Pacific Northwest, the majority of propane sold and used by my company is made from natural gas, not oil, which is the other source of propane. As the demand for natural gas increases, the production of propane increases. The two fuels go hand in hand in the production process. Therefore, with all the new natural gas projects in the U.S. (shale gas, Marcellus Range, etc.) we can expect propane supply from natural gas to increase.

Under federal law, propane is defined as a clean alternative fuel. Propane and natural gas fleets are virtually the same in terms of greenhouse gas (CO_2) emissions. It only makes sense if you are looking at natural gas as an alternative fuel for Oregon, not to consider propane as well would be a mistake.

Many propane dealers are small businesses, while natural gas companies are large utilities. My company, is one of those small businesses that covers from north of Salem to south of Eugene, from the Oregon Coast to the high desert of Oregon out of two offices, one in Corvallis and the other in Redmond. We are Oregon-owned and operated. Money spent with us stays in Oregon, it does not cross the state line. Why should government focus solely on a huge natural gas utility at the expense of small retailers in Oregon? Also, why should the state become the marketing arm for large utilities and take away my current and prospective customers as a small business owner, when propane is a clean alternative fuel as well? This is detrimental to all other alternative fuels and is bad public policy. You also need to look at the entire State of Oregon, which by and large is made up of rural communities, in many cases not even served by natural gas lines. CNG refueling stations must be built on a natural gas line. Conversely, propane refueling stations can be placed anywhere – rural, suburban, etc. With many Oregon communities outside of the gas mains, propane is more practical for a state like ours.

I believe that it is in the best interest of Oregon and its residents to have propane considered if you move forward with this issue. If you have any questions at all, please do not hesitate to give me a call, and thank you for your consideration.

Randy W. Camp
General Manager
CoEnergy Propane
4920 SW 3rd Street, Suite C
Corvallis, OR 97333
541-738-6733 – Office
541-738-0527 – Direct Line
541-231-2956 – Cell

AmeriGas®
America's Propane Company

House Revenue Committee

HB 3632

April 25, 2011

Co-Chairs and Members of the Committee:

Good morning. I am not able to be with you today but here is my written testimony on HB 3632. I'm Don Leonard. I'm a registered Mechanical Engineer in Oregon and California. I work for AmeriGas Propane as Sales and Service Manager for Klamath Falls and Bend, Oregon. I have worked in the natural gas industry for 29 years and the propane industry for 10years.

Propane (LPG) and natural gas (CNG) are similar in nature on how they are used in vehicles. Natural gas comes from the ground through gas wells and is distributed through a network of pipelines. The natural gas received in Oregon comes primarily from Canada. Propane is a refined fuel and is stripped from natural gas at the natural gas collection site. Propane is also refined from crude oil, but about 90% of propane distributed in Oregon is made from natural gas. The advantage of propane over natural gas is that it is stored in a liquid state which requires less storage space on the vehicle than Compressed Natural Gas (CNG) for the same mileage range of the vehicle. Also significant is that a vehicle can go much further on a gallon of propane than on a gallon of CNG, which is significant in terms of true cost per gallon.

Propane fueling stations are readily available across the across the state and the country. Almost every gas station in the state is set up with propane dispensing stations. CNG fueling stations are pretty rare and must be located adjacent to a natural gas pipeline. Many rural areas in Oregon don't have access to natural gas pipeline or distribution facilities. The cost of a CNG fueling station will require a significant capital outlay and will require several hours to fuel the vehicle.

It takes a few minutes to fuel a propane tank; some CNG compressors can fuel the vehicle at about the same time that it would take to fuel a propane tank, but they are expensive. Conversely propane fueling stations, also called dispensers, typically can be leased from a propane marketer for a very minimal annual fee. They can be placed at the yard where the fleet is stored, or almost anywhere, as unlike CNG they are not dependent on a natural gas pipeline.

Finally when pricing propane for vehicle usage one should not use home heating propane price as the basis for comparison between CNG and Propane as a fuel for vehicles. Typically propane runs about a $1.00/gallon less at a retail dispenser than having it delivered to your home. It is

even less for commercial vehicle applications when bought in bulk without service station attendants, such as in propane powered fleet operations.

In conclusion, I am strongly opposed to giving preferential treatment to natural gas in HB 3632. Propane is a cost effective, readily available alternate fuel requiring a less expensive infrastructure than natural gas. Again, don't forget that in most rural areas of the state, natural gas isn't available.

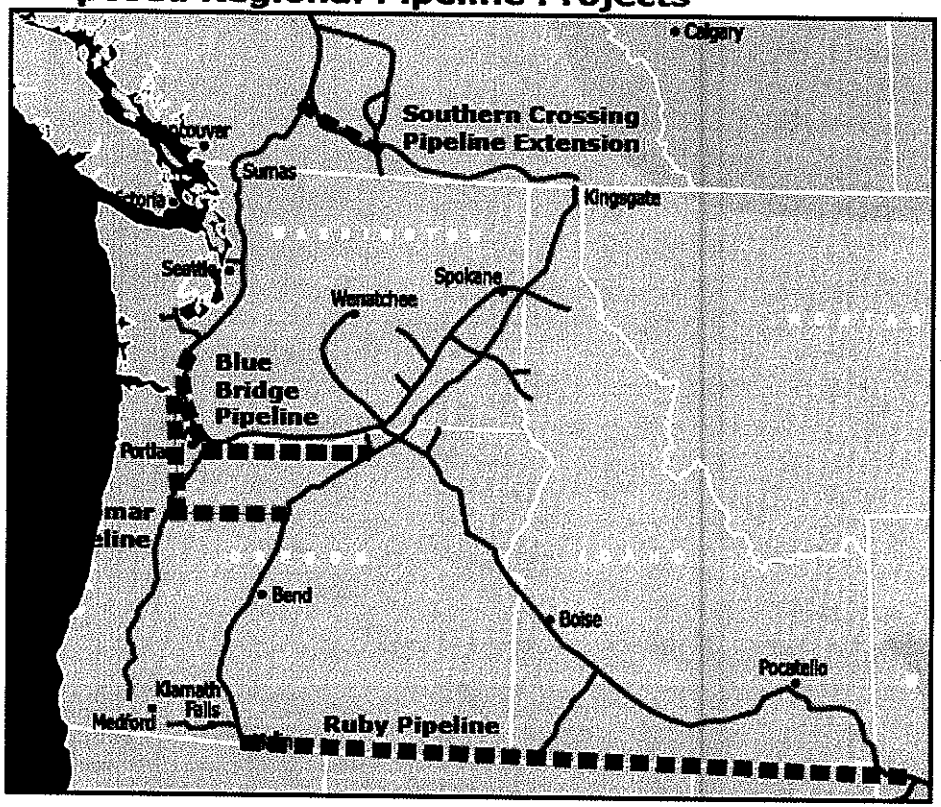
Thank you for your time.

Don Leonard

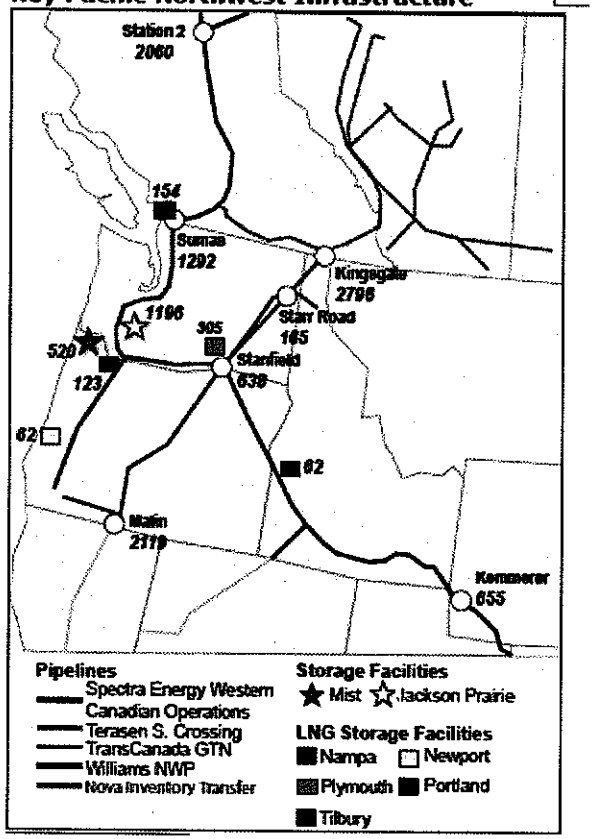
Don Leonard, PE
AmeriGas Propane

From: NATURAL GAS INFRASTRUCTURE IN THE PACIFIC NORTHWEST
NW Gas Association, Vol. 4, Issue 1

Proposed Regional Pipeline Projects



Key Pacific Northwest Infrastructure



[1] This includes Washington, Oregon and Idaho in the U.S. and British Columbia (BC), Canada.

[2] Published and posted at www.nwga.org, November 2009.

McMinnville Gas Company, Inc.
1384 NE Highway 99W * McMinnville, Oregon 97128
(503) 472-7220 * Fax (503) 474-9033

April 25, 2011

Oregon Legislative House Revenue Committee

RE: **House Bill 3632**

Dear Committee Members:

Although I can't be there in person because I have a small business to run, I do want to send you my thoughts on HB 3632 by this letter. HB 3632 would have the state promote and favor compressed natural gas.

McMinnville Gas Inc. is a family business, serving customers in the Willamette Valley. We are a third generation full service propane gas supplier: equipment, installation, maintenance, and supply of propane. My grandfather, J.J. Buller, started this business in 1946. All of our trucks run on propane, and over the years we have converted many Willamette Valley farmers' vehicles to propane.

We think alternative fuels are great! We're glad the state recognizes their value. However, HB 3632 picks one fuel as a winner (compressed natural gas). No one fuel can serve all equipment and vehicle needs in Oregon, especially in rural parts of the state.

I am opposed to HB 3632 and ask you to vote "no". Thank you for your consideration!

Cordially,

Ryan Buller
McMinnville Gas Inc.
1384 N.E. Highway 99 W
McMinnville, OR 97128
Phone: 503-472-7220
Fax: 503-474-9033

http://www.mcminnvillegas.com/Propane_Oregon/AboutUs/tabid/54/Default.aspx

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McMinnville Gas Inc.

PROPANE GAS COMPANY

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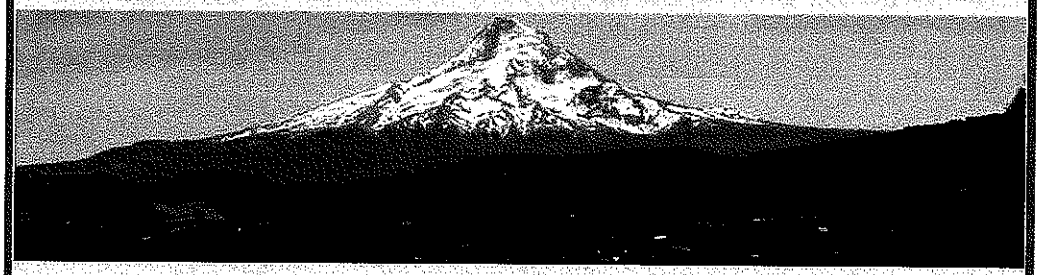
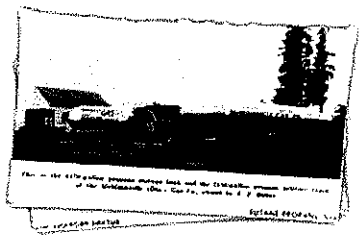


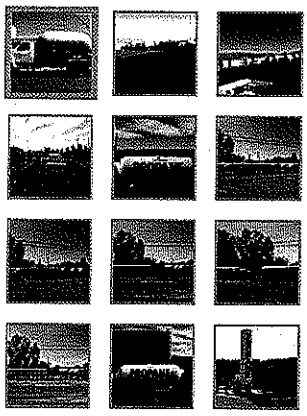
About McMinnville Gas Inc.

McMinnville Gas was established in 1946 when J.J. Buller pumped his first gallon of propane. We are a third generation family owned propane gas supplier. We have been serving both residential and commercial propane users in the Willamette Valley for over 60 years.

We pride ourselves on being a full service propane provider, which means equipment, installation, maintenance and supply of propane. We offer our customers a fair price with as little fluctuations as possible from winter to summer. Our storage facility located is on the east entry of McMinnville, and is one of the largest in the northwest. It allows us to keep our customers warm through out the winter with less risk of outages. We pride ourselves on our service department, which is well trained and has tons of experience when it comes to propane installations and maintenance.



Bottled-Propane News circa 1946: This is the 6570-gallon propane tank and the 1186-gallon propane delivery truck of the McMinnville (Ore.) Gas Co., owned by J.J. Buller.



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Benefits of Autogas

GASOLINE DISPLACEMENT DATA

Average Fleet Vehicle Description

- Vehicle travels 16 mpg on gasoline, 14 mpg on Autogas; this is the average for both smaller vehicles like a Ford Crown Victoria Police Interceptor and larger vehicles like the Ford F-350[7]
- Traveling 50,000 in a gasoline-powered vehicle uses 3,125 gallons, while traveling 50,000 on Autogas uses 3,571 gallons

CONCLUSIONS

For every 50,000 miles a fleet vehicle drives on Autogas, it offsets 3,125 gallons of gasoline.

When Autogas for America achieves its goal of 500,000 Autogas vehicles on American roads, we will have **offset more than 1.56 billion gallons of gasoline annually.**

That's equivalent to taking more than 2.8 million gasoline vehicles off the road.[8]

CNG COMPARISON DATA

Autogas offers significant advantages over CNG.

Efficiency/Range

- Autogas can achieve up to 90 percent of gasoline's miles per gallon, compared to CNG which achieves 40 percent of gasoline's miles per gallon

Infrastructure Cost

- An Autogas refueling station, servicing 30-40 vehicles, costs about $15,000 for complete implementation, while a CNG refueling station typically costs $350,000 or more

Safety

- Autogas is safer to maintain than CNG because it requires a lower storage pressure – Autogas has an operating pressure of 175 psi, compared to CNG's operating pressure of 3,000 psi

[7] Based on average city miles per gallon for fleet vehicles, including cars and light-duty trucks

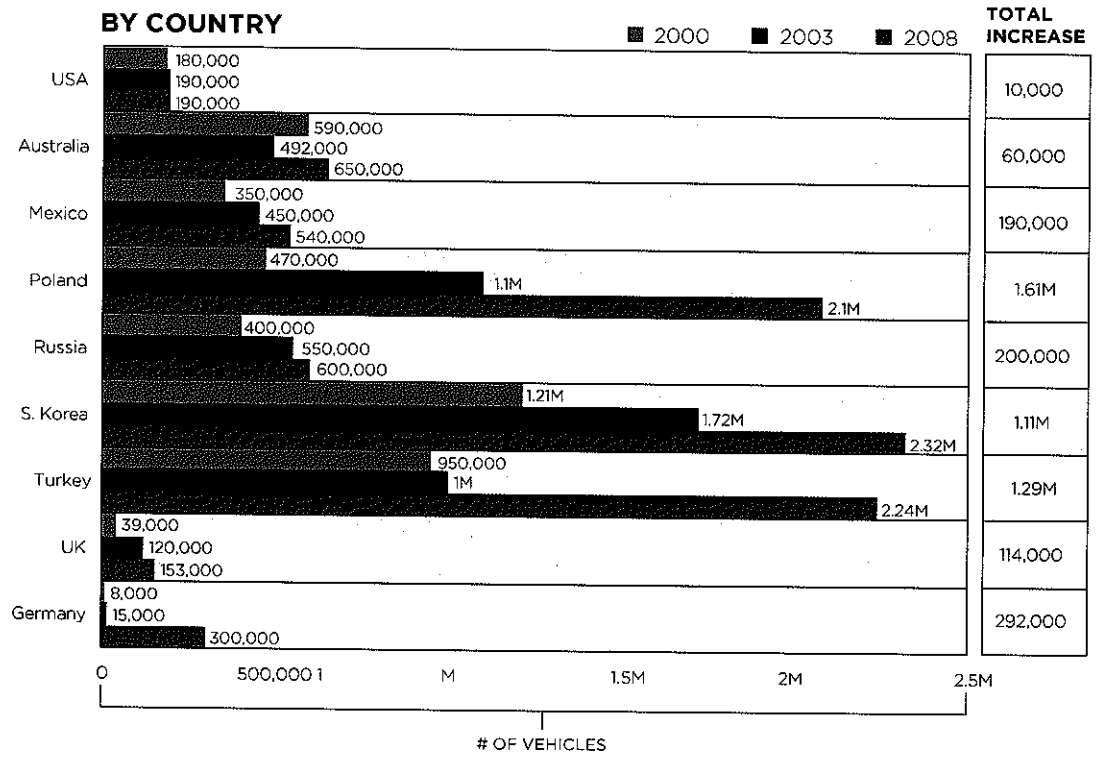
[8] Americans consume about 380 million gallons of gasoline per day, and there are approximately 249 million gasoline vehicles in the U.S. – that averages about 1.5 gallons of gasoline per vehicle per day, or 557 gallons per vehicle, per year

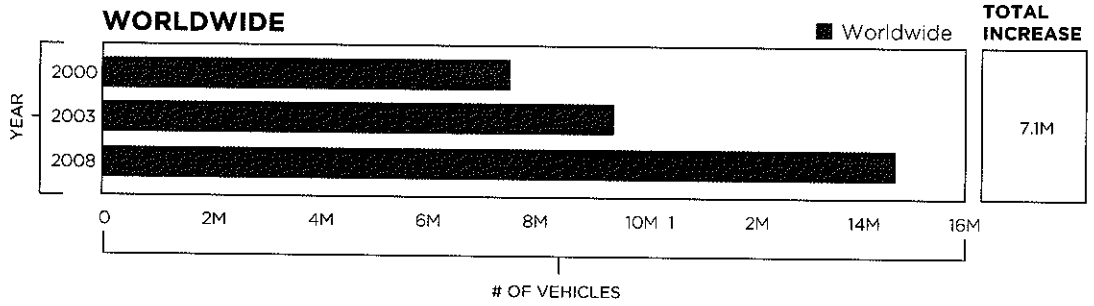
U.S. vs. Worldwide Autogas Vehicles

KEY STATISTICS

Autogas has proven to be a cleaner, safer and cheaper fuel than gasoline or diesel. Numerous countries have been leading the way in advancing Autogas-powered vehicles – the United States is not among them. According to studies released in 2005 and 2009 by the World Liquid Petroleum Gas Association (WLPGA), the global Autogas industry authority, the U.S. Autogas market has remained largely unchanged over the last decade. In contrast, most countries saw a substantial increase in Autogas vehicles, even those that had little to no Autogas vehicle market in 2000.[1]

The rise in Autogas-powered vehicles is a global phenomenon, increasing by millions over the last decade. Its environmentally friendly characteristics, coupled with our nation's need for energy independence and stability, make Autogas an essential component of sustainable transportation in the U.S.





[1] World Liquid Petroleum Gas Association, Key Autogas Data, http://www.worldlpgas.com/gain/key-autogas-data/

Propane Autogas Vehicles

Propane autogas is the common name for liquefied petroleum gas (LPG) when it is used as a fuel in internal combustion engines in vehicles.

- There are more than ***270,000*** on-road propane fueled vehicles in the U.S. Propane is the third most common engine fuel behind gasoline and diesel with ***15 million* propane autogas fueled vehicles worldwide.***

- Propane has more fueling stations available than any other alternative fuel, including ethanol. There were approximately ***2,500 propane autogas public refueling stations*** in the United States.

- A Roush Ford F-Series propane autogas fueled truck has a range of 250-300 miles when the tank is installed under-bed *(20 gallon)*, or 450-500 miles when a tank is installed in-bed *(46 gallon)*.

- A propane autogas fueled Roush Ford F-Series has the ***same or better horsepower, torque, and towing capacity*** as a gasoline fueled truck with ***60% LESS carbon monoxide emissions***.

Source: Dept of Energy, Office of Energy Efficiency & Renewable Energy, Alternative Fuels & Advanced Vehicles Data Center, —Alternative & Advanced Fuels: Propane Vehicles,// July 2009, http://www.afdc.energy.gov/afdc/vehicles/propane.html ,
**Propane Gas Association*

PROPANE education & research COUNCIL

Definitions

DEDICATED

In the case of propane, dedicated refers to the replacement of the gasoline fuel system to a ***fully integrated fueling system of propane autogas as the sole fuel source.*** Dedicated propane fuel systems are engineered to comparable or exceed OEM developed performance specifications *(horsepower, torque, etc.)* and allow for optimal fuel economy while maintaining OEM diagnostic systems.

BI-FUEL

Refers to a gasoline vehicle that has been converted to run on propane autogas or gasoline *(one or the other),* either vapor or liquid injection depending on conversion kit/manufacturer. ***By utilizing the 2 fuels on board, a vehicles driving range can be extended into areas where propane autogas refueling infrastructure may not be developed or available.*** Switching between the fuels with modern bi-fuel technologies is seamless under all driving conditions, and still provide the fleet operator with both environmental and economic benefits associated with propane autogas.

DUAL FUEL

Typically found on diesel engine applications where propane is introduced, either via vapor or liquid injection depending on conversion kit/manufacturer, at the point of intake *(pre-ignition)* in conjunction with the diesel fuel. ***Most dual fuel applications are targeted towards older diesel engines that are no longer covered by the manufacturer warranty.***

Benefits & Advantages of Propane Fueled Vehicles

- Environmental Benefits *(reduced GHG's)*
- Economic Benefits
- Manufacturer Warranty & Support
- Product Availability
- Robust Infrastructure *(refueling)*
- Safety *(safe fuel/low flammability)*
- Vehicle Range *(comparable or exceeds OEM gasoline equivalent)*

PROPANE education & research COUNCIL

Environmental Advantages of Propane Autogas Compared to Gasoline

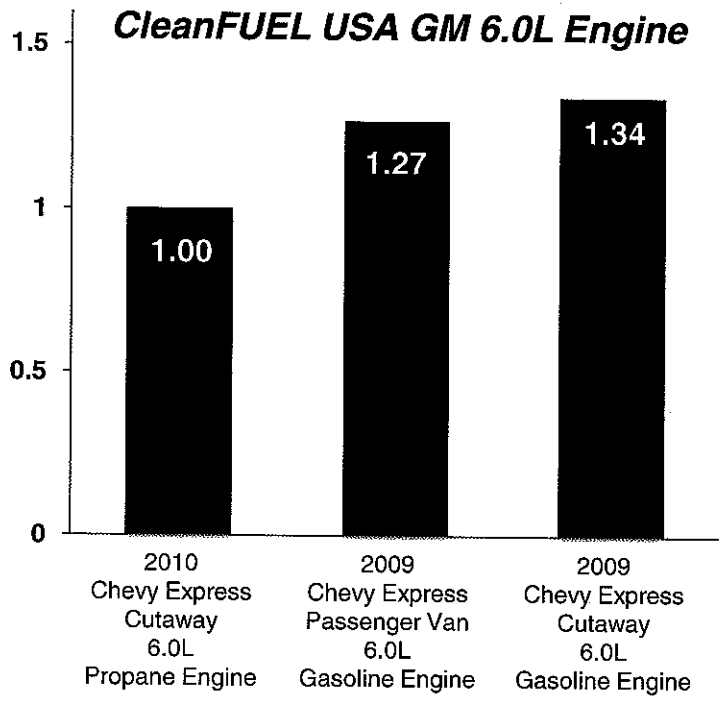
- 12% LESS CO_2 *(Carbon Dioxide)**
- 60% LESS CO *(Carbon Monoxide)**
- 20% LESS NOx *(Nitrogen Oxide)**
- In manufactured heavy duty vehicles, propane reduces total hydrocarbon emissions by 80%, compared to diesel.*
- 17% reduction in greenhouse gas emissions.*
- Compared to gasoline, propane ***cuts emissions of toxins and carcinogens*** such as benzene and toluene by up to **96%.****
- ***Increased safety:*** Propane fuel tanks are ***20x more puncture-resistant*** than typical gasoline or diesel tanks.*****
- Propane has the ***lowest flammability range*** of all alternative motor fuels.*

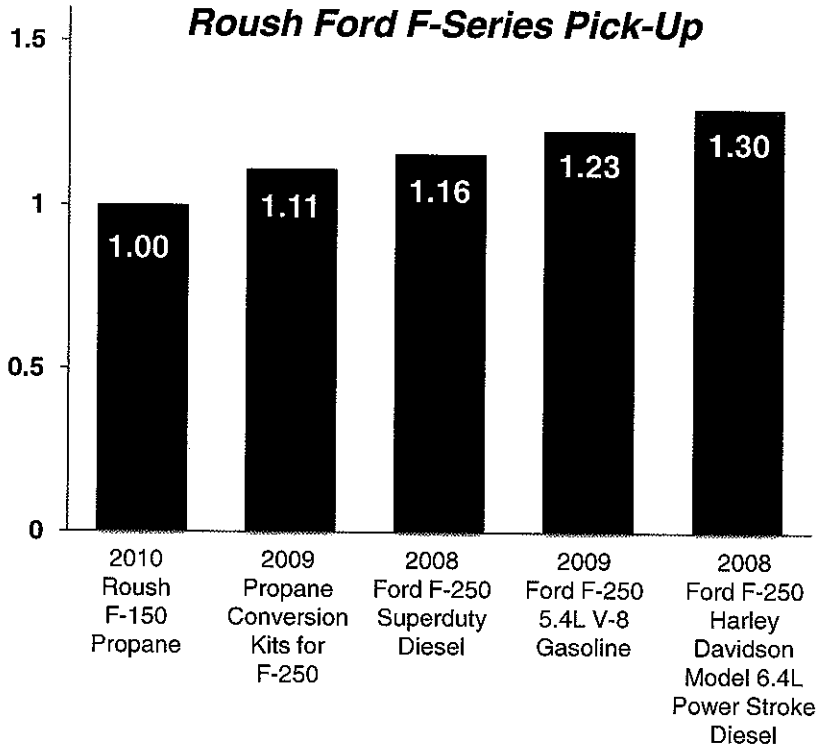
*Source: *Alternative Vehicles Group of the Cleaner Vehicles Task Force: An Assessment of the Emissions Performance of Alternative & Conventional Fuels. ** EPA, Clean Air Act; Advisory Committee, www.epa.gov/air/caaac/2008awar.html, *** www.adf.energy.gov/adfc/fuels/propane_benefits.html (August, 2009)*

PROPANE education & research COUNCIL

Environmental Advantages of Propane Autogas

Comparison of Greenhouse Gas Emissions





Source: Energetics: Propane Reduces Greenhouse Gas Emissions

PROPANE education & research COUNCIL

Propane Autogas vs. Compressed Natural Gas

A Comparison of Alternative Fuels

- Both CNG and propane are attractive, viable alternative fuels for the commercial fleet market, both fuels are greener and more cost effective than gasoline and diesel
- ***CNG storage tanks are required to be 4 times as large as propane tanks***, while the operating pressure of a CNG tank is 17 times the pressure of a propane tank.
- The ***CNG*** storage size combined with the extreme pressure ***requires more space and fuel to transport than propane***. Heavier storage tanks also contribute to greater pressure and demands on vehicles, ***which increases maintenance costs***.
- The pressure involved in ***CNG*** storage also ***places a limit on how much fuel can be injected into a vehicle*** during one given time, creating a time-intensive refueling process for the vehicle owner.
- The ***cost of converting*** a vehicle to run on ***CNG is 50% more*** than the cost of converting a vehicle to propane.
- ***CNG is methane***, a greenhouse gas, as opposed to propane, which is not a greenhouse gas when released directly into the atmosphere.

Source: CleanFUEL USA; November 17, 2010

PROPANE education & research COUNCIL

Definitions: *Propane & Natural Gas*

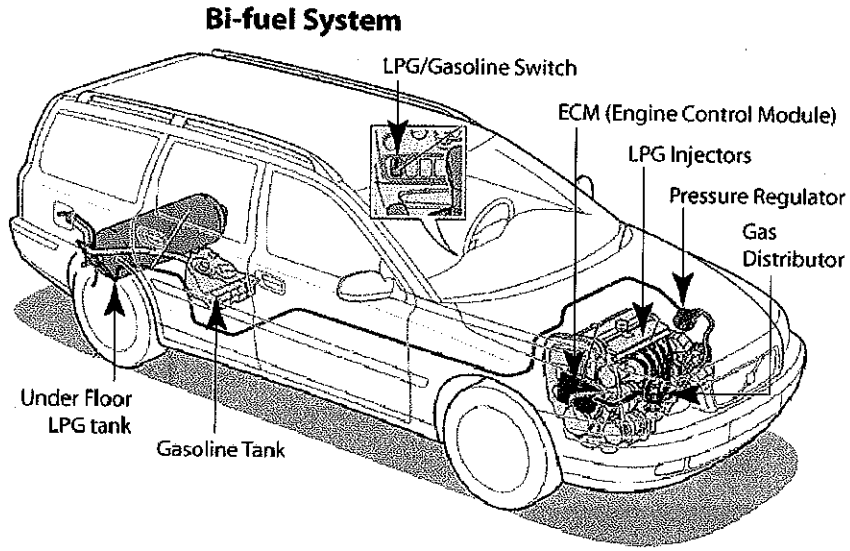
	CNG (Natural Gas)	PROPANE
VEHICLE COMPARISON	**Clean, Low Carbon Fuel**	**Clean, Low Carbon Fuel**
	Sold in GGE's – 5.66 Lbs = 1 Gallon	**Sold as Liquid – 1 Gallon = 1 Gallon**
	Stored as Gas • Liquefies at -259 degrees • Requires 4x as much storage space • Heavier tanks, added weight • May reduce payload • May decrease brake life • May reduce plowing • May reduce towing	**Stored as a Liquid** • Vaporizes when released • Same space as gasoline tank • Steel tanks, little added weights *(if any)* • No decrease in payload • No change in brake life • Same plowing • Same towing
FUELING COMPARISON	**High Pressure Feeling** • CNG stored on-board vehicles at 3600 PSIG • Stored at fueling site at 5000 PSIG • 4 stage compressor – typically 460v, 3 phase electric • High maintenance • Loud, even when vehicles are not fueling *(refilling on-site storage)*	**Brake Line Pressure** • Propane stored on-board at 100-200 PSIG • Stored at fueling site at 100-200 PSIG • 1-4 HP electric motor – 110-220v, single phase electric • No to low maintenance • Minimal noise, no noise when not fueling

Source: PERC, PSIG = Pounds per Square Inch Gauge

PROPANE education & research COUNCIL

How Propane Autogas Fueled Vehicles Work

Propane autogas fueled vehicles work much like gasoline fueled vehicles with spark-ignited engines. Propane is stored as a liquid in a relatively low-pressure tank *(about 300 pounds per square inch)*. Propane travels along a fuel line into the engine compartment. The supply of propane to the engine is controlled by a regulator or vaporizer, which converts the propane to a vapor. The vapor is fed to a mixer located near the intake manifold, where it is metered and mixed with filtered air before being drawn into the combustion chamber where it is burned to produce power, just like gasoline.



Liquid propane injection engines, developed over the past 15 years, do not vaporize the propane. Instead, it is injected into the combustion chamber in liquid form. Liquid injection systems have proven reliable in terms of power, engine durability, and cold starting.

PROPANE education & research COUNCIL

Portland, Oregon School District

Gets Five 18-Passenger Propane Collins Buses Delivered

"Portland Public Schools started using propane buses in 1983 because of concerns about increasing conventional fuel prices and stricter air quality regulations. ***Today, virtually all of our 325+ district-owned and contracted buses run on propane.***"

Andy Liebenguth
Portland Dir., Student Transportation

Built on a dual rear-wheel GM chassis, the ***Collins NEXBUS Propane vehicle*** exhibits excellent cold-weather starting, has a ***range of 300 miles*** and is available in capacities ***of up to 32 passengers***. The 5 buses recently delivered to Portland Public Schools are 18-passenger models.

REASONS CITED FOR GOING 100% PROPANE

- **Fuel Cost Savings:** The average cost has been traditionally less than gasoline.
- **Less Maintenance Costs:** Propane vehicles requires less maintenance and last almost twice as long as those powered by gasoline or diesel.
- **Propane burns cleaner** than gasoline or diesel, with up to 20% less nitrogen oxide, up to 60% less carbon monoxide, 24% fewer greenhouse gas emissions and fewer particulate emissions than gasoline.
- **Propane is Safer:** Propane meets all federal safety standards and propane tanks are 20 times more puncture resistant than gasoline tanks.
- **Propane is readily available.** In addition to existing private fleet fueling arrangements, there are hundreds of public refueling stations for propane in Portland.

Source: CleanFUEL USA; November 17, 2010

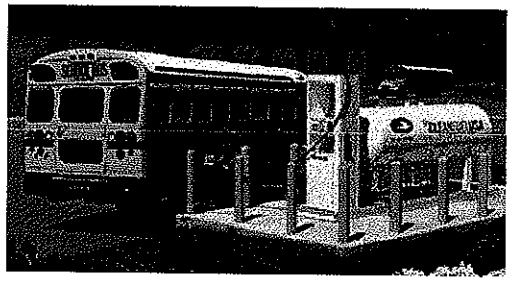
PROPANE education & research COUNCIL

Los Angeles USD Lesson Learned

"Reduced Emissions & Cost Savings Come from Propane Fueled Buses"

School districts have always required safe, cost-efficient buses to transport children, but now they also prefer environmentally friendly options.

- The largest school district in California, the Los Angeles Unified School District, met these requirements by using propane fueled buses.
- The district added 90 Blue Bird Propane Powered Vision buses to its fleet of 1,400 in December 2009, and has already seen significant environmental and safety advantages and anticipates fiscal savings as well.



CHALLENGE
Reduce emissions and overall operating costs.

SOLUTION
The addition of 90 Blue Bird Propane-Powered Vision buses.

BENEFITS OF PROPANE AUTOGAS

- Potential 80% reduction in smog-forming emissions.
- Compliance with California's new air quality requirements.
- Potential 30% savings in fuel costs.
- Increased safety, as propane fuel tanks are 20 times more puncture-resistant than typical gasoline or diesel tanks, and propane has the lowest flammability range of all alternative motor fuels.

Source: Propane Education & Research Council: "Industry At A Glance" December, 2010/School Bus Fleet; September, 2010

PROPANE education & research COUNCIL

School Bus Funding Sources

EPA PERFORMANCE PARTNERSHIP GRANTS *(Maintained by EPA's Office of Regional Operations & State/Local Relations)*
Performance Partnership Grants (PPG) are multi-program grants made to state or tribal agencies of EPA funds allocated for categorical grant programs. They are non-regulatory and provide States and Tribes the option to combine funds from 2 or more categorical grants. Under regulatory authority (since 1996) this policy covers 16 program grants (including air pollution control). They are funded from EPA's State and Tribal Assistance Grants appropriation.

EPA PROGRAM GRANTS (GUIDANCE) *(Maintained by EPA's Grants Administration Division, Region 5, & Purdue University)*
In addition to defining federal grants, this site provides a table of actual use of EPA grants administered. Historically, EPA has funded both state and local programs in all environmental media. A number of grants are targeted towards research and demonstration projects, while others support various program activities.

OTHER FEDERAL FUNDING SOURCES *(Maintained by the US Federal Highway Administration)*
Government-wide grants information and resources. Comprehensive website with information about finding and applying for all federal grant programs.

CONGESTION MITIGATION & AIR QUALITY PROGRAM (CMAQ) *(Maintained by the US Federal Hwy Administration)*
The primary purpose of the CMAQ program is to fund projects and programs in areas with air quality programs which reduce transportation-related emissions. This listing provides a variety of CMAQ information in your area which may include your city or state's CMAQ budget, on-going or potential CMAQ projects, CMAQ grant funding agencies and contacts. Look to this site for ideas in implementing retrofit projects and funding information. Simply select any state to obtain its CMAQ information.

www.epa.gov/cleanschoolbus/funding.htm

This website includes: Tips for School Districts Seeking Grant Funds & Additional EPA, Federal, State & Local Funding Sources

School Bus Funding Sources

CLEAN FUELS FORMULA GRANTS *(Maintained by the US Federal Transit Administration)*
The Clean Fuels Formula Grant program is a new formula grant program created by the Transportation Equity Act for the 21st Century (TEA-21) intended to assist non-attainment and maintenance areas in achieving or maintaining attainment status. Under the program, maintenance and non-attainment areas, as defined by the EPA, can apply for funds to acquire clean fuel vehicles, to re-power or retrofit engines for clean fuels operation, and to construct or improve facilities to support these vehicles. The legislation defines clean fuel vehicles as those powered by compressed natural gas, liquefied natural gas, biodiesel fuels, batteries, alcohol-based fuels, hybrid electric, fuel cell and clean diesel, and other low or zero emissions technology that sufficiently reduces harmful emissions.

CATALOG OF ALL FEDERAL DOMESTIC ASSISTANCE *(Maintained by the US Dept of Health & Human Services)*
The Catalog of all Federal Domestic Assistance (CFDA) is a government-wide compendium of all 1,425 federal programs, projects, services, and activities that provide assistance or benefits to the American public and is available from the General Services Administration.

CATALOG OF FEDEARL DOMESTIC ASSISTANCE: AIR POLLUTION CONTROL PROGRAM SUPPORT
This listing of air pollution controls funding programs is provided to assist State, Tribal, Municipal, Inter-municipal, and Interstate agencies in planning, developing, establishing, improving, and maintaining adequate programs for prevention and control of air pollution or implementation of national primary and secondary air quality standards.

OTHER EPA FUNDING SOURCES *(Maintained by EPA's Office of Policy, Economics, and Innovation)*
EPA's Smart Growth Program **-** The Smart Growth Program is an alternative to sprawl and urban decay, and is an innovative approach to addressing EPA's environmental mandates. The goal of Smart Growth is to work with communities, businesses, industry, state and local officials and others to shape land use and growth so that it has minimum impact on environmental, economic, and community health. There are some grant programs that may support school bus projects:

- General Funding
- Transportation Funding

www.epa.gov/cleanschoolbus/funding.htm

Competitive Lawn Service Switches to 100% Propane

Innovative Landscaping Company Wins "Environmental Award" for Propane Autogas Fueled Equipment

Eric Hansen, founder of Competitive Lawn Service, Inc. in Downers Grove, Illinois recently picked up his new propane-powered F-350 at the Roush factory.

"The truck joins an operation that already uses 100% propane in our lawn equipment. In 2009 we used about 1,500 gallons of propane in our operations for lawn equipment. For 2010, we are working on reaching a goal of 10,000 gallons of propane use in both equipment and fleet vehicles."

- Their lawn equipment is all 100% propane powered.
- Now they plan to replace their truck fleet with all propane powered trucks.
- ***Installed a 1,000 propane tank on-site.***
- Nominated for the "Environmental Business Award" by *Lawn & Landscape* magazine for their incorporation of green technologies in their business.

See Eric's video at:

http://blog.roushperformance.com/blog/2009/12/competitive-lawn-service-switches-to-propane-video.html

PROPANE education & research COUNCIL

Indiana DOT Builds 115 Propane Autogas Fueling Stations

$3.2 Million Contract Awarded to Alliance AutoGas

- As part of the state's alternative fuel vehicle conversion project, Indiana Department of Transportation (DOT) is installing 115 propane autogas fueling stations.
- When completed, a propane autogas fueling station will be within 30 miles of virtually any locale in the state.
- State Department of Energy officials estimated a $700,000 to $1 million annual savings in fuel costs and less maintenance, as reported by the Indy Star.
- Indiana is also converting 227 Ford vans and trucks to run on propane autogas.
- These initiatives are part of a $22.8 million Alternative Fuel Vehicle project that includes the conversion of some 900 vehicles to propane autogas as well, according to a release from the Indiana's Office of Energy Development.

Alliance AutoGas
POWERED BY PROPANE

Source: Government Fleet, October 4, 2010

PROPANE education & research COUNCIL

Schwan's Has Run on Propane Since 1972

"We are very excited to continue our tradition of propane fueled trucks in a sleek, new model," said Scott McNair, President of Schwan Food Co. *"While our customers are sure to recognize the outside of our trucks, it is important that they know that inside there is a fuel efficient machine that is safer for our environment."*

Schwan's Home Service in Marshall, Minnesota, a direct-to-home food delivery business, is among the largest propane fleet in the U.S. The company said ***90% of its 6,000 trucks run on propane***, a cleaner burning fuel that results in less engine emission contaminants. These trucks fuel tanks are painted green in honor of their propane use.

Along with being more fuel efficient, the easily recognizable yellow trucks are also quieter and safer to operate.

"We were looking at it from a purely business point of view," said Howard Miller, V.P. of Facilities & Operations, about the decision to switch to LPG. "The [fuel] crisis compelled us to look at alternatives. We wanted to find a reliable, dependable and domestically produced source of fuel for our fleet," he said.

Source: Work Truck On-Line; August 4, 2010

Anheuser Busch Distributor is Big on LPG

Anheuser Busch Beers: Wil Fischer Distributing
Located in: Springfield, Missouri
Business Philosophy: "Excellence in All Phases of Business"

The entire Wil Fischer staff is devoted to the belief that service sells beer. We provide great service that delivers constant growth and continued customer satisfaction. Our superior employees sell the highest quality product and deliver that product with exceptional execution.

According to the President, Jeffrey Gower:

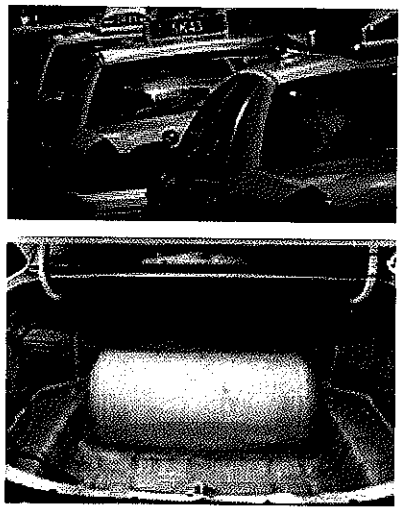
- We currently run over 40% of our fleet on propane.
- Wil Fischer uses propane because it's clean burning, which extends the life of the engine.
- Our propane trucks last more 200,000 miles, which is when we normally purchase conventional trucks. They also require much less maintenance.
- Cost savings are also realized through tax benefits and storage of the alternative fuel at the facility.
- Propane also allows the company to easily comply with emissions regulations.
- All propane fueled vehicles have on-board tanks, and are refueled via the large on-sight permanent tank.
- On average, Wil Fischer uses 45,000 gallons of propane a year
- We save more than 1 ton of CO_2 emissions per year per vehicle, which is over 30 tons per year currently, and over 400 tons over the last 24 years!"

Source: CleanFUEL USA

PROPANE education & research COUNCIL

Las Vegas Taxi's are GREEN!

Seeing both the environmental and financial benefits of cleaner fuels in the ***mid-1980s, taxicab company Yellow-Checker-Star Transportation*** began converting its Las Vegas fleet to propane. ***Today, nearly all of the company's 800 vehicles run on propane.***



Yellow-Checker-Star's taxicabs are fueled by propane tanks stored in their trunks. The company's CEO, 1st converted his fleet to propane tanks in 1985.

Yellow-Checker-Star converts its Ford Crown Victorias from gasoline to propane at its facility in the southwest valley. The company spends approximately $5,000 on each conversion, which requires removing the vehicle's gasoline tank and placing a 40-gallon propane tank in the trunk, then rewiring the car and installing a computer module.

The company trucks in more than ***11 loads of propane each week.*** The fuel is stored in ***two 60,000-gallon tanks*** on Yellow-Checker-Star's back lot where the cabs can be refueled.

"The three cab corporations under Yellow, Checker and Star all use propane for their combined 800 taxis. The entire propane fleet logs more than 50 million miles per year, and saves the Las Vegas Valley from 800 tons of carbon monoxide and 800 tons of particulate matter per year."

Source: Las Vegas Business Press; February 14, 2011

PROPANE education & research COUNCIL

London, Ontario, Canada

Propane is a Must-Have for Police Cruisers

- London's police cruisers have run on propane since 1982, saving thousands of dollars in fuel costs as the price of propane continues to stay below the cost of gasoline.
- London police maintain a fleet of 82 patrol cars.
- What we need in a vehicle is:
  - Reliability.
  - Reasonable fuel economy.
  - Suitable performance.
  - Sufficient interior cabin and trunk space.
  - 24/7 usage, with multiple operators.

- They are currently testing Dodge Chargers, and will consider Ford's propane conversions of Taurus and Chevrolet Caprice's when they are available.

Source: Joe Belanger, The London Free Press-January 2011

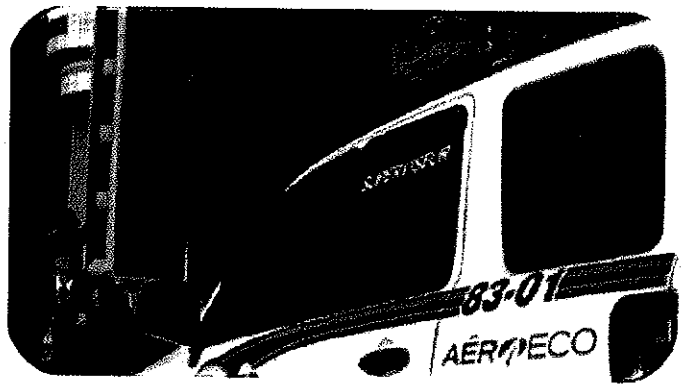
Montreal Airports to Get Propane-Powered Ground Vehicles

ADM, which manages Montréal-Trudeau and Montréal-Mirabel airports, has taken a proactive stance in terms of mitigating the impact of its operations on the environment, recognizing that this is a business imperative.

"Good environmental stewardship is a centerpiece of our operating and development strategies. In today's challenging business market, judicious choices for new facilities, processes and equipment are not only important for the environment, but can bring lower maintenance and running costs in the long-term.

***We are converting a fleet of 20 vehicles to propane gas** under an agreement with Budget Propane. A filling station will also be built. Current data show that propane vehicles emit 25% less greenhouse gases and cost about 35% less to operate."*

James Cherry
President & CEO
Airport Authority Airports de Montreal

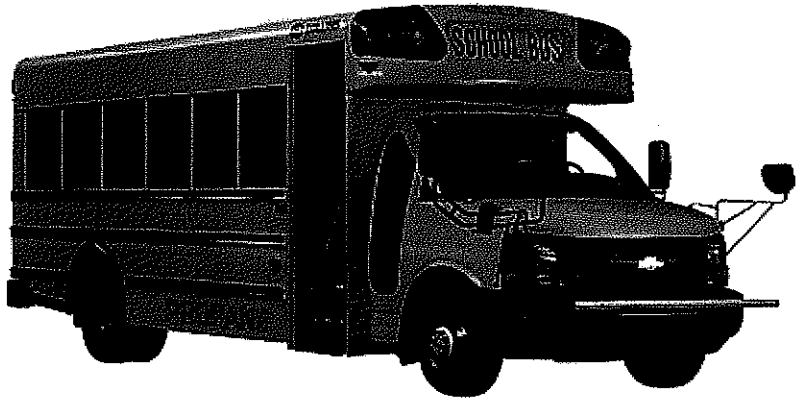


Source: Airport Council International: Airport Business magazine, Jan. 2011

PROPANE education & research COUNCIL

COLLINS BUS CORPORATION

Collins Bus Corporation offers the first dedicated propane Type A school bus and multifunction school activity bus using the latest CleanFUEL USA propane injection technology. The new NEXBUS propane models are manufactured on General Motors dual rear-wheel cutaway chassis. Passenger capacities range from 14 to 32 with wheelchair models available. The NEXBUS models are built to Collins' standards of quality and reliability and meet all applicable U.S. and Canadian school bus federal safety standards. Under the NEXBUS brand of advanced green technology, Collins also markets a gasoline/hybrid-electric bus.



PRODUCTS
6.0L Type A – Collins, Mid Bus, Corbeil
6.0L NEXBUS
5 years/ 100,000 Mile Warranty

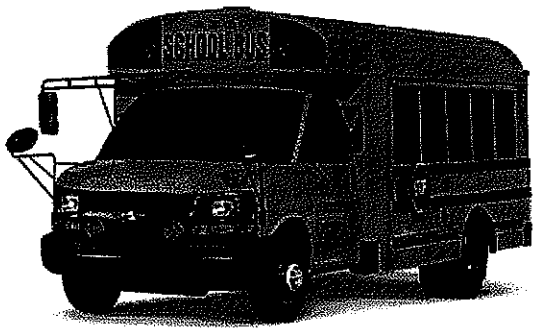
PROPANE education & research COUNCIL

GM to Offer Single-Source Propane Vans

The single-source LPG system is manufactured to GM engineering standards and would be immediately available only on the Express and Savana 4500 series chassis with 49-gallon fuel capacity, while the company looked into how the technology would work with the 3500 series.

The cutaway vans will be covered by GM's 3-year, 36,000-mile new vehicle limited warranty and 5-year, 100,000-mile limited power-train warranty and vehicle emissions warranty. The LPG system meets all EPA and California Air Resources Board (CARB) emission certification requirements.

"LPG infrastructure has progressed rapidly**, so it's easier for our customers to refuel in convenient locations across the country,"* commented Brian Small, General Manager of GM Fleet and Commercial Operations, on the more than ***2,600 LPG fueling stations nationwide.



Customers of all Type A small school buses built on Chevrolet Express and GMC Savana 4500 series cutaway van chassis with Vortec 6.0L engines will have the option to order LPG options beginning with the 2012 model year.

Source: School Transportation News; February, 14, 2011

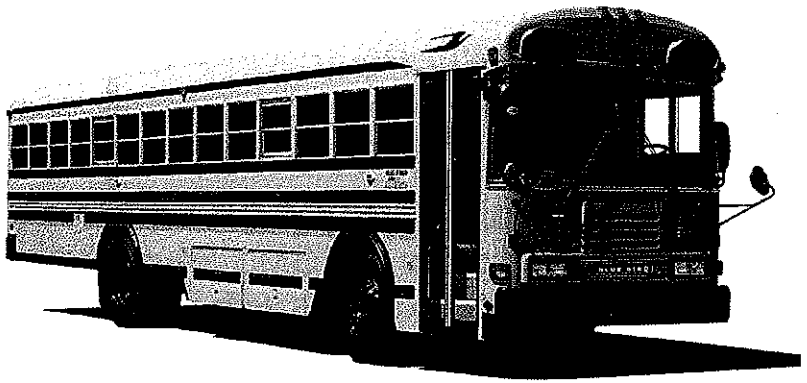
PROPANE education & research COUNCIL

BLUE BIRD

Blue Bird's propane fueled Vision® school bus is a conventional Type C school bus fueled by propane instead of diesel fuel.

Fully integrated and original equipment manufacturer-built, it is engineered to the same standards as other Blue Bird buses.

The propane bus meets all applicable U.S. and Canadian school bus federal safety standards and all Environmental Protection Agency and California Air Resources Board certification requirements for the 2010 production year.

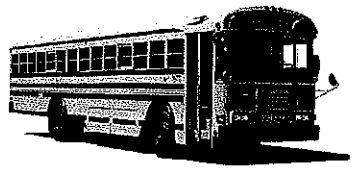


PRODUCTS
6.8L Propane Autogas Fueled Vision Bus
Type "C"
2 years/ 50,000 Mile Warranty

PROPANE education & research COUNCIL

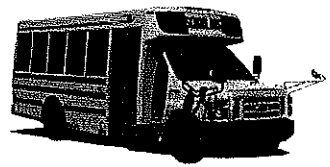
BLUE BIRD

THE PROPANE FUELED TYPE C VISION®



Blue Bird recently launched the propane fueled Vision® bus, which is a fully integrated and purpose-built Original Equipment Manufacturers (OEM) bus, engineered to the same exacting standards as other Blue Bird products. This product is the first dedicated propane fueled school bus offered by a major manufacturer in the United States since 2002, and is also available for activity/MFSAB applications. The bus is powered by the Ford 6.8L engine, which is designed and engineered to operate on propane by Powertrain Integration using CleanFUEL USA's Liquid Propane Injection System™. Propane itself is a safe, clean, and reliable alternative fuel with an established infrastructure system throughout North America.

THE PROPANE FUELED TYPE A MICRO BIRD®



Manufactured for the school, childcare, Head Start, church, tour and shuttle markets and sold exclusively by Blue Bird Dealers throughout North America, the Micro Bird is built on a Ford E-450 chassis and uses the 6.8L engine with a Roush Liquid Propane System. The engine is extremely reliable, offers industry leading performance and the entire vehicle can be serviced through the Ford or Blue Bird Dealer network.

Source: www.bluebird.com/general

Get to Know the Vehicle Manufacturers

Alliance AutoGas
228.215.0544
www.allianceautogas.com

Roush CleanTech
734.466.6219
www.roushcleantech.com

CleanFUEL USA
512.864.0300
www.cleanfuelusa.com

Collins Bus Company
800.533.1850
www.collinsbus.com

Blue Bird Bus Company
478.825.2021
www.blue-bird.com

Impco
714.656.1400
www.impcotechnologies.com

Icom
800.872.4266
www.icomamerica.com

Technocarb
877.888.5666
www.technocarb.com

Alliance AutoGas
POWERED BY PROPANE

An integrated network of clean fueling, vehicle conversion, and high-performance technical expertise, Alliance AutoGas converts vehicle fleets from gasoline to propane autogas bi-fuel vehicles.

They specialize in private and public light-duty vehicles, taxis, law enforcement, and transit vehicles. Alliance AutoGas provides on-site fueling infrastructure, operational and safety training, ongoing fuel provision, and technical support.

PRODUCTS	
4.6L	2006-09 Ford Crown Victoria & Crown Victoria Police Interceptor
4.6L	2006-09 Lincoln Town Car
4.6L	2006-09 Mercury Grand Marquis
5.4L	2008 Ford F-150
4.6L	2008 Ford F-150
5.4L	2007-08 Ford E-350, E-250, E-150, E-150 Club Wagon
5.4L	2008 Ford E-350 Cutaway, E-250 Cutaway
4.6L	2008 Ford E-350, E-250, E-150
5.4L	2008 Ford Expedition
5.4L	2008 Lincoln Navigator & Lincoln Mark LT
6.0L	2006 Chevy Silverado (2/4-wheel drive)
6.0L	2006 GMC Sierra (2/4-wheel drive)

PROPANE education & research COUNCIL

CLEANFUEL USA

FUEL SAVINGS CALCULATOR

	Propane	Gasoline
Engine	2010 LPI 6.0L	2010 GM 6.0L
Fuel (Liquid Propane)	Liquid Propane	Gasoline
Horsepower	323 HP	323 HP
Torque	373 lb. ft.	373 lb. ft.
Miles per gallon	9.129999999999999	11 mpg
Miles per year	20000	20,000
Gallons per year	2190.5805	1818.1818
Price per Gallon without Tax credits	$2.30	$3.10
Volumetric Excise Tax Credit	$0.50	
Annual Fuel Cost	$3,943.05	$5,636.36
Total 5 Year Fuel Cost	$19,715.22	$28,181.82
Cost per Mile	0.19715225	0.28181820
Total 5 Year Savings	$8,466.60	

Apply Fuel Tax Credit | Clear Form

Source: www.cleanfuelusa.com/Fuel_Savings_Calculator.aspx

PROPANE education & research COUNCIL

Roush Forecasts it Will Sell 10,000 Propane Vehicles by 2013

"Fleets can save $1 per gallon or more, reduce dependence on foreign oil, clean up the environment, market themselves as a green company, not compromise vehicle performance, and maintain OEM warranties. This is an absolute 'no brainer,' which is why we are so bullish on this technology."

Todd Mouw
Roush VP, Sales & Marketing

Some of our major fleet customers, which have already began to convert to propane are:

- Frito Lay
- U-Haul
- UPS
- Qwest Communications
- Schwann

Reasons that Roush is bullish on propane are, when compared to gasoline or diesel:

- Propane burns cleaner.
- Up to 20% less nitrogen oxide.
- Up to 60% less carbon monoxide.
- 24% less greenhouse gas emissions.
- Fewer particulate emissions.

In addition, propane:

- Is already the 3rd most widely used fuel globally.
- plays a strong role in our dependence on imported oil.
- 90% of propane used today comes from domestic sources of production.
- An additional 7% comes from Canada.

ROUSH CLEANTECH

Source: World Truck Magazine; January 2011

PROPANE education & research COUNCIL

ROUSH CLEANTECH

KING COUNTY COMMENDED FOR PROPANE AUTOGAS USAGE

Company: King County Government, Dept. of Transportation, Fleet Administration Division

Industry: Government

Location: Seattle, Washington

Vehicles: **Ford F-250 pickups; Ford F-350 extended cab pickup; Ford E-250 cargo van**

Challenge: To address global warming in the Puget Sound region by decreasing emissions from transportation, which represent about half of all the area's regional greenhouse gas emissions.

By The Numbers:

- 9 total vehicles equipped with Roush CleanTech propane autogas system.
- 11,200 fewer gallons of gasoline consumed per year.
- 77,280 pounds of carbon dioxide eliminated from King County's carbon footprint per year.
- $1,700 per vehicle, per year savings totaling $15,338 for 9 vehicles.

HOME MEDICAL EQUIPMENT PROVIDER FINDS PROPANE AUTOGAS ECONOMICAL & DEPENDABLE

Company: Wright & Filippis

Industry: Home Medical Equipment Provider

Location: Rochester Hills, Michigan

Vehicles: **2011 Ford E-350 Cargo Vans; 2011 Ford E-450 Cutaway Vans;**

Challenge: To provide an economically feasible and environmentally-conscious alternative fuel fleet vehicle.

By The Numbers:

- 48,000 fewer gallons of gasoline burned by switching to propane autogas.
- 931,200 pounds of carbon dioxide eliminated from Wright & Filippis' carbon footprint each year.
- $3,000 per vehicle, per year savings equaling $36,000 total for 12 propane vehicles.
- Immediate return on investment due to grant funding provided for retrofit.

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Bi-Fuel Propane AutoGas/ Gasoline

- Starts on gasoline and switches automatically to propane.
- Original operation and performance uncompromised.
- Reduction in exhaust emission including CO_2.
- Engine managed by unaltered OEM strategies.
- OBDII *(On Board Diagnostics)* strategy still active.
- Dramatically increased vehicle range.
- Cost effective.
- Reduced fleet fuel costs and tax incentives available to further reduce fuel costs.

IMPCO AUTOMOTIVE

PROPANE education & research COUNCIL

Partnering with Propane Autogas Technology & OEM Companies

Alliance AutoGas POWERED BY PROPANE

ROUSH CLEANTECH

COLLINS BUS CORPORATION

BLUE BIRD

CLEANFUEL USA

IMPCO AUTOMOTIVE

ICOM NORTH AMERICA Alternative Fuel Systems

Technocarb Alternative Fuel Power

- ✓ Contact their headquarters.
- ✓ Ask if they have a local rep in your area who can make "joint sales" calls.
- ✓ Provide them with your "Propane Service Plan."
- ✓ Inquire about which potential customers they have been targeting.
- ✓ Can they assist with researching tax credits, incentives, grants, etc?
- ✓ Leverage their expertise, marketing tools and technical assistance.
- ✓ Will they print your company logo on brochures/ mailers?
- ✓ Do they provide demonstration units?

PROPANE education & research COUNCIL

Frequently Asked Questions

IS PROPANE ABUNDANT?

YES. The majority of the propane we use is produced domestically. And with the largest storage capacity in the world, the United States' supply is abundant. Pipelines, processing facilities, 2,500+ refueling stations, distribution centers, and storage facilities already exist across the country, making large capital investments in infrastructure unnecessary.

IS ENGINE PERFORMANCE REDUCED WITH PROPANE?

NO. Fleet operators report horsepower and torque capability comparable to gasoline. The high octane rating and quick vaporization of the liquid fuel delivers excellent performance. Engines operating on propane have quick acceleration characteristics compared to the turbo lag of diesel engines.

IS REFUELING WITH PROPANE FAST?

YES. Refueling is simple, clean, and fast. Propane's pump rate – 10 to 12 gallons per minute – is comparable to that of gasoline. This translates into savings in time and energy when compared with other alternative fuels such as CNG (compressed natural gas). Because propane is delivered through a sealed system, thereby protecting the environment, a simple screwed connection is used. Vehicles can be refueled at nearly 10,000 cities across the country.

IS PROPANE REFUELING EQUIPMENT AFFORDABLE?

YES. Installing propane dispensing equipment is far less expensive to install compared to other alternative fuels such as CNG. Depending on fuel demand, the dispensing equipment can be included with a propane supply agreement. Propane dispensers are available from the simple pump and motor to a state-of-the-art dispenser with card reader and fuel management technologies. Propane tanks are available in both above ground and underground applications in sizes ranging from 500 gallons up to 30,000 gallons. As an example, a state-of-the-art dispenser with a 1,000 gallon tank mounted on a skid can be purchased for approximately $20,000 without the installation costs, which will vary from city to city. For a comparable fast fill CNG fueling station an investment of $1.5 million would be required.

PROPANE education & research COUNCIL

Frequently Asked Questions

IS PROPANE A RELIABLE & PROVEN MOTOR FUEL?

YES. Propane has been used as a motor fuel for more than 80 years and is the third most widely used motor fuel behind gasoline and diesel. Currently more than 10 million vehicles worldwide use propane as motor fuel. Many U.S. fleets have operated on propane for more than 20 years, such as Yellow Cab in Las Vegas, Schwans Foods home delivery service, the Portland School District, DS Waters, and others. These companies recognize the benefits of operating on propane include great performance, safety, clean emissions, green image, and tremendous cost savings.

IS PROPANE SAFE?

YES. Propane has a narrower flammability range than gasoline. The ignition point for propane is 940 degrees Fahrenheit compared to 430 degrees for gasoline. Propane tanks have a relative low working pressure of 240 PSI at 100 degrees compared to CNG (compressed natural gas), which operates at a pressure of 3,600 psi up to 4,500 PSI at 70 degrees. Propane vehicle fuel tanks are tested to 4 times the normal operating pressure and the tanks are 20 times more puncture resistant as gasoline or diesel tanks. Propane tanks do not need to be removed and re-inspected as are other alternative fuels such as CNG (compressed natural gas).

IS PROPANE CLEAN?

YES. Clean, efficient propane has long been recognized as an environmentally friendly energy. It's an approved alternative fuel listed in both the Clean Air Act of 1990 and the National Energy Policy Act of 1992 and 2005. Compared to gasoline, propane produces fewer greenhouse gas emissions and cuts emissions of toxins and carcinogens, such as benzene and toluene, by up to 96%. Propane fueled vehicles produce significantly lower particulate (almost zero), carbon monoxide, nitrogen oxide, hydrocarbon, and greenhouse gas emissions than gasoline or diesel.

KEY FACTS ABOUT FLEET VEHICLES FUELED BY PROPANE AUTOGAS

Leading alternative fuel; a domestic resource

Propane autogas is the leading alternative fuel in the United States and the third most commonly used vehicle fuel, following gasoline and diesel.

More than 15 million on-road vehicles worldwide are fueled by propane autogas and 270,000 of those are on roads in the United States, according to the Energy Department. This includes buses, taxis, delivery vehicles, and other fleet vehicles.

Nearly 90 percent of the United States propane autogas supply is produced domestically.

About 90 percent of propane used in the Northwest comes from raw natural gas, and the remaining comes from petroleum during the refining process.

"Right here, right now;" available vehicles and refueling infrastructure

Many fleet managers are making the refueling process convenient by installing low-cost onsite refueling infrastructure, eliminating trips to off-site stations. Underground storage tanks are an option for long-term use or aboveground portable refueling platforms can be replaced or removed as needed.

Federal tax credits are available for up to 30 percent of the installation costs for propane refueling equipment placed into service by December 31, 2011.

There are thousands of propane autogas refueling stations in the United States, with stations in every state.

The **Propane Education & Research Council** works closely with manufacturers and propane providers to offer safety and training related to the use and refueling of vehicles fueled by propane autogas. Propane providers give hands-on demonstrations for personnel who will be operating and fueling the vehicles.

An environmentally and economically sustainable solution

Light-duty fleet vehicles that run on propane autogas emit fewer greenhouse gases, smogproducing hydrocarbons, and particulate emissions than gasoline-fueled light-duty vehicles. When compared with gasoline, vehicles fueled by propane autogas produce:

- 17-24 percent less greenhouse gases.
- 20 percent less nitrogen oxide.
- Up to 60 percent less carbon monoxide.

Propane burns cleaner in engines than gasoline and diesel, which results in longer engine life and reduced maintenance costs.

Trucks fueled by propane autogas have an initial purchase price that can be $4,000 to $12,000 more than that of gasoline- or diesel-fueled trucks, but the extra cost can be offset by the lower fuel and maintenance costs of propane autogas over the life of the vehicle and extended engine life. Payback periods for high-mileage fleet vehicles are even shorter.

A 50-cent-per-gallon alternative fuel tax credit is available for fleet vehicles fueled by propane autogas through 2011, as part of the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010.

Performance characteristics

Liquid propane autogas injection systems offer equivalent horsepower, torque, and towing capacity as gasoline-fueled counterparts.

Vehicles fueled by propane autogas are a good choice for fleet managers to achieve performance, economic, and sustainability goals.

To learn more about propane autogas, visit:

Propane Education & Research Council: www.autogasusa.org

Department of Energy's Clean Cities: www.cleancities.energy.gov

PROPANE
EXCEPTIONAL ENERGY®

For More Information:
Claire Haupt
Bader Rutter & Associates
262-938-5460
chaupt@bader-rutter.com

Propane Industry Prepared To Help Administration Achieve America's Transportation Energy Goals

Domestically produced, leading alternative fuel propane autogas is a solution to securing nation's energy future

WASHINGTON (April 4, 2011) — With President Obama's recent announcement of the National Clean Fleets Partnership, the propane industry and its manufacturing partners are well positioned, today and in the future, to provide innovative technologies and vehicles fueled by propane autogas, America's No. 1 alternative energy source for transportation.

"The propane industry applauds our nation's leaders for bringing about new clean energy goals, and it stands ready to do more," said Roy Willis, president and CEO of the Propane Education & Research Council (PERC). "Through PERC, the propane industry has invested millions of dollars in research and development to bring new fleet applications fueled by propane autogas to the market. Working with our manufacturing partners, fleet managers have many propane autogas products to choose from that help achieve sustainable environmental goals and decrease our country's dependence on foreign oil without sacrificing performance."

President Obama highlighted the importance of securing America's energy supply, saving consumers money at the pump and creating a cleaner environment, as he addressed the nation last week. "We cannot keep going from shock to trance on the issue of energy security, rushing to propose action when gas prices rise, then hitting the snooze button when they fall again," President Obama said during his speech at Georgetown University on March 30. "It is time to do what we can to secure our energy future."

Ninety percent of the propane consumed in the United States is produced domestically. Thousands of refueling stations across the country make propane autogas convenient and available, with more propane autogas stations than any other alternative fuel. Propane autogas is the only alternative fuel with fueling stations in every state.

There are more than 15 million vehicles operating on propane autogas worldwide. According to the Energy Department, there are more than 270,000 on-road vehicles operating on propane autogas across the United States. Propane autogas, a recognized alternative fuel according to the Environmental Protection Agency, fuels vehicles in such fleets as Frito-Lay, ThyssenKrupp Elevator, Schwan's, Red Top Cab, and SuperShuttle.

Light- and medium-duty trucks and vans fueled by propane autogas are available from a number of industry-leading manufacturers, including Roush CleanTech for Ford Motor Co. commercial vehicles, and General Motors commercial fleet products through a partnership with CleanFuel USA.

"The Department of Energy's Clean Cities initiative and the White House's newly announced National Clean Fleets Partnership share a common goal with the propane industry — to introduce state-of-the-art technology that makes fleets more sustainable," said Willis. "In recent years, the propane industry has partnered with Clean Cities Coalitions to develop programs for propane autogas deployment projects, including vehicles and infrastructure."

Working with equipment manufacturing partners, PERC supports the research and development of new propane autogas engines and vehicles and provides safety and training. For more information on PERC and its programs, visit www.autogasusa.org. For more information on the National Clean Fleet Partnership, visit http://www.whitehouse.gov/the-press-office/2011/04/01/fact-sheet-national-clean-fleets-partnership.

# # #

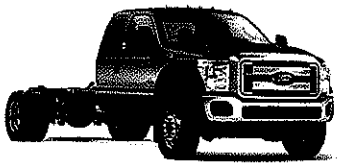
Roush Clean Tech http://www.roushcleantech.com/content/ford-f-350

800.59.ROUSH

INCENTIVES ▸ KNOWLEDGE CENTER ▸ NEWS/EVENTS ▸

TRUCKS
VANS / WAGONS
CUTAWAYS
SCHOOL BUS
CHASSIS CAB
▶ FORD F-450
- FORD F-550
FUTURE

Ford F-450 Chassis Cab



The ROUSH CleanTech propane fuel system will be offered for 2011 and newer Ford F-450 chassis cab vehicles equipped with the 6.8-liter V10 engine and 5-speed automatic transmission. Conversion won't affect Ford body specs, so upfitter body applications can still be installed

ROUSH CleanTech propane autogas fuel systems offer lower emissions and operating costs without sacrificing horsepower, torque, or towing capacity. Other advantages include:

- 30 – 40 percent lower fuel costs
- Identical warranty coverage
- EPA and CARB certified at launch
- Operating on a domestic fuel source

AVAILABLE: October 2011.

Savings Calculator

F-450 & F-550 Gas (6.8L V10)

Change any value that is in this type of cell:

Capital Costs			
Base Vehicle Purchase Price	$ 33865.00	$ 33865.00	
ROUSH Propane System Conversion Price		$ 16500.00	
Federal Alternative Motor Vehicle Tax Credit (propane only)		$ 0.00	
Total Capital Savings or Investment to Convert	$ 33865.00	$ 50365.00	$ -16500.00
Operating Costs (fuel)			
Total Vehicle Life (miles)	200000	200000	
Average Miles per Gallon *	7	6	
Gallons of Fuel Used Over Life of Vehicle	28571	33333	
Fuel Price (per gallon) **	$ 3.55	$ 2.15	
+ Federal excise tax credit/gallon (propane only)		$ -.50	
+ Adjusted Fuel Price (per gallon)	$ 3.55	$ 1.65	
Total Fuel Savings or Cost Over Life of Vehicle:	$ 101427.05	$ 54999.45	$ 46427.60
Operating Costs (misc.)			
Maintenance Rate per mile (tune-ups, oil, engine life, etc.)***	$ 0.030	$ 0.015	
Maintenance Costs	$ 6000.00	$ 3000.00	
Fuel Loss from Pilferage & Theft	$ 0.00	$ 0.00	
Total Misc. Savings or Costs Over Life of Vehicle:	$ 6000.00	$ 3000.00	$ 3000.00

Gross Vehicle Lifetime Savings or Loss:	**$49427.60**
Net Vehicle Lifetime Savings or Loss:	**$32927.60**

Assumptions:

- Propane Conversion price is listed at MSRP. Volume discounts are available.
- Customer would be eligible for $.50 / gallon Federal Tax Credit because they have their own fueling station. Please check with tax advisor before making any purchase decision.
- Gasoline prices captured from http://www.eia.doe.gov.

* MPG ratings for gasoline and propane vehicles are estimates. Variations in MPG should be expected when operating a vehicle that is towing, hauling, or being driven in various city / hwy applications.

** Propane fuel price is an estimate based on your fleet size, not a quoted price, and is subject to change.

*** A 50% reduction in maintenance costs by running a vehicle on propane, compared to gasoline. A factor the Texas Railroad Commission uses in their calculations when considering an alternative fuel conversion.

close

VEHICLES

http://cleanfuelusa.com/vehicles.aspx

The LPI System utilizes patented Icom JTG Technology manufactured by Icom North America...

- is a fully integrated, dedicated engine system designed in complete harmony with the gasoline engine and provided by Icom North America.
- utilizes fuel that is 90% domestically produced, reducing our dependence on imports.
- engineered to maximize the design benefits of the gasoline engine and utilizes the OEM engine computer, specifically calibrated for propane. This allows for optimal fuel economy, performance and low emissions, while leaving the OEM-developed diagnostics intact.

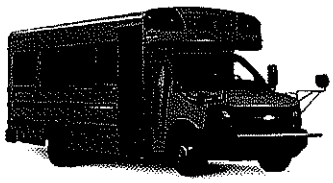
Benefits of LPI...

- Low-cost alternative fuel system
- Significant reduction in fuel and maintenance costs
- Extended engine life due to lower carbon production and reduced oil contamination
- Qualifies for substantial Federal Tax Credit
- Horsepower and torque equal to or better than gasoline engine equivalent
- Utilizes a domestically produced fuel (energy independence)
- Simple, state-of-the-art technology
- EPA and CARB certified
- Supported by a network of trained service providers
- Significant reduction in greenhouse gas emissions
- Exceeds 2010 emission requirements without Diesel Particulate Filtration (DPF), Cooled EGR or Selective Catalytic Reduction (SCR) systems

Quarterly Newsletter

- December 2009

LPI Applications



Collins Propane NexBus »

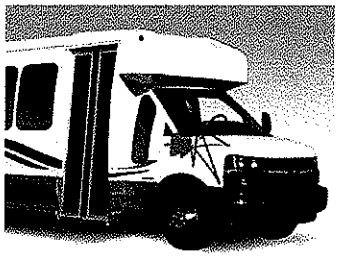
- Type A School Bus

Blue Bird Propane Vision Bus »

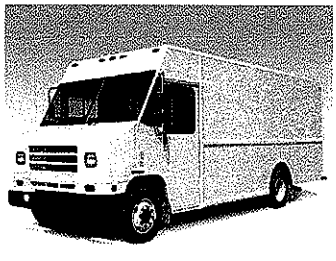
- school bus
- airport transportation
- prison

GM 8.1L C4500-C8500 Series Medium Duty Truck »

- maintenance and utility vehicles
- delivery
- beverage distribution
- propane delivery vehicles



GM 6.0L G4500 Cut-Van Chassis »



GM 6.0L Workhorse W42 Chassis »

LPI

LIQUID PROPANE INJECTION ENGINE SYSTEMS:

Vehicle Type

- Collins Propane NexBus
- Blue Bird Propane Vision Bus
- GM 8.1L C4500-C8500 Series Medium Duty Truck
- GM 6.0L G4500 Cut-Van Chassis
- GM 6.0L Workhorse W42 Chassis
- GM 6.0L C2500/3500 Series Cab Chassis
- GM 6.0L G3500 Cut-Van Chassis

IMPCO AUTOMOTIVE

PROPANE ENGINE CONVERSION SYSTEMS:

Impco Bi Fuel Solutions

Impco EPA Certificates of Conformity

Case Studies

Request a Quote

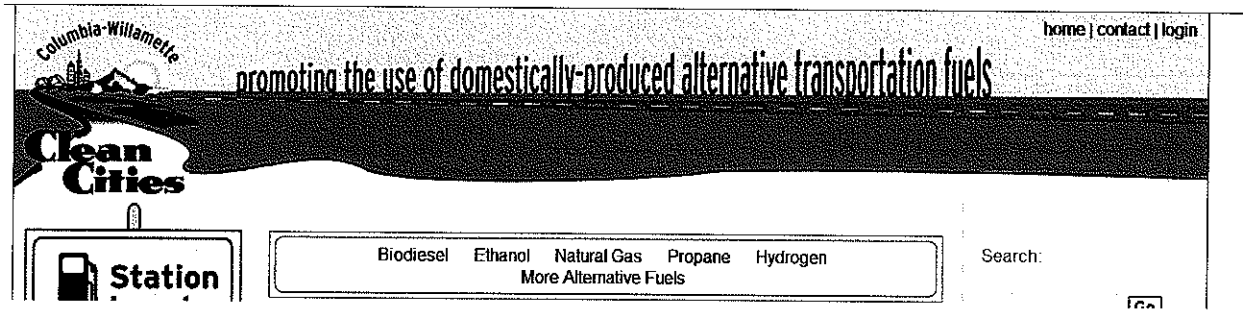
Fuel Savings Calculator

"Congratulations on a system that not only works well, but offers ease of installation, retains horsepower and holds nominal maintenance. I am looking forward to future business with you."

— Dave Glaser, Glaser Gas, Inc., Colorado Springs, CO

Alternative Fuel Related Links

Columbia Willamette Clean Cities
http://www.cwcleancities.org/fuels.php



U.S. Department of Energy – list of alternative fuels
http://www1.eere.energy.gov/vehiclesandfuels/epact/key_terms.html#alt_fuel

EPAct Transportation Regulatory Activities

Alternative Fuel

These fuels are defined or designated as "alternative fuels:"

- Methanol, denatured ethanol, and other alcohols
- Blends of 85% or more of methanol, denatured ethanol, and other alcohols with gasoline or other fuels
- Natural gas and liquid fuels domestically produced from natural gas
- Liquefied petroleum gas (propane)
- Coal-derived liquid fuels
- Hydrogen
- Electricity
- Biodiesel (B100)
- Fuels (other than alcohol) derived from biological materials
- P-Series fuels

National Propane Gas Association
http://www.npga.org

PERC: Propane Education & Research Council
http://www.propanecouncil.org/