COMMERCIAL VEHICLES

BUILT Ford TOUGH

2014 ALTERNATIVE FUEL BUYERS GUIDE

CNG — COMPRESSED NATURAL GAS

LPG — PROPANE AUTOGAS

B20 — BIODIESEL

FLEX FUEL — ETHANOL

H — HYBRID

P — PLUG-IN HYBRID

E — ALL-ELECTRIC

WHY ALTERNATIVE FUEL IS IMPORTANT TO YOU AND FORD

Reduced carbon footprint.

For many businesses, operating a fleet is the single largest contributor to their carbon footprint. When a business decides to reduce its carbon output, the fleet managers need to know how to identify which alternative fuel will make the biggest difference.

Reduced dependence on foreign oil.

Most of the world's oil reserves are concentrated in the Middle East. Since most alternative fuels are available in the U.S. from U.S. sources, switching to alternative fuels can limit how much money is transferred offshore to support our domestic energy demands.

Ford Offers Customers A Complete Selection

	Transit Connect Van/Wagon	Transit Van/Wagon/ Cutaway	E-150/250/350 Cargo Van/ Wagon	E-350/450 Cutaway Chassis	E-350/450 Stripped Chassis
Fuel Type					
Ethanol (E85)		Ethanol (E85)	Ethanol (E85)	Ethanol (E85)	Ethanol (E85)
Biodiesel (B20)		Biodiesel (B20)			
CNG/Propane	CNG/Propane	CNG/Propane	CNG/Propane	CNG/Propane	CNG/Propane
Hybrid					
GVWR (lbs.)	4,780 - 5,280	8,550 - 10,360	8,520 - 9,500	10,050 - 14,500	11,500 - 14,500
GCWR (lbs.)	5,800 - 6,320	10,600 - 13,000	11,500 - 18,500	13,000 - 22,000	13,000 - 22,000
Payload (lbs.)	1,110 – 1,710	2,330 - 5,790	3,110 - 4,050	5,090 – 9,040	6,927 – 9,747
Engine	2.5L Gas* 1.6L EcoBoost	3.7L Ti-VCT* 3.5L EcoBoost 3.2L I-5 Diesel	4.6L Gas V8 FFV 5.4L Gas V8 FFV* 6.8L Gas V10*	5.4L Gas V8 FFV* 6.8L Gas V10*	5.4L Gas V8 FFV* 6.8L Gas V10*
Transmission	6-Speed SelectShift Automatic™ with Overdrive	6-Speed SelectShift Automatic™ with Overdrive	4-Speed Automatic with Overdrive (4.6L, 5.4L) TorqShift® 5-Speed SelectShift Automatic™ with Overdrive (6.8L)	TorqShift® 5-Speed SelectShift Automatic™ with Overdrive	TorqShift® 5-Speed SelectShift Automatic™ with Overdrive

* *Available with CNG/Propane Gaseous Engine Prep Package*

COMMERCIAL VEHICLES BUILT Ford TOUGH

Cost of ownership.

All fleet managers should consider the combination of acquisition costs, fuel prices and residual values to determine the total cost of ownership of the vehicles in their fleet. Although acquisition costs for alternative fuel vehicles may be higher, these costs are often offset by the lower costs of the alternative fuels. In addition, the lower volatility of alternative fuel prices reduces risk of future price shocks.

Blueprint for sustainability.

"From exciting wireless communications projects to our efforts to strengthen our financial position and reduce our environmental impact, Ford is deeply committed to sustainability. New technologies and a more open, collaborative approach are helping us achieve breakthroughs we could only dream of, and we are eager to go further. It is an exciting time for us as we continue on our journey to build great products, a strong business and a better world."

Excerpted from http://corporate.ford.com/microsites/sustainability-report-2012-13/review-letter-ford

Of Alternative Fuel Commercial Vehicles

	F-150 Pickup	F-250/350/450 Super Duty Pickup	F-350/450/550 Super Duty Chassis Cab	F-650/F-750 Medium Duty Chassis Cab	F59 Commercial/ F53 RV Stripped Chassis
	Ethanol (E85)	Ethanol (E85)	Ethanol (E85)		
		Biodiesel (B20)	Biodiesel (B20)	Biodiesel (B20)	
	CNG/Propane	CNG/Propane	CNG/Propane	CNG/Propane	CNG/Propane
				Hybrid (Diesel only)	
	6,450 - 8,200	9,900 - 14,000	9,800 - 19,500	Gas: 22,000 - 30,000 Diesel: 20,000 - 37,000	16,000 - 22,000 (F59) 16,000 - 26,000 (F53)
	10,400 - 17,100	19,000 - 33,000	19,000 - 35,000	26,000 - 50,000	23,000 - 26,000 (F59)
	980 - 3,120	2,310 - 7,260	2,522 – 12,660	12,787 - 20,170 (Gas)	10,107 – 15,664 (F59)
	3.5L EcoBoost 3.7L V6 FFV* 5.0L V8 FFV 6.2L V8	6.2L Gas V8 FFV* 6.7L Power Stroke® V8 Diesel	6.2L Gas V8 FFV* 6.8L Gas V10* 6.7L Power Stroke® V8 Diesel	6.8L Gas V10 (F-650 only)* 6.7L Cummins® ISB Diesel	6.8L Gas V10*
	6-Speed SelectShift Automatic™ with Overdrive	TorqShift® Heavy Duty 6-Speed SelectShift Automatic™ with Overdrive	TorqShift® Heavy Duty 6-Speed SelectShift Automatic™ with Overdrive TorqShift® 5-Speed SelectShift Automatic™ with Overdrive (6.8L)	TorqShift® Heavy Duty 6-Speed SelectShift Automatic™ with Overdrive Allison Automatic (Diesel only)	TorqShift® 5-Speed SelectShift Automatic™ with Overdrive

Ford Provides
COMPLETE CUSTOMER SUPPORT.

Go Further

Nationwide Dealer Network
Ford has a nationwide network of over 3,200 dealers that provide sales, finance and service support. Ford is a well established leader in commercial sales and has a long history of providing vehicles that are Built Ford Tough.

Specialized Commercial Vehicle Dealers
Ford Business Preferred Network (BPN) dealers understand the needs of business owners. A BPN dealer knows that vehicles used in everyday operations are critical tools for financial success and your ability to provide for customers. Similarly, Ford makes sure BPN dealers have the tools they need to get the job done for businesses, from Commercial Truck Tools to Quality Fleet Care.

FORD CREDIT

Ford Credit Commercial Lending Services
Ford Credit Commercial Lending Services help meet the unique demands of your business. Our finance products can be tailored to respond to fleet needs such as alternative fuel upfits, high mileage leases, or flexible payment plans. We also offer Commercial Lines of Credit to help obtain vehicles quickly and easily.

Gaseous Engine Prep Package
CNG and Propane Autogas (LPG) are increasingly popular choices for cutting fuel costs and greenhouse gas emissions. Ford offers Gaseous Engine Prep packages across our entire commercial vehicle line-up. These packages include hardened valves and valve seats and other components to withstand the higher operating temperatures and lower lubricity of gaseous fuels.

Detailed Engineering Requirements
The Qualified Vehicle Modifier (QVM) Program is intended to help modifiers achieve greater levels of customer satisfaction and product acceptance through the manufacture of high quality vehicles. This program assures vehicle modifiers have the capability and processes in place to maintain the integrity of the Ford systems while meeting Federal and Ford Motor Company required standards.

Ford Authorized Pool Accounts

Established Truck Equipment Upfitters
To get the equipment your business needs to get work done in an efficient, cost effective manner, Ford has established Pool Accounts. These equipment specialists assist Ford dealers to ensure you have the right truck for the right job every time.

Warranty-Parts-Service
Ford dealers are equipped to provide any necessary service repairs. They stock Ford Authorized parts, and service technicians are factory trained. Ford service departments are backed by computerized diagnostic equipment and have access to national hotline support.

Roadside Assistance 24 Hours-Seven Days
Ford provides roadside assistance 24 hours a day, seven days a week on all Ford commercial vehicles. By dialing 1-800-241-3673, Ford commercial alternative fuel vehicle customers also have access to: flat tire change, locksmith service (if locked out), and towing.

Ford Is EASY TO WORK WITH.

Simplified Ordering To Delivery

From dealer order through customer delivery

1. Dealer and customer determine appropriate vehicle based on application, payload and range
2. Dealer places vehicle order, and vehicle is delivered to modifier
3. Modifier installs alternative fuel components and system
4. Vehicle is delivered to dealer and dealer delivers vehicle to customer

The commercial truck market is comprised of many unique vocations and vehicle requirements. One size does not fit all. That's why Ford is collaborating with reliable and qualified modifiers to deliver completed alternative fuel vehicles. Most Ford commercial vehicles can be ordered with a CNG/Propane Gaseous Engine Prep Package.

Although vehicles with Gaseous Prep Engines can be driven as delivered on gasoline, most vehicles are transported to qualified modifiers that install the CNG/Propane tanks and hardware.

Ford has released Modifier Guidelines and our engineers work with modifiers to help ensure consistent, reliable performance and customer service.

Ford maintains the Engine and Powertrain Limited Warranty (5 years or 60,000 miles*) and the modifier is responsible for the system component warranty.

Given the number of unique applications, this strategy provides the greatest flexibility of commercial applications.

Warranty And Service SUPPORT.

Our dealers service what they sell. Similar to other commercial vehicles (ambulances, motorhomes, utility trucks, etc), Ford maintains the warranty on the base vehicle and any modifications are warranted by the QVM. For gaseous fuel modifications, Ford stands behind the engine warranty (as described in the 5 year/60,000 mile Powertrain Limited Warranty*) when the modifications comply with QVM Bulletin Q-185.

The modifiers provide service training programs for dealership technicians. This training ensures your dealership can accurately diagnose and safely repair modified vehicles. The QVMs also provide Technical Hotlines to assist in diagnosing component or drivability issues.

Engine calibration and emission certification and compliance are part of the QVM supplied modifications to your vehicle. The Powertrain Control Module (PCM) is reflashed with the certified calibration by the QVM when the fuel system is modified. In the event service is needed on the PCM, the QVM will work with your dealer to provide a new or replacement calibration.

Contact information is provided at the time of delivery and can be found in the QVM's *Supplemental Owner's Guide*.

* *See dealer for details*

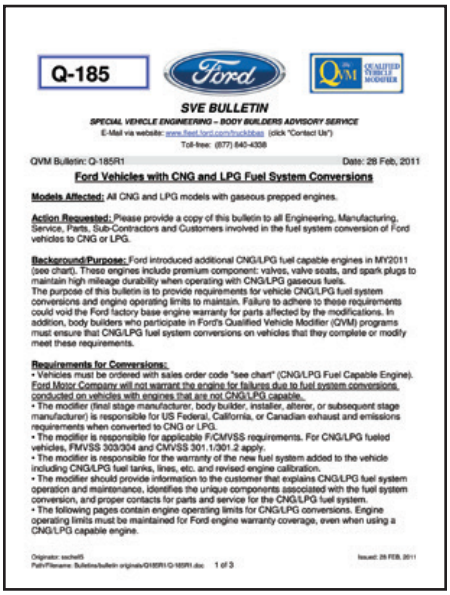
Ford Engineering SUPPORT.

Gaseous Fuel Qualified Vehicle Modifiers (QVM)

Ford has established a rigorous qualification program for alternative fuel vehicle modifiers. These guidelines are intended to provide guidance, modification recommendations and engine operating specifications required to ensure customer satisfaction and reliability in line with Ford Motor Company standards.

Onsite assessments at each QVM location assures conformance to a high standard of manufacturing, assembly, workmanship and customer service.

Modifiers that have demonstrated compliance to the Ford QVM guidelines and validation of the Q-185 engine operating parameters are listed on page 7.



Q-185

SVE BULLETIN

SPECIAL VEHICLE ENGINEERING – BODY BUILDERS ADVISORY SERVICE

E-Mail via website: www.fleet.ford.com/truckbbas (click "Contact Us")

Toll-free: (877) 840-4338

QVM Bulletin: Q-185R1 Date: 28 Feb, 2011

Ford Vehicles with CNG and LPG Fuel System Conversions

Models Affected: All CNG and LPG models with gaseous prepped engines.

Action Requested: Please provide a copy of this bulletin to all Engineering, Manufacturing, Service, Parts, Sub-Contractors and Customers involved in the fuel system conversion of Ford vehicles to CNG or LPG.

Background/Purpose: Ford introduced additional CNG/LPG fuel capable engines in MY2011 (see chart). These engines include premium component: valves, valve seats, and spark plugs to maintain high mileage durability when operating with CNG/LPG gaseous fuels. The purpose of this bulletin is to provide requirements for vehicle CNG/LPG fuel system conversions and engine operating limits to maintain. Failure to adhere to these requirements could void the Ford factory base engine warranty for parts affected by the modifications. In addition, body builders who participate in Ford's Qualified Vehicle Modifier (QVM) programs must ensure that CNG/LPG fuel system conversions on vehicles that they complete or modify meet these requirements.

Requirements for Conversions:

- Vehicles must be ordered with sales order code "see chart" (CNG/LPG Fuel Capable Engine). Ford Motor Company will not warrant the engine for failures due to fuel system conversions conducted on vehicles with engines that are not CNG/LPG capable.
- The modifier (final stage manufacturer, body builder, installer, alterer, or subsequent stage manufacturer) is responsible for US Federal, California, or Canadian exhaust and emissions requirements when converted to CNG or LPG.
- The modifier is responsible for applicable F/CMVSS requirements. For CNG/LPG fueled vehicles, FMVSS 303/304 and CMVSS 301.1/301.2 apply.
- The modifier is responsible for the warranty of the new fuel system added to the vehicle including CNG/LPG fuel tanks, lines, etc. and revised engine calibration.
- The modifier should provide information to the customer that explains CNG/LPG fuel system operation and maintenance, identifies the unique components associated with the fuel system conversion, and proper contacts for parts and service for the CNG/LPG fuel system.
- The following pages contain engine operating limits for CNG/LPG conversions. Engine operating limits must be maintained for Ford engine warranty coverage, even when using a CNG/LPG capable engine.

Originator: sschell5 Path/Filename: Bulletins/bulletin originals/Q185R1 Q-185R1.doc 1 of 3 Issued: 28 FEB, 2011

Bulletin For Gaseous Fuel Modification

Ford has released a Qualified Vehicle Modifier (QVM) Bulletin Q-185 that provides guidance on modifying Ford Gaseous Prep Engines. The bulletin is updated as required and contains the following information:

- Proper engine order codes required for CNG/Propane conversion
- Calibration requirements to maintain factory limited warranty on the base engine
- Modifier responsibilities for required government emission and safety (FMVSS) certification
- Modifier responsibilities for warranty of the new or modified fuel system components
- Modifier required information for the customer to explain CNG/Propane fuel system operation and maintenance, identify unique components associated with the CNG/Propane conversion, and provide contacts for parts and service of the CNG/Propane fuel system

QVM Bulletin #Q-185 can be found on Ford's Fleet website: **www.fleet.ford.com/truckbbas**, refer to Bulletins Tab.

Engine dynamometer and calibration tests.

Broad Portfolio Of Gaseous Fuel SOLUTIONS.

Gaseous Fuel Qualified Vehicle Modifiers

Ford recognizes six Gaseous Fuel Qualified Vehicle Modifiers. These companies develop and provide the engine calibration systems, on-dynamometer testing and Ford Engineering compliance required for vehicle operation on gaseous fuels. Following modifications, completed vehicles are delivered to Ford dealerships for delivery to the customer.

Gaseous Fuel System Installers

Gaseous Fuel Qualified Vehicle Modifiers may choose to work in conjunction with certain companies to install their gaseous fuel systems on Ford vehicles. Each modifier company provides a website listing of qualified installation companies approved to install their system.

Gaseous Fuel Qualified Vehicle Modifier Contact Information

COMPANY	WEBSITE
Altech-Eco	**altecheco.com/pages/CNG_Conversions.htm**
IMPCO®	**impcoautomotive.com**
LandiRenzo®	**landiusa.com**
ROUSH® CleanTech	**roushcleantech.com**
Venchurs	**venchurs.com/venchurs-vehicle-systems**
Westport/BAF	**wingpowersystem.com**

Gaseous Fuel Qualified Vehicle Modifier Chart

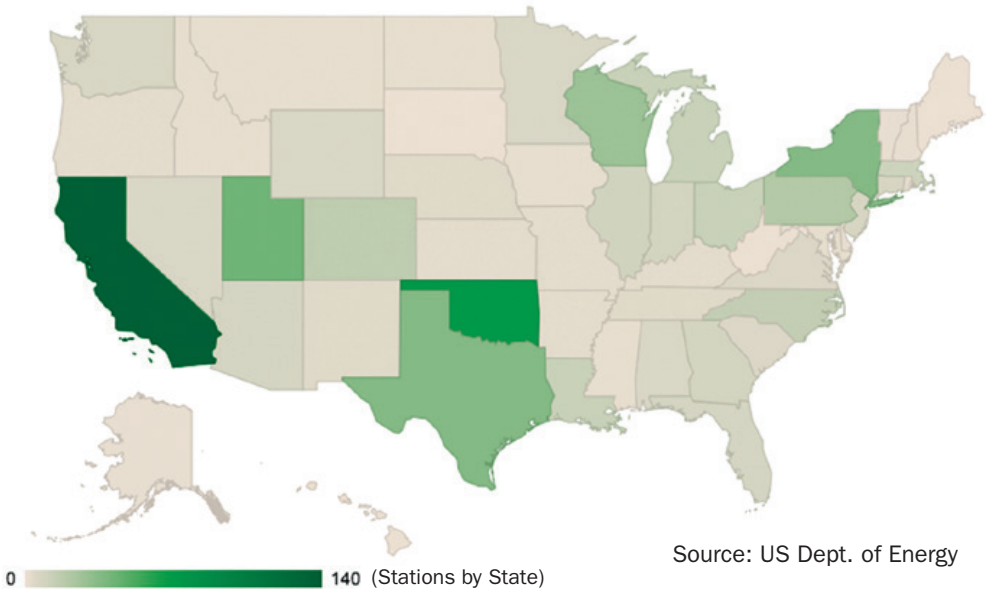
			CNG		PROPANE	
Model		**Engine**	**Dedicated**	**Bi-Fuel**	**Dedicated**	**Bi-Fuel**
Transit Connect		2.5L	A*, W*	A, W	R*	–
Transit		3.7L	A*, L*, V*, W*	A, L, V, W	R*	–
E-Series	**E-150**	5.4L	A, I	–	R*	–
	E-250	5.4L	I*, L*,W*	–	R*	–
	E-350	6.8L	A, I*, L*, W*	–	R*	–
	E-450	6.8L	I*	–	R*	–
F-Series	**F-150**	3.7L	A*, V*, W	A, V	–	–
F-Super Duty	**F-250–350**	6.2L	A*, I*, V*, W*	A, I, L, V, W	R*	I
	F-450–550	6.8L	I*, L*, W*	W	R*	–
F-Series Med. Duty	**F-650**	6.8L	I*, L*, W*	–	R*	–
F53, F59 Stripped Chassis		6.8L	L*, W*	–	R*	–

* CARB Certified

A - Altech-Eco, I - IMPCO, L - LandiRenzo, R - ROUSH CleanTech, V - Venchurs, W - Westport/BAF

CNG INFRASTRUCTURE.

CNG Infrastructure
Number of Compressed Natural Gas Stations by State



0 140 (Stations by State)

Source: US Dept. of Energy

The United States has over 1,100 operational CNG service stations and hundreds more are planned.

CNG stations can be found in almost every state with high population densities in addition to states having high levels of energy production.

The industry forecasts the emergence of CNG corridors from CA to OK and IL to NY.

There are also 57 Million homes heated by natural gas – a potential CNG filling point with installation of a compressor.

The map at left was adapted from the US Department of Energy - Alternative Fuel Data Center map at http://www.afdc.energy.gov/data/10368

GE's CNG In A Box™ Natural Gas Fueling Supply System

The CNG In A Box™ system is GE Oil & Gas's fully integrated, compressed natural gas (CNG) fueling supply system offering cost-effective plug & play simplicity for fleet and retail fueling stations requiring high reliability and fast fueling times. Preconfigured in an 8' x 20' ISO container with remote monitoring capabilities, the CNG In A Box system comes ready to install and includes everything needed for final operation.

For additional information, refer to the "Contact" tab at www.geoilandgas.com.

Resources

Current refueling stations can be found at one of the following internet sites:

www.drivealternatives.com
Online database of CNG/ Propane and Ethanol (E85) refueling stations.

www.cleanenergyfuels.com
One of the leading providers of natural gas fuel in North America.

www.cngnow.com
Provides a "Locator" for CNG refueling stations, as well as a great source for CNG information.

Smart Phone Apps*: Dozens of smart phone applications can locate

* *Message and Data Rates may apply*

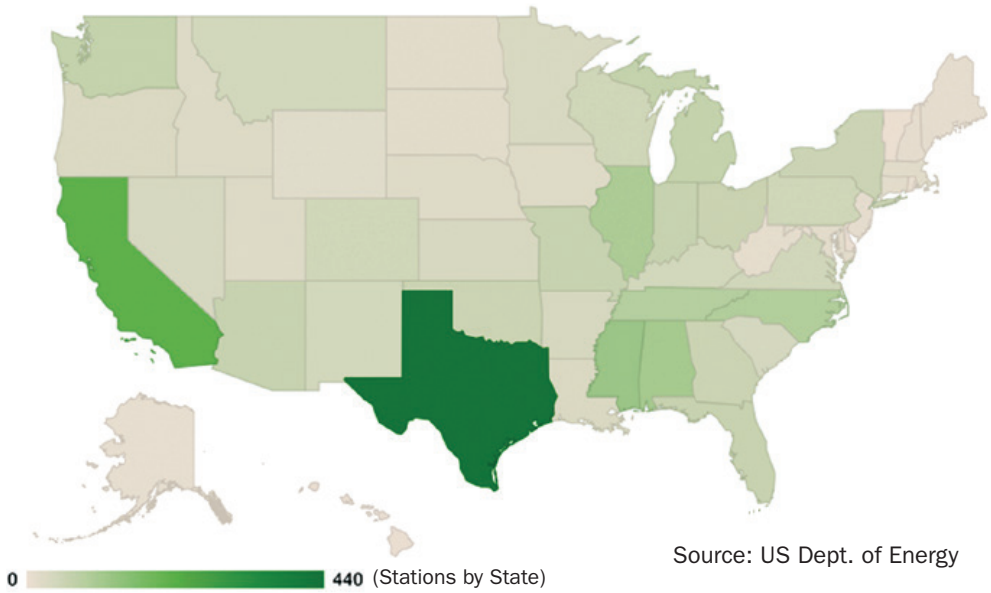
Propane Autogas (LPG) INFRASTRUCTURE.

Already the third most widely used engine fuel behind gasoline and diesel, propane autogas has a national infrastructure in place. Thousands of refueling stations, up to 56,000 miles of pipeline, an established distribution process, and more than 6,000 retail propane dealer locations make propane readily available throughout the U.S., with fueling stations in every state with more opening all the time.

In addition to the thousands of propane autogas fueling stations found throughout the U.S., installation of on-site dispensing is easy and convenient for fleets across the country. Propane autogas provides a more affordable infrastructure for on-site refueling compared with conventional and alternative fuels. There are two options for propane autogas refueling — skid-mount and permanent stations. With skid mount, above ground refueling stations typically come pre-assembled and are easy and inexpensive to have installed. Permanent stations feature underground propane storage tanks. Both have dispensers for ease of use similar to conventional refueling.

There are many different federal and state tax incentives for installing new propane fueling structures and fueling with propane. For a list of propane companies that will install a skid-mount or permanent station, refer to the ROUSH® CleanTech website below.

Propane Autogas (LPG) Infrastructure
Number of Propane Autogas (LPG) stations by State



Source: US Dept. of Energy

Resources

www.afdc.energy.gov/afdc/locator/stations
With more than 2,500 fueling stations across the United States, propane is easily accessible. To find a location, visit the Department of Energy website.

www.autogasusa.org
The Propane Education & Research Council (PERC) promotes the safe, efficient use of propane as a preferred energy resource through research and development, training and safety programs.

www.roushcleantech.com/content/propane
Provides a "locator" for propane refueling stations, as well as a great source of propane information.

CNG/Propane/E85/B20/Electric refueling stations.

Ford Alternative Fuel Vehicle
TESTIMONIAL 1

Tri-Star Construction

Tri-Star Construction is a road construction and site development company in Tulsa, Oklahoma. Tri-Star Construction serves a 90 mile radius area around Tulsa with five to seven crews always in the field. Mark Huff is the owner of this nine year old business that employs 60 people.

Mark received two Ford F-250 Westport WiNG bi-fuel (CNG/gasoline) trucks in November, 2012. The Westport WiNG™ Power System is available on most Ford commercial products including F-250 through F-650 trucks and E-250 through E-450 vans. Additional applications will be added as Ford renews its product lineup. Since that time Mark has purchased 3 more Westport WiNGs as part of a plan to achieve significant fuel savings for the company. The plan is to replace 12 of his ¾ ton trucks with Ford Westport WiNGs.

"We are seeing better fuel savings than we anticipated." Mark says. "Our superintendents drive about 40-50,000 miles a year. One of our lead superintendents was spending about $1,500 a month in gasoline before the change to CNG. He now uses almost 100 percent CNG and his fuel bill has not gone over $600 a month."

"We are cutting our fuel costs more than 50%. This is money that we are not spending on the overhead for our projects. I can make more competitive bids when I can reduce the truck fuel line item by 50%. In my world, low bidder gets the job."

Mark's interest in CNG was sparked by exposure to information provided by The Tulsa Clean Cities Coalition[1] when they spoke to the Associated Builders and Contractors of Oklahoma. Mark is Chairman of the Board for the association. He learned of rebates and tax credit incentives from local, state and federal sources to assist in implementing his plan to use more CNG. Mark took advantage of these money-saving opportunities to install a CNG fueling station at the company's home office.

"We have just finished installing a CNG station at our home office. Our fueling station cost about $130,000 and will service 10 to 15 trucks. Our natural gas station has a relatively small footprint of less than 1000 square feet. CNG prices in the Tulsa area range from $0.90 to $1.59 a gallon. With our own CNG fuel station, we will be spending about $0.85 a gallon."

Oklahoma Natural Gas, a natural gas distributor in Tulsa, had a $1,500 per truck rebate. The state tax credit is 50% of the equipment costs, including the CNG fueling station. Federal tax credits for CNG are $0.50 per gas gallon equivalent and 30% on truck and fuel station equipment.

Ford CNG F-250 at work

"CNG is not rocket science. By the time you add up all the local, state and federal incentives you have almost paid for the equipment costs for both the trucks and the fueling station. 80% of our conversion to CNG is paid for in rebates and tax credits," Mark explains. "It is a business choice for me. Even if CNG prices were double what they are now, I would still do it."

For more information about the Westport WiNG Power System visit www.wingpowersystem.com or call 855-WPT-WiNG.

References

1. *The Clean Cities mission is to reduce the use of petroleum in the transportation sector by utilizing alternative fuels, with a primary emphasis on fleets. The Tulsa Area Clean Cities Coalition is one of more than 80 such coalitions across the nation working to expand the use of alternative fuel vehicles. www. tulsacleancities.com*

Mark Huff, owner of Tri-Star Construction

Ford Alternative Fuel Vehicle
TESTIMONIAL 2

The Beverage Works

Brooklyn based "The Beverage Works" has recently added dedicated natural gas Ford 550's to their fleet of delivery vehicles. The Beverage Works is the New York City area distributor for Red Bull® quality beverages. This delivery fleet operates from the main distribution facility to area stores and restaurants. Taking advantage of New York State funding through two separate programs, this environmentally minded company will replace a total of thirty two vehicles over the next three months. The CNG (Compressed Natural Gas) components for this project were developed and certified by LandiRenzo USA; a Ford Alternative Fuels QVM. LandiRenzo USA has both CARB and EPA certified systems for the 5.4, 6.2, and 6.8 liter Ford engines that are factory available with gaseous prep. The project was developed by Clean Vehicle Solutions of West Nyack, NY. The Ford F-550 cab/chassis were provided by local BPN dealer, Schultz Ford of Nanuet, NY.

The F-550, operating on CNG will lower operating costs, dramatically lower particulate and greenhouse gas emissions with a side benefit of noticeably quieter operation; important to both the general public and the drivers. Fuel savings of up to $2.00/gallon will be realized by the operator; resulting in a payback of less than one year due to the New York State incentive programs. NYSERDA (New York State Energy Research and Development Authority) provided an incentive of 80% of the incremental cost for each of the vehicles. The bulk of the incremental cost is for the CNG storage tanks and installation of the high pressure components.

Jeff Brown, Vice President of Operations and fleet manager of The Beverage Works NY, Inc., is taking advantage of the lower cost and increasing availability of CNG (Compressed Natural Gas) fueling infrastructure in the greater NYC area. CNG is priced at a minimum of $1.50 less per gallon than the diesel fuel that is being displaced.

Additionally, based on current operating projections, The Beverage Works will lower their emissions of particulate matter, which is important to the fleet sustainability program as well as favorable to the cost of operation. These improvements are possible without the cost of maintenance of exhaust filtration systems. Over the life of the vehicle, this will result in an economic savings of over 30 to 40 percent compared to current diesel powered vehicles.

"Our goal at Beverage Works is to provide prompt delivery in the cleanest, most economical way possible. We are a part of NYC and are proud to do our part to make this a better place to live and work." For additional information contact Barry Carr, Director of Business Development at LandiRenzo USA: (www.landiusa.com); project partners: Clean Vehicle Solutions (www.cleanvehiclesolutions.com) and The Beverage Works (www.thebeverageworks.com).

Ford Alternative Fuel Vehicle
TESTIMONIAL 3

Flint Mass Transportation Authority Builds Green Paratransit Fleet

Vehicles: 2011 – 2013 Ford E-450 shuttles (72)

Fueling: Private on-site infrastructure, with future plans for publicly accessible stations.

Challenge: To find an economical replacement to diesel and serve as an environmental leader among mass transportation agencies.

Compared to their gasoline counterparts:

- $2.49 per gallon fuel cost savings.
- $70,000 per vehicle in lifecycle fuel cost savings.
- 20,400 fewer pounds of carbon dioxide emitted annually per vehicle.

Each year, Flint Mass Transportation Authority (MTA) transports nearly 470,000 passengers through its paratransit service for seniors, persons with disabilities and the general public.

Flint MTA's decision to explore alternative fueled vehicles maintained an underlying mission: Provide sustainability for the future, both economically and environmentally. After extensive research, the agency selected the Ford E-450 cutaway equipped with the ROUSH CleanTech propane autogas fuel system. The vehicle's versatility allowed the agency to enhance its bus features, including more passenger and wheelchair capacity.

The agency received its first vehicles in 2011 and currently operates 72 propane autogas buses, with immediate plans to purchase 20 additional minibuses.

"Propane autogas is the ideal fuel to drive down operational costs and to carry out our commitment to reducing our exposure to unstable imported fuel prices," said Edgar H. Benning, general manager of Flint MTA. "And the vehicle performance has been excellent."

Fueling with domestically produced propane autogas offers Flint MTA a cleaner emissions profile by eliminating more than 200,000 pounds of carbon dioxide during the lifetime of each vehicle. Along with its environmental benefits, propane autogas is economical. The MTA pays $1.21 per gallon for propane autogas compared to $3.20 for gasoline. Flint MTA expects to save $70,000 per vehicle during their normal lifecycle, for a total savings of more than $5 million — before fuel tax credits.

Ford is an ELECTRIFICATION LEADER.

Ford's electrification strategy involves three types of electrified vehicles – hybrid electric, plug-in hybrid electric and all-electric – to provide customers with significant fuel economy improvements and reduced CO_2 emissions without compromising the driving experience.

Among the highlights:

Focus Electric is one of America's most fuel-efficient five-passenger vehicles with an EPA-estimated rating of 110 miles per gallon equivalent (MPGe) city rating, 99 MPGe highway and 105 MPGe(2) combined.

Fusion Hybrid Powered by state-of-the-art, lithium-ion battery, the traction motor can allow Fusion Hybrid to operate in electric mode at speeds of up to 85 mph, with an EPA-estimated rating of 47 mpg city and combined mpg(1).

Fusion Energi plug-in hybrid has an EPA-estimated rating of 108 MPGe city(2), providing a range of up to 620 miles(1).

C-MAX Hybrid offers an available class-exclusive, foot-activated, hands-free liftgate feature and has an EPA-estimated rating of 45 mpg city, 40 mpg highway and 43 combined mpg(1).

C-MAX Energi has an EPA-estimated rating of 108 MPGe(2) in the city. C-MAX Energi has a combined EPA-estimated rating of 100 MPGe(2).

Focus Electric

Mechanical: 107-kW electric motor/23-kWH liquid-cooled lithium-ion battery

Horsepower/Torque Equivalent: 143 hp /184 lb.-ft.

Miles Per Gallon Equivalent (MPGe): EPA-estimated rating of 110 city/99 highway/105 combined(1)

Range: 76 miles

Top Speed: 84 mph

Charge Time: 3.6 hrs. (240 v); 18-20 hours (120 v)

Fusion Energi

Engine: 2.0L DOHC I-4, Atkinson cycle; AC synchronous motor

Horsepower/Torque: Gas: 141 hp/129 lb.-ft. @ Electric: 118 hp /88kW; Total system power (sustain): 188 hp

Miles Per Gallon Equivalent (MPGe): EPA-estimated rating of 108 city/92 highway/100 combined(1)

Range: 620 miles

All-Electric Range: 21 miles

Top Speed: 102 mph/85 mph electric only mode

Charge Time: 2.5 hrs. (240 v); 7 hours (120 v)

C-MAX Energi

Engine: 2.0L DOHC I-4, Atkinson cycle; /AC synchronous motor

Horsepower/Torque: Gas: 141 hp/129 lb.-ft.

Electric: 118 hp /88kW; Total system power (sustain): 188 hp

Miles Per Gallon Equivalent (MPGe): EPA-estimated rating of 108 city/92 highway/100 combined(1)

Range: 620 miles

All-Electric Range: 21 miles

Top Speed: 102 mph/85 mph electric only mode

Charge Time: 2.5 hrs. (240 v); 7 hours (120 v)

F-750 Hybrid(3)

Engine:
- 6.7L Cummins ISB
- Remy HVH 250 Electric Drive Motor; 80 hp/59.2 kW Plug-in Hybrid with lithium-ion 28.4 kW batteries

Transmission:
- Allison Automatic

Upfit Weight:
- 1,800 lbs.

Range:
- 300 miles with 50-gallon fuel tank

(3) *Modification by Odyne*

Fusion Hybrid

Engine: 2.0L DOHC I-4, Atkinson cycle

Horsepower/Torque: Gas: 141 hp/129 lb.-ft. Electric: 118 hp /88kW @ 6,000 rpm; Total system net horsepower (sustain): 188 hp

Miles Per Gallon: EPA-estimated rating of 47 city/47 highway/47 combined(1)

Range: 571 miles

Top Speed: 115 mph/85 mph in EV mode

Battery Peak Power: 35 kW

C-MAX Hybrid

Engine: 2.0L DOHC I-4, Atkinson cycle

Horsepower/Torque: Gas: 141 hp/129 lb.-ft. Electric: 118 hp /88kW @ 6,000 rpm; Total system net horsepower (sustain): 188 hp

Miles Per Gallon: EPA-estimated rating of 45 city/ 40 highway/43 combined(1)

Range: 522 miles

Top Speed: 115 mph/85 mph in EV mode

Battery Peak Power: 35 kW

(1) Actual mileage will vary. (2) MPGe is the EPA equivalent measure of gasoline fuel efficiency for electric mode operation.

Electric Vehicle INFRASTRUCTURE.

CHARGING STATIONS

Commercial

A number of companies offer commercial electric vehicle (EV) charging infrastructure. These commercial grade Level 2 (240V) systems can recharge vehicles significantly faster than using an ordinary 110V outlet. They can fully charge a Focus Electric in less than four hours and the C-MAX Energi or Fusion Energi in less than three hours. Pictured is the GE WattStation™.

Plug your vehicle in and the charge port will illuminate to indicate the state of charge. The charging station will also show a charging icon to signal that the vehicle is in the process of charging. When charging is complete, users simply stow the cord, keeping it organized for the next user. GE WattStations are available in pedestal or wall mount configurations. Wall mount units can either be hard wired for permanent installations or plugged-in to an existing 240V outlet for simple removal of the unit.

Public

For fleet drivers to charge their all-electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs) in public, charging stations are being deployed with consideration for daily commutes and typical driving habits.

Public charging stations make EVs and PHEVs more convenient to charge. Although the majority of EV and PHEV drivers will charge at home, public charging stations can increase the useful range of EVs and reduce the amount of gasoline consumed by PHEVs.

Generally public charging stations use Level 2 (240V) service and are usually located where vehicle owners are highly concentrated, such as shopping centers, city parking lots and garages, airports, hotels, government offices, and other businesses.

Source: www.afdc.energy.gov/fuels/electricity_charging_public.html

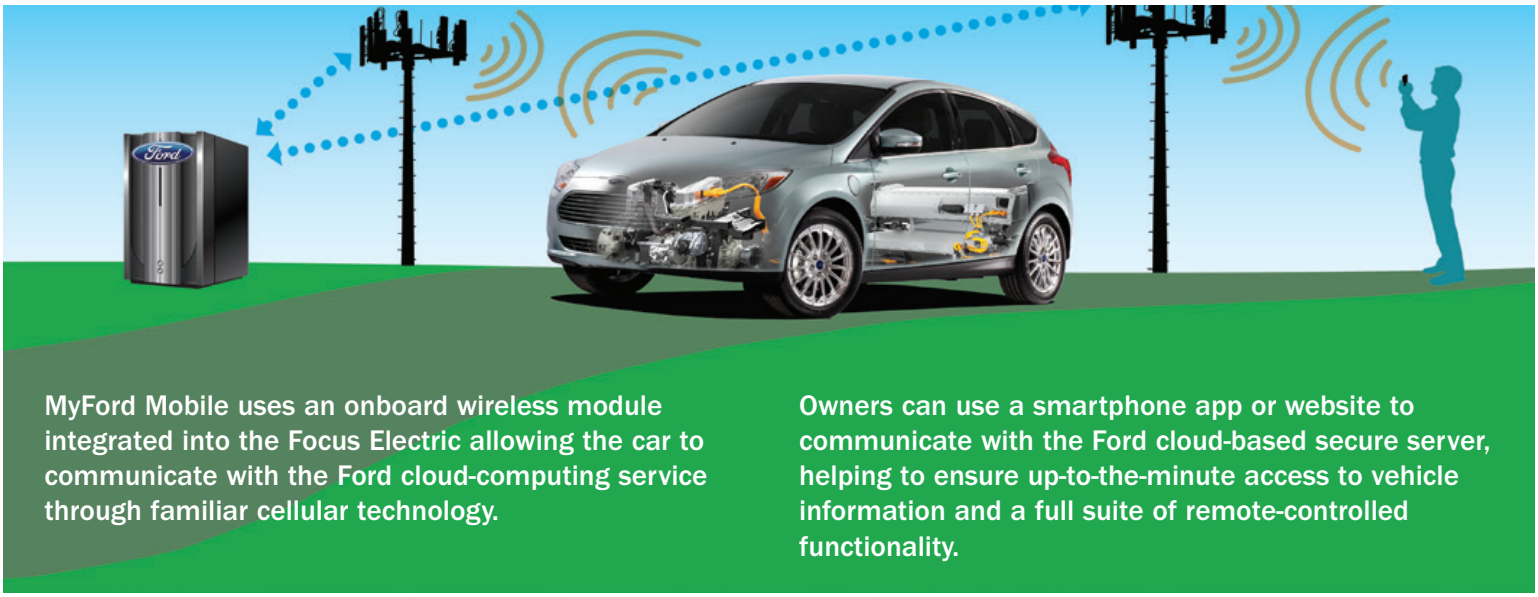
Home

A 240-volt charging station is available for purchase with or without installation services from AeroVironment. If you decide to have the unit installed, an AeroVironment-affiliated electrician will perform an electrical audit and then install the 240-volt charging station. The electrician can handle everything including securing the required permits. In many cases, installation could be performed in less than one day. If you like, you could have a preferred electrician install the AeroVironment charging station or a station offered by Leviton. Both are branded by Ford Motor Company, and each one can be hardwired or plugged into a 240-volt outlet for non-permanent installation, easy removal or replacement. For more information, please call 1-888-219-6747. or visit evsolutions.com/ford

MyFord® Mobile Communicates with Ford Plug-in Hybrid and All-Electric Vehicles

MyFord Mobile is a smartphone app and website that enhances the electric vehicle experience. The app helps find current and projected battery state of charge information including estimated range and the amount of charge time necessary for additional EV only range. MyFord Mobile is able to optimize use of electricity from the grid with a value charging feature and get up-to-date charge station information from PlugShare.

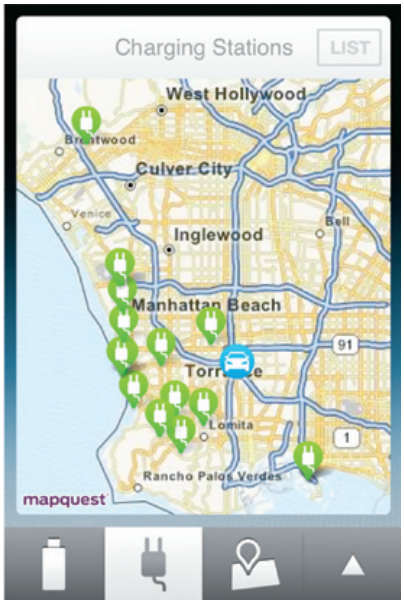
MyFord Mobile allows remote access of the car from nearly anywhere, anytime.



MyFord Mobile uses an onboard wireless module integrated into the Focus Electric allowing the car to communicate with the Ford cloud-computing service through familiar cellular technology.

Owners can use a smartphone app or website to communicate with the Ford cloud-based secure server, helping to ensure up-to-the-minute access to vehicle information and a full suite of remote-controlled functionality.

Charging Station Locators



Overview

MyFord Mobile displays information for over 10,000 public charge stations helping EV customers plan their daily trips and maximize their EV miles driven with confidence. With charge station information powered by PlugShare, MyFord Mobile will deliver up-to-date information on charge station locations with the ability to map destinations and send charge station location information to their vehicle navigation system, if equipped.

Features

- Find charge station locations while trip planning
- View other information including number of Level 1/2 chargers
- Send charging station locations to your vehicle with Send to SYNC® service, if equipped
- Includes stations across U.S. and Canada

Cost Of OWNERSHIP.

The primary goal of most fleet managers is to achieve and maintain the lowest Total Cost of Ownership (TCO) for their fleet.

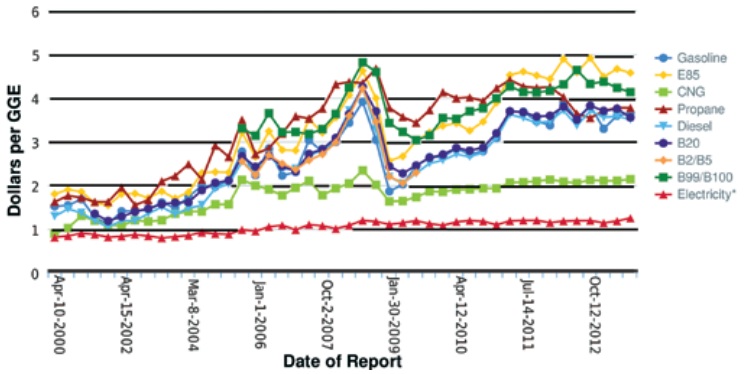
TCO calculations should include the acquisition cost of the vehicle, duty cycle, mileage traveled, fuel (or fuels) used, associated infrastructure, maintenance costs and the residual value of the vehicle, along with any other ancillary costs.

The calculations shown below address only the cost components of selecting an alternative fuel compared to gasoline assuming all other aspects are equal. Fuel prices for this brochure were extracted from **www.afdc.energy.gov/fuels/prices.html.**

Average Retail Fuel Price Between July 12 and July 26, 2013

Fuel	Price
Biodiesel (B20)	$3.89/gallon
Biodiesel (B99-B100)	$4.19/gallon
Electricity	$0.12/kWh
Ethanol (E85)	$3.23/gallon
Natural Gas (CNG)	$2.14/GGE
Propane	$2.73/gallon
Gasoline	$3.65/gallon
Diesel	$3.91/gallon

Average Retail Fuel Prices in the U.S.



Electricity costs are adjusted to account for electric motor efficiency. It takes 9.9 kWh for an electric motor to achieve 1 GGE in an internal combustion engine (33.7 kWh/3.4 efficiency).

As the chart indicates, fuel prices ranged from $2.14-$4.19 in July 2013, but that is only half the story. The graph shows the prices of each fuel per gasoline gallon equivalent (GGE), a relative measure that captures the energy density for each fuel. When viewed this way, ethanol and some higher blends of biodiesel become significantly more expensive.

Calculating the fuel cost payback for any alternative fuel is straightforward:

A: Identify the base price of the vehicle you need assuming a gasoline engine

B: Identify the price increase needed to use an alternative fuel over the base vehicle:

- Flex Fuel (E85) is generally available at little or no upcharge
- Diesel can range from $4,000 and up
- CNG/Propane Autogas conversions can range from $6,000 and up

C: Identify the price of gasoline

D: Identify the price of your alternative fuel per GGE

E: Determine the estimated MPG based on your duty cycle (towing, hauling, etc.)

F: Determine the number of miles traveled per year

Then perform the following calculations:

1: (F/E)∗(C-D) = your expected annual fuel savings over using gasoline

2: Divide your upfit cost for alternative fuel (B) by your annual fuel savings to determine the time period needed to payback the upfit

3: If the payback period is a shorter time than you plan on owning your vehicle, then you are on your way to achieving lower costs, reduced emissions and reduced dependence on foreign oil all at the same time.

Example: An F-Super Duty customer driving 20,000 miles per year at 12 MPG. To consider a CNG conversion at $7,500 with gasoline priced at $3.65/gallon and CNG at $2.14/GGE, the calculations is:
(20,000/12)∗($3.65 - $2.14)=$2,517 savings per year.
$7,500/$2,517 = 2.98 years to payback the upfit cost.

Many alternative fuels have additional incentives available from states and the federal government. These incentives can significantly reduce the payback period.

Some general rules of thumb:

- The higher the annual miles driven, the more likely that alternative fuels will make economic sense.
- The lower the fuel efficiency (mpg), the more likely that alternative fuels will make economic sense.
- The more the price gap widens between an alternative fuel and gasoline, the shorter the payback period.

For a detailed analysis, Ford recommends that you work with a Commercial Account Manager at one of our Business Preferred Network Dealers to address your specific needs.

Alternative Fuel INCENTIVES.

Ford Credit Alternative Fuel Financing Options

FORD CREDIT Commercial Lending Services

	CNG Vehicles	LPG Vehicles	BEV	PHEV	HEV
Commercial Retail Financing Flexible financing to meet your business needs.	■	■	■	■	■
Commercial Red Carpet Lease (RCL) Financing For predictable usage vehicles, choose the closed-end lease with no residual risk. When you complete your lease as agreed, simply bring the vehicle to your Ford dealer.	*Not Eligible*	*Not Eligible*	■	■	■*
CommerciaLease (TRAC) Financing A customizable lease plan that can be tailored to meet your business needs.	■	■	■	■	■
Municipal Financing Ford Credit's Municipal Lease/Purchase finance program can help you make the most of your operating budget by providing flexibility, affordability, and convenience.	■	■	■	■	■
Chassis Financing - Short term inventory financing.	■	■	■	■	■

* *Excludes F-750 Hybrid.*

Ford Incentives

BUILT Ford TOUGH COMMERCIAL CONNECTION

Commercial Upfit Incentives

The Ford Truck Commercial Connection (FTCC) program was created to help businesses upfit their commercial vehicle by providing upfit incentives and special offers. To learn more about alternative fuel and available options go to **www.fordtoughtruck.com/altfuel** for complete details.

ALTERNATIVE FUEL UPFIT ASSISTANCE *Plus National Retail Incentives*

1. Excludes available factory-installed options. Restrictions apply. See dealer for details.
2. See dealer for qualifications, complete program details.

During the 2013 calendar year, Ford offered CNG/Propane (LPG) upfit incentives dependent on the vehicle model series. It is important for customers to consult with their Ford BPN Dealer to obtain the most current incentive allowance.

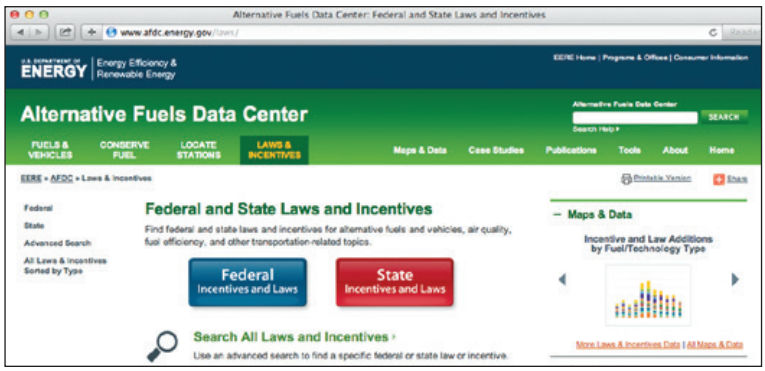
Government Incentives

www.afdc.energy.gov/laws/

U.S. Department of Energy allows you to search its database of federal and state laws and incentive programs related to alternative fuel vehicles.

www.fueleconomy.gov

Information about federal and state tax incentives for purchasing alternative fuel vehicles.



Popular Alternative FUEL Sources.

Flexible-Fuel Vehicles (FFV) are designed to operate the internal combustion engine for a range of gasoline and ethanol blends. FFVs are capable of burning any blend ranging from 100% gasoline (E0) up to 85% ethanol/15% gasoline (E85). Fuel injection and spark timing are automatically adjusted according to the specific blend detected by electronic sensors. E85 is the most common Flex Fuel and many Ford engines are equipped to handle this fuel type.

Advantage – Ethanol/E85 is clean-burning and substantially reduces CO and CO_2 emissions. Compared to gasoline, E85 has a higher octane rating, provides the same or more horsepower and burns cooler.
Corn and other cellulosic plant sources are readily available.

Consideration – E85 produces less energy by volume than gasoline. One gallon of gasoline is the equivalent of 1.56 gallons of E85 used to travel the same distance. Due to the increased volume required and the fact that ethanol is corrosive, fuel system components must be upgraded.

Biodiesel refers to a vegetable oil-based or animal fat-based diesel fuel. Blends of Biodiesel and conventional petrodiesel fuels are products most commonly distributed for use in the retail diesel fuel marketplace. A system known as the "B" factor is used to state the amount of Biodiesel in any fuel mix:

- 100% Biodiesel is referred to as B100, while
- 20% Biodiesel is labeled B20
- 5% Biodiesel is labeled B5
- 2% Biodiesel is labeled B2

All Ford diesels are capable of running on any blend of biodiesel up to and including B20.

Advantage – Biodiesel (B20) burns cleaner than petrodiesel, with reduced emissions.

Consideration – Biodiesel (B20) may be more expensive than petrodiesel and in low temperatures may require a special additive or fuel tank heater to flow properly.

Compressed Natural Gas (CNG) is a fossil fuel substitute for gasoline or diesel. CNG is domestically sourced and reduces our dependence on foreign oil. Landfills and biologic waste also provide CNG through digesters and emission recapture turning waste into fuel. It is stored and distributed in hard containers at a pressure of 2,900–3,600 psi. It is safer than other fuels in the event of a spill (natural gas is lighter than air, and disperses quickly when released). CNG is made by compressing natural gas which is mainly composed of methane.

Advantage – CNG is an extremely clean burning fuel and significantly reduces CO, CO_2 and NOx compared to its gasoline counterpart.
CNG is typically less expensive than gasoline and the fuel price is also less volatile.
CNG has an octane rating of 130 and has the potential to optimize the engine's thermodynamic efficiency by utilizing a higher compression ratio.

Consideration – CNG has slightly less energy than gasoline per unit volume. CNG at 3,600 PSI occupies about 3.5 times the volume as gasoline does for the equivalent amount of energy and therefore requires a larger fuel tank to maintain the same range. Refueling time and infrastructure are also considerations.

Propane Autogas also known as Liquefied Petroleum Gas - LPG is a mixture of hydrocarbon gases, most commonly propane and butane. A powerful odorant, ethyl mercaptan, is added so that leaks can be detected easily.
As opposed to relying on foreign oil sources, approximately 90% of the United States propane supply is produced domestically. 70% of the remaining supply is imported from Canada and Mexico.
Propane is non-toxic and cannot get into the water table if there is a leak in the storage container.
From an economic perspective, propane is an effective alternative to conventional transportation fuels when capital cost (vehicle and infrastructure), operation and maintenance are all taken into consideration.

Advantage – Power, acceleration, payload and cruise speed are unchanged to an equivalent vehicle fueled by gasoline. Propane has a high octane rating of 104, in-between Compressed Natural Gas (CNG) at 130 and unleaded gasoline at 87.

Consideration – Propane Autogas has fewer BTU's than gasoline, which may result in an mpg loss compared to gasoline.

Hybrids & Plug-In Hybrids are vehicles that utilize both an internal combustion engine AND electric motors to propel the vehicle.

Hybrids (HEVs) are powered in part by gasoline and part by a battery-driven electric motor. They seamlessly switch between the gasoline engine, electric motor or a combination of both to deliver fuel efficiency and performance. The battery pack is automatically recharged by the gasoline engine and through regenerative braking. Hybrids do not plug in.

Plug-In Hybrids (PHEVs) are progressive hybrids that expand capability by providing the option of plugging in or not. To enhance the hybrid experience and maximize the battery capability, drivers can choose to plug into a standard 120V or available 240V outlet. By fully charging before driving, you may achieve greater fuel savings and minimize your carbon footprint. Ford PHEVs feature an electric vehicle (EV) mode button which allows the driver to choose electric-only mode (EV Now), saving plug-in power for later use (EV Later), or driving in normal hybrid operation (Auto EV). PHEVs offer the best of both worlds, driving like an EV for short trips or like a hybrid for longer trips.

HYBRID

PLUG-IN HYBRID

Advantage – Hybrids may significantly reduce fuel consumption especially if the duty cycle of the vehicle involves urban driving with lots of stop and go. By substituting grid energy for gasoline, PHEVs can offer an additional improvement in fuel savings and emissions.

Consideration – The vehicle essentially has two powertrains. Combining powertrains increases vehicle weight, reduces payload and towing capability.

Battery Electric Vehicles (BEVs) are powered completely by a rechargeable battery so you never need a drop of gasoline or an oil change. Key features are the electric motor, charge port and lithium-ion battery pack. BEVs provide a CO_2-free driving experience. Drivers plug the vehicle in to fully charge the battery pack. While driving, regenerative braking also aids in charging the battery.

Advantage – Vehicles that run solely on electric power require no warm-up, run almost silently and have excellent performance. Electric vehicles can be recharged at night when generating plants are under utilized. Electric vehicles produce zero tailpipe emissions.

Consideration – Pure electric vehicles have limited range. For example, the Focus Electric has an EPA-estimated range of 76 gas free miles on each charge. Charge time is also important to assess. Depending on voltage, charging overnight may be needed to fully recharge a depleted battery.

ALL-ELECTRIC

NEW ADDITIONS
TO THE FORD ALTERNATIVE FUEL TEAM

2014 F-150

2014 LINCOLN MKT LIVERY CAR

2015 TRANSIT

Commercial Vehicle Sales & Marketing
North American Fleet, Lease and Remarketing Operations
Ford Motor Company

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