

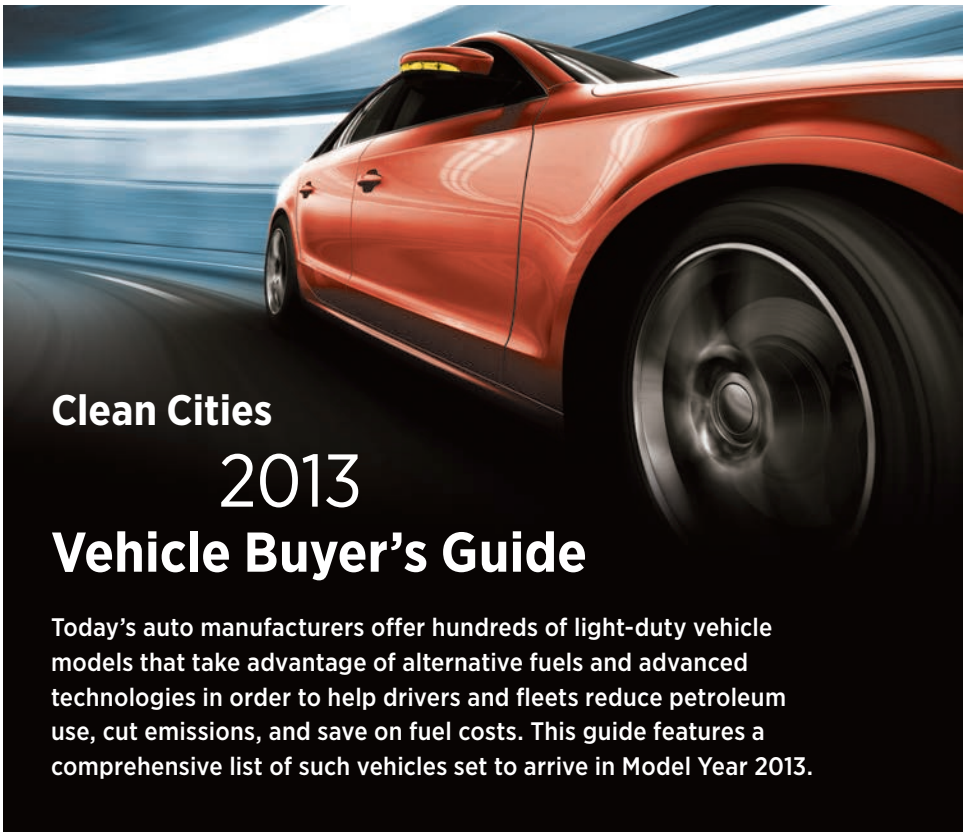
Clean Cities 2013

# Vehicle Buyer's Guide



- Natural Gas
- Propane
- Electric
- Hybrid
- Ethanol Flex-Fuel
- Biodiesel





## Clean Cities

# 2013

## Vehicle Buyer's Guide

Today's auto manufacturers offer hundreds of light-duty vehicle models that take advantage of alternative fuels and advanced technologies in order to help drivers and fleets reduce petroleum use, cut emissions, and save on fuel costs. This guide features a comprehensive list of such vehicles set to arrive in Model Year 2013.

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## Introduction

Petroleum is the dominant energy source in U.S. transportation today, and that has significant implications for our economy, our environment, and our energy security. But consumers and vehicle fleets have access to a growing assortment of technologies and fuels that reduce our reliance on petroleum and cut emissions. The fuel economy of conventional vehicles is on the rise, as is the number of vehicle models that can take advantage of alternative fuels like biodiesel, natural gas, electricity, ethanol, and propane.

Among the new offerings in Model Year (MY) 2013 are bi-fuel vehicles that have two separate fuel systems, enabling them to run on compressed natural gas (CNG) or gasoline. These vehicles take advantage of the many benefits of CNG, while offering the convenience of gasoline operation to extend vehicle range and increase flexibility for refueling.

Vehicles that employ electric-drive technologies are more widely available in MY 2013 than they ever have been. Nearly every major manufacturer now produces at least one model of hybrid electric vehicle, with more than 30 models to choose from this year. U.S. roadways are now home to more than 30,000 all-electric vehicles, and three manufacturers now offer plug-in hybrid electric vehicles.

Alternative fuel vehicles (AFVs) of all types can take advantage of an expanding network of fueling and charging infrastructure in the United States. In September 2012, the number of publicly accessible alternative fueling and charging stations surpassed 10,000. And because fuel availability is the most important factor in choosing an AFV, this growth opens up new possibilities for fleets and consumers.

*Photo from iStock 19431754; p. 5 photo from iStock 21668756*

## About This Guide

This guide features a comprehensive list of MY 2013 light-duty alternative fuel and advanced vehicles, grouped by fuel and technology. The guide provides model-specific information on vehicle specs, manufacturer suggested retail price (MSRP), fuel economy, energy impact, and emissions. You can use this information to identify your options, compare vehicles, and help inform your buying decisions.

### Fuel Economy

This guide includes city and highway fuel economy estimates from the U.S. Environmental Protection Agency (EPA). The estimates are based on laboratory tests conducted by manufacturers in accordance with federal regulations. EPA retests about 10% to 15% of vehicle models to confirm manufacturer results. For some types of AFVs listed in this guide, fuel economy estimates are expressed in miles per gallon of gasoline-equivalent (mpge), representing the number of miles a vehicle can travel using a quantity of fuel with the same energy content as a gallon of gasoline. For some new vehicle models, EPA data were not available at the time of this guide's publication; in these cases, manufacturer estimates are provided, if available. Fuel economy estimates are also available on [FuelEconomy.gov](http://FuelEconomy.gov).

### Energy Impact Scores

Energy Impact Scores allow buyers to compare vehicles' annual estimated petroleum consumption. These scores represent the number of barrels of petroleum a vehicle will likely consume each year. The scores are based on 45% highway driving, 55% city driving, and 15,000 annual miles. One barrel equals 42 gallons.

### Smog Scores

Smog Scores, determined by EPA, reflect vehicle tailpipe emissions that contribute to local and regional air quality problems and related health issues. Scores range from 1 to 10, where 10 is best.

### Greenhouse Gas Emissions Scores

Greenhouse Gas (GHG) Scores reflect tailpipe emissions of carbon dioxide and other GHGs, which contribute to climate change. Scores range from 1 to 10, where 10 is best. The GHG Scores in this guide do not reflect emissions related to the production or distribution of fuels or vehicles.



# Compressed Natural Gas Vehicles

## Ram 2500

- 5.7L 8 cyl engine
- MSRP, fuel economy, and emissions data not available



*Photo from Chrysler Group LLC*

## Compressed natural gas vehicles have low fuel costs.

Compressed natural gas (CNG) vehicles are powered by the same fuel used for cooking and heating in many homes. Domestic natural gas supplies are plentiful, and some producers even capture renewable natural gas from landfills, sewage treatment facilities, or agricultural waste. CNG usually costs less than gasoline does, and the resulting savings can help offset the purchase price of CNG vehicles. CNG vehicles, including some conversions, may be eligible for a state incentive (see page 13).

## Manufacturers are providing more CNG options.

In 2013, three dedicated CNG vehicles are available directly from original equipment manufacturers (OEMs): the Honda Civic Natural Gas, the natural gas General Motors Chevrolet Express/GMC Savana, and the Vehicle Production Group (VPG) MV-1. General Motors and Chrysler are both offering direct-from-OEM bi-fuel vehicles, which can run on CNG or gasoline: The Chevrolet Silverado/GMC Sierra 2500HD and the Ram 2500 CNG operate on natural gas and then automatically switch to gasoline operation when the CNG cylinders are empty.

## Honda Civic Natural Gas

- 1.8L 4 cyl engine
- 27 mpge city, 38 mpge highway
- MSRP and emissions data not available



*Courtesy of American Honda*

Ford offers CNG and propane prep packages for its E-150, E-250, and E-350 cargo and passenger vans (5.4L V-8); its F-250 and F-350 Super Duty pickups (6.2L V-8 and 6.8L V-10); and its Transit Connect (2.0L 4-cylinder). A qualified system retrofitter can convert these vehicles to run on CNG or propane for delivery through a Ford dealership.

### Fueling infrastructure is an important factor when considering CNG vehicles.

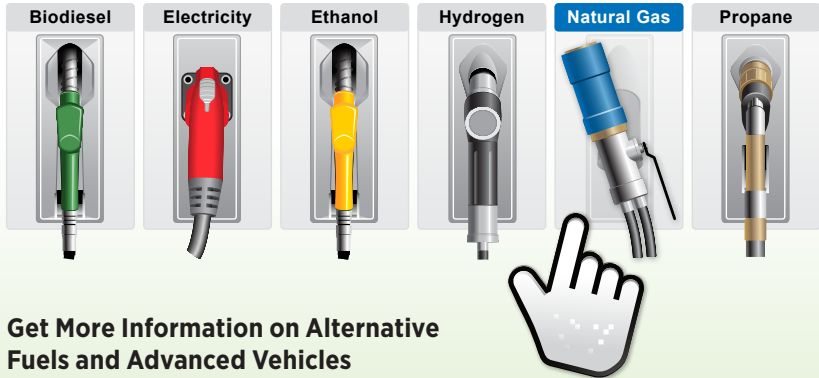
If you are considering the purchase of a CNG vehicle or converting a conventional vehicle to run on CNG, it's important to first determine whether you have access to CNG fueling infrastructure. In February 2013, there were more than 500 publicly accessible CNG fueling stations across the country. See page 11 for information about finding stations in your area.

#### VPG MV-1

- 4.6L 8 cyl engine
- 11 mpg city, 16 mpg highway
- MSRP and emissions data not available



Photo from the Vehicle Production Group



#### Get More Information on Alternative Fuels and Advanced Vehicles

Clean Cities' Alternative Fuels Data Center (AFDC) provides information, data, and tools to help fleet managers and other transportation decision makers find ways to reduce petroleum consumption. Learn more about the properties of ethanol. Broaden your understanding of natural gas fueling infrastructure. Create a customized plan to reduce your fleet's petroleum use. It's all online at [afd.energy.gov](http://afd.energy.gov).

## Converting Vehicles to Run on Alternative Fuels

An increasing number of alternative fuel and advanced vehicles are available from major manufacturers, but vehicle conversions provide additional options. Many conventional vehicles can be converted to run on natural gas, propane, electricity, or other alternative fuels, with little effect on horsepower, towing capacity, or factory warranty. All conversions must meet emissions and safety standards instituted by EPA, the National Highway Traffic Safety Administration, and all relevant state agencies. Conversions must be performed by an authorized technician associated with a manufacturer that holds all relevant emissions-related certifications and tampering exemptions.

In general, new and used conventional vehicles can be converted to run on CNG or propane at a cost of about \$8,000 to \$12,000 per vehicle.



Ford E-Series Van  
Photo from Ford Motor Co.



Dodge Avenger  
Photo from Chrysler Group LLC



Chevrolet Silverado  
Photo from General Motors



The table below lists conversion companies that offer certified CNG or propane conversion systems for various MY 2012 and MY 2013 vehicles. Most conversion companies provide up-to-date information online about vehicle models and powertrains their systems are compatible with. The lists of systems certified by EPA and/or the California Air Resources Board are updated regularly. Visit [epa.gov/otaq/consumer/fuels/altfuels/altfuels.htm](http://epa.gov/otaq/consumer/fuels/altfuels/altfuels.htm) and [arb.ca.gov/msprog/aftermkt/altfuel/altfuel.htm](http://arb.ca.gov/msprog/aftermkt/altfuel/altfuel.htm) for the most current lists of certified systems for vehicles of all model years. Find out more about vehicle conversions at [afdc.energy.gov/vehicles/conversions.html](http://afdc.energy.gov/vehicles/conversions.html).

Conversion Fuel System	Original Equipment Manufacturer (OEM)	Conversion Fuel System Manufacturer
<b><i>Dedicated CNG</i></b>	Ford Motor Company	Altech-Eco Corporation BAF Technologies IMPCO Technologies, Inc. Landi Renzo USA Corporation PowerFuel CNG Conversions, LLC
	General Motors	IMPCO Technologies, Inc.
	Chrysler	NatGasCar LLC
<b><i>Bi-Fuel CNG/Gasoline</i></b>	Ford Motor Company	Altech-Eco Corporation BAF Technologies IMPCO Technologies, Inc. Landi Renzo USA Corporation PowerFuel CNG Conversions, LLC Westport Light Duty Inc.
	General Motors	IMPCO Technologies, Inc., The CNG Store, LLC (dba Auto Gas America)
	Chrysler	NatGasCar LLC
<b><i>Dedicated Propane</i></b>	Ford Motor Company	Roush Industries, Inc. Yellow Checker Star Transportation
<b><i>Bi-Fuel Propane/Gasoline</i></b>	Ford Motor Company	American Alternative Fuel Icom North America, LLC IMPCO Technologies, Inc
	General Motors	Icom North America, LLC IMPCO Technologies, Inc

# Propane Vehicles

## **Chevrolet Express 3500/4500 GMC Savana 3500/4500**

- 6.0L 8 cyl engine
- Emissions data, fuel economy, and MSRP not available



Chevrolet Express Cutaway Van. *Photo from General Motors*

## **Propane is widely used in vehicles throughout the world.**

Propane is a clean-burning gaseous fuel that's been used in transportation for decades. Also known as liquefied petroleum gas (LPG), propane is the most commonly used alternative motor fuel in the world. Propane is nontoxic, safe to handle, and presents no threat to soil, groundwater, or surface water when spilled or leaked. Propane is available at more than 2,500 stations throughout the country. See page 11 for information on finding propane fueling stations in your area.

## **Choose your path to propane.**

In 2013, General Motors is offering dedicated propane options for the Chevrolet Express and GMC Savana 3500 and 4500 cutaway vans equipped with 6.0L V-8 engines. These vehicles can be ordered directly through a General Motors dealership.

Ford offers CNG and propane prep packages for its E-150, E-250, and E-350 cargo and passenger vans (5.4L V-8); its F-250 and F-350 Super Duty pickups (6.2L V-8 and 6.8L V-10); and its Transit Connect (2.0L 4-cylinder). A qualified system retrofitter can convert these vehicles to run on CNG or propane for delivery through a Ford dealership. See page 8 for more information about converting conventional vehicles to run on propane.

## **Ford Transit Connect**

- 2.0L 4 cyl engine
- Emissions data, fuel economy, and MSRP not available



*Photo from Ford Motor Co.*



Ford Super Duty F-250 available with LPG prep package. *Photo from Ford Motor Co.*

## Find an Alternative Fuel Station or Electric Charging Station

Thousands of fueling sites across the country provide alternatives to gasoline and diesel fuel. The AFDC's Alternative Fueling Station Locator ([afdc.energy.gov/stations](http://afdc.energy.gov/stations)) helps drivers navigate to stations that provide propane, biodiesel blends of 20% (B20) or greater, natural gas, electric charging, E85, and hydrogen. Users can also download the data into a spreadsheet, determine the number of stations in a given geographic area, and plan a route with stations identified along the way. There's even a mobile version at [afdc.energy.gov/stations/m](http://afdc.energy.gov/stations/m).



*Photo from iStock 20405726*

### Alternative Fueling Station Locator

Find alternative fueling stations near an address or ZIP code or along a route in the United States. Enter a state to see a station count.

# All-Electric Vehicles

## Scion IQ EV

- 47 kW electric motor; 12.0 kWh battery
- MSRP not available
- 138 mpge city, 105 mpge highway
- Smog Score: 10
- GHG Score: 10
- Energy Impact Score: 0.2 ▼ \_\_\_\_\_



Photo from Scion

## All-electric vehicles can yield significant emissions benefits.

An all-electric vehicle (EV) uses batteries to store electrical energy, which powers one or more motors. EV batteries are charged by plugging into an off-board electrical power source. They can also be charged in part through regenerative braking, which generates electricity from some of the energy normally lost when braking. EVs produce no tailpipe emissions, but there are emissions associated with the majority of electricity production in the United States. In many geographic regions of the country, EVs have substantial well-to-wheels emissions benefits, based on the mix of fuels used to generate electricity.

Most currently available EVs travel 60 to 100 miles on a single charge, depending on the model. And EV drivers are now benefitting from a growing network of charging stations. In February 2013, there were more than 5,500 publicly accessible charging locations across the country. See page 11 for information about finding stations in your area.

Currently available EVs are more expensive than similar conventional and hybrid electric vehicles, but some costs may be recovered through fuel savings, a federal tax credit, or state incentives. See page 13 for information about finding incentives.

## Chevrolet Spark EV

- 100 kW electric motor; 20 kWh battery
- Emissions data, fuel economy, and MSRP not available



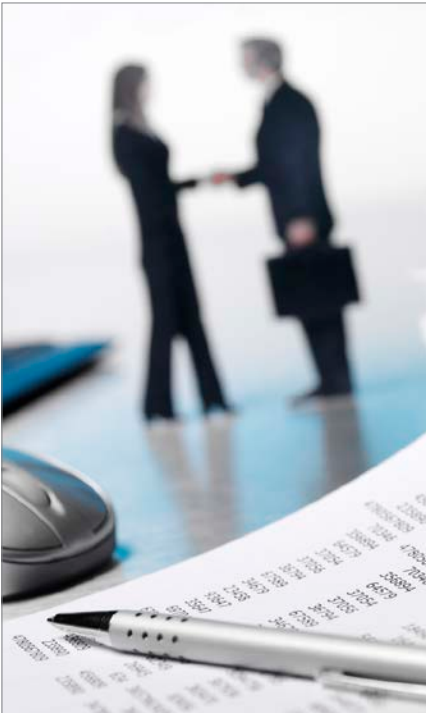
Photo from General Motors

**CODA**

- 100 kW electric motor; 31 kWh battery
- Starting MSRP: \$37,250
- 77 mpge city, 68 mpge highway
- Smog Score: 10
- GHG Score: 10
- Energy Impact Score: 0.2 ▼ \_\_\_\_\_

*Photo from CODA Automotive***Fiat 500e**

- 83 kW electric motor; 24 kWh battery
- 116 mpge city, 100 mpge highway
- Emissions data and MSRP not available

*Photo from Chrysler Group LLC*

### Incentives for Investments in Alternative Fuels and Advanced Vehicles

A transition to alternative fuels or advanced vehicles usually entails upfront costs. But in many cases, such expenditures can be offset by lower operating costs and by federal, state, and local tax exemptions, rebates, grants, or other incentives. Visit [afdc.energy.gov/laws](http://afdc.energy.gov/laws) to browse and search a database of state and federal laws and incentives related to alternative fuels and vehicles, air quality, fuel efficiency, and other transportation topics. Be sure to consult with your tax advisor to determine your eligibility for any tax incentive.

*Photo from iStock 16144742*

### Ford Focus Electric

- 107 kW electric motor; 23 kWh battery
- Starting MSRP: \$39,200
- 110 mpge city, 99 mpge highway
- Smog Score: 10
- GHG Score: 10
- Energy Impact Score: 0.2 ▼ \_\_\_\_\_



*Photo from Ford Motor Co.*

### Honda Fit EV

- 92 kW electric motor; 20 kWh battery
- \$389/month, limited lease
- 132 mpge city, 105 mpge highway
- Smog Score: 10
- GHG Score: 10
- Energy Impact Score: 0.2 ▼ \_\_\_\_\_



*Courtesy of American Honda*

### Hydrogen Fuel Cell Vehicles

A hydrogen fuel cell vehicle combines hydrogen gas with oxygen from the air to produce electricity, which drives an electric motor. Fuel cell vehicles produce no harmful tailpipe emissions.

These vehicles are not yet commercially available to a broad market, but some manufacturers produce them in very limited numbers for lease or sale in select locations.



*Honda FCX Clarity. Courtesy of American Honda*

**Mitubishi i-MiEV**

- 49 kW electric motor; 16 kWh battery
- Starting MSRP: \$29,125
- 126 mpge city, 99 mpge highway
- Smog Score: 10
- GHG Score: 10
- Energy Impact Score: 0.2 ▼ \_\_\_\_\_



*Photo from Mitsubishi Motor Company*

**Nissan Leaf**

- 80 kW electric motor; 24 kWh battery
- Starting MSRP: \$35,200
- 106 mpge city, 92 mpge highway
- Smog Score: 10
- GHG Score: 10
- Energy Impact Score: 0.2 ▼ \_\_\_\_\_



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**smart fortwo electric drive**

- 55 kW electric motor; 17.6 kWh battery
- MSRP not available
- 88 mpge city, 90 mpge highway
- Smog Score: 10
- GHG Score: 10
- Energy Impact Score: 0.2 ▼ \_\_\_\_\_



*Photo from Mercedes-Benz USA*

**Tesla Model S**

- 300 kW electric motor; 40 kWh battery
- Starting MSRP: \$57,400
- 110 mpge city, 99 mpge highway
- Smog Score: 10
- GHG Score: 10
- Energy Impact Score: 0.2 ▼ \_\_\_\_\_



*Photo from Tesla Motors*

**Toyota RAV4 EV**

- 115 kW electric motor; 41.8 kWh battery
- Starting MSRP: \$49,800
- 78 mpge city, 74 mpge highway
- Smog Score: 10
- GHG Score: 10
- Energy Impact Score: 0.3 ▼ \_\_\_\_\_



*Photo from Toyota Motor Sales, USA, Inc.*

# Plug-In Hybrid Electric Vehicles

## Ford Fusion Energi

- 2.0L 4 cyl engine
- Starting MSRP: \$38,700
- Emissions data and fuel economy not available



Photo from Ford Motor Co.

## Plug-in hybrids provide flexibility in fueling and charging.

Plug-in hybrid electric vehicles (PHEVs) use batteries to power an electric motor and use another fuel, such as gasoline or diesel, to power an internal combustion engine. The batteries can be charged from an off-board electrical power source, through regenerative braking, or by the internal combustion engine. Powering the vehicle with electricity some or all of the time significantly reduces operating costs, petroleum use, and tailpipe emissions.

PHEVs don't have to be plugged in before driving. They can be fueled solely with gasoline, like a conventional hybrid. However, they will not achieve maximum fuel economy or take full advantage of their all-electric capabilities without charging.

## Toyota Prius Plug-In Hybrid

- 1.8L 4 cyl engine;  
38 kW electric motor
- Starting MSRP: \$32,000
- 95 mpge (electric + gasoline,  
combined city/hwy)
- 51 mpg city, 49 mpg highway  
(gasoline)
- Smog Score: 7
- GHG Score: 10
- Energy Impact Score

4.7 



Photo from Toyota Motor Sales, USA, Inc.



### Chevrolet Volt


- 1.4L 4 cyl engine; 111 kW electric motor
- Starting MSRP: \$39,145
- 100 mpge (electric + gasoline, combined city/hwy)
- 35 mpg city, 40 mpg highway (gasoline)
- Smog Score: 8
- GHG Score: 10
- Energy Impact Score: 3.1 



Photo from General Motors

### Ford C-MAX Energi


- 2.0L 4 cyl engine
- Starting MSRP: \$32,950
- 100 mpge (electric + gasoline, combined city/hwy)
- 44 mpg city, 41 mpg highway (gasoline)
- Smog Score: 7
- GHG Score: 10
- Energy Impact Score: 4.2 



Photo from Ford Motor Co.


### Plug-In Vehicles and EPA Labels

EPA labels for all-electric vehicles (EVs) display fuel economy estimates expressed in kilowatt-hours per 100 miles and in miles per gallon of gasoline-equivalent (mpge). Mpge represents the number of miles a vehicle can travel using a quantity of fuel with the same energy content as a gallon of gasoline (33 kilowatt-hours). For PHEVs, EPA labels display separate fuel economy estimates for electric-only and gasoline-only modes. Estimates for gasoline-only operation are expressed in miles per gallon and in gallons per 100 miles. All this information allows for comparisons across different types of vehicles and fuels. For more information, visit [fuelconomy.gov/label](http://fuelconomy.gov/label).

EPA plug-in vehicle labels also contain information about GHG emissions and air pollution. This information reflects tailpipe emissions only. It does not account for emissions associated with the production of electricity, gasoline, or any other fuel that powers the vehicle. For information on comparing well-to-wheel emissions of conventional and plug-in vehicles, visit [afdc.energy.gov/vehicles/electric\\_emissions.php](http://afdc.energy.gov/vehicles/electric_emissions.php).

# Hybrid Electric Vehicles

## Acura ILX

- 1.5L 4 cyl engine
  - Starting MSRP: \$28,900
  - 39 mpg city, 38 mpg highway
  - Smog Score: 7
  - GHG Score: 9
  - Energy Impact Score
- 8.7 



*Courtesy of American Honda*

## Hybrid technologies can boost fuel economy.


Hybrid electric vehicles (HEVs) are powered by an internal combustion engine and an electric motor that uses energy stored in a battery. HEVs run on gasoline or an alternative fuel and can't be plugged in to recharge the battery: The battery is charged by the internal combustion engine and through regenerative braking. The extra power provided by the electric motor allows for a smaller engine, resulting in better fuel economy without sacrificing performance.

Some HEVs achieve fuel economy ratings of 40 to 50 miles per gallon (mpg). And they generally produce lower levels of air pollutants and greenhouse gas emissions than similar conventional vehicles.

## Hybrid configurations vary among models.

HEVs range from mild to full hybrids. Full hybrids can run on battery power alone at idle and low speeds. When speeds increase, the electric motor works with the gasoline engine to provide power. Full hybrids are 25% to 40% more fuel efficient than comparable conventional vehicles.

## Lexus RX 450h FWD/AWD

- 3.5L 6 cyl engine
  - Starting MSRP: \$45,910
  - 32 mpg city, 28 mpg highway
  - Smog Score: 7
  - GHG Score: 8
  - Energy Impact Score
- 11.0 



*Photo from Toyota Motor Sales, USA, Inc.*

Mild hybrids use a battery and electric motor to help power the vehicle, allowing the engine to shut off when the vehicle stops at traffic signals and in stop-and-go traffic, thus improving fuel economy. But electricity alone cannot propel the vehicle. These vehicles may cost less than full hybrids, but they provide more modest increases in fuel economy.

**Chevrolet Silverado 1500 2WD/4WD  
GMC Sierra 1500 2WD/4WD**

- 6.0L 8 cyl engine
  - Starting MSRP: \$39,890
  - 20 mpg city, 23 mpg highway
  - Smog Score: 5
  - GHG Score: 5
  - Energy Impact Score
- 15.7  ▼



Chevrolet Silverado 1500  
Photo from General Motors

**Get More Info on Fuel Economy**

FuelEconomy.gov provides information, data, and tools that can support your efforts to improve fuel economy. Find and compare conventional and alternative fuel vehicles with FuelEconomy.gov's Find a Car tool. It offers extensive information on fuel economy ratings, emissions, energy impacts, annual fuel costs, and more for vehicles of current and past model years.

**www.fueleconomy.gov**  
The official U.S. government source for fuel economy information




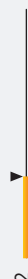



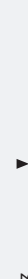

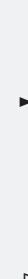
**Compare Side-by-Side**

Vehicle	2013 Ford C-MAX Hybrid FWD	2013 Honda Civic Hybrid	2013 Lexus CT 200h
<b>Hybrid Vehicle</b>	<b>Hybrid Vehicle</b>	<b>Hybrid Vehicle</b>	<b>Hybrid Vehicle</b>
<b>2.8 L, 4 cyl, Automatic (variable gear ratios)</b>	<b>1.8 L, 4 cyl, Automatic (variable gear ratios)</b>	<b>2.8 L, 4 cyl, Automatic (variable gear ratios)</b>	
<b>MSRP: \$29,200 - \$28,200</b>	<b>MSRP: \$24,200</b>	<b>MSRP: \$31,800</b>	
<b>EPA Fuel Economy</b>			
<b>REGULAR GASOLINE</b>	<b>47</b>	<b>44</b>	<b>42</b>
<b>Combined</b>	<b>47</b>	<b>44</b>	<b>40</b>
<b>City</b>	<b>47</b>	<b>44</b>	<b>40</b>
<b>Highway</b>	<b>47</b>	<b>44</b>	<b>40</b>
<b>2.1 gallons/100 mi</b>	<b>2.3 gallons/100 mi</b>	<b>2.6 gallons/100 mi</b>	
<b>Unofficial MPG Estimates from Vehicle Owners</b>			
<b>Average based on 33 vehicles</b>	<b>Average based on 5 vehicles</b>	<b>MPG estimates are not yet available for this vehicle</b>	
<b>34</b>	<b>47</b>		
<b>City</b>	<b>47</b>		
<b>Highway</b>	<b>53</b>		
<b>Annual Fuel Costs*</b>			
<b>You save or spend*</b>	<b>You SAVE \$5,750</b>	<b>You SAVE \$5,250</b>	<b>You SAVE \$5,000</b>
<b>note: The average 2013 vehicle gets 23 MPG</b>	<b>in full costs over 5 years compared to the average new vehicle</b>	<b>in full costs over 5 years compared to the average new vehicle</b>	<b>in full costs over 5 years compared to the average new vehicle</b>
<b>REGULAR GASOLINE</b>	<b>REGULAR GASOLINE</b>	<b>REGULAR GASOLINE</b>	<b>REGULAR GASOLINE</b>
<b>\$1,090</b>	<b>\$1,130</b>	<b>\$1,200</b>	
<b>Cost to Drive 25 Miles</b>	<b>\$1.79</b>	<b>\$1.90</b>	<b>\$1.99</b>
<b>Fuel to Drive 25 Miles</b>	<b>0.3 gallons</b>	<b>0.6 gallons</b>	<b>0.6 gallons</b>
<b>Cost to Fill the Tank</b>	<b>\$41</b>	<b>\$40</b>	<b>\$36</b>
<b>Miles on a Tank</b>	<b>571 miles</b>	<b>523 miles</b>	<b>450 miles</b>
<b>Tank Size</b>	<b>13.6 gallons</b>	<b>13.7 gallons</b>	<b>11.9 gallons</b>

\*Based on 48% highway, 55% city driving, 15,000 annual miles and current fuel prices. [Postulate](#)  
MSRP and tank size data provided by Edmunds.com, Inc.  
Miles on a tank and refueling costs assume 50% of fuel in tank will be used before refueling.

Hybrid Electric Vehicle Model	Engine Size	Energy Impact Score* (barrels of petroleum per year)	Smog Score**	GHG Score**	Fuel Economy (mpg) City/Hwy	Starting MSRP
Acura ILX Hybrid	1.5L 4 cyl	8.7	7	9	39 / 38	\$28,900
Audi Q5 Hybrid	2.0L 4 cyl	12.7	5	7	24 / 30	\$50,900
BMW ActiveHybrid 3	3.0L 6 cyl	11.8	5	7	25 / 33	\$49,300
BMW ActiveHybrid 5	3.0L 6 cyl	12.7	5	7	23 / 30	\$61,100
BMW ActiveHybrid 7	3.0L 6 cyl	13.2	5	6	22 / 30	\$84,000
Chevrolet Tahoe 2WD/AWD	6.0L 8 cyl	15.7	5	5	20 / 23	\$52,295
Cadillac Escalade 2WD/AWD	6.0L 8 cyl	15.7	5	5	20 / 23	\$39,890
GMC Yukon/Denali 2WD/AWD	6.0L 8 cyl	15.7	5	5	20 / 23	\$39,890
Chevrolet Silverado 1500 2WD/4WD	6.0L 8 cyl	15.7	5	5	20 / 23	\$39,890
GMC Sierra 1500 2WD/4WD	6.0L 8 cyl	15.7	5	5	20 / 23	\$39,890
Ford C-MAX Hybrid	2.0L 4 cyl	7.0	7	10	47 / 47	\$25,200
Ford Fusion Hybrid	2.0L 4 cyl	7.0	7	10	47 / 47	\$27,200
Honda Civic Hybrid	1.5L 4 cyl	N/A	N/A	N/A	44 / 44†	N/A
Honda CR-Z Sport Hybrid	1.5L 4 cyl	N/A	N/A	N/A	36 / 39†	\$19,975

\* Assuming 15,000 miles driven per year. \*\* 10 = Best. † Manufacturer estimate. ‡ MY 2012 data.

Hybrid Electric Vehicle Model	Engine Size	Energy Impact Score* (barrels of petroleum per year)	Smog Score**	GHG Score**	Fuel Economy (mpg) City/Hwy	Starting MSRP
Honda Insight	1.3L 4 cyl	7.8 	7	10	41 / 44	\$18,500
Hyundai Sonata Hybrid	2.4L 4 cyl	N/A	N/A	N/A	34 / 39†	\$25,850
Infiniti M35h Hybrid	3.5L 6 cyl	11.4 	5	8	27 / 32	\$54,200
Kia Optima Hybrid	2.4L 4 cyl	N/A	N/A	N/A	34 / 39†	N/A
Lexus CT 200h	1.8L 4 cyl	7.8 	7	10	43 / 40	\$31,850
Lexus ES 300h	2.5L 4 cyl	8.2 	7	10	40 / 39	\$38,850
Lexus LS 600h L	5.0L 8 cyl	16.5 	8	5	19 / 23	\$119,910
Lexus GS 450h	3.5L 6 cyl	10.6 	7	8	29 / 34	\$58,950
Lexus RX 450h FWD/AWD	3.5L 6 cyl	11.0 	7	8	32 / 28	\$45,910
Lincoln MKZ Hybrid	2.5L 4 cyl	7.3 	7	10	45 / 45	\$35,925
Mercedes-Benz S400 Hybrid	3.5L 6 cyl	15.7 	6	5	19 / 25	\$92,350
Porsche Cayenne S Hybrid	3.0L 6 cyl	15.7 	5	5	20 / 24	\$69,850

\* Assuming 15,000 miles driven per year. \*\*10 = Best. † Manufacturer estimate. ‡ MY 2012 data.

Hybrid Electric Vehicle Model	Engine Size	Energy Impact Score* (barrels of petroleum per year)	Smog Score**	GHG Score**	Fuel Economy (mpg) City/Hwy	Starting MSRP
Porsche Panamera S Hybrid	3.0L 6 cyl	13.2	5	6	22 / 30	\$96,150
Toyota Prius c	1.5L 4 cyl	6.6	N/A	10	53 / 46	\$18,950
Toyota Prius	1.8L 4 cyl	6.6	N/A	10	51 / 48	\$23,215
Toyota Prius v	1.8L 4 cyl	7.8	N/A	10	44 / 40	\$26,650
Toyota Avalon Hybrid	2.5L 4 cyl	8.2	N/A	10	40 / 39	\$35,555
Toyota Camry Hybrid	2.5L 4 cyl	8.0	N/A	10	43 / 39	\$26,140
Toyota Highlander Hybrid	3.5L 6 cyl	11.8	7	7	28 / 28	\$39,970
Volkswagen Jetta Hybrid	1.4L 4 cyl	7.4	7	10	42 / 49	\$24,995
Volkswagen Touareg Hybrid	3.0L 6 cyl	15.7	5	5	20 / 24	\$62,055

\* Assuming 15,000 miles driven per year. \*\* 10 = Best

## Calculate Your Costs and Emissions

A vehicle's price tag is only part of its true cost. Use the AFDC's Vehicle Cost Calculator to determine total lifetime ownership costs, including fuel use and maintenance. The easy-to-use online tool, available at [afd.energy.gov/calculator](http://afd.energy.gov/calculator), compares the thousands of vehicles on the market today. It also allows users to evaluate a vehicle's emissions benefits, providing side-by-side comparisons of models that use conventional fuels, alternative fuels, and electricity.

To stay updated on the prices of alternative fuels and how they compare to gasoline and diesel prices, see the Clean Cities Alternative Fuel Price Report, available online at [afd.energy.gov/fuels/prices.html](http://afd.energy.gov/fuels/prices.html).

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### Vehicle Cost Calculator

This tool uses basic information about your driving habits to calculate total cost of ownership and emissions for makes and models of most vehicles, including alternative fuel and advanced technology vehicles. Also see the cost calculator website. **ASSUMPTIONS**

**Choose vehicles to compare**  
Select up to eight vehicles to compare from the makes and models below or [create your own custom vehicles](#).

2012 Hyundai Sonata Hybrid 4cyl 2.4L Automatic 6-spd **ADD >>**

[Create Custom Vehicle](#)

Vehicle	Price	Fuel Economy (City/Hwy)	Fuel Type
2012 Ford Fusion Hybrid FWD 4cyl 2.5L Automatic (variable gear ratios) Hybrid	\$ 28,775 <a href="#">Tax credit?</a>	41/36 mpg	Hybrid
2012 Toyota Prius v 4cyl 1.8L Automatic (variable gear ratios) Hybrid	\$ 26,400 <a href="#">Tax credit?</a>	44/40 mpg	Hybrid
2012 Volkswagen Touareg Hybrid 6cyl 3.0L Automatic (S8) Hybrid	\$ 61,110 <a href="#">Tax credit?</a>	20/24 mpg	Hybrid
2012 Lincoln MKZ Hybrid FWD 4cyl 2.5L Automatic (variable gear ratios) Hybrid	\$ 34,766 <a href="#">Tax credit?</a>	41/36 mpg	Hybrid
2012 Hyundai Sonata Hybrid 4cyl 2.4L Automatic 6-spd Hybrid	\$ 26,860 <a href="#">Tax credit?</a>	35/40 mpg	Hybrid

[Clear all](#)

**Fuel Prices**  
Gasoline \$ 3.82 /gal

**Tell us how you use your car**  
Because vehicle efficiencies vary depending on how you use your car, this information allows the tool to more accurately calculate fuel usage.

**Normal Daily Use**

Average daily driving distance: 34 miles  
Days per week: 5  
Weeks per year: 40

**Other Trips**

Annual mileage: 3596 miles  
Percent highway: 80

# Ethanol Flex-Fuel Vehicles

## Chrysler 300 FWD/AWD

- 3.6L 6 cyl engine
- Starting MSRP: \$29,845
- 14 mpg city, 23 mpg highway (E85)
- 19 mpg city, 31 mpg highway (gasoline)
- Smog Score: 5
- GHG Score: 6 (E85), 6 (gasoline)
- Energy Impact Score (E85/gasoline)



Photo from Chrysler Group LLC



## Flex-fuel vehicles can operate on gasoline or E85.

Flex-fuel vehicles (FFVs) are able to run on gasoline, E85, or any combination of the two. E85 is a blend of gasoline and ethanol, with the ethanol content ranging between 51% and 83%, depending on geographical location and season.\* According to EPA estimates, the fuel economy of today's FFVs is 25% to 30% lower when running on E85, because ethanol contains less energy per gallon than gasoline. However, E85 is a high-octane fuel, so drivers typically experience better power and performance on E85 than on gasoline. An FFV is often distinguished by a symbol on the back of the vehicle, and many FFVs have yellow fuel caps.

Today, E85 is available at more than 2,200 publicly accessible locations. See page 11 for information about finding E85 stations near you.

\* The E85 fuel economy estimates presented in this section are based on tests with blends containing 85% ethanol.

## Ford Focus

- 2.0L 4 cyl engine
- Starting MSRP: \$16,200
- 20 mpg city, 28 mpg highway (E85)
- 27 mpg city, 38 mpg highway (gasoline)
- Smog Score: 6
- GHG Score: 8 (E85), 8 (gasoline)
- Energy Impact Score (E85/gasoline)



Photo from Ford Motor Co.





**Buick Verano**

- 2.4L 4 cyl engine
- Starting MSRP: \$23,080
- 15 mpg city, 23 mpg highway (E85)
- 21 mpg city, 32 mpg highway (gasoline)
- Smog Score: 6
- GHG Score: 6 (E85), 6 (gasoline)
- Energy Impact Score (E85/gasoline)



*Photo from General Motors*

**Mercedes-Benz C350**

- 3.5L 6 cyl engine
- Starting MSRP: \$41,400
- 15 mpg city, 21 mpg highway (E85)
- 20 mpg city, 29 mpg highway (gasoline)
- Smog Score: 5
- GHG Score: 6 (E85), 6 (gasoline)
- Energy Impact Score (E85/gasoline)



*Photo from Mercedes-Benz USA*

**E15 and Intermediate Blends**

EPA has approved the use of ethanol-gasoline blends up to E15 for use in all MY 2001 and newer vehicles. Fuel containing more than 15% ethanol is only approved for use in FFVs. This includes various intermediate blends now available from stations with ethanol blender pumps. Using blends higher than E15 in non-FFVs may result in maintenance, safety, or performance problems.

E15 is not approved for use in motorcycles; vehicles with heavy-duty engines; off-road vehicles, such as boats and snowmobiles; off-road equipment, such as lawnmowers and chainsaws; or any vehicles of MY 2000 or older. For more information, visit [epa.gov/otaq/regs/fuels/additive/e15/e15-faq.htm](http://epa.gov/otaq/regs/fuels/additive/e15/e15-faq.htm).

Flex-Fuel Vehicle Model	Engine Size	Energy Impact Score* (barrels of petroleum per year) Gasoline  E85	Smog Score**	GHG Score** Gasoline/ E85	Fuel Economy (mpg)		Starting MSRP
					Gasoline City/Hwy	E85 City/Hwy	
Audi A4	2.0L 4 cyl	13.7 4.7	5	6 / 6	20 / 29	14 / 20	\$32,500
Audi A5	2.0L 4 cyl	13.7 4.7	5	6 / 6	20 / 29	14 / 20	\$37,850
Audi A5 Cabriolet	2.0L 4 cyl	13.7 4.7	5	6 / 6	20 / 29	14 / 20	\$43,350
Audi Allroad Quattro	2.0L 4 cyl	14.3 4.7	5	6 / 5	20 / 27	14 / 18	\$39,600
Audi Q5	2.0L 4 cyl	14.3 4.7	5	6 / 5	20 / 28	14 / 19	\$35,900
Bently Continental Flying Spur	6.0L 12 cyl	23.5 7.5	5	2 / 2	11 / 19	8 / 13	N/A
Bently Continental GT	6.0L 12 cyl	23.5 7.5	5	2 / 2	12 / 19	8 / 14	N/A
Bently Continental GTC	6.0L 12 cyl	23.5 7.5	5	2 / 2	11 / 19	8 / 13	N/A
Bently Continental Supersports	6.0L 12 cyl	23.5 7.5	5	2 / 2	12 / 19	8 / 14	N/A

\* Assuming 15,000 miles driven per year. \*\* 10 = Best.

Flex-Fuel Vehicle Model	Engine Size	Energy Impact Score* (barrels of petroleum per year)  Gasoline  E85	Smog Score**	GHG Score** Gasoline/ E85	Fuel Economy (mpg)		Starting MSRP
					Gasoline City/Hwy	E85 City/Hwy	
Buick Regal	2.4L 4 cyl	14.3 4.4  	6	6 / 6	19 / 31	15 / 22	\$32,045
Buick Regal	2.0L 4 cyl	15.0 5.0  	6	5 / 5	18 / 29	13 / 20	\$30,635
Buick Verano	2.4L 4 cyl	13.2 4.2  	6	6 / 6	21 / 32	15 / 23	\$23,080
Buick LaCrosse FWD/AWD	3.6L 6 cyl	15.7 5.0  	6	5 / 5	21 / 32	15 / 23	\$35,285
Cadillac SRX 2WD/AWD	3.6L 6 cyl	17.3 5.3  	6	4 / 5	17 / 27	13 / 19	\$37,155
Cadillac ATS RWD/AWD	3.6L 6 cyl	15.0 4.7  	6	5 / 6	19 / 28	14 / 21	\$41,195
Cadillac Escalade; Escalade ESV; Escalade EXT 2WD/AWD GMC Yukon; Yukon XL; Yukon Denali 2WD/AWD	6.2L 8 cyl	20.6 6.2  	5	3 / 3	14 / 18	10 / 15	\$63,170
Chevrolet Impala	3.6L 6 cyl	15.0 4.7  	6	5 / 6	18 / 30	13 / 22	\$25,280

\* Assuming 15,000 miles driven per year. \*\* 10 = Best.

Flex-Fuel Vehicle Model	Engine Size	Energy Impact Score* (barrels of petroleum per year) Gasoline  E85	Smog Score**	GHG Score** Gasoline/ E85	Fuel Economy (mpg)		Starting MSRP
					Gasoline City/Hwy	E85 City/Hwy	
Chevrolet Captiva FWD/AWD	2.4L 4 cyl 3.0L 6 cyl	14.3  4.2	6	6 / 6	20 / 28	15 / 22	\$23,755
Chevrolet Equinox FWD/AWD GMC Terrain FWD/AWD	2.4L 4 cyl 3.6L 6 cyl	12.7  4.2	6	7 / 6	22 / 32	15 / 22	\$23,755
Chevrolet Avalanche 1500; Suburban 1500; Tahoe 1500 2WD/4WD GMC Yukon 1500; Yukon XL 2WD/4WD	5.3L 8 cyl	19.4  5.8	5	4 / 4	15 / 21	11 / 16	\$35,980
Chevrolet Caprice Police Patrol & Detective Vehicle	3.6L 6 cyl	N/A	N/A	N/A	N/A	N/A	N/A
Chevrolet Impala Police & Undercover Vehicle	3.6L 6 cyl	N/A	N/A	N/A	N/A	N/A	N/A
Chevrolet Tahoe Police Patrol & Special Service Vehicle	5.3L 8 cyl	N/A	N/A	N/A	N/A	N/A	N/A
Chevrolet Express Prisoner Transport Van	4.8L 8 cyl	N/A	N/A	N/A	N/A	N/A	N/A
Chevrolet Express 1500 2WD/AWD GMC Savana 1500 2WD/AWD	5.3L 8 cyl	22.0  6.8	6	3 / 3	13 / 18	10 / 13	\$30,370

\* Assuming 15,000 miles driven per year. \*\* 10 = Best.

Flex-Fuel Vehicle Model	Engine Size	Energy Impact Score* (barrels of petroleum per year)  	Smog Score**	GHG Score** Gasoline/ E85	Fuel Economy (mpg)		Starting MSRP
					Gasoline City/Hwy	E85 City/Hwy	
Chevrolet Express 2500/3500 GMC Savana 2500/3500	4.8L 8 cyl	25.3	2	2 / 2	11 / 17	8 / 12	\$26,825
	6.0L 8 cyl	7.5					
Chevrolet Silverado 1500 2WD/AWD GMC Sierra 1500 2WD/AWD	4.8L 8 cyl	20.6	5	3 / 3	14 / 19	10 / 14	\$27,950
	5.3L 8 cyl 6.2L 8 cyl	6.2					
Chrysler 200	3.6L 6 cyl	15.0 4.7	6	6 / 5	19 / 29	14 / 21	\$18,995
	3.6L 6 cyl	14.3 4.4					
Chrysler 300 FWD/AWD	3.6L 6 cyl	16.5 5.3	6	5 / 5	17 / 25	12 / 18	\$29,995
	3.6L 6 cyl	14.3 4.4					
Chrysler Town & Country	3.6L 6 cyl	15.0 4.7	6	5 / 6	19 / 29	14 / 21	\$18,995
	3.6L 6 cyl	15.7 5.0					
Dodge Avenger	3.6L 6 cyl	16.5 5.3	6	5 / 5	18 / 27	13 / 19	\$25,795
	3.6L 6 cyl	16.5 5.3					
Dodge Charger FWD/AWD	3.6L 6 cyl	16.5 5.3	6	5 / 5	17 / 25	12 / 18	\$19,995
	3.6L 6 cyl	16.5 5.3					

\* Assuming 15,000 miles driven per year. \*\* 10 = Best.

Flex-Fuel Vehicle Model	Engine Size	Energy Impact Score* (barrels of petroleum per year) Gasoline  E85	Smog Score**	GHG Score** Gasoline/ E85	Fuel Economy (mpg)		Starting MSRP
					Gasoline City/Hwy	E85 City/Hwy	
Dodge Durango 2WD/AWD	3.6L 6 cyl	17.3  5.3	6	4 / 4	16 / 23	12 / 17	\$28,995
Dodge Journey FWD	3.6L 6 cyl	16.5  5.0	6	5 / 5	17 / 25	12 / 18	\$36,395
Dodge Charger Police Pursuit	3.6L 6 cyl	15.7  5.0	5	5 / 5	18 / 27	13 / 19	N/A
Dodge Durango Police Special Service Vehicle	3.6L 6 cyl	17.3  5.3	6	4 / 4	16 / 23	12 / 17	N/A
Ford Focus	2.0L 4 cyl	10.6  3.3	6	8 / 8	27 / 38	20 / 28	\$16,200
Ford Taurus	3.5L 6 cyl	14.3  4.7	5	6 / 5	19 / 29	13 / 21	\$26,600
Ford Police Interceptor	3.5L 6 cyl	N/A	N/A	N/A	N/A	N/A	N/A
Ford Police Interceptor Utility	3.7L 6 cyl	N/A	N/A	N/A	N/A	N/A	N/A
Ford Explorer 2WD/AWD	3.5L 6 cyl	16.5  5.0	5	5 / 5	17 / 24	13 / 18	\$28,870

\* Assuming 15,000 miles driven per year. \*\* 10 = Best.

Flex-Fuel Vehicle Model	Engine Size	Energy Impact Score* (barrels of petroleum per year) Gasoline  E85 	Smog Score**	GHG Score** Gasoline/ E85	Fuel Economy (mpg)		Starting MSRP
					Gasoline City/Hwy	E85 City/Hwy	
Ford Expedition 2WD/AWD	5.4L V8	20.6 6.2 	2	3 / 3	14 / 20	10 / 14	\$36,930
Ford E150/E250	4.6L V8, 5.4L V8	22.0 7.5 	2	3 / 2	13 / 17	9 / 12	\$28,930
Ford E350	5.4L V8	25.3 7.5 	2	2 / 2	12 / 16	9 / 12	\$32,260
Ford F150 2WD/4WD	3.7L V6, 5.0L V8	17.3 5.3 	6	4 / 4	17 / 23	12 / 17	\$23,670
Ford Super Duty F250/F350	6.2L V8	N/A	N/A	N/A	N/A	N/A	\$29,385
Jeep® Grand Cherokee 2WD/FWD	3.6L V6	17.3 5.3 	6	5 / 4	17 / 23	13 / 17	\$27,495
Lincoln Navigator 2WD/4WD	5.4L V8	20.6 6.2 	2	3 / 3	14 / 20	10 / 14	57,775
Mercedes-Benz C300 4Matic	3.5L V6	15.0 4.7 	N/A	5 / 6	20 / 27	14 / 20	\$38,950
Mercedes-Benz C350 Sedan/Coupe	3.5L V6	14.3 4.4 	5	6 / 6	20 / 29	15 / 21	\$41,400

\* Assuming 15,000 miles driven per year. \*\* 10 = Best.

Flex-Fuel Vehicle Model	Engine Size	Energy Impact Score* (barrels of petroleum per year) Gasoline  E85	Smog Score**	GHG Score** Gasoline/ E85	Fuel Economy (mpg)		Starting MSRP
					Gasoline City/Hwy	E85 City/Hwy	
Mercedes-Benz E350 Sedan/ Coupe/4Matic	3.5L V6	14.3  4.4	5	6 / 6	20 / 28	15 / 21	\$51,000
Mercedes-Benz ML350	3.5L V6	16.5  5.0	N/A	5 / 5	18 / 23	13 / 17	\$47,270
Nissan Armada 2WD/4WD	5.6L V8	22.0  6.8	N/A	3 / 3	12 / 19	9 / 13	\$39,870
Nissan Titan 2WD/4WD	5.6L V8	22.0  6.8	N/A	3 / 3	13 / 18	9 / 13	\$28,820
Ram 1500 2WD/4WD	3.6L V6, 4.7L V8	16.5  5.3	6	5 / 5	17 / 25	12 / 17	\$22,590
Ram C/V	3.6L V6	16.5  5.3	6	5 / 5	17 / 25	12 / 18	\$22,465
Toyota Tundra 4WD	5.7L V8	22.0  6.8	5	3 / 3	13 / 18	9 / 13	\$30,550
Toyota Sequoia 4WD	5.7L V8	23.5  7.5	5	2 / 3	13 / 17	9 / 13	\$45,180
Volkswagen Routan	3.6L V6	16.5  5.3	6	5 / 4	17 / 25	12 / 18	\$27,020

\* Assuming 15,000 miles driven per year. \*\* 10 = Best.



## Improve Your Fuel Economy

Driving behaviors significantly impact fuel economy. To get the most out of each gallon (or kilowatt-hour), follow these tips:

- **Don't drive aggressively:** Avoid jack-rabbit starts, hard braking, and swift acceleration.
- **Remove excess weight:** Don't keep unnecessary items in your vehicle.
- **Keep tires properly inflated:** Check the sticker inside your door or glove box for the proper pressure.
- **Don't speed:** Fuel economy generally decreases at speeds above 50 mph.
- **Remove rooftop boxes and racks when not in use:** Increased drag lowers fuel economy.
- **Avoid idling:** Turn off your engine when parked.
- **Keep the engine tuned:** Delaying maintenance can impact fuel efficiency.
- **Combine trips:** Several short trips from cold starts use more fuel than one multi-purpose trip.

For more tips and information, visit [fuelconomy.gov/feg/drive.shtml](http://fuelconomy.gov/feg/drive.shtml).

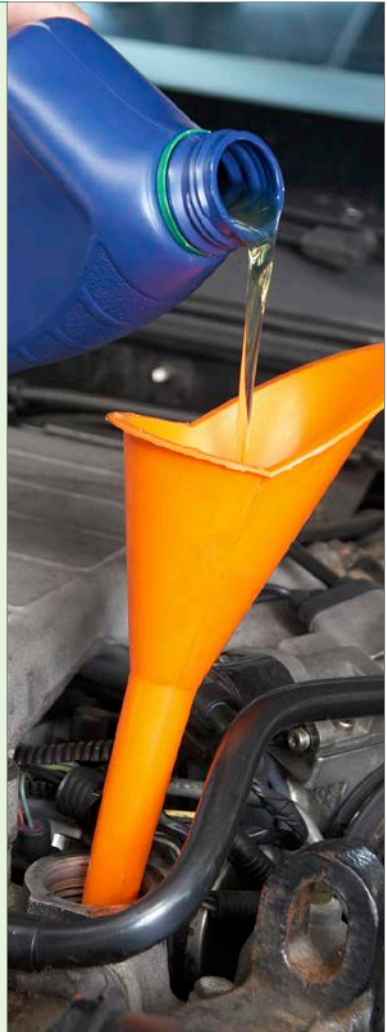


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# Biodiesel

## **Chevrolet Express 2500/3500 GMC Savana 2500/3500**

- 6.6L 8 cyl engine
- Starting MSRP: 38,750
- Smog Score: 1
- Fuel Economy, GHG, and Energy Impact Scores not available.



GMC Savana Van. Photo from General Motors

## **Biodiesel is a renewable option for diesel vehicles.**

Biodiesel is a renewable fuel produced from a wide range of vegetable oils and animal fats. B100 is pure biodiesel, but consumers typically buy biodiesel blends ranging from B5 (5% biodiesel, 95% diesel fuel) to B20 (20% biodiesel, 80% diesel fuel). The use of biodiesel blends in place of conventional diesel can reduce tailpipe emissions, such as particulate matter and hydrocarbons. Relative to conventional diesel fuel, biodiesel can reduce life cycle emissions of carbon dioxide by more than half.

B20 has been shown to perform well in diesel vehicles, even in cold weather and in older engines. All manufacturers have approved B5 for use in all diesel engines, and current ASTM standards allow conventional diesel fuel to contain up to 5% biodiesel. More than 300 publicly accessible fueling stations across the country offer biodiesel blends of B20 or above. The following vehicles are currently approved by their manufacturers for B20 use:

- Chevrolet Silverado 2500/3500 HD Pickups and Express 2500/3500 Vans, equipped with the 6.6L V-8 Duramax Turbo Diesel
- GMC Sierra 2500/3500 HD Pickups and Savana 2500/3500 Vans, equipped with the 6.6L V-8 Duramax Turbo Diesel
- Ford Super Duty F-250, F-350, and F-450, equipped with the 6.7L V-8 Powerstroke Turbo Diesel
- Ram 2500/3500 HD Pickups, equipped with the 6.7L V-8 Cummins High Output Turbo Diesel (fleet calibration only).

## **Straight vegetable oil is not biodiesel.**

To produce biodiesel, vegetable oils or animal fats are filtered to remove water and contaminants. The fats and oils are then mixed with alcohol and a catalyst to produce biodiesel. B100 must be produced to strict specifications (ASTM D6751) to ensure proper performance of any blend level. Straight vegetable oil is not registered for legal use in vehicles, and its use can void vehicle warranties.



U. S. Department of Energy

Clean Cities advances the nation's economic, environmental, and energy security by supporting local actions to reduce petroleum use in transportation. A national network of nearly 100 Clean Cities coalitions brings together stakeholders in the public and private sectors to deploy alternative and renewable fuels, idle-reduction measures, fuel economy improvements, and emerging transportation technologies.

For more information, visit:

- [cleancities.energy.gov](http://cleancities.energy.gov)
- [fueleconomy.gov](http://fueleconomy.gov)
- [afdc.energy.gov](http://afdc.energy.gov)



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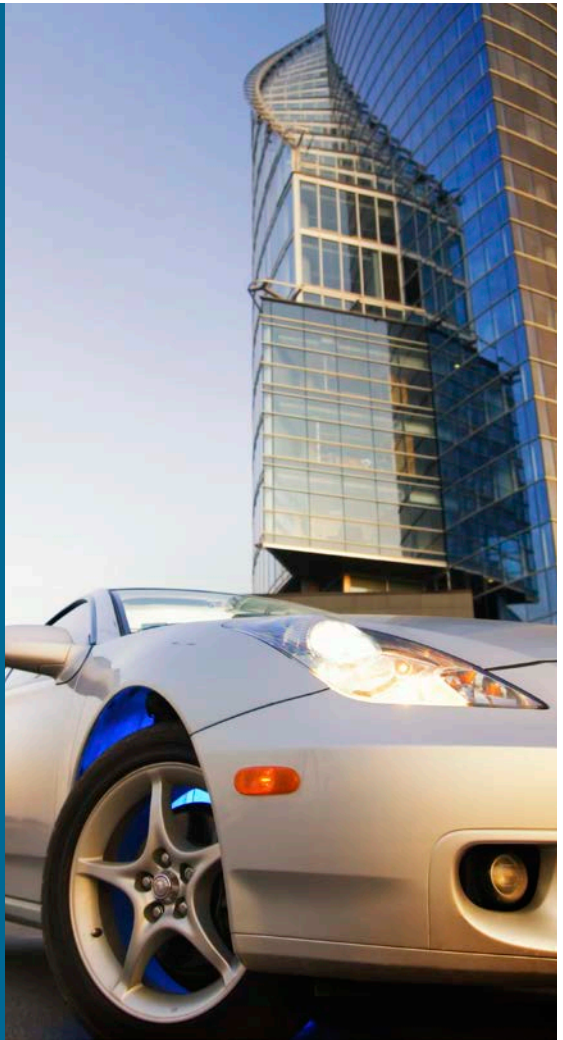
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