

# Clean Cities Tools and Resources



**Vehicle Technologies  
Program Merit Review**

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This presentation does not contain any proprietary, confidential, or otherwise restricted information

# Outline

## Clean Cities Tools and Resources

AFDC and Clean Cities Website

FuelEconomy.gov

Goals, Objectives, Funding, and Barriers

Approach

Accomplishments

Future Activities

Summary

Publications and Presentations

# Goals and Objectives

[www.afdc.energy.gov](http://www.afdc.energy.gov)



[www.fueleconomy.gov](http://www.fueleconomy.gov)

U. S. Department of Energy

**To advance the energy, economic, and environmental security of the United States by supporting local decisions to adopt practices that contribute to the reduction of petroleum consumption in the transportation sector**

Coordinate at the local level to influence and assist multiple decision makers in implementing alternative fuel and advanced transportation projects

Produce and disseminate timely, consistent, accurate information and tools to help vehicle users make decisions

# Project Overview

## Timeline

- AFDC and FuelEconomy.gov have been supporting Clean Cities stakeholders since the inception of the program

## Barriers

- Resources to address implementation challenges for consumers and fleets
- Lack of understandable, unbiased information to facilitate decision making

## Funding

- [www.afdc.energy.gov](http://www.afdc.energy.gov): \$1.2M annually
- [www.fueleconomy.gov](http://www.fueleconomy.gov): \$1M annually

## Partners

- NREL/ORNL
- ANL/NETL
- EPA
- Clean Cities coordinators
- Industry stakeholders/trade groups
- Maryland Public Television, PBS

# Approach

Provide unbiased information and tools to aid decision makers in their use of alternative fuels, advanced technologies and efficient vehicles

The image displays a screenshot of the U.S. Department of Energy's Alternative Fuels & Advanced Vehicles Data Center (AFDC) website. The website header includes the U.S. Department of Energy logo and the text "Energy Efficiency and Renewable Energy" with the tagline "Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable". The main navigation bar lists categories: About the AFDC, Fuels, Vehicles, Fleets, Incentives & Laws, Data, Analysis & Trends, and Information Resources. A search bar is located in the top right corner.

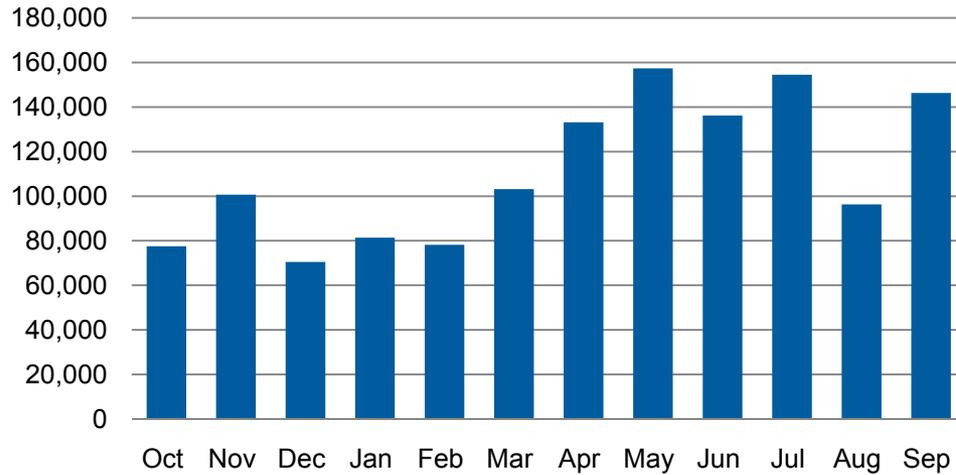
The main content area features a map of the E 26th Ave area with numbered markers (1-7) and a list of "Alternative Fuel Ports" including Biodiesel, Electricity, Ethanol, Hydrogen, Natural Gas, and Propane. Below this, there is a section for "Select Vehicle Information" with links for Conversions, Emissions, Fuel Economy, HEVs, Plug-in Hybrids, and Idle Reduction. A "Data, Analysis, and Trends" section is also visible, along with "Quick Links to AFDC Tools" such as Vehicle Make & Model Search and Alternative Fuel Station Locator.

Overlaid on the website is a "fuel economy guide 2009" from www.fueleconomy.gov. The guide cover features a computer monitor displaying the website and a hand holding a mobile phone. It includes the text "MPG information at your fingertips for your mobile device, smart phone, or PDA" and logos for the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, and the U.S. Environmental Protection Agency (EPA). The guide lists "1985-2009 MPG estimates" and "Print the Fuel Economy Guide".

At the bottom of the website screenshot, there is a navigation bar with links: "Download EPA's MPG Ratings | Find and Compare Cars | USA.gov | Info for Auto Dealers | Privacy/Security | Feedback". A footer note states "This site last modified March 13, 2009".

# Impacts

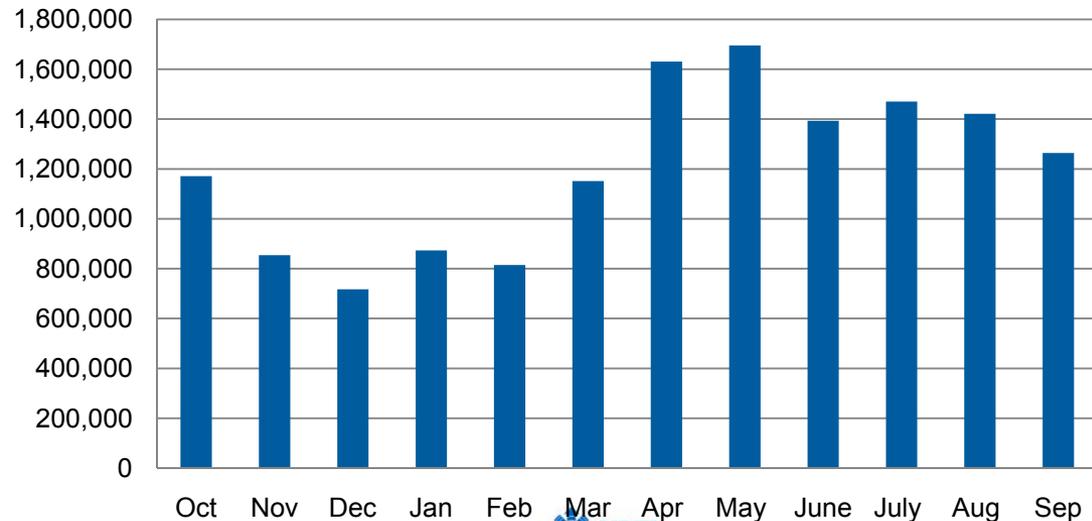
**Visits - FY2008**  
AFDC.energy.gov



1.2M visits to AFDC  
in FY2008

14M visits to  
FuelEconomy.gov in  
FY2008

**User Sessions - FY2008**  
FuelEconomy.gov



# Accomplishments: AF Station Locator



[Printable Version](#) [Help](#)

[Basic Station Search](#) [Map a Route](#) [Advanced Options](#)

First: Select one or more fuels.

- Biodiesel (B20 and above)
- Compressed Natural Gas
- Electric
- Ethanol (E85)
- Hydrogen
- Liquefied Natural Gas (LNG)
- Liquefied Petroleum Gas (Propane)

Second: Enter a complete

Denver, CO

Show stations within a 25

Get Results

Note: For a state search, use [Advanced Options](#).

- Uses Google maps
- Two search levels
- Umbrella for all technologies

Results 1 - 10 of 34 near  
Denver, CO



### Clean Energy - Denver

1123 W 3rd Ave, Denver, CO 80223  
Public - card key at all times  
Phone: 303-571-3927  
Fuel: Compressed Natural Gas  
Distance: 2 miles



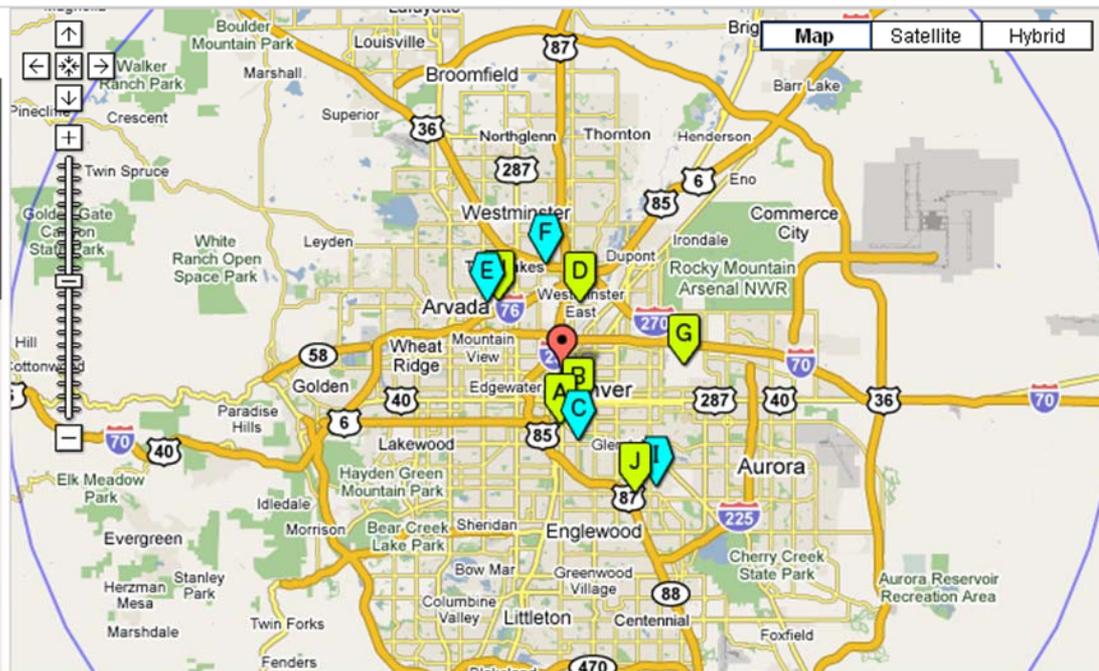
### Clean Energy - Diamond Shamrock

1001 Broadway St, Denver, CO 80204  
Public - card key at all times  
Phone: 800-366-4602  
Fuel: Compressed Natural Gas  
Distance: 2 miles



### Barns Conoco Store

295 S Broadway, Denver, CO 80209  
Public - see hours  
Phone: 303-765-5580



# Accomplishments: Emissions Updates

Navigation: [About the AFDC](#) | [Fuels](#) | **[Vehicles](#)** | [Fleets](#) | [Incentives & Laws](#) | [Data, Analysis & Trends](#) | [Information Resources](#) | [Home](#)

## Alternative & Advanced Vehicles

[Printable Version](#)

<b>Vehicle Make &amp; Model Search</b>	<h3>Alternative Fuel Vehicle Emissions</h3> <p>Vehicle emissions are known to negatively affect air quality and human health. For these reasons, emission reduction plays a role in many fleet and consumer decisions to acquire alternative fuel vehicles (AFVs). However, many drivers don't know that emission reductions vary between alternative fuels. This section details emission pollutants and their impact on human health and the environment, compares alternative fuel emissions with those of their conventional counterparts, and explains the methodology used to compare vehicle emissions.</p> <p>This page serves as a table of contents for the Emissions section. For more information, choose the following links.</p> <ul style="list-style-type: none"><li><a href="#">Pollutants and Health</a></li><li><a href="#">Biodiesel</a></li><li><a href="#">Electricity</a></li><li><a href="#">Ethanol</a></li><li><a href="#">Natural Gas</a></li><li><a href="#">Propane</a></li><li><a href="#">Hydrogen</a></li><li><a href="#">Comparison Methodology</a></li></ul>
<b>Flexible Fuel Vehicles</b>	
<b>Natural Gas Vehicles</b>	
<b>Propane Vehicles</b>	
<b>Hybrid Electric Vehicles</b>	
<b>Plug-in Hybrid Vehicles</b>	
<b>Electric Vehicles</b>	
<b>Fuel Cell Vehicles</b>	
<b>Diesel Vehicles</b>	
<b>Conversions</b>	
<b>Resale</b>	
<b>Technician Training</b>	
<b>Idle Reduction</b>	
<b>Fuel Economy</b>	
<b>Emissions</b>	

- Pollutants & Health
- Biodiesel
- Electricity
- Ethanol
- Natural Gas
- Propane

- Basic information about emissions
- Credible publications
- Links to recent testing and analysis

# Accomplishments: State Pages

## Colorado Information

This state page compiles information related to alternative fuels and advanced vehicles in Colorado and includes new incentives and laws, alternative fueling station locations, truck stop electrification sites, fuel prices, and local points of contact.

Select a new state

### Incentives and Laws ▶

Read about [Colorado's Incentives and Laws](#), including the latest ones listed below.

- [High Occupancy Vehicle \(HOV\) Lane Exemption](#)
- [Gasoline Gallon Equivalent Definition](#)
- [Alternative Fuels Tax and Vehicle Decal](#)
- [Alternative Fuel Use and Vehicle Acquisition Requirement](#)

To look up nationwide legislative activity, visit [Incentives and Laws](#).

### Locator Tools



#### Alternative Fueling Station Locator ▶

Look up the locations of Colorado's 162 alternative refueling stations.

- [Biodiesel \(23\)](#)
- [Ethanol \(74\)](#)
- [Natural Gas \(1\)](#)
- [Electricity \(0\)](#)
- [Hydrogen \(1\)](#)
- [Propane \(1\)](#)

For a nationwide search, visit the [Alternative Fueling Station Locator](#).



#### Truck Stop Electrification (TSE) Sites ▶

There is 1 TSE site in this state. Find sites nationwide and more, visit [Truck Stop Electrification](#).



#### Biomass Production Facilities

For a map of nationwide locations, visit: [Biodiesel Production Facilities \(PDF 460 KB\)](#) and [Ethanol Production Facilities \(PDF 484 KB\)](#). [Download Adobe Reader](#). For a map of nationwide locations, visit [Biomass Production Facilities](#).

### Biomass Resources ▶

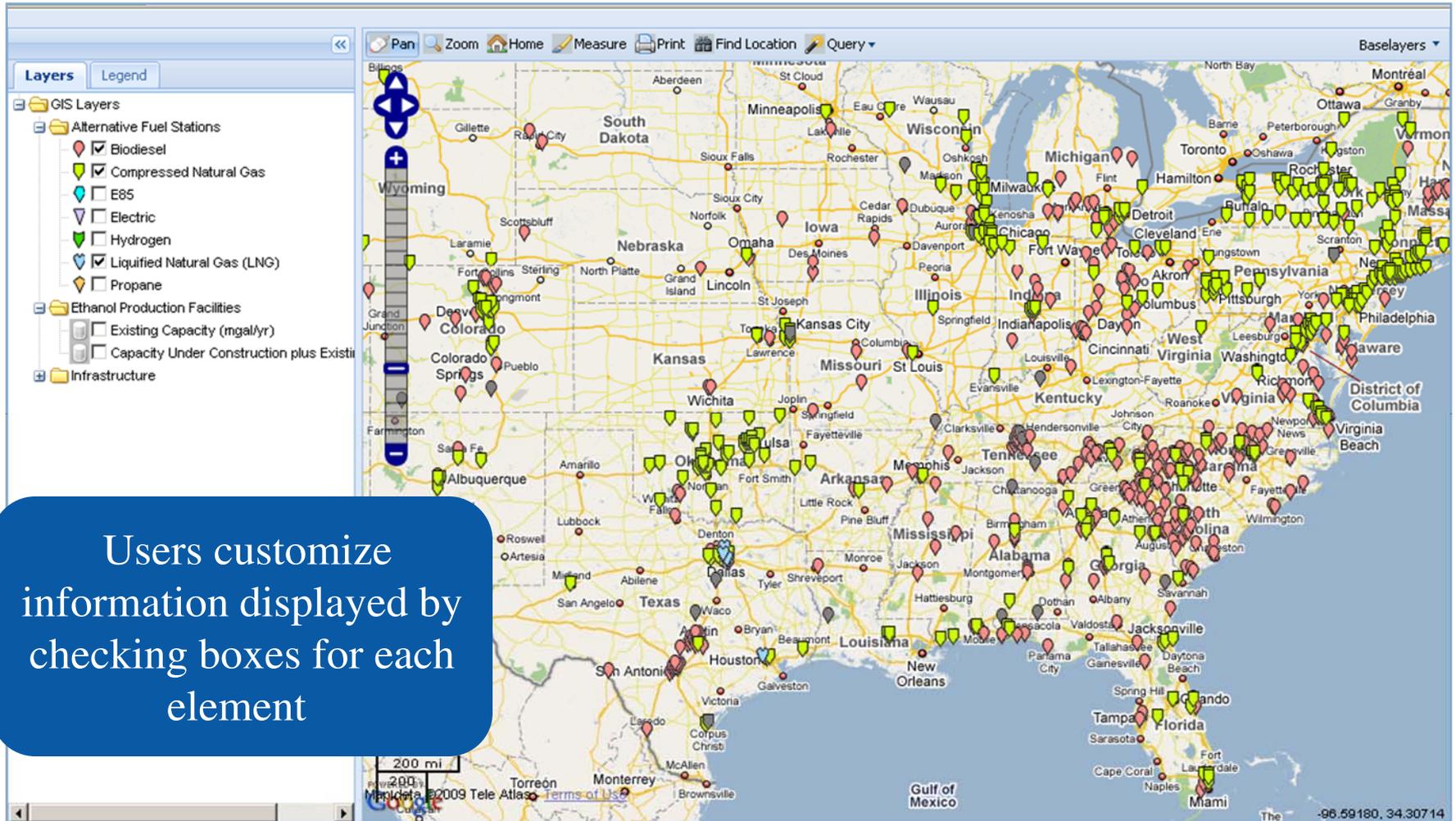
The [State Assessment for Biomass Resources](#) tool illustrates the potential production and use of biofuels throughout the U.S. Visit the [Colorado Biomass Resources](#) page for specific data on this state.

### State Activities & Partnership ▶

For information on energy efficiency and renewable energy projects, partnerships, and grants in this state, visit [Colorado State Activities and Partnerships](#).

- State incentives
- AF stations & TSE
- Biomass production/use
- Biomass resources
- Fuel prices
- Clean Cities info
- SEO info/contacts

# Accomplishments: Mapping Tool



Users customize information displayed by checking boxes for each element

# Accomplishments: Heavy Vehicles

**Alternative Fuels & Advanced Vehicles Data Center**

About the AFDC | Fuels | **Vehicles** | Fleets | Incentives & Laws | Data, Analysis & Trends | Information Resources | Home

## Alternative & Advanced Vehicles

Search Help | More Search Options | Search

Site Map  
EERE Information Center

### Vehicle Make & Model Search

- Flexible Fuel Vehicles
- Natural Gas Vehicles
- Propane Vehicles
- Hybrid Electric Vehicles
- Plug-in Hybrid Vehicles
- Electric Vehicles
- Fuel Cell Vehicles
- Diesel Vehicles
- Conversions
- Resale
- Technician Training

### Heavy-Duty Vehicle and Engine Search

Use this tool to get specification and purchasing details on specific vehicles (chassis) or engines. You can also compare selections and generate printable reports to aid in the decision making process.

Vehicles | Engines | Hybrid Propulsion Systems

#### Detail



**Model:** C30LFR / L30LFR  
**Manufacturer:** [New Flyer of America](#)  
**Manufacturer Phone:** 204-224-1251  
**Application:** Bus  
**Options:** CNG, LNG  
**GVWR:** 39630 lbs  
**Seating Capacity:** 30  
**Engine Make:** Allison B300 - Gen 4  
**Transmission Type:** Auto or Manual  
**Description:** Transit properties and organizations using alternative-fueled vehicles can choose between compressed natural gas (CNG) or liquid natural gas (LNG) in a variety of models ranging from 30-foot and 60-foot buses. A modular approach to design enables the engineering of any size bus, while still maintaining the minimum service requirement recommended by white book standards. A typical alternative fuel system is comprised of roof tank storage, a fuel fill system, engine compartment

#### Detail

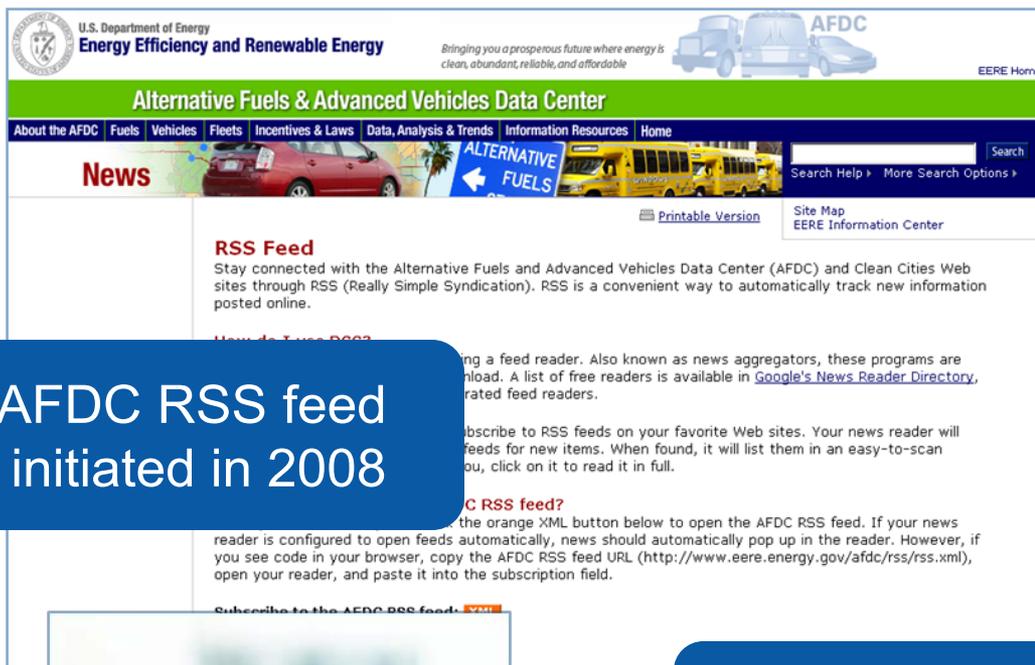


**Model:** DE40LFA  
**Manufacturer:** [New Flyer of America](#)  
**Manufacturer Phone:** 204-224-1251  
**Application:** Bus  
**Fuel Type Option:** Diesel Electric  
**GVWR:** 39630 lbs  
**Maximum Seating Capacity:** 40  
**Transmission Make:** Allison  
**Description:** Hybrid bus technologies in 30, 35 and 40-foot standard vehicles and 60-foot articulated vehicles. Choose between a dual-mode parallel hybrid system developed by Allison Electric Drives, or a full series hybrid drive system developed by ISE and Siemens.

**Compatible Hybrid Propulsion Systems:**  
[EP 40](#)

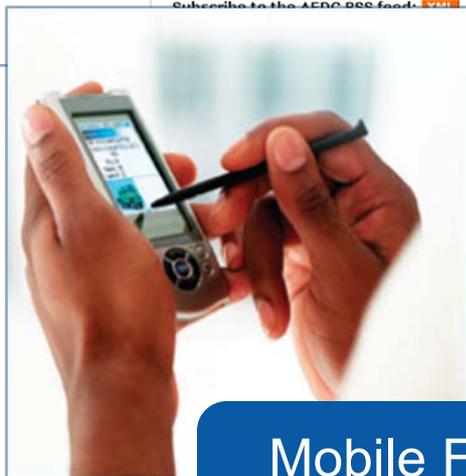
Updates to the heavy vehicle search make comparing vehicles easier – side by side

# Accomplishments: New Methods



AFDC RSS feed initiated in 2008

Moving beyond the Internet to solutions that reach audiences from a variety of angles (mobile tools, RSS feeds)



Mobile station locator launched in 2009



Mobile FuelEconomy.gov launched in 2008

# Accomplishments: Spanish Language

A new Spanish version of “Find and Compare Cars” and “Gas Mileage Tips” help us expand our audience

**www.fueleconomy.gov**

Encuentre y Compare Automóviles | Consejos para Ahorrar Gasolina | Precios de Gasolina | Sus MPG Varían | ¿Por qué es Importante Ahorrar Gasolina? | Sus Millas Por Galón

Departamento de Energía de U.S. | Imprimir Guia Para Ahorrar Gasolina - Inglés | Agencia de Protección A

Encuentre un auto

Compare lado a lado

Búsqueda por tipo de auto

Búsqueda por Marca

Búsqueda de MPG

Búsqueda Avanzada

Autos que no usan

Encuentre un Auto

Seleccione el Año...

<a href="#">2009</a>	<a href="#">2005</a>	<a href="#">2000</a>	<a href="#">1995</a>	<a href="#">1990</a>	<a href="#">1985</a>
<a href="#">2008</a>	<a href="#">2004</a>	<a href="#">1999</a>	<a href="#">1994</a>	<a href="#">1989</a>	
<a href="#">2007</a>	<a href="#">2003</a>	<a href="#">1998</a>	<a href="#">1993</a>	<a href="#">1988</a>	
<a href="#">2006</a>	<a href="#">2002</a>	<a href="#">1997</a>	<a href="#">1992</a>	<a href="#">1987</a>	
	<a href="#">2001</a>	<a href="#">1996</a>	<a href="#">1991</a>	<a href="#">1986</a>	

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Departamento de Energía de U.S. | Imprimir Guia Para Ahorrar Gasolina - Inglés | Agencia de Protección A

Consejos para Ahorrar Gasolina

Manejar Más Eficientemente

Mantener su Auto en Buen Estado

Planear y Combinar Viajes

Escoger un Vehículo Más Eficiente

Más Información

## Mantener su Auto en Buen Estado

### Mantenga su Motor Bien Afinado

Arreglar un auto que está notablemente desafinado o que no ha pasado el examen de emisiones puede incrementar sus millas por galón un promedio del 4 por ciento, aun que los resultados varían dependiendo de las reparaciones hechas y de que tan bien se han hecho.



Arreglar un problema de mantenimiento serio, como un sensor de oxígeno defectuoso, puede incrementar sus millas por galón hasta un 40 por ciento.

**Reducción de Combustible:** 4%

**Ahorro de Gasolina Equivalente:** \$0.08/galón

# Accomplishments: MotorWeek

PBS MotorWeek segments influence viewers and provide valuable video content for the Web site.



Provided by Maryland Public Television, PBS

# Accomplishments: Your MPG

Helps users calculate, track, and share their MPG

**Compare Side-by-Side**

[Remove](#) **2008 Toyota Prius** [Remove](#) **2008 Ford Focus**




*Compare side-by-side* 

Use Your Gas Prices & Annual Miles

Switch Units:  
[Gallons/100 Miles](#)  
[Liters/100 km](#)

**Hybrid Vehicle**

**New EPA MPG**

REGULAR GASOLINE			REGULAR GASOLINE		
<b>46</b>			<b>28</b>		
48 City	Combined	45 Hwy	24 City	Combined	33 Hwy

**MPG Estimates from Drivers Like You**

Average based on 102 vehicles. **46.2**

Lo **32** → Hi **62**  
[View Individual Estimates](#)

Average based on 29 vehicles. **32.2**

Lo **27** → Hi **39**  
[View Individual Estimates](#)

[Disclaimer](#)

Information that could be used to identify any individual with a user name or password.

As a non-registered guest, you still have access to all MPG tools, but you cannot save your data or share your MPG.

**We Can Help You...**  
[Calculate Your MPG](#)  
[Maintain a Fuel Purchase Record](#)

**Other Useful Tools**  
[Our Printable Form for Recording Fuel Purchases](#)

▶ [Real World MPG Estimates from Drivers Like You](#)

[New MPG tests are more realistic](#)

[Learn more about "Your MPG"](#)

**Your MPG** [Help](#)

Calculate and track your MPG. Save and track your test ratings. You can also compare your MPG information to other users. You will not be able to save your data or share your MPG information. We will not be able to identify any individual with a user name or password.



▶ **New User**  
[I want to register!](#)  
[I want to enter as a guest.](#)

▶ **Registered User Login\***

User Name:

Password:

[I forgot my password](#)

\*User name and password are case sensitive.

# Accomplishments: Extreme MPG

**www.fueleconomy.gov**

Find and Compare Cars | Gas Mileage Tips | Gasoline Prices | Your MPG Will Vary | Why is Fuel Economy Important? | Your MPG | Hybrids, Diesels, Alt Fuels, Etc. | Tax Incentives | **Extreme MPG**

U.S. Department of Energy | Print the Fuel Economy Guide | U.S. Environmental Protection Agency

### World Record Fuel Efficiency



The PAC-Car II set a new world record in fuel efficient driving during the Shell Eco-marathon in Ladoux (France) on June 26, 2005. Running on hydrogen, the PAC-Car II achieved the equivalent of 5,385 km per liter of gasoline (12,666 MPG)

### Competitions

#### Automotive X Prize



The Automotive X prize is a competition to spur and award any team that can produce a commercial vehicle that can achieve over 100 miles per gallon

### Concepts, Limited Production, and Upcoming Vehicles

 <p>Aptera Type I Electric/Type II hybrid model Range: Type I 120 miles/ Type II 300 mpg Availability: Type I Late 2009 in California <a href="http://www.aptera.com">www.aptera.com</a></p>	 <p>Tesla Roadster - Electric Range 220 miles Availability: Now available - limited prod. <a href="http://www.teslamotors.com">www.teslamotors.com</a></p>	 <p>Chevrolet Volt - Plug-in hybrid Range in electric only mode 40 miles Availability - Late 2010 <a href="http://www.chevrolet.com/electriccar">www.chevrolet.com/electriccar</a></p>	 <p>Persu Hybrid - Plug-in hybrid Range - All Electric 20 miles Availability - 2010 beginning in <a href="http://www.flytheroad.com">www.flytheroad.com</a></p>
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### Most Efficient EPA Certified Vehicles

Current Model Year	Gasoline - All Years	All Fuels - All Years*
 <p>2009 Toyota Prius City 48 Hwy 45 Comb 46 Fuel Type: Gasoline</p>	 <p>2000 Honda Insight City 49 Hwy 61 Comb 53 Fuel Type: Gasoline</p>	 <p>2000 Nissan Altra EV City 117 Hwy 130 Comb 133 Fuel Type: Electricity (kW-hrs/100 miles)</p>

### News and Featured Links

- A 187-MPH Hybrid As Fast As It Is Green - Wired
- Automotive X Prize entries near finalization - Consumer Reports
- Preparing Cities for Electric Cars - The New York Times

### Featured Links

- ▶ HybridCARS.com - Electric Cars: A Definitive Guide
- ▶ Edmunds Inside Line - Future production and concept vehicles
- ▶ MotorTrend - Future cars and concepts

- Highlights fuel efficiency world records
- MPG contests
- Concept cars/upcoming vehicles
- Most-efficient
- EPA-certified vehicles
- News/links to more information

# Accomplishments: Continuous Improvement

## Market research helps us improve FuelEconomy.gov

**www.fueleconomy.gov**

Find and Compare Cars | Gas Mileage Tips | Gasoline Prices | Your MPG Will Vary | Why is Fuel Economy Important? | Your MPG | Hybrids, Diesels, All Fuels, Etc. | Tax Incentives | Extreme MPG

U.S. Department of Energy | Print the Fuel Economy Guide | U.S. Environmental Protection Agency

Find a Car

Compare Side-by-Side

Search by Class

Search by Make

Search by MPG

**Advanced Search**

Cars that don't need gasoline

Best and Worst MPG

**Advanced Search**

Expand any feature by selecting its title bar. Choose as many or as few features as you like.

[Expand all](#)

**Select Features**

**Model Year**

From: 2008 To: 2009

**Market Class**

Small Cars  Family Sedans  Pickup Trucks

Large Sedans  Upscale Sedans  Luxury Sedans

Sport Utility Vehicles  Hatchbacks  Coupes

Minivans  Convertibles  Sports/Sporty Cars

Vans  Station Wagons

The market class system groups together cars that are similar from the car buyer's perspective.

**Vehicle/Fuel Type**

Regular Gasoline  Premium Gasoline  Diesel

Hybrid  E85 (Flex-Fuel)  Bifuel CNG

Dedicated CNG  Electric  Bifuel LPG

**Transmission**

**Drive**

**Cylinders**

**Miles Per Gallon**

City MPG greater than

Highway MPG greater than

**Your Selections...**

Model Year: 2008 - 2009

Market Class: Small Cars, Family Sedans

Vehicle Type: Regular Gasoline, Hybrid, Dedicated CNG

Transmission:

Drive:

Cylinders:

MPG: Highway > 30

**www.fueleconomy.gov**

Find and Compare Cars | Gas Mileage Tips | Gasoline Prices | Your MPG Will Vary | Why is Fuel Economy Important? | Your MPG | Hybrids, Diesels, All Fuels, Etc. | Tax Incentives | Extreme MPG

U.S. Department of Energy | Print the Fuel Economy Guide | U.S. Environmental Protection Agency

Learn More About EPA's New MPG Tests!

**Your Vehicle List**

Sorted by Energy Impact Score. Click on column headings to resort.

Select up to 4 models to compare

Model	Estimated MPG	Annual Fuel Cost	Carbon Footprint	Energy Impact Score
	city	hwy		
<input type="checkbox"/> 2008 Honda Civic CNG 4 cyl, 1.8 L, Automatic 5-spd, CNG	24	36	\$1366	5.4
<input type="checkbox"/> 2009 Honda Civic CNG 4 cyl, 1.8 L, Automatic 5-spd, CNG	24	36	\$1366	5.4
<input type="checkbox"/> 2008 Toyota Prius 4 cyl, 1.5 L, Automatic (variable gear ratios), Regular	48	45	\$628	4.0
<input type="checkbox"/> 2009 Toyota Prius 4 cyl, 1.5 L, Automatic (variable gear ratios), Regular	48	45	\$628	4.0
<input type="checkbox"/> 2008 Honda Civic Hybrid 4 cyl, 1.3 L, Automatic (variable gear ratios), Regular	40	45	\$689	4.4
<input type="checkbox"/> 2009 Honda Civic Hybrid 4 cyl, 1.3 L, Automatic (variable gear ratios), Regular	40	45	\$689	4.4
<input type="checkbox"/> 2008 Nissan Altima Hybrid 4 cyl, 2.5 L, Automatic (variable gear ratios), Regular	35	33	\$851	5.4

- Two online focus groups evaluated FuelEconomy.gov and the mobile site
- Based on comments collected, a new “Advanced Search Tool” was added to the “Find and Compare Cars” section

# Future Activities

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- Usability studies for AFDC updates
  - Laws and incentives
  - Vehicle search
  - Mapping tools
- Web modules on how to use Clean Cities tools via *Clean Cities University*
- Release Google gadgets/portlets of key tools

# Summary

- The AFDC and FuelEconomy.gov are widely used, recognized, and respected as sources of advanced vehicle expertise and information
- Projects are targeted to respond to the public, industry, and stakeholder needs
- Partnerships with key organizations ensure accurate and quality information
- Information is technically sound and unbiased
- Program is making tangible contributions today

[www.afdc.energy.gov](http://www.afdc.energy.gov)



U. S. Department of Energy

[www.fueleconomy.gov](http://www.fueleconomy.gov)

 **NREL** National Renewable Energy Laboratory