



## Working With Clean Cities

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## **Mission**

To ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions

## Clean Cities Mission

To advance the energy, economic, and environmental security of the U.S. by supporting local decisions to reduce petroleum use in transportation.

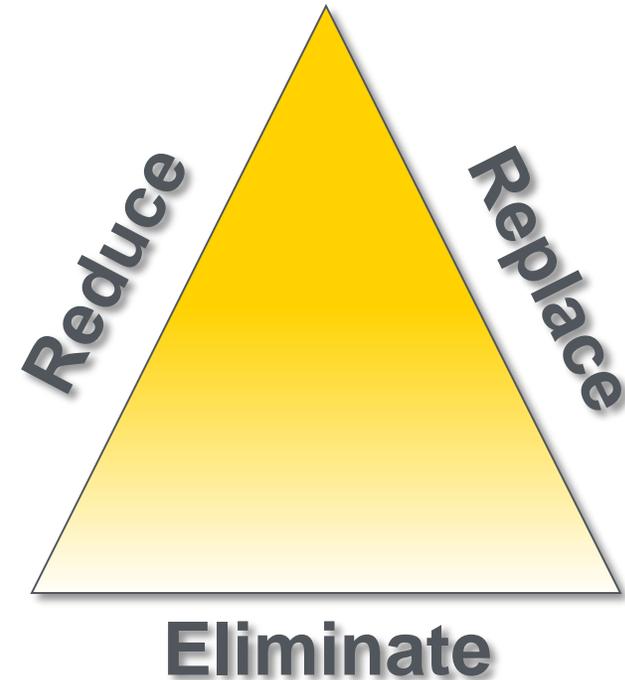
- 
- Energy Policy Act of 1992 (EPAAct)
  - Provides a framework for businesses and government agencies to work together
  - Goal: Reduce U.S. petroleum use by 2.5 billion gallons per year

- Nearly 100 coalitions in 45 states
- 775,000 AFVs using alternative fuels
- 6,600 fueling stations

## Clean Cities Coalitions



- **Replace** petroleum with alternative and renewable fuels
- **Reduce** petroleum use through fuel efficiency measures, smarter driving practices, and idle reduction
- **Eliminate** petroleum use by promoting mass transit, trip elimination, and congestion mitigation



**Clean Cities has saved nearly 3 billion gallons of petroleum since 1993.**

## Alternative and Renewable Fuels

- Biodiesel
- Electricity
- Ethanol (E85)
- Hydrogen
- Natural gas
- Propane

## Fuel Economy

- Fuel efficient vehicles
- Driving habits
- Vehicle maintenance

## Idle Reduction

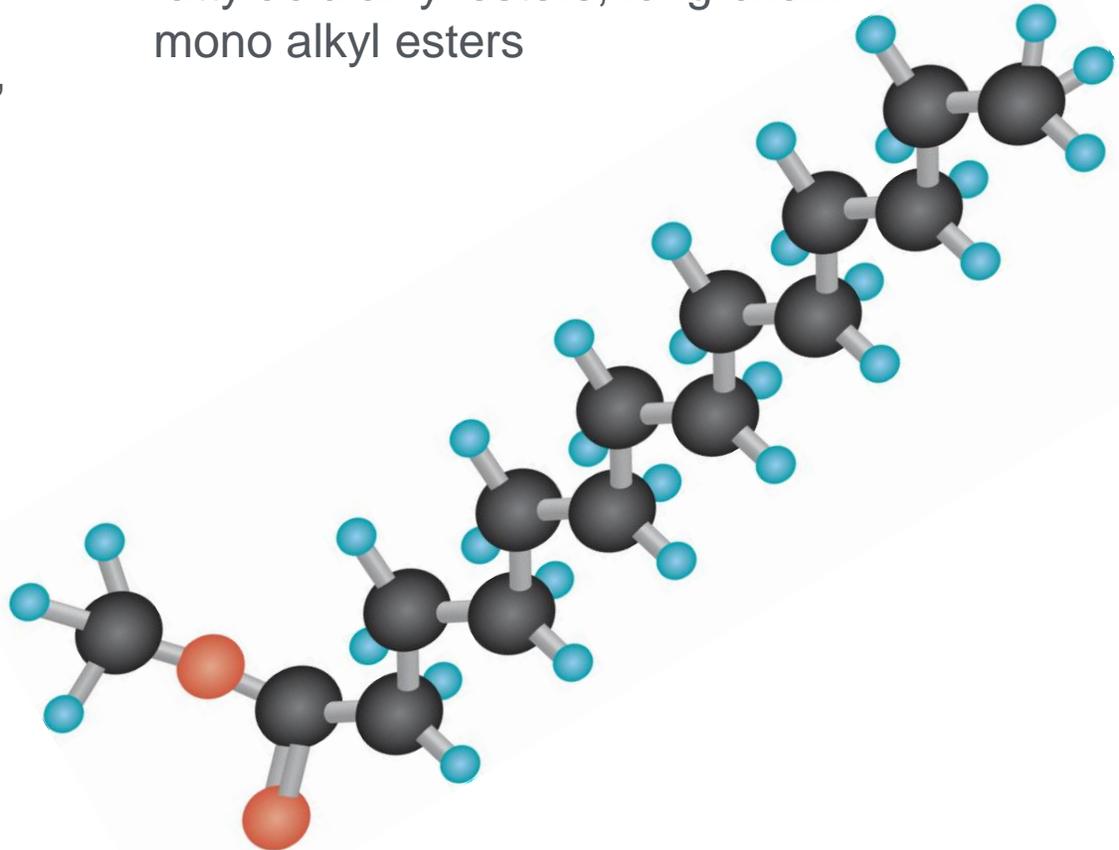
- Technologies
- Behavioral changes

## Trip Elimination

- Telecommuting
- Ridesharing



- Domestically produced, renewable fuel
  - Manufactured from vegetable oils, animal fats, restaurant grease
  - Reduces greenhouse gas (GHG) emissions
  - Biodegradable and nontoxic
  - Cleaner-burning replacement for diesel fuel
- Fatty acid methyl esters (FAME), fatty acid alkyl esters, long-chain mono alkyl esters



- Biodiesel can be blended with diesel in any proportion: B2, B5, B20, B100.
- B20 is the most common blend in U.S.
- Most OEMs approve up to B5 with no modifications.
- Similar payload capacity, range, horsepower, and torque as diesel.
- B20 suitable for nearly all unmodified diesel engines.



Hybrids and plug-in electric vehicles use electricity either as their primary fuel or to improve the efficiency of conventional design

Three categories of vehicles:

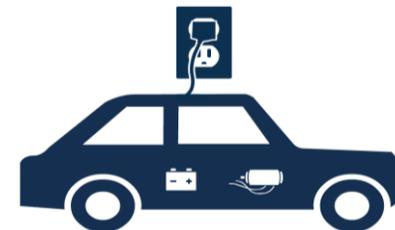
Hybrid Electric Vehicles (HEVs)



Plug-In Hybrid Electric Vehicles (PHEVs)



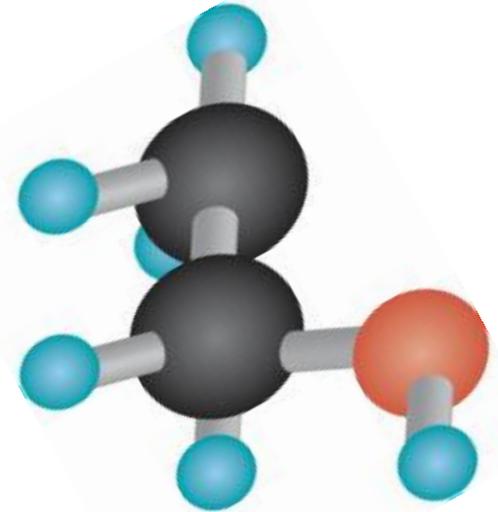
All-Electric Vehicles (EVs)



- Electric Vehicle Supply Equipment (EVSE)
- Charging times for fully depleted batteries vary based on type of battery and type of EVSE
  - **Level 1:** AC, 120V, 6-20 hours, residential
  - **Level 2:** AC, 240V, 3-8 hours, residential and public
  - **Level 3** (in development): AC, 30 minutes, public
  - **DC Fast:** DC, 208-600V, 30 minutes, public



- Renewable fuel produced from plant materials (biomass)
- Same chemical compound in alcoholic beverages
- Comes from starchy feedstocks (corn, sugar cane, sugar beets) and cellulosic feedstocks (yard waste, grasses, poplars)
- Blended at low levels into 80% of gasoline sold in the United States
- Increasingly available as E85, for use in flex fuel vehicles
- High-octane fuel
- Reduces greenhouse gas emissions



## E10

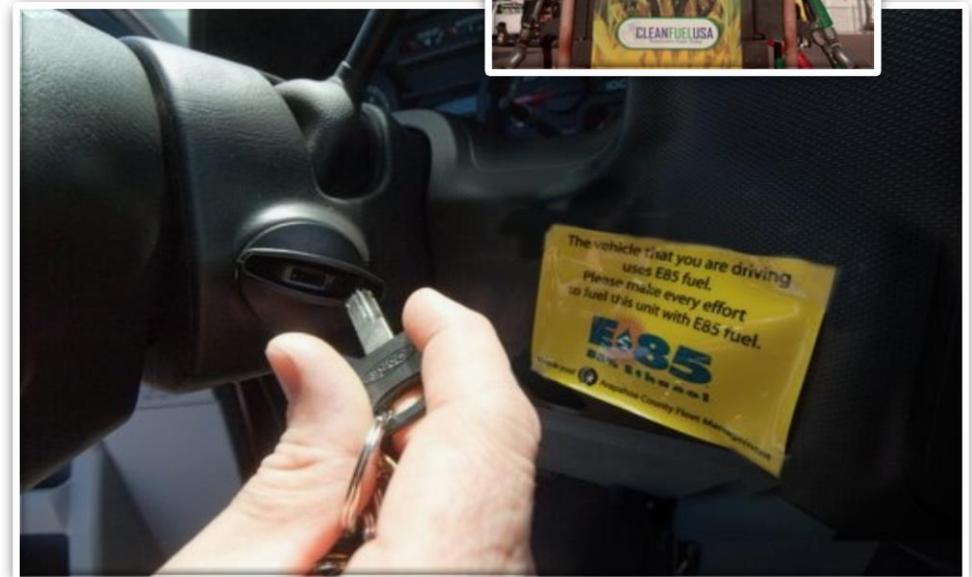
- Contains 10% ethanol, 90% gasoline
- Most common blend in U.S.

## E15

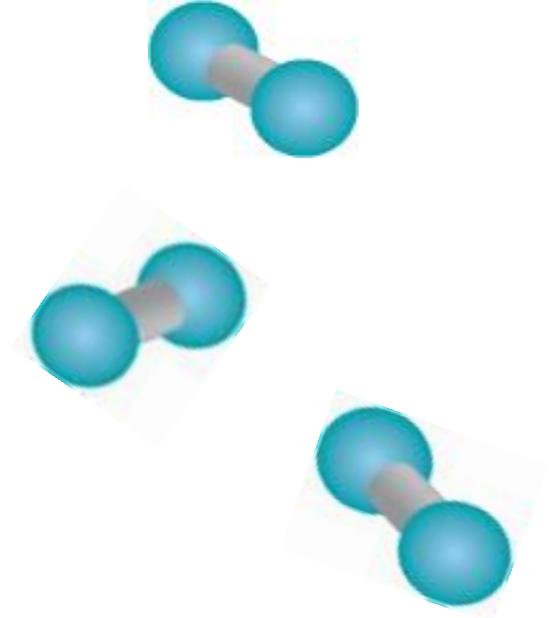
- Contains 15% ethanol, 85% gasoline
- EPA approved for use in MY2001 and newer vehicles

## E85

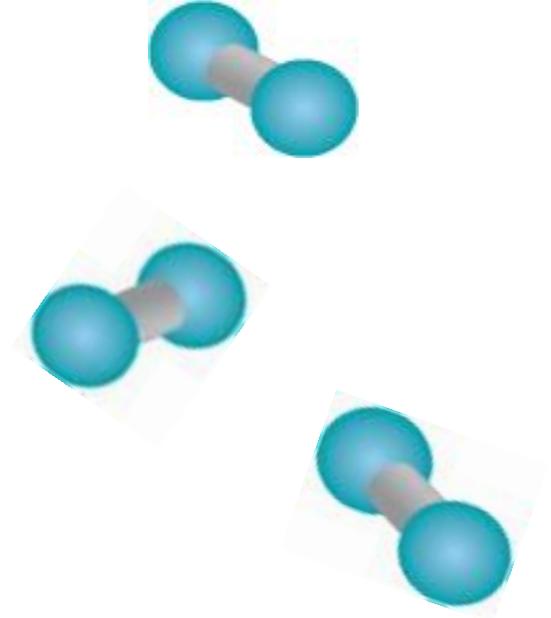
- Contains 51%-83% ethanol
- Alternative fuel under Energy Policy Act of 1992
- Used in flexible fuel vehicles (FFVs)
- Available in most states



- Hydrogen exists in water, hydrocarbons (such as methane), and organic matter.
- The energy in 2.2 lb of hydrogen gas is about the same as the energy in 1 gallon of gasoline.
- Steam reforming of methane (natural gas) accounts for about 95% of the hydrogen produced in the U.S.
- About 9 million tons of hydrogen is produced in the U.S. each year.
- Fuel cell vehicles powered by hydrogen potentially 2 to 3 times more efficient than conventional vehicles.



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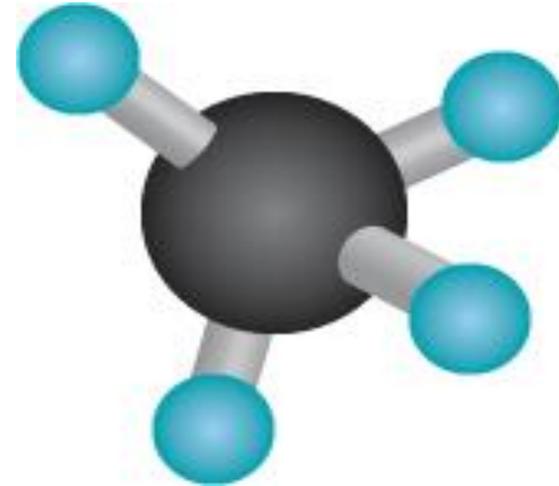


- Currently used in modified internal combustion engines.
- Several OEMs have pre-production light-duty vehicles in demonstration projects.
- Hydrogen can be blended with natural gas to create a fuel for natural gas vehicles.



## Natural Gas

- Hydrocarbons, predominantly methane ( $\text{CH}_4$ )
- High octane rating
- Nontoxic, noncorrosive, and noncarcinogenic
- Not a threat to soil, surface water, or groundwater
- Extracted from gas and oil wells
- Existing pipeline distribution system



## Compressed Natural Gas (CNG)

- Stored in onboard tanks under high pressure
- Fuel economy similar to gasoline
- 1 GGE = 5.7 lb CNG

## Liquefied Natural Gas (LNG)

- Kept at cold temperatures
- Stored in double-wall, vacuum-insulated pressure vessels
- Heavy-duty vehicles
- 1 GGE = 1.5 gal LNG



- Also known as liquefied petroleum gas (LPG)
- Colorless, odorless liquid (when stored under pressure)
- High octane rating
- Nontoxic
- By-product of natural gas processing and crude oil refining
- Less than 2% of propane used in U.S. used in transportation
- Lower GHG emissions



## Propane Vehicle Availability

- Light-duty vehicles available
- Engines and fueling systems for heavy- and medium-duty vehicles
- Conversions



Coalitions are made up of local and national stakeholders.

- 8,400 stakeholders nationwide
- 49% private-sector stakeholders
- 51% public-sector stakeholders

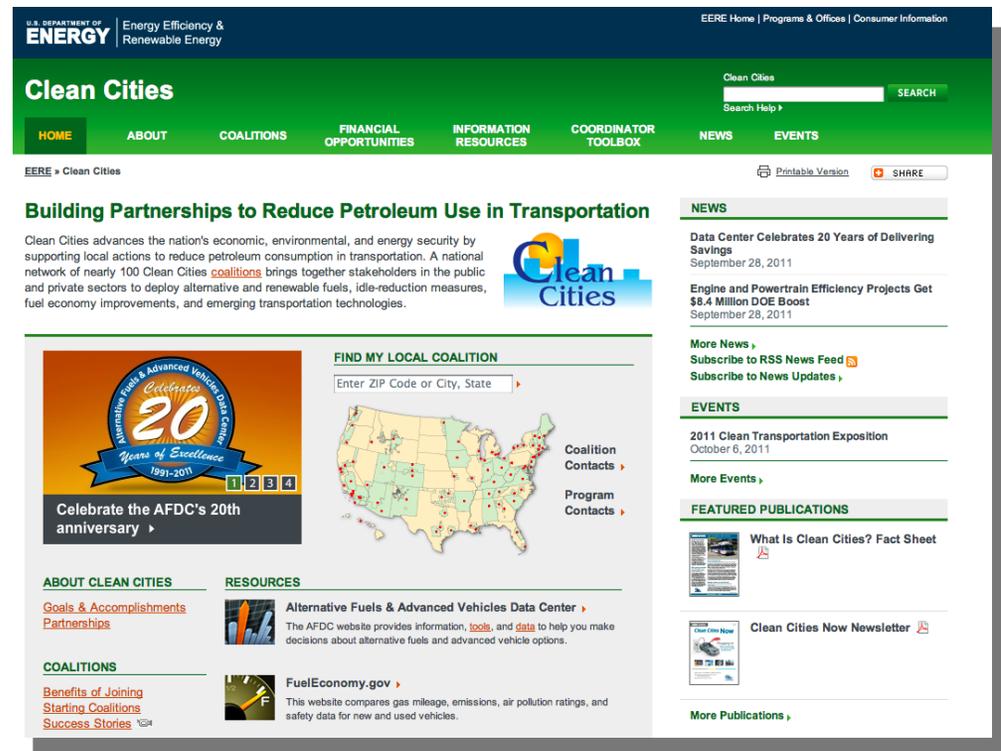


- Connecting fleets with fuel providers and industry partners
- Training and information
- Technical assistance
- Funding
- Education and outreach to decision makers, fleets, and the public



## Clean Cities Website

- Financial opportunities
- Information resources
  - ✓ Newsletters
  - ✓ Technology bulletins
  - ✓ Technical assistance



The screenshot shows the Clean Cities website interface. At the top, it features the U.S. Department of Energy logo and the text "Energy Efficiency & Renewable Energy". The main navigation bar includes links for HOME, ABOUT, COALITIONS, FINANCIAL OPPORTUNITIES, INFORMATION RESOURCES, COORDINATOR TOOLBOX, NEWS, and EVENTS. A search bar is located in the top right corner. The main content area is titled "Building Partnerships to Reduce Petroleum Use in Transportation" and includes a brief description of the program's goals. Below this, there is a section for "FIND MY LOCAL COALITION" with a map of the United States and a search input field. The website also features a "20 Years of Excellence" anniversary banner, a "NEWS" section with recent articles, and a "FEATURED PUBLICATIONS" section with a fact sheet and newsletter link.

## Clean Cities

Clean Cities  
  
Search Help ▾

- HOME
- ABOUT
- COALITIONS
- FINANCIAL OPPORTUNITIES**
- INFORMATION RESOURCES
- COORDINATOR TOOLBOX
- NEWS
- EVENTS

EERE » Clean Cities » Financial Opportunities

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- Current Opportunities
- Related Opportunities
- Funded Projects

### Financial Opportunities

Securing funding is critical to the success of efforts to reduce petroleum use in transportation. Financial opportunities for Clean Cities projects are available from many sources inside and outside the U.S. Department of Energy (DOE).

When applying for funding, [contact your Clean Cities coordinator](#) for help navigating the process successfully.

#### Current Financial Opportunities ▸

Find current transportation-related financial opportunities, including Clean Cities Funding Opportunity Announcements issued by DOE, when available.

#### Related Financial Opportunities ▸

Learn about related financial opportunities to pursue through organizations and federal agencies outside Clean Cities.

#### Funded Clean Cities Projects ▸

Clean Cities has awarded more than \$300 million to fund hundreds of projects across country that reduce petroleum use in transportation.



**Funding Terms**  
The U.S. Department of Energy publicizes available funding through competitive *funding opportunity announcements (FOAs)*, similar to

### Current Financial Opportunities

Current transportation-related financial opportunities, including Clean Cities funding opportunity announcements (FOAs) issued by the U.S. Department of Energy, are listed below when available.

For help with the funding process, contact your local [Clean Cities coordinator](#), who can provide information about Clean Cities FOAs and other funding opportunities. Clean Cities FOAs are also listed on [Grants.gov](#), the portal for more than 1,000 grant programs administered by 26 federal government agencies.

To suggest the addition of a funding opportunity to this page, contact the [webmaster](#).

### University Transportation Centers

**September 09, 2011.** The U.S. Department of Transportation requests proposals for the University Transportation Centers Program Open Competition. The purpose of the Centers is to advance U.S. technology and expertise in transportation through research, education, and technology transfer; and to provide a critical transportation knowledge base outside the DOT; and to address vital workforce needs for the next generation of transportation leaders. \$80 million expected to be available, up to 22 awards anticipated. Responses due 10/26/11. For more info, contact [UTC Grants](#) or go to [www.grants.gov](#). Refer to Sol# UTCOPENCOMP2011.

### Transportation (Electric) Innovations - California

**September 09, 2011.** The California Energy Commission requests proposals for Energy Innovations Small Grant Program - Transportation Program (Electric). This program supports projects that determine the feasibility of energy R&D in transportation subject areas including but not limited to: Standard vehicle battery pack design; battery system costs; vehicle charging infrastructure; consumer behavior; and efficient accessories. Individual hardware awards NTE \$95K, individual modeling awards NTE \$50K. Responses due 11/12/11. For more info, contact [Energy Innovations Small Grant Program](#) or go to [California Energy Commission](#). Refer to Sol# 11-02T - Electricity.

### Transportation (Natural Gas) Innovations - California

**September 09, 2011.** The California Energy Commission requests proposals for Energy Innovations Small Grant Program - Transportation

**Solicitations Newsletter**  
To receive *Solicitations*, a free monthly electronic newsletter that summarizes funding opportunities from state and federal government agencies, [request a subscription via e-mail](#).

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

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**Information Resources**  
Learn about Clean Cities by exploring these information resources.

**Publications** ▶  
View Clean Cities–branded publications or search for publications about alternative fuels and vehicles.

**Technical Assistance** ▶  
Learn about technical assistance available to help organizations overcome barriers to alternative fuel and advanced vehicle projects.

**More Resources**  
Find more information through these online resources.

**Alternative Fuels and Advanced Vehicles Data Center**  
Use tools and find information about alternative fuels and vehicles.

**FuelEconomy.gov**  
Find cars and compare gas mileage, petroleum use, carbon footprints, and more.

**Clean Cities TV**  
Watch webcasts and videos about alternative and renewable fuels.



U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Vol. 15, No. 1  
April 2011

# Clean Cities Now



## Plugging In

Cities are planning for electric vehicle infrastructure



Raleigh, NC Los Angeles, CA Houston, TX Oregon

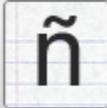
Clean Cities TV to Broadcast Coalition Successes

Keeping Trash from Going to Waste with Renewable Natural Gas

Renewable Fuels In New Jersey



U.S. Department of Energy



**Spanish Resources**  
Publications and Web tools  
available in Spanish ▶

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

Encuentre y Compare | Ahorrar Gasolina | Precios de Gasolina | Sus MPG | ¿Por qué es importante ahorrar gasolina? | Sus Millas Por Galón | Híbridos, Diesel, Combustibles Alternativos, Etc.

Departamento de Energía de U.S. | Imprimir Guía Para Ahorrar Gasolina | Agencia de Protección Ambiental de U. S.

U.S. DEPARTMENT OF **ENERGY** | Energy Efficiency & Renewable Energy

## PROGRAMA DE TECNOLOGÍAS DE VEHÍCULOS

### Vehículos de combustible flexible: brindando opciones en combustible renovable

Hoy en día, circulan casi 8 millones de vehículos de combustible flexible (Flexible Fuel Vehicles, o FFV) en las autopistas del país. Estos vehículos pueden funcionar con gasolina o una mezcla de gasolina y etanol hasta E85 (85% etanol, 15% gasolina). Se produce en forma predominante en los Estados Unidos a partir de cosechas locales, y su combustión es más limpia que la de la gasolina.

#### ¿Qué es un vehículo de combustible flexible (FFV)?

Un vehículo de combustible flexible, como su nombre lo indica, tiene la flexibilidad de funcionar con más de un tipo de combustible. Los FFV se pueden cargar con gasolina sin plomo, E85 o una combinación de ambos. De la misma manera que los vehículos de gasolina convencionales, los FFV tienen un solo tanque, sistema de combustible y motor. Y se ofrecen en una amplia gama de modelos, como sedanes, camionetas y minivans. Los vehículos FFV livianos están diseñados para funcionar con por lo menos un 15% de gasolina, fundamentalmente para poder arrancar en climas fríos.

Los FFV están equipados con componentes modificados, diseñados especialmente para ser compatibles con las propiedades químicas del etanol. Las modificaciones principales que se realizan en los FFV se ilustran al

la Junta de Recursos del Aire de California. El uso de conversiones no certificadas es ilegal y puede afectar la garantía de su vehículo.

Para obtener más información sobre el proceso de conversión de vehículos, consulte la Guía de certificación actualizada para convertidores de combustible alternativo de la EPA en su sitio web, [www.epa.gov/otaq/cert/dicarmf/ctsd0602.pdf](http://www.epa.gov/otaq/cert/dicarmf/ctsd0602.pdf).

#### ¿El E85 afecta el desempeño del vehículo?

Los FFV que funcionan con E85 en general se comportan y desempeñan de la misma manera que cuando se los alimenta con gasolina. Los sensores del sistema de los FFV automáticamente compensan por el tipo de combustible utilizado para que las emisiones y el desempeño de potencia y aceleración no varíen significativamente



Los vehículos de combustible flexible pueden funcionar con gasolina sin plomo, E85 o una combinación de los dos.

#### ¿Cuánto cuesta el E85 y cuáles son sus beneficios?

Los dispositivos especiales que se deben instalar para que los vehículos funcionen con E85 pueden agregar un costo mínimo al precio de compra. Como tienen un sólido historial de desempeño, los fabricantes

Ahorre Dinero

Reduzca los Gastos de Dependencia del Petróleo

el Cambio Climático

Aumenta la sostenibilidad energética

### ¿Por qué es importante ahorrar gasolina?

#### Le Ahorra Dinero

Ahorre hasta 1,400 dólares en gasolina cada año por elegir el vehículo más eficiente para sus necesidades. [¡Vea cuánto puede ahorrar!](#)



#### Reduzca los Gastos de Dependencia del Petróleo

Nuestra dependencia del petróleo nos hace vulnerables a la manipulación del mercado del petróleo y las crisis de precios. [¡Descubra cómo la dependencia del petróleo perjudica nuestra economía!](#)



#### Reduzca el Cambio Climático

El dióxido de carbono (CO<sub>2</sub>) de la combustión de gasolina y diesel contribuye al cambio climático global. ¡Usted puede hacer algo para reducir el cambio climático, al reducir su huella de carbono!



#### Aumenta la sostenibilidad energética

El petróleo es un recurso no renovable, y no podemos mantener nuestro ritmo actual de uso de forma indefinida. Si lo usamos inteligente ahora nos da tiempo para encontrar tecnologías y combustibles alternativos que sean más sostenibles.



# Clean Cities TV

- Home
- About
- News
- Help
- Contact

> Home

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## Webcasts

- Upcoming Webcasts
- Archived Webcasts

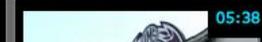
Alternative Fuels, Vehicles, and Technologies

Training

Events

Content Partners

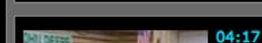
## Featured Videos



2011 Clean Cities Stakeholder Summit Overview



Mammoth Cave Fuel Economy Initiative



First Responder Vehicle Safety Training

## Featured Webcasts & Events



## AFDC Website

- Alternative Fueling Station Locator
  - Incentives and Laws
  - Vehicle Searches
  - Data, Analysis, and Trends
  - Alternative Fuel Price Report
  - Technology bulletins & newsletters
  - State-specific Web pages
  - Cost calculators
  - Idle reduction equipment listing
  - Searchable document database
- ...and MORE!



The screenshot shows the homepage of the Alternative Fuels & Advanced Vehicles Data Center (AFDC). The header features the U.S. Department of Energy logo and the text "Energy Efficiency & Renewable Energy". Below this is the AFDC title and a navigation menu with links for "About the AFDC", "Fuels", "Vehicles", "Fleets", "Incentives & Laws", "Data, Analysis & Trends", and "Information Resources". A banner celebrates "20 Years of Alternative Fuel Information". The main content area includes a "State Information" dropdown, a "Tools" section with links to "Alternative Fueling Station Locator", "Incentives & Laws Search", "Light-Duty Vehicle Search", "Heavy-Duty Vehicle Search", and "Publications", and a "More Tools" link. There are also sections for "Fuels" (Hydrogen, Biodiesel, Natural Gas, Electricity, Propane, Ethanol), "Vehicles" (Conversions, Emissions, Electric Drive, Fuel Economy, Flex Fuel, Idle Reduction), and "Data". A right sidebar contains a search bar, "Site Map", "EERE Information Center", "NEWS" (Clean Cities Celebrates 20 Years of Data Collection and Dissemination), "EVENTS" (2011 Clean Transportation Exposition), and "FEATURES" (Template for Charging Station Permits, ARRA Plug-In Electric Vehicle Projects, MotorWeek Videos). A "Printable Version" link is at the bottom left.

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

EERE Home | Programs & Offices | Consumer Information

## Clean Cities

Clean Cities  SEARCH

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HOME ABOUT COALITIONS FINANCIAL OPPORTUNITIES INFORMATION RESOURCES COORDINATOR TOOLBOX **NEWS** EVENTS

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### Clean Cities News

Newsletter

Information for Media

### Subscribe to RSS Feeds

The Clean Cities RSS (real simple syndication) feed tracks news from the U.S. Department of Energy (DOE) and other sources, making it convenient and easy to stay up to date with the Clean Cities program and alternative transportation technologies. [Learn more about RSS.](#)

### Clean Cities RSS Feed

The Clean Cities RSS feed is updated each time a news story is posted on the website.

[Subscribe to the Clean Cities News feed.](#)

### Additional Energy Efficiency and Renewable Energy RSS Feeds

DOE's Office of Energy Efficiency and Renewable Energy (EERE) offers additional news and event feeds is available in the [EERE news section.](#)

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## EERE News

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### Subscribe to News Updates

The Office of Energy Efficiency and Renewable Energy (EERE) offers these news services that cover the EERE industry:

#### EERE Network News

A free weekly newsletter that summarizes the latest news from EERE as well as the latest national news about renewable energy and energy efficiency. [Subscribe](#)

#### EERE Progress Alert

A free email bulletin that announces new and significant developments in EERE's programs and research. Issued as developments occur. **Note: Subscribe to Progress Alerts to receive updates on EERE's Recovery Act activities.** [Subscribe](#)

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Enter E-mail

EERE Progress Alerts  
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This section allows you to browse and search a database of federal and state laws and incentives related to alternative fuels and vehicles, air quality, fuel efficiency, and other transportation-related topics.

Federal  
Incentives and Laws

State  
Incentives and Laws

### Search All Incentives and Laws >

Use an advanced search to find a specific federal or state incentive or law.

### View Tables of Incentives and Laws >

View tables of incentives and laws sorted by state.

### Read Key Legislation >

Read selected federal legislation summaries related to transportation technologies.

### Federal Incentives and Laws

Listed below are federal incentives, laws and regulations, funding opportunities, and other federal initiatives related to alternative fuels and vehicles, advanced technologies, or air quality. For more information, see the [Financial Opportunities](#) section or refer to:

- [Key Federal Legislation Summaries](#)
- [Recent Federal Actions](#)

### Incentives, Laws, and Programs

The information in this list is updated after legislation is enacted.

Sort by:  Category  Agency

#### Incentives

- [Advanced Energy Research Project Grants](#)
- [Advanced Technology Vehicle \(ATV\) Manufacturing Incentives](#)
- [Alternative Fuel Infrastructure Tax Credit](#)
- [Alternative Fuel Tax Exemption](#)
- [Biobased Transportation Research Funding](#)
- [Biomass Research and Development Initiative](#)
- [Cellulosic Biofuel Producer Tax Credit](#)
- [Fuel Cell Motor Vehicle Tax Credit](#)
- [Hydrogen Fuel Excise Tax Credit](#)
- [Hydrogen Fuel Mixture Excise Tax Credit](#)
- [Idle Reduction Equipment Excise Tax Exemption](#)
- [Improved Energy Technology Loans](#)
- [Light-Duty Hybrid Electric Vehicle \(HEV\) and Advanced Lean Burn Vehicle Tax Credit](#)
- [Qualified Alternative Fuel Motor Vehicle \(QAFMV\) Tax Credit](#)
- [Qualified Plug-In Electric Drive Motor Vehicle Tax Credit](#)
- [Renewable Energy Systems and Energy Efficiency Improvements Grants](#)
- [Small Ethanol Producer Tax Credit](#)
- [Value-Added Producer Grants \(VAPG\)](#)
- [Volumetric Ethanol Excise Tax Credit \(VEETC\)](#)

#### Laws and Regulations

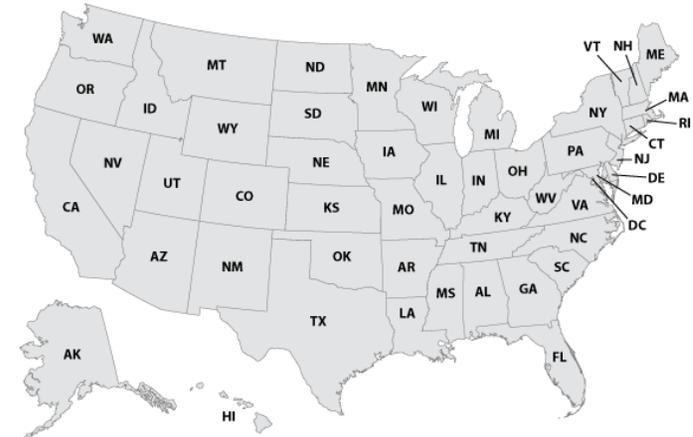
- [Aftermarket Alternative Fuel Vehicle \(AFV\) Conversions](#)
- [Alternative Fuel Definition](#)

### State Incentives and Laws

To view a state's incentives and laws related to alternative fuels and advanced vehicles, select a state from the map or menu below.

Select a State  Go

Advanced Search



## Alternative Fuels & Advanced Vehicles Data Center

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

### Data, Analysis & Trends



[Printable Version](#)

Data stored in the Alternative Fuels and Advanced Vehicles Data Center (AFDC) can provide insight to policymakers, entrepreneurs, fuel users, and other parties interested in reducing petroleum consumption. The National Renewable Energy Laboratory analyzes transportation-related data and identifies trends related to alternative fuels and vehicles. These analyses are posted in the AFDC as technical reports and Excel spreadsheets that can be manipulated by outside users. To provide the most robust collection of information possible, this section also includes links to data analyses from outside the AFDC. These sources are noted in each file.

This page serves as a table of contents for the Data, Analysis, and Trends section. For more information, choose the following links.

- [Vehicles](#)
- [Fuels](#)
- [Infrastructure](#)
- [Biomass Resources](#)
- [Geographic](#)
- [Incentives and Laws](#)
- [Clean Cities](#)
- [State and Alternative Fuel Provider Fleets](#)
- [Federal Fleets](#)
- [Data Collection Methodologies](#)

For more information about the data, analysis, and trends presented on these pages, please contact [Caley Johnson](#) at the National Renewable Energy Laboratory.

[Printable Version](#)

Site Map  
EERE Information Center

**FEATURES**

-  **Petroleum Reduction Planning Tool**
-  **Alternative Fuel Price Report**
-  **Total Station Counts**  
By State and Fuel Type
-  **Clean Cities**

U.S. Department of Energy  
Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

AFDC

EERE Home

## Alternative Fuels & Advanced Vehicles Data Center

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

Help > Methodology >

### Petroleum Reduction Planning Tool

The Petroleum Reduction Planning tool helps fleets, consumers, and business owners create a strategy to reduce conventional fuel use in fleet and personal vehicles. This interactive tool allows users to evaluate and calculate petroleum reductions by choosing one or a combination of the following methods:

- Alternative Fuels
- Hybrid Electric Vehicles
- Biodiesel Blends
- Fuel Economy
- Vehicle Miles Traveled Reduction
- Truck Stop Electrification
- Idling Time Reduction
- Onboard Idle Reduction

#### Get Started

**Guest User:** No password is required. Full planning functionality is provided but scenarios cannot be saved.

**Registered User:** Create and save one or more scenarios, which can be accessed for editing and analysis.

**Register Now:** Registering allows users to create, save, and edit scenarios for further analysis.

[Password Reminder](#)

[AFDC Home](#) | [EERE Home](#) | [U.S. Department of Energy](#)  
[Webmaster](#) | [Web Site Policies](#) | [Security & Privacy](#) | [AFDC Disclaimer](#) | [USA.gov](#)  
 Content Last Updated: 02/04/2009



Help > Methodology > Log In < Step 1 <

### Petroleum Reduction Planning Tool

Step 2: Create Your Petroleum Reduction Scenario

Use the color-coded tabs below to choose a [method](#) you would like to explore. Your petroleum reduction scenario can consist of one method or a combination of them. After saving your inputs, switch methods by choosing another tab. To generate a printable version of your scenario, select the Generate Plan button below.

Alternative Fuels | HEVs | Biodiesel Blends | Fuel Economy | VMT Reduction | Truck Stop Electrification | Idling Time Reduction | Onboard IR

Help >

[Generate Plan >](#)

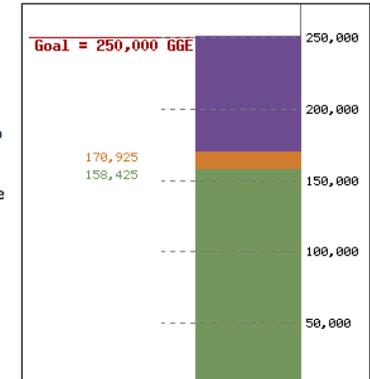


## Petroleum Reduction Plan

Scenario Name: Test2  
Annual Petroleum Reduction  
Goal: 250000 GGE

Based on your inputs, this is your petroleum reduction goal and associated plan. You may print the information on this page and use it to help you reach your goal. If you are a registered user, this scenario is saved in the system and you may make changes at a future time.

To alter your plan, return to [Step 2](#).



### Alternative Fuels

AFV Type	AFV Fuel	Number of AFVs	Average VMT	Fuel Economy (mpg)	Fraction of Fuel Use	GGE Reduced
Large Pickup/Utility	LPG	50	10000	20	1	25000
Midsized Car	E85	100	15000	25	1	47400
HD Truck > 26k lb	CNG	25	15000	5	1	86025
<b>TOTAL GGE</b>						<b>158425</b>

### Hybrid Electric Vehicles (HEVs)

Fuel Type	Number of Vehicles	Average VMT	Fuel Economy of new HEVs	Fuel Economy of Old Vehicles	GGE Reduced
Gasoline	75	15000	45	30	12500
<b>TOTAL GGE</b>					<b>12500</b>

### Biodiesel Blends

Vehicle Type	Blend Type	Number of Vehicles	Average VMT	Fraction of Fuel Use	Fuel Economy	GGE Reduced
HD Truck > 26k lb	B50	50	15000	1	5	80777
<b>TOTAL GGE</b>						<b>80777</b>

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Energy Efficiency & Renewable Energy

Alternative Fuels & Advanced Vehicles Data Center

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

## Alternative & Advanced Vehicles

- Light-Duty Vehicle Search
- Heavy-Duty Vehicle Search
- Flexible Fuel Vehicles
- Natural Gas Vehicles
- Propane Vehicles
- Hybrid & Plug-In Electric Vehicles
- Fuel Cell Vehicles
- Diesel Vehicles
- Conversions
- Resale
- Technician Training
- Idle Reduction
- Fuel Economy
- Emissions

[Printable Version](#)

Millions of light- and heavy-duty alternative fuel and advanced technology vehicles are used by state and federal agencies, private companies, and consumers. Alternative fuel and advanced vehicles come in a variety of makes and models and run on a number of different fuels.

**Alternative Fuel and Advanced Technology Vehicles**  
An alternative fuel vehicle is a dedicated, flexible fuel, or dual-fuel vehicle designed to operate on at least one [alternative fuel](#). An advanced vehicle combines new engine, power, or drivetrain systems to significantly improve fuel economy.

- [All-Electric Vehicles](#)
- [Flexible Fuel Vehicles](#)
- [Natural Gas Vehicles](#)
- [Propane Vehicles](#)
- [Diesel Vehicles](#) (using biodiesel)
- [Fuel Cell Vehicles](#)
- [Hybrid Electric Vehicles](#)
- [Plug-In Hybrid Electric Vehicles](#)

Tools for Vehicles

[Light-Duty Vehicle Search](#): Find a hybrid or alternative fuel car or light-duty truck

[Alternative Fueling Station Locator](#): Find alternative fueling station locations

[Heavy-Duty Vehicle Search](#): Find a hybrid or alternative fuel heavy-duty vehicle

[TransAtlas](#): Explore a map of alternative fuel and vehicle data

[Search Help](#) [More Search Options](#)

[Site Map](#)  
[EERE Information Center](#)

**PUBLICATIONS**

[Model Year 2011: Alternative Fuel and Advanced Vehicles](#)

[See more years](#)

[Clean Cities 2011 Vehicle Buyer's Guide](#)

[Clean Cities Guide to Alternative Fuel and Advanced Medium- and Heavy-Duty Vehicles](#)

[More Publications](#)

## Alternative Fuels & Advanced Vehicles Data Center

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**Basic Station Search** | [Map a Route](#) | [Stations by State](#)

**First: Select one or more fuels.**

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

**Second: Enter a complete address or zip code.**

Show stations within a  mile radius.

[Advanced Options](#)

**Alternative Fueling Station Locator**

[Help](#)

Results 1 to 10 of 15

- A** [Clean Energy - Denver](#)  
Compressed Natural Gas  
1123 W 3rd Ave  
Denver CO 80223  
Phone: 303-571-3927  
Distance: 1.7 Miles  
Access: Public - card key at all times
- B** [Clean Energy - Diamond Shamrock](#)  
Compressed Natural Gas  
1001 Broadway St  
Denver CO 80204  
Phone: 800-366-4602  
Distance: 2.1 Miles  
Access: Public - card key at all times
- C** [Clean Energy - Natural](#)  
Compressed Natural Gas  
5901 Sheridan Blvd  
Arvada CO 80003  
Phone: 800-366-4602  
Distance: 4.8 Miles

1 2 >>

Map | Satellite | Hybrid

Map data ©2009 Tele Atlas - [Terms of Use](#)

Some locations can't be precisely located by the mapping application, so we recommend you call stations to verify location, hours of operation, and access.

[Learn about our data collection methodologies.](#)

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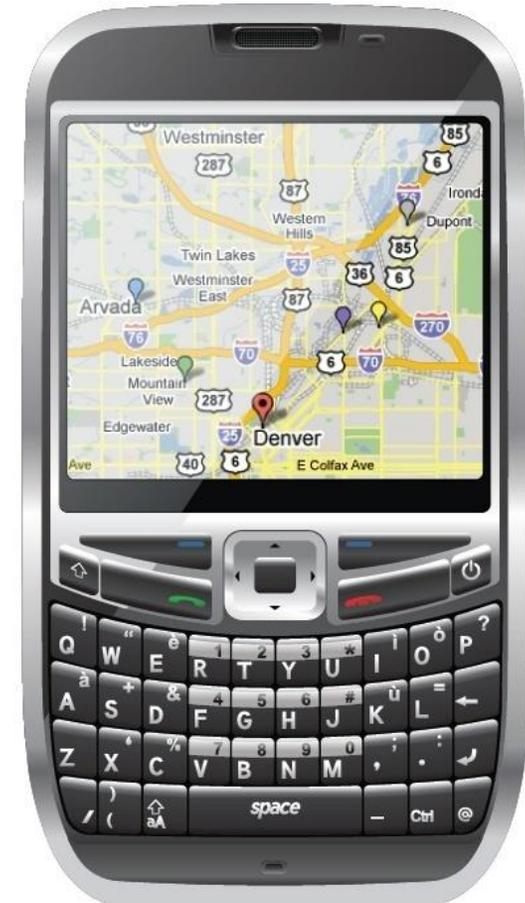
 **Alternative Fueling Station Locator**

**Fuel Type**  
Ethanol (E85)

**Location**  
Enter a city, postal code, or address

**Include private stations**  
Not all stations are open to the public. Choose this option to also search private fueling stations.

Caution: The AFDC recommends that users verify that stations are open, available to the public, and have the fuel prior to making a trip to that location. Some stations in our database have addresses that could not be located by the Station Locator application. This may result in the station appearing in the center of the zip code area instead of the actual location.



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Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

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

## Data, Analysis & Trends

Search Help | More Search Options

Vehicles | Fuels | Infrastructure | Biomass Resources | Geographic | Incentives & Laws | Clean Cities | State & Alternative Fuel Provider Fleets | Federal Fleets | Data Collection Methodologies

### Geographic

Implementing advanced vehicles, fuels, and infrastructure must be coordinated geographically, as well as temporally. Maps facilitate this coordination. This page features maps that illustrate the convergence of flexible fuel vehicles (FFVs), Clean Cities coalitions, alternative fueling stations, fuel production facilities, and transportation routes for E85. Also available are maps highlighting U.S. biomass production and areas of highest potential for hydrogen consumption.

Go to TransAtlas | **TranAtlas**

This **interactive map** uses a Google Maps interface to display:

- Existing and planned alternative fueling stations
- Alternative fuel production facilities
- Light-duty vehicle density
- Roads and political boundaries

Users can customize the map display, print, and query the underlying data.

TransAtlas is part of a suite of geographic analysis tools for renewable energy developed at the National Renewable Energy Laboratory.

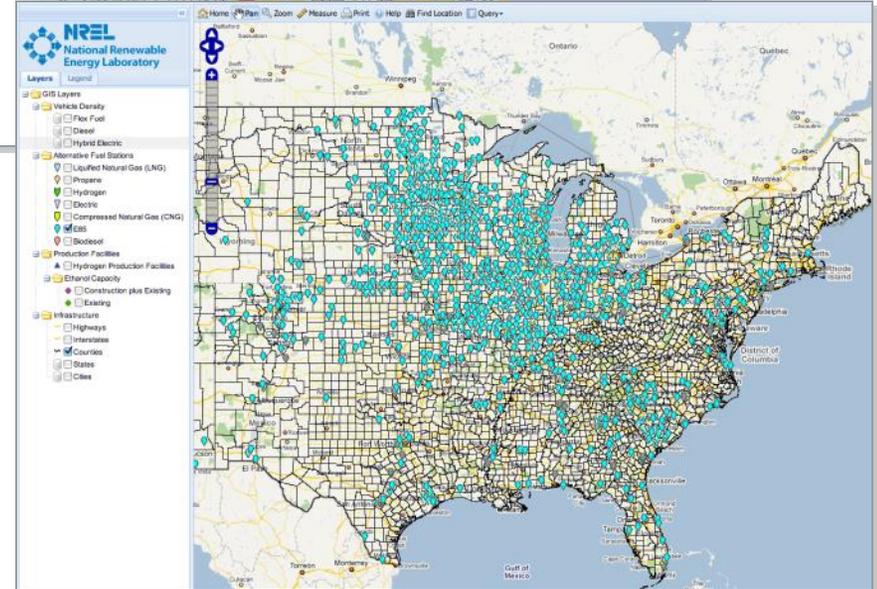
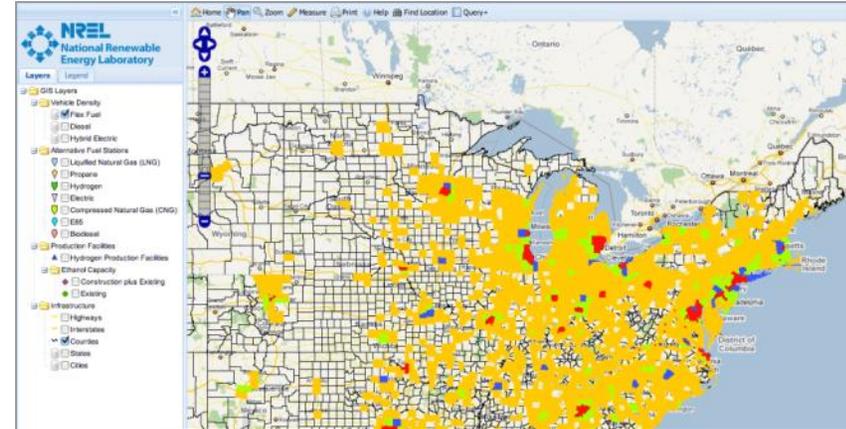
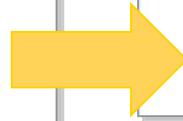
The following tables feature PDF and JPEG files that can be downloaded and saved. [Download Adobe Reader.](#)

### E85 Maps

Description	File
<b>E85 FFVs, Clean Cities Coalitions, and E85 Refueling Stations</b> Map combining regions with more than 2% penetration of E85-capable FFVs, Clean Cities coalitions, and E85 stations	<a href="#">Download Map</a> (PDF 11.7 MB)
<b>FFV Registrations by Zip Code</b> Map of E85 FFV penetration levels by U.S. zip codes	<a href="#">Download Map</a> (PDF 3.5 MB)
<b>US Federal FFV Fleets and E85 Stations</b> Map of federal FFV fleets and E85 refueling stations	<a href="#">Download Map</a> (JPEG 11.2 KB)
<b>Minnesota Ethanol Infrastructure and Population</b> Map of Minnesota's ethanol refineries, E85 refueling stations, and zip-codes based population and FFV penetration	<a href="#">Download Map</a> (JPEG 88.7 KB)

### Biomass and Hydrogen Maps

Description	File
<b>Biomass Resources Available in the United States</b> Map of available U.S. biomass resources	<a href="#">Download Map</a> (JPEG 129 KB)
<b>Hydrogen Infrastructure Demand Consumer Strategy</b> Map of hydrogen demand	<a href="#">Download Map</a> (JPEG 78 KB)



Clean Cities

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

Alternative Fuels & Advanced Vehicles Data Center

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

Clean Cities Coordinator Contact Information and Coalition websites

[www.afdc.energy.gov/cleancities/coalitions/coalition\\_locations.php](http://www.afdc.energy.gov/cleancities/coalitions/coalition_locations.php)

DOE EERE Information Center and Technical Response Service

Web Site: <http://www.eere.energy.gov/afdc/informationcenter.html>

Phone: 1-800-EERE-INFO (1-877-337-3463)

Email: [technicalresponse@icfi.com](mailto:technicalresponse@icfi.com)

Hours: 9:00 a.m. – 6:00 p.m. EST

## Clean Cities Information Resources

[http://www1.eere.energy.gov/cleancities/info\\_resources.html](http://www1.eere.energy.gov/cleancities/info_resources.html)

## Data, Analysis & Trends

<http://www.afdc.energy.gov/afdc/data/index.html>

## Clean Cities Financial Opportunities

[http://www1.eere.energy.gov/cleancities/financial\\_opps.html](http://www1.eere.energy.gov/cleancities/financial_opps.html)

## AFDC Prep tool

<https://www.afdc.energy.gov/afdc/prep/index.php>

## Fleets

<http://www.afdc.energy.gov/afdc/fleets/index.html>

## Vehicle Search

[http://www.afdc.energy.gov/afdc/progs/vehicles\\_search.php](http://www.afdc.energy.gov/afdc/progs/vehicles_search.php)

## Publications Database

<http://www.afdc.energy.gov/afdc/publications.html>

## Alternative Fuel Station Locator

<http://www.afdc.energy.gov/afdc/locator/stations/>

## State and Federal Incentives & Laws

[http://www.afdc.energy.gov/afdc/incentives\\_laws.html](http://www.afdc.energy.gov/afdc/incentives_laws.html)

## TransAtlas

<http://www.afdc.energy.gov/afdc/data/geographic.html>

## Truck Stop Electrification Locator

[http://www.afdc.energy.gov/afdc/vehicles/idle\\_reduction\\_stations.html](http://www.afdc.energy.gov/afdc/vehicles/idle_reduction_stations.html)

## Conversions

<http://www.afdc.energy.gov/afdc/vehicles/conversions.html>

Energy Information Administration (EIA)

<http://www.eia.doe.gov>

U.S. Environmental Protection Agency (EPA)

<http://www.epa.gov>

Internal Revenue Service (IRS)

<http://www.irs.gov>

**Pamela Burns**

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**Dallas-Fort Worth  
CLEAN CITIES**