



US Experience in Alternative Transport Fuels

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What are alternative transport fuels?

Alternative fuels can broadly be thought of as any transport energy source which provides an “alternative” to gasoline or diesel.

In the US, we generally cite the definition from the Energy Policy Act of 1992 which includes ethanol, natural gas, propane, hydrogen, biodiesel, electricity, methanol, and p-series fuels (pentane blends).

Alternative Fuel and Advanced Technology Vehicles and Characteristics

- Table 6.1 Alternative fuel vehicles in use, 2004 estimates **547,904**
 - **LPG 194,389**
 - **CNG 143,742**
 - **E85a 146,195**
 - **Electric 55,852**
 - **M85 4,592**
 - **LNG 3,134**
- Table 6.4 Number of alternative fuel refuel sites, 2003 **6,230**
 - **LPG 3,966**
 - **CNG 1,035**
 - **Electric 830**
- Source: TRANSPORTATION ENERGY DATA BOOK: EDITION 24, Oak Ridge National Laboratory, December 2004
- <http://cta.ornl.gov/data/index.shtml>

Alternative fuel programs are occur across multiple agencies at both the federal and state levels

- US Department of Energy
- US Environmental Protection Agency
- US Department of Agriculture
- State energy agencies
- Industry trade associations

US DOE has both technology and fuel development programs

- **The FreedomCAR and Vehicle Technologies (FCVT) Program is developing more energy efficient and environmentally friendly highway transportation technologies that will enable America to use less petroleum**
 - <http://www.eere.energy.gov/vehiclesandfuels/>

- **The Biomass Program develops technology for conversion of biomass (plant-derived material) to valuable fuels, chemicals, materials and power, so as to reduce dependence on foreign oil and foster growth of biorefineries.**
 - <http://www.eere.energy.gov/biomass/>

US Department of Agriculture

- **The Bioenergy Program seeks to expand industrial consumption of agricultural commodities by promoting their use in production of bioenergy (ethanol and biodiesel).**
- **USDA provides two types of Programs: Business Programs & Cooperative Services.**
 - **Business and Industry (B&I) Guaranteed Loan Program**
 - **Rural Business Opportunity Grants**
 - **Value-Added Agricultural Product Market Development Grants - Independent Producers**
- **The FY 2005 appropriations bill approved Program funding of \$100 million for FY 2005.**
- **http://www.fsa.usda.gov/daco/bio_daco.htm**

Example: Rural Business Opportunity Grants

- Rural Business Opportunity Grants: Designed to promote economic development in rural communities by making grants to pay the costs of providing economic planning, technical assistance, or training. Applicants must be a public body, nonprofit corporation, Indian tribe, or cooperative with members that are primarily rural residents. Applicants must have expertise in the activities proposed and be able to demonstrate that funding will result in rural economic development. A maximum of \$1.5 million is available for the program, with most grants of \$50,000 or less.
- http://www.ethanolrfa.org/leg_position_usda.shtml

The US Environmental Protection Agency

- **EPA promotes and expands the use of environmentally beneficial alternative fuels and vehicles by providing the states with tools, such as benefits models, State Implementation Plan Credits, and the Clean Fuels Fleet program.**
- **Two page fact sheets available on:**
 - Compressed natural gas
 - Biodiesel
 - Electric Vehicles
 - Ethanol
 - Fisher-Tropsch
 - Liquefied Natural Gas
 - Methanol
 - Propane
- **<http://www.epa.gov/otaq/consumer/fuels/altfuels/altfuels.htm>**

The Renewable Energy Fuels Association produces a free monthly newsletter

Best practices handbooks are also available

FUEL ETHANOL

Industry Guidelines,

Specifications, and Procedures

Dec. 2003

www.ethanolrfa.org

US Goals are defined in terms of fuel blending

- **By 2007, identify fuel formulations optimized for use in 2007-2010 technology diesel engines that incorporate use of non-petroleum-based blending components with the potential to achieve at least a 5 percent replacement of petroleum fuels.**
- **By 2010, identify fuel formulations optimized for use in advanced combustion engines (2010-2020) providing high efficiency and very low emissions, and validate that at least 5 percent replacement of petroleum fuels could be achieved in the following decade.**
 - Feb. 2005
 - Ethanol Production: 245,000 bpd (2.2%) of the
 - total gasoline (est.) 11,170,000 bpd

US suggested APEC joint R&D projects

- **Vehicles: emission and performance testing of two cycles engines with biodiesel**
- **Fuel production: demonstration of producing cellulosic ethanol**

