

AFDC UPDATE

News of the Alternative Fuels Data Center

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What is the Alternative Fuels Data Center (AFDC)?

Researchers across the United States are working on economic and efficient methods for producing alternative fuels from the nation's natural resources: coal, natural gas, and biomass such as wood and herbaceous grasses. Collection and analysis of actual in-use performance data on these fuels and alternative-fueled vehicles is vital for proving the viability of alternative fuels and enhancing alternative-fueled vehicle performance.

The Alternative Fuels Data Center (AFDC) exists to collect, analyze, and distribute such data. The AFDC was developed in response to the Alternative Motor Fuels Act (AMFA) of 1988 and the Clean Air Act Amendments of 1990. AMFA became the federal statute (Public Law 100-494) that mandates the encouragement for production and utilization of motor

vehicles designed to operate on alternative fuels, such as ethanol, methanol, and compressed and liquefied natural gas (CNG/LNG).

The U.S. Department of Energy (DOE) has been directed to undertake certain tasks to implement alternative fuel projects in the transportation sector. DOE identified the National Renewable Energy Laboratory (NREL), in Golden, CO, as the field manager for these activities. As DOE's lead laboratory for renewable energy research, NREL houses the AFDC.

The AFDC provides unbiased, accurate information on alternative fuels and alternative-fueled vehicles to government agencies, private industry, research institutions, and other interested organizations. Along with the design and operation of the easily accessed, comprehensive data base, the AFDC will issue periodic reports and newsletters describing significant events and conclusions resulting from the AFDC data analysis and contributed field-site information. The AFDC will be accessible to a limited number of test users by the end of October.

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The Alternative Fuels Data Center (AFDC) collects, analyzes, and distributes data on alternative fuel usage.

Where Will the Data Come From?

The AFDC works with various organizations that operate alternative-fueled vehicles.

- Urban Mass Transportation Administration (UMTA)—Battelle/Columbus Laboratory has been collecting bus performance data as part of the UMTA alternative fuels initiative for several years.
- California Energy Commission (CEC)—CEC has introduced alternative-fueled vehicle fleets operated by state and county governments.
- New York State Energy Research and Development Authority (NYSERDA)—NYSERDA supports the operation of alternative-fueled vehicles through the New York State Thruway Authority and the New York City Department of Sanitation.
- General Services Administration (GSA)—In cooperation with DOE, GSA has purchased and placed in the field several methanol light-duty fleets with an aggressive plan to implement CNG/LNG and ethanol fleets.
- American Trucking Association (ATA)—ATA will coordinate efforts to secure information from non-DOE-sponsored heavy-duty truck/alternative fuel demonstrations involving ATA member companies.

What Data Will the AFDC Collect?

Ethanol, methanol, and CNG/LNG are the alternative fuels selected for analysis, primarily because of their domestic productivity and their potential favorable emissions characteristics.

AMFA called for targeted activities in three primary categories:

- Light-duty Vehicles (LDV) — Cars, vans, and pickups operating within the federal fleet, currently contains 65 methanol-fueled flexible vehicles and 16 control



A methanol bus currently in use in Denver, CO

vehicles. Data are being received regularly from Detroit, San Diego, Los Angeles, and Washington, DC. Fifty dedicated CNG vans and twenty-five ethanol-fueled flexible vehicles have been procured and are awaiting delivery.

- Heavy-duty Vehicles (HDV) — Operating within commercial fleets in both line-haul and short-haul services. Currently, projects are under way with DOE sponsorship to demonstrate alternative fuels in 15 different heavy-duty vehicle units, encompassing 5 heavy-duty engine families and featuring natural gas, methanol, and ethanol fuels. ATA has identified more than 100 other projects involving more than 1500 alternative-fueled units that may be supported by DOE through ATA.
- Buses — In cooperation with UMTA's Clean Air Program, data are being sent to the center on current operations that use buses in the following fuel categories: 59 methanol, 69 CNG, 2 LNG, and 31 ethanol/diesel.

Examples of information collected are a vehicle daily log that tracks mileage, driveability, and performance; emissions test data; lubrication oil analyses; fuel analysis reports; maintenance reports; environmental, safety, and health issues; and basic vehicle and powertrain data.

The AFDC will also provide information on alternative-fueled engines for heavy-duty vehicle use from major engine manufacturers. Examples are vehicle description, type of fuel, fuel economy and range, emission levels, and special maintenance and lubricant requirements. Specific engine descriptions and appropriate vehicular applications will be included as well. Information will also be furnished on the manufacturers who offer the engines and the types of vehicles each manufacturer provides.

The AFDC also allows access to information on alternative-fueled vehicle availability. This data base includes

Legislation

Senators Johnston (D-LA) and Wallop (R-WY) introduced their comprehensive energy bill, the "National Energy Security Act," shortly before the Administration unveiled its "National Energy Strategy Act." Although these two bills parallel each other, the Johnston/Wallop Act was streamlined through the Senate Energy Committee, chaired by Johnston.

The Johnston/Wallop Act mandates that government agencies and private businesses with fleets phase in vehicles that run on alternative fuels. If enacted, the Act would require at least 10% of new vehicles purchased for federal fleets to run on alternative fuels by 1995. The percentage would increase to 90% by 2000. Larger state-operated fleets would be required to meet the same criteria. Larger municipal and private fleets would have to purchase the alternative-fueled vehicles at a rate of 30% beginning in 1998, increasing to 70% by 2000.

Eligible alternative fuels would include methanol, ethanol, alcohol mixtures with less than 15% gasoline, CNG/LNG, hydrogen, and coal-derived liquid fuel.

The Johnston/Wallop bill directs the Secretary of Energy to develop a plan to promote alternative transportation fuels, with a target goal of replacing 30% of projected petroleum-based motor fuel utilization by the year 2010.

At press time, action was expected on the bill in October.

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production figures, time frames for availability, types of vehicles, fuel types, and other specifications. These data will be made available to federal, state, and local agencies, as well as others considering the purchase of non-gasoline vehicles.

The center monitors the availability of the alternative fuels as well. The current inventory includes more than

People in the News

Robert J. Wooley

Dr. Wooley became the manager of the AFDC in August. His pertinent experience in previous data centers is accompanied by a strong technical background. While receiving his Ph.D. in Chemical Engineering at the University of Florida, Wooley developed a computerized physical property prediction system. He also gained much industry expertise as the former chairman of Dow Corning's Engineering Data Center. Wooley organized the creation of Dow Corning's first corporate physical property data base, organized the measurement of new data, and oversaw the implementation of these data into working computer systems. His academic training in thermodynamics has helped to model an alternative fuel process as well as many fuel conservation processes, analyses, and research projects.



J. Kevin O'Connor

As the data base analyst for the AFDC, O'Connor develops ORACLE® tools and procedures that allow processing of data to and from the AFDC, and designs the informational tables used to assemble AMFA fleet data. He also created the data entry scripts used to enter the data on vehicle weekly log sheets accepted by ORACLE®. He has also contributed to data base design and integration efforts. Previously, O'Connor developed software for AT&T's International System 75 PBX in the areas of call processing and networking.



300 refueling sites for CNG from the American Gas Association, as well as information on refueling sites for methanol. Data on availability of additional alternative fuels are currently being investigated by the AFDC.

What Type of Data Base is Used and How are Data Accessed?

AFDC uses an ORACLE® Relational Data Base Management System along with a statistical software package capable of providing statistical, graphic, and textual information to users. The data base is designed to function as a multi-user network with a remote access facility and will

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be available for inquiries from both national and international users. Data access for users will be controlled by a log-in identification system.

Hardware/software requirements are

- A personal computer with a serial port
- A 1200 or 2400 baud modem
- A phone line
- A communications software package, e.g., CROSSTALK®.

Until general on-line access is available, information requests will be handled through telephone inquiries. This newsletter will be the vehicle for announcing AFDC availability and user accessibility in the future. As the studies progress, the AFDC data will help decision makers determine the commercial viability of alternative fuels and alternative-fueled vehicles. By analyzing the data comprehensively, researchers will be able to substantiate the benefits of alternative fuels and identify opportunities for improving and enhancing engine and vehicle performance using alternative fuel options.

Suggestions for Future Issues

We would appreciate your input for future issues of *AFDC Update* so that we may provide the most helpful and informative material possible. Please send any comments to:

AFDC Update
c/o Alternative Fuels Data Center
National Renewable Energy Laboratory
1617 Cole Boulevard, Building 15/1
Golden, CO 80401-3393
(303) 231-7191

Meetings/Conferences

October 1991

October 27-29, the New Transportation for a New Century conference, sponsored by Cerrell Associates, Inc., will be held in Universal City, CA. For more information, please contact Blythe Egan or Danielle Sanford at (213) 466-3445 or write:

Cerrell Associates, Inc.
320 N. Larchmont Blvd.
Los Angeles, CA 90004

October 28-31, the Automotive Technology Development Contractors' Coordination Meeting, sponsored by DOE, will take place at the Ritz-Carlton, 300 Town Center Drive, Dearborn, MI, 48126. For further information, please contact Ms. Judi Abraham at (703) 754-0066.

November 1991

November 12-15, the International Symposium on Alcohol Fuels will take place in Florence, Italy. For details, please contact Ing. G. L. Barducci, int + 39-55-28-35-33.

September 1992

September 23-25, the Third IANGV Biannual International Conference and Exhibition on Natural Gas Vehicles will be held in Göteborg, Sweden. For more information, please contact Chairman Mats Ekelund at int + 46 8 7969995, fax int + 46 31 18 24 00, or write:

NGV '92 Conference, Congress
Box 5222
S-402 24 Göteborg, Sweden

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Managing Editor: René Texeira
Contributing Writer: Megan Smith
Graphic Artist: Vickie Laus
Photographer: Warren Gretz