

# AFDC UPDATE

News of the Alternative Fuels Data Center

## E85, CNG Data Available

This fall, the Alternative Fuels Data Center (AFDC), established by the U.S. Department of Energy's National Renewable Energy Laboratory, will make accessible

a variety of new information, including more data on light- and heavy-duty alternative fuel vehicles in addition to updated refueling site and vehicle availability summary documents.

Data collected from driver survey forms, maintenance invoices, emissions tests, and fuel and oil analyses from M85 (85% methanol, 15% gasoline), E85 (85% ethanol, 15% gasoline), and CNG (compressed

natural gas) vehicles will be available in October through AFDC/View for Windows, an easy-to-use on-line software program.

In November, the AFDC will make available similar information gathered from heavy-duty CNG and E95 (95% ethanol, 5% gasoline) trucks. In early 1994, data on ethanol-powered snowplows and other heavy-duty vehicles will be accessible. □

## AFDC/View Without Windows

Management System's Data Query is one new option for Alternative Fuel Data Center (AFDC) users who do

With a copy of the handbook, an AFDC password, and a user ID, the database can be accessed via modem through standard communications software packages such as Procomm, or network systems like Internet.

The manual gives basic command instructions for Oracle, as well as a "map" of AFDC file locations to assist in creating data queries. During transitional periods when data have been entered into the AFDC but are not accessible through the AFDC/View software, Data

## Case Study:

### AFDC Makes Available Data From Federal Express Vans

New data will be released this fall from the South Coast (California) Alternative Fuels Demonstration Project, CleanFleet, on more than 100 alternative fuel Federal Express delivery vans. Data documenting emissions, operations, and economics of these alternative fuel vehicles (AFVs) will be featured in the U.S. Department of Energy's (DOE) Alternative Fuels Data Center (AFDC).

The \$10.7 million CleanFleet project, co-sponsored by DOE, the South Coast Air Quality Management District, and 17 other organizations, is

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## The National Alternative Fuels Hotline frequently from new Alternative Center (AFDC) users. Below are typical and responses to user inquiries.



**Q.** What modem problems might users have when accessing the AFDC?

**A.** A few AFDC users have noticed modem problems when connecting to the data center. Baud rate, operating software, and line noise are a few factors that may influence modem performance. The AFDC does not recognize modems operating at 9600 baud or higher when using protocol: V.42 LAPM. To correct this problem, these modems should use MNP mode.

Operating errors are a common problem for first-time modem users and are easily corrected. For example, computers running internal facsimiles and facsimile software typically use the same communications port as AFDC/View. To avoid an operating error, turn off these programs prior to running AFDC/View. Windows will not support two simultaneous applications using the same communications port.

### AFDC Announces New Telephone Number

If you are having problems connecting to the AFDC, make sure you have the correct modem number. The new AFDC number is 303-275-4199.

Another common modem annoyance is line noise, which can temporarily disable a modem. In particular, regional rainstorms can interfere with the communication paths, causing data transfers to be dropped. The more distance between the personal computer and the AFDC, the greater the likelihood of noise interference.

A weak telephone signal also increases the severity of noise. In August, the AFDC switched to a new telephone line that is expected to increase the signal strength and reduce noise.

Although line noise can cause problems when transferring information over modems, it does not signify a defective modem. If you experience line noise, hang up

and redial to improve the connection (similar to phone lines). If the line noise continues, try reducing the modem baud rate (e.g., 2400 to 1200 baud). (Line noise can be tested by dialing the AFDC with any communications software. Log in with a valid ID and password. If characters appear across the screen that were not typed, the modem is experiencing line noise.)

Modems may also freeze (will not dial). If this problem occurs with an external modem, simply reset the modem manually. With an internal modem, exit and re-enter Windows. If the problem persists, reset (power down) the computer.

**Q.** Since the AFDC/View software is designed for Microsoft Windows, how can Macintosh users access the AFDC?

**A.** As a Macintosh user, you have three options to access the AFDC: 1) a software package, 2) a hardware add-on board, or 3) Data Query.

The software option, called SoftPC, will allow IBM software, such as AFDC/View, to operate within Macintosh systems. SoftPC, a product of Insignia Solutions, costs approximately \$500. To use this software, the Macintosh computer must have at least a 68040 processor and four megabytes of memory.

However, to run additional Macintosh software programs concurrently, eight or more megabytes are recommended. For more information about the SoftPC, call Insignia Solutions at 800-848-7677 or fax requests to 415-964-5434.

Orange Micro has two hardware options, OrangePC 386 or OrangePC 486, that allow Macintosh users to work within the IBM disk operating system (DOS) and Windows applications. This hardware is essentially a PC motherboard that plugs into a Nubus slot.

The hardware options have the advantage of running both Macintosh applications and the OrangePC simultaneously. In addition, OrangePC comes with software to print to an existing Apple printer, share folders (volumes) between two platforms, and copy/paste text or graphics between two platforms. The Micro OrangePC 386 and 486 hardware options cost \$1,099 and \$1,799, respectively. Although the SoftPC is less expensive, the OrangePC hardware solutions are much faster than the software. For more information, call Orange Micro at 714-779-2772, or fax to 714-779-9332.

Finally, you can use any communications program to access the AFDC. Once within the AFDC

system, the user can retrieve data through the Data Query software. Although this option does not require additional hardware or software, working knowledge of Oracle (operating system) Relational Database Management System would be helpful. (See related article on Data Query, page 1.)

The AFDC is considering developing a Macintosh version of the AFDC/View software.

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**Q.** When installing AFDC/View in Norton Desktop for Windows, an error message occurs. What should I do?

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**A.** If you are installing AFDC/View under Norton Desktop for Windows, you may get an error if you respond "yes" to the prompt "Do you want an AFDC/View group to be created?" The easiest solution to this problem is to respond to the prompt with a "no" and create your AFDC/View group and icon manually. Refer to your Norton Desktop for Windows manual for details on how to create groups and icons.

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**Q.** How do I make several queries without having to reconnect to the AFDC each time?

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**A.** AFDC/View has a "Stay-On-Line" feature that enables the modem to remain connected to the AFDC after each query. If you are interested in completing several queries, it may be less expensive to remain on line.

When using the Stay-On-Line feature, it is important to manually hang up the line when finished with your search. While exiting the application normally disconnects the modem, manually hanging up the phone will ensure that you do not remain connected. In addition, minimizing the screen will not hang up the phone.

To activate the Stay-On-Line feature, click on the AFDC/View menu **File** option, followed by the **Communication Configuration**. This displays the **Terminal Settings**. Click on the **Stay-On** setting under **After Query**.

If you want the Stay-On-Line feature set as a default, click on **Save As Default**. Otherwise, the **OK** option saves the Stay-On-Line feature for the present session only. Once you exit AFDC/View, the settings change back to the default. □

*Note: If you are having trouble connecting to or downloading from the AFDC, please call the National Alternative Fuels Hotline for assistance by dialing: 800-423-1DOE or 202-554-5047. The Hotline can be reached Monday - Friday, except holidays, from 10:00 a.m. to 6:00 p.m. Eastern Time.*



## Federal AFV Fleet Program Expands

The number and type of alternative fuel vehicles (AFVs) purchased under the Alternative Motor Fuels Act of 1988 (AMFA) have substantially increased since the AFV purchasing program began, and the number will double in the coming year.

The U.S. General Services Administration (GSA), which purchases and leases vehicles to the federal fleet, is working with the U.S. Department of Energy (DOE) to place AFVs in fleets around the nation to meet environmental and energy regulations. Currently, the fleet consists of 6,237 AFVs. With money provided by DOE for the incremental costs of AFVs, GSA plans to purchase 6,000 to 7,000 more for 1994.

GSA's first fleet consisted of only 67 AFVs, most of which were M85 flexible-fuel vehicles (85% methanol, 15% gasoline). Today's fleet, however, includes a significant number of compressed natural gas (CNG) and E85 (85% ethanol, 15% gasoline) vehicles. And while most of the fleet is flexible-fuel (uses a combination of the alternative fuel with gasoline), the number of vehicles dedicated to a single alternative fuel is rising.

The National Energy Policy Act of 1992 and the Clean Air Act Amendments of 1990 have played a significant role in strengthening AMFA by further requiring the use of alternative fuels to displace foreign oil imports. Additionally, President Bill Clinton's recent Executive Order 12844 increased by 50% the number of AFVs that must be purchased by the federal fleet.

## Historical AFV Purchases by the U.S. General Services Administration

Model Year	M85	E85	CNG	Annual Totals
1991*	25 Variable-Fuel Chevrolet Luminas; 40 Flexible-Fuel Ford Tauruses		2 Flexible-Fuel Chrysler vans	67
1992	20 Flexible-Fuel Ford Econoline vans; 2,500 Flexible-Fuel Dodge Spirits	25 Variable-Fuel Chevrolet Luminas	600 3/4-Ton dedicated Chevrolet pickup trucks; 75 dedicated eight-passenger Chrysler vans	3,220
1993	300 Flexible-Fuel Ford Tauruses; 50 Variable-Fuel Chevrolet Luminas; 2,500 Flexible-Fuel Dodge Spirits	50 Variable-Fuel Chevrolet Luminas	50 Chrysler vans	2,950
Total	5,435	75	727	6,237

\*Because federal fleet vehicles are replaced every three years on average, GSA expects to sell 1991 model year Luminas next year to the general public.

**Table 1**

Under these mandates, the federal fleet is required to add 11,250 AFVs in 1994. GSA's Inter-agency Fleet Management System will acquire more than two-thirds of this total for leasing to other agencies. The rest of the AFV requirements will be met by conversion of existing vehicles or direct acquisition by other federal agencies such as the U.S. Postal Service.

GSA officials commented that they would like to see a greater variety and number of vehicles produced by original equipment manufacturerers (OEM), especially compact sedans because of their

fuel efficiency. In addition to the limited availability of OEM vehicles, an obstacle to placing AFVs is the availability and location of fueling sites. "It's really difficult to place vehicles where the fueling infrastructure hasn't been established or the drivers have to go out of their way—up to 30 miles in some cases—to refuel," according to a GSA spokesperson.

To better understand the benefits of alternative fuels, the Alternative Fuels Data Center is collecting emissions and performance information on more than 600 of these AFVs, also an AMFA requirement. □

The full text of the following reports may be ordered by calling the National Alternative Fuels Hotline at 800-423-1DOE, or 202-554-5047. Or, send a request by fax to 202-554-5049.

## Brochure Outlines the Alternative Fuels Utilization Program

Improving the environment by reducing pollutants from automobiles and reducing U.S. dependence on foreign petroleum are identified as two major program objectives of the Alternative Fuels Utilization Program (AFUP), according to a new U.S. Department of Energy (DOE) brochure that details the entire program.

To accomplish these objectives, the AFUP has been organized into three specific areas: technology transfer, research and development, and alternative fuel fleets.

The Alternative Fuels Data Center (AFDC), the National Alternative Fuels Hotline, and several alternative fuel training programs are the AFUP's leading technology transfer components.

The research and development portion of the AFUP is divided further into fuel properties, engine systems, and emissions. Data are being collected and tests are being conducted to characterize such items as alternative fuel and reformulated gasoline

performance, composition, and availability.

Fuel property evaluation is geared toward creating specifications for each fuel. Cooperative research between industry and government for the modification and development of heavy- and light-duty alternative fuel engines is also described.

DOE, the Coordinating Research Council, and national and university laboratories are conducting ongoing research on alternative fuel vehicle emissions.

The Alternative Fuels Utilization brochure also outlines DOE's steps toward implementing the Energy Policy Act of 1992 by acquiring new alternative fuel vehicles and converting existing vehicles to use alternative fuels. Additionally, data are being collected on light-duty, heavy-duty, mass transit, and off-highway vehicles as directed by the Alternative Motor Fuels Act. □

## New Report Details Federal Light-Duty AFV Operating Experience

Results of alternative fuel vehicle (AFV) operations in the federal fleet are now available in the "Federal Alternative Fuel Program Light Duty Vehicle Operations: Second Annual Report to Congress for Fiscal Year 1992," required by the Alternative Motor Fuels Act of 1988 (AMFA).

The report, just published by the U.S. Department of Energy (DOE) Office of Transportation Technologies, covers the second year of AFV use in the federal fleet. It features information on overall vehicle operation, on-road

fuel/energy economy, emissions, driveability, operating costs, safety, and future activities.

The vehicles' operating data, which are also contained in the Alternative Fuels Data Center (AFDC), were collected on 20% of the total light-duty fleet.

Highlights of these data follow.

- CNG vehicles' practical operating range was only 80-140 miles, in contrast to a requested 200-mile operating range. "There are various factors that conspire to reduce CNG vehicle operating range which are not factors for conventional liquid fuel vehicles," according to the report. "These factors are the delivery pressure to which the CNG cylinders are refueled, gas/energy content, operator inexperience, and overheating." But, the report indicates, these vehicle problems "are illustrative of those affecting most AFVs upon initial introduction."

- On-road fuel economy of M85 (85% methanol, 15% gasoline) vehicles ranged from 21 to 28 miles per gasoline equivalent gallon. The lower number was for Washington, DC, where vehicles experience the most city driving of the four areas monitored. Conventional gasoline vehicle fuel economy was 23 to 26 miles per gallon, with the lowest number, again, for vehicles in Washington, DC.

- Various driveability difficulties were reported on some of the vehicles, including rough engine idling, hesitation upon acceleration, and engine stalling. However, both installation of upgraded hardware and distribution of maintenance and repair bulletins to dealers by the auto companies have reduced the number of driveability problems experienced by some of the AFVs during fiscal year 1992. □



*A field of rapeseed grown for biodiesel production*

## Learn More About Biodiesel

Which alternative fuel is renewable, biodegradable, contributes no net carbon dioxide or sulfur to the atmosphere, and needs no engine modifications to run a diesel engine? Biodiesel, of course. A fact sheet, recently released by the National Renewable Energy Laboratory, provides information about this clean diesel alternative.

Biodiesel, a substitute for or an additive to diesel fuel, is derived from the oils and fats of plants and animals. As much as 50% of total U.S. diesel fuel consumption could be replaced with biodiesel made from animal, vegetable, and microalgal oils.

Biodiesel was introduced in South Africa before World War II to power heavy-duty vehicles. But because of the high cost of producing biodiesel combined with the low cost of petroleum products, interest in biodiesel diminished.

Recently, environmental and domestic economic concerns have prompted a resurgence of biodiesel

and other alternative fuels. Today the U.S. Energy and Agriculture Departments have research and development programs under way to find which crops will produce the highest yields and what technology can be used to reduce the cost of biodiesel production. Currently, more than 200 vehicles, including buses, trucks, construction/maintenance equipment and motor boats, are fueled with biodiesel in the United States.

For more information on biodiesel, call the National Alternative Fuels Hotline at 800-423-1DOE. □

*If you are interested in becoming an **Alternative Fuels Data Center** user,*

**please detach, fill out this form and return to:**  
AFDC, P.O. Box 70879, Washington, DC 20024  
Phone: 800-423-1DOE Fax: 202-554-5049

Date \_\_\_\_\_

Name \_\_\_\_\_ Company \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_

In order to use AFDC/View for Windows, your PC must meet the following minimum specs: 90286 Processor (80386 recommended), DOS \_\_\_\_\_ MB RAM (4 recommended) Mouse \_\_\_\_\_

Please send me:  Data Query handbook  AFDC 3-1/2" disk  AFDC/View 5-1/4" disk



## Data From Federal Express

(continued from page 1)

considered one of the most comprehensive alternative fuel demonstration projects conducted to date because of the diverse sponsorship, the numbers and different models of vehicles (111 vehicles by the three major U.S. automakers), and the use of five fuels (methanol, propane, compressed natural gas, electricity, reformulated gasoline) plus a control fleet operated under similar conditions.

Federal Express' two-year demonstration project includes data collected from driver journals, fuel consumption records, and vehicle maintenance and repair orders. The data are electronically sent every other week to Battelle Memorial Institute in Columbus, OH, and then converted into a database for tracking vehicles. After Battelle identifies and corrects any errors it may find, the data are reviewed by a working group before the results are published and sent to the AFDC for on-line users.

What makes the Federal Express CleanFleet program effective, according to Battelle's Deputy Project Manager Todd C. Krenelka, is that "all the vehicles are being operated under comparable conditions." In addition, the vehicles were chosen because of their similar size and capacity. Other fleets, particularly heavy-duty, may have differences in size, power, and capacity, making comparison more difficult, said Krenelka.

"The reaction to the Federal Express CleanFleet vehicles has been uniformly positive from both employees and the public," said Krenelka.

Noting the positive public perception of the program, a Battelle spokesperson working on the project related the following story: One of the CleanFleet electric vehicles (EVs) with license plates reading "SMGFRE" [Smog Free] ran into a traffic jam caused by an accident. The policeman directing traffic at the scene let the EV go first because "it was a non-polluting vehicle."

Despite the project's success, a few hurdles have been encountered.

For example, the early-prototype EVs did not have sufficient range and proved that the technology needs to be advanced before the vehicles can be used for fleet operation purposes. Incompatibility of materials also posed a small problem with refueling dispensers for methanol-fuel vehicles.

Data on the vehicles' fuel economy will be released after the vehicles reach 5,000 miles, sometime this fall. The project coordinators will rotate vehicles between routes traveled to accumulate more accurate fuel economy data.

Federal Express began its two-year test in April last year, with the final report on the project due in late 1994.

To receive the CleanFleet Newsletter, data reports, statistical analysis reports, and fact sheets, fill out and mail the form below. For information on how to become an on-line user of the AFDC, which will contain the fleet data described above, contact the National Alternative Fuels Hotline at 800-423-1DOE, or 202-554-5047. □

## To order the CleanFleet Newsletter or reports:

The CleanFleet Newsletter is published quarterly to provide information about the South Coast Alternative Fuels Demonstration Project to interested groups and individuals. To order the newsletter and/or other information, please fill out and send this form to Helen Latham, Battelle, 505 King Ave., Columbus, OH 43201. Phone: 614-424-4052 Fax: 614-424-5601

Name \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

Telephone \_\_\_\_\_

Please send me:  Newsletter  Fact Sheet  Data Reports  Statistical Analysis Reports

## Meetings and Conferences

**October 3-5:** National Alternative Fuels Conference, Cornhusker Hotel, Lincoln, NE. For information, call Kathy Harsh at 402-562-1243, or write to: Central Community College, Platte Campus, P.O. Box 1027, Columbus, NE 68602-1027.

**October 3-6:** National Conference of State Fleet Administrators, Hyatt Regency, Louisville, KY. For information, call Gaye Horton at 606-231-1887, or write to NCSFA, P.O. Box 11910, Lexington, KY 40578-1910.

**October 6-8:** World Conference On Clean Fuels and Air Quality Control, Grand Hyatt Hotel, Washington, DC. For information, call Leslie Adler at 800-872-3835, 202-554-0614, or write to Information Resources, Inc., 499 South Capitol Street, Washington, DC 20003.

**October 18-19:** Alternative Fuels Seminar: How Will You Respond? Holiday Inn-Boston, Somerville, MA. For information, call Carol Harwell at 210-340-7775, or write to the American Institute of Hazardous Materials Management, 900 Isom Road, Suite 103, San Antonio, TX 78216-4102.

**October 18-21:** Annual Automotive Technology Development Contractors' Coordination Meeting, Ritz Carlton, Dearborn, MI. For information, call Conference Management Associates, Inc. at 703-754-0066, or write to 1401 Spring Lake Drive, Haymarket, VA 22069.

**October 21-23:** Sustainable Transportation Solar & Electric Vehicle Symposium, Boston World Trade Center, Boston, MA. For information, call Nancy Karella 413-774-6051, or write to the Northeast Sustainable Energy Association, 23 Ames Street, Greenfield, MA 01301.

**October 25-26:** American Gas Association NGV Workshop, Holiday Inn Crown Plaza, Memphis, TN. For information, call Dee Watkins at 703-841-8573, or write to the American Gas Association, 1515 Wilson Boulevard, Arlington, VA 22209.

**November 7-10:** International Symposium on Alcohol Fuels, The Broadmoor Hotel, Colorado Springs, CO. For information, call Jessica White at 303-231-1158, or write to the National Renewable Energy Laboratory, 1617 Cole Boulevard, Golden, CO 80401-3393.

**December 1-3:** EPRI Electric Vehicle Infrastructure Conference, Hyatt Regency Gainey Ranch Hotel, Scottsdale, AZ. For more information, call Michael Lechner at 415-949-2970, or write to Hart, McMurphy & Park, 350 2nd Street, Suite 2, Los Altos, CA 94022.

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ALTERNATIVE FUELS DATA CENTER  
P.O. Box 70879 • Washington, DC 20024