

# AFDC UPDATE

News of the Alternative Fuels Data Center

## Alternative Fuel Provider Guidelines to Be Released

If your company produces, stores, refines, processes, distributes, imports, or sells alternative fuels, you may be required to acquire alternative fuel vehicles (AFVs) under Section 501 of the Energy Policy Act of 1992 (EPACT). In a Notice of Proposed Rulemaking to be released shortly, the U.S. Department of Energy (DOE) will include a rule requiring certain alternative fuel providers to begin

acquiring AFVs starting with the 1996 model year (MY).

Two criteria may be used to determine if you are considered an alternative fuel provider or covered person.<sup>1</sup> First, your organization must own, operate, lease, or otherwise control:

- Twenty or more light-duty (gross vehicle weight rating of 8,500 pounds or less) vehicles (LDVs) that are capable of being centrally fueled

and are used primarily<sup>2</sup> within a metropolitan statistical area or combined metropolitan statistical area of 250,000 or more<sup>3</sup>

- Fifty or more LDVs within the United States.

Second, your organization is considered an "alternative fuel provider" if it is:

- An organization that produces, imports, or in combination

*(continued on page 2)*

## Additional Alternative Fuel Bus Data Available through AFDC

The National Renewable Energy Laboratory (NREL), along with Battelle Columbus Laboratory, continues to analyze new information for the U.S. Department of Energy's (DOE) Urban Transit Bus Program. The program, outlined in the Alternative Motor Fuels Act of 1988 (AMFA), is designed to study alternative fuel use in the transit bus industry. Characteristics that have been studied include reliability, operating costs, emissions levels of



*Greater Peoria Mass Transit District ethanol-powered bus*

different fuels, and facility and capital costs of the fuels. The resulting data will be available in the Alternative Fuels Data Center (AFDC).

Transit agencies participating in the most recent study were selected according to availability of new alternative fuel buses and control vehicles that are identical except for fuel used. The cooperation of transit agencies in providing detailed data was also considered.

When possible, 10 buses were selected for each alternative fuel, split between two sites. Fuels used in the program include compressed natural gas (CNG), liquefied natural gas (LNG), methanol, ethanol, and biodiesel.

Data used for analysis were collected from buses operating in Houston (10 LNG/diesel dual-fuel buses); Miami (five CNG, five M100, or 100% methanol); Minneapolis (five E95, or 95% ethanol/5% unleaded gasoline); Peoria (five E93,

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## Proposed Rule Calls for State Fleets to Add AFVs in MY 1996

A proposed Energy Policy Act of 1992 (EPACT) rule affecting state fleets is expected to be published later this year in the *Federal Register*.

In the proposed rule, the U.S. Department of Energy (DOE) followed the alternative fuel vehicle (AFV) purchase goals for state fleets that were outlined in Section 507 of EPACT, starting with 10% of new vehicle acquisitions in model year (MY) 1996 with incremental increases of as much as 75% by 2000 and thereafter.

State fleets include those of state agencies—but not municipalities—with 20 or more vehicles that are capable of being centrally fueled. Entities that receive state funding, such as public universities, are expected to fall under the rule; specific details will be determined during the rulemaking process.

As an option, states may submit a plan to DOE within 1 year of the mandate; the plan must outline compliance through means other than reliance on state-owned

vehicles only. This could include a combination of voluntary acquisitions and conversions of state, local, and private fleets in numbers greater than or equal to the state requirements.

States can also apply for a financial hardship exemption by submitting a statement that describes why the requirements cannot be met. The statement must be signed by the state's governor. □

*If you are interested in submitting comments on proposed rules, write to the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, EE-33, 1000 Independence Avenue, SW, Washington, DC 20585. Comments must be received no later than 60 days after each rule appears in the Federal Register. Public hearings will be held in Washington, D.C., San Francisco, and Chicago.*

**Table 1. State Fleet AFV Acquisition Mandates**

Model Year	1996	1997	1998	1999	2000-on
Percentage of New Vehicle Acquisitions	10%	15%	25%	50%	75%

### Guidelines to be Released

(continued from page 1)

produces and imports an average of 50,000 barrels per day or more of petroleum. In addition, a substantial portion of the business must be in producing alternative fuels.

- An organization that produces, stores, refines, processes, transports, distributes, imports, or sells at wholesale or retail any alternative fuel other than electricity as its principal business<sup>4</sup>

- A nonfederal organization that generates, transmits, imports, or sells electricity at wholesale or retail as its principal business. Municipalities that operate utilities will be considered alternative fuel providers under the proposed rule.

Beginning in MY 1996, 30% of new LDV acquisitions must be AFVs for covered fuel providers, with the exception of some electric

utilities. In this case, new acquisitions mean new to your fleet, not necessarily new vehicles; you may buy a used vehicle and convert it to an AFV or buy a used AFV. However, you will *not* be credited for converting existing fleet vehicles. This allowance will help to create a resale market for used AFVs.

EPACT permits electric utilities to delay compliance until calendar year 1998 if they plan to comply by acquiring electric vehicles. Utilities that plan to postpone their AFV acquisitions must notify DOE of their intent no later than December 1995.

If alternative fuels or AFVs are not available, exemptions can be provided. Fuel is determined "available" if an alternative refueling or recharging station is within your fleet's operating range. This range will be defined in the proposed rule.

Vehicles are deemed "unavailable" if you can prove that original equipment manufacturer (OEM) AFVs that meet the normal requirements and practices of your business are not sold or leased anywhere in the United States. If OEM AFVs are available but cannot accommodate your specific operating requirements and practices, you can qualify for an exemption under the proposed rule. □

<sup>1</sup> Description of covered person taken from Section 301 of EPACT, Definitions

<sup>2</sup> Primarily defined as majority of time

<sup>3</sup> Based on the 1980 population assessed by the Bureau of the Census

<sup>4</sup> Principal business defined as the largest sales-related gross-revenue-producing activity

## Federal Fleet Moves Forward with AFV Purchases

The federal fleet continues to acquire alternative fuel vehicles (AFVs) in larger numbers. Recent figures released by the U.S. Department of Energy (DOE) show that the federal government has acquired more than 8,500 AFVs during fiscal year (FY) 1994, raising the fleet's AFV count to more than 17,000.

The federal fleet is staying ahead of AFV purchase requirements outlined in the Energy Policy Act of 1992 (EPACT), but it is still behind the increase dictated in Executive Order 12844, which was signed by President Clinton in 1993. Limited availability of AFVs from the original equipment manufacturers (OEMs) is the principal cause, according to DOE's David Rodgers.

DOE worked closely with the General Services Administration to order more than 2,500 natural gas sedans, pickups, and vans from General Motors (GM) for delivery

in FY 1994. But GM postponed delivery and announced that none of these vehicles will be available during FY 1995. Although Ford and Chrysler offered flexible-fuel alcohol sedans and Chrysler offered dedicated natural gas vehicles, quantities were limited by the automakers, Rodgers said.

Overall, the federal government spent \$30 million on AFVs in 1994. DOE received \$18 million in FY 1994 to fund the incremental cost of AFVs for the federal agencies. The U.S. Department of Defense (DOD) allocated \$7 million for natural gas vehicles and infrastructure, and the U.S. Postal Service allocated \$5 million to convert 1,769 delivery vehicles to natural gas.

Of the AFVs added to the federal fleet during FY 1994, 43% were alcohol fueled, 55% were compressed natural gas, and less than 1% were liquefied petroleum gas (LPG) and electric. Because of

the limited availability of OEM AFVs, approximately 50% were conversions. Most of the federal agencies are using bi- or flexible-fuel vehicles during this transition period while the refueling infrastructure expands.

DOD spent some of its funding on refueling stations to meet military base needs. Some of the AFVs in the federal fleet continue to run on gasoline because of a lack of refueling sites. "In some locations, such as Atlanta and Boston, commitments by methanol suppliers to build stations were not followed through. However, we do expect the industry to respond now that the vehicles are in place," Rodgers said.

*Data that have been and will continue to be collected from a portion of the federal fleet are available through AFDC/View and AFDC/Menu. For information on accessing the AFDC, please call the National Alternative Fuels Hotline at 800-423-1363. □*

## AFVs Can Earn Credits under EPACT

Along with the alternative fuel provider mandate, the U.S. Department of Energy (DOE) will publish proposed alternative fuel vehicle (AFV) credit-trading guidelines from Section 508 of the Energy Policy Act of 1992 (EPACT).

Credits can be earned only by organizations required to purchase AFVs, as written in the proposed rule. This stipulation excludes local and private fleets, with the exception of fuel providers. However, according to DOE's Kenneth Katz, "it is unlikely that the fuel replacement goals outlined in EPACT can be met without local and private

fleet requirements." If a future rule requires local and private fleets to purchase AFVs, these fleets will be eligible to obtain credits. For those who are currently eligible, credits are restricted to:

- Light-duty vehicles (8,500 pounds or less gross vehicle weight)
- Acquisitions exceeding the required number of vehicles, which will earn one credit per AFV acquired
- AFVs obtained before the start date of the requirements, which will earn one credit per AFV for each year the AFV is acquired early
- Vehicles acquired after October 24, 1992.

Once the mandate becomes effective, these credits can be transferred to any organization that is eligible to earn credits or can be

applied toward your fleet's acquisition requirements. But alternative fuel providers can acquire AFV credits only for vehicles that operate solely on an alternative fuel.

DOE plans to bring an electronic data base on-line to track the number of vehicles and the credits. □

## EPACT Update

*Note: Any articles in this issue that reference drafts of proposed rules are subject to change and are believed to be accurate at press time. Portions of some of the articles appeared in Fuel Reformulation magazine's September/October 1994 issue.*

## Contracts Awarded for Federal Fleet Conversions

Through a U.S. Department of Energy (DOE) program, five companies are already converting vehicles in the federal fleet to run on alternative fuels. So far they have received 380 conversion orders worth \$1.7 million.

Contract awards to date are: NGV Systems in Long Beach; Hawthorne Power Systems in San Diego; Natural Fuels in Denver; Clean Air Systems in Washington, D.C.; and Phillips 66 in Commerce City, Colorado. The first states to have the converted vehicles on their roads will be California, Colorado, and Georgia, along with Washington, D.C.

The conversion program will help supplement the purchase of

new alternative fuel cars and trucks while the automotive industry prepares to produce enough models to meet government demand. Vehicles owned by federal agencies are eligible for the conversions.

Using funding from fiscal year 1993, DOE expects to fund modifications of at least 800 vehicles nationwide to run on compressed natural gas (CNG) or liquefied petroleum gas (LPG) through as many as nine conversion subcontracts. The contracts are being awarded and monitored by the National Renewable Energy Laboratory.

Before proceeding with the aftermarket conversions, each conversion company and original equipment manufacturer must

negotiate a warranty agreement, as required by the Energy Policy Act of 1992. DOE's conversion program will use the latest technology, including the use of closed-loop feedback carburetion systems. The companies are paid a fixed price per vehicle based on the results of a competitive solicitation.

Some of these vehicles will be emissions tested; the test results will be available through the Alternative Fuels Data Center in a few months.

*For information on data being collected on conversions, check AFDC/View under Light-Duty Vehicle Conversions. To access the AFDC or obtain information on vehicle conversions, call the National Alternative Fuels Hotline at 800-423-1363. □*

## DOE Publication Provides Information for Fleets

Last year, the U.S. Department of Energy (DOE) issued *Taking an Alternative Route*, a brochure that covers general information for fleet managers and operators about alternative transportation fuels.

*Taking an Alternative Route* describes alternative fuel and vehicle use, summarizing alternative fuel requirements for fleets included in the Energy Policy Act of 1992 (EPACT) and the Clean Air Act

Amendments of 1990 (CAAA). It outlines which fleets must purchase alternative fuel vehicles (AFVs) and which tax incentives or purchase credits exist to encourage fleets to buy AFVs.

*For your copy, call the National Alternative Fuels Hotline at 800-423-1363 or the Clean Cities Hotline at 800-224-8437. □*

***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 12316, Arlington, VA 22209

Phone: 800-423-1DOE Fax: 703-528-1953

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: 80386 Processor, DOS 3.3, Windows 3.1, 2 MB RAM (4 recommended), Mouse, 1200 baud modem (minimum).

Please send me:  AFDC/View 3-1/2" disk

## Awards Announced for Heavy-Duty AFV Programs

In 1994, the U.S. Department of Energy (DOE) granted 10 awards totaling more than \$920,000 to states and municipalities for acquiring alternative fuel heavy-duty vehicles. Together the recipients will bring 42 additional alternative fuel vehicles (AFVs) to the roads.

Award winners were required to show matching funds for their projects through cost sharing with fuel suppliers and other private

sources. They were asked to detail how the vehicles would fit into their long-term goals for alternative fuels. DOE-designated Clean Cities were given priority.

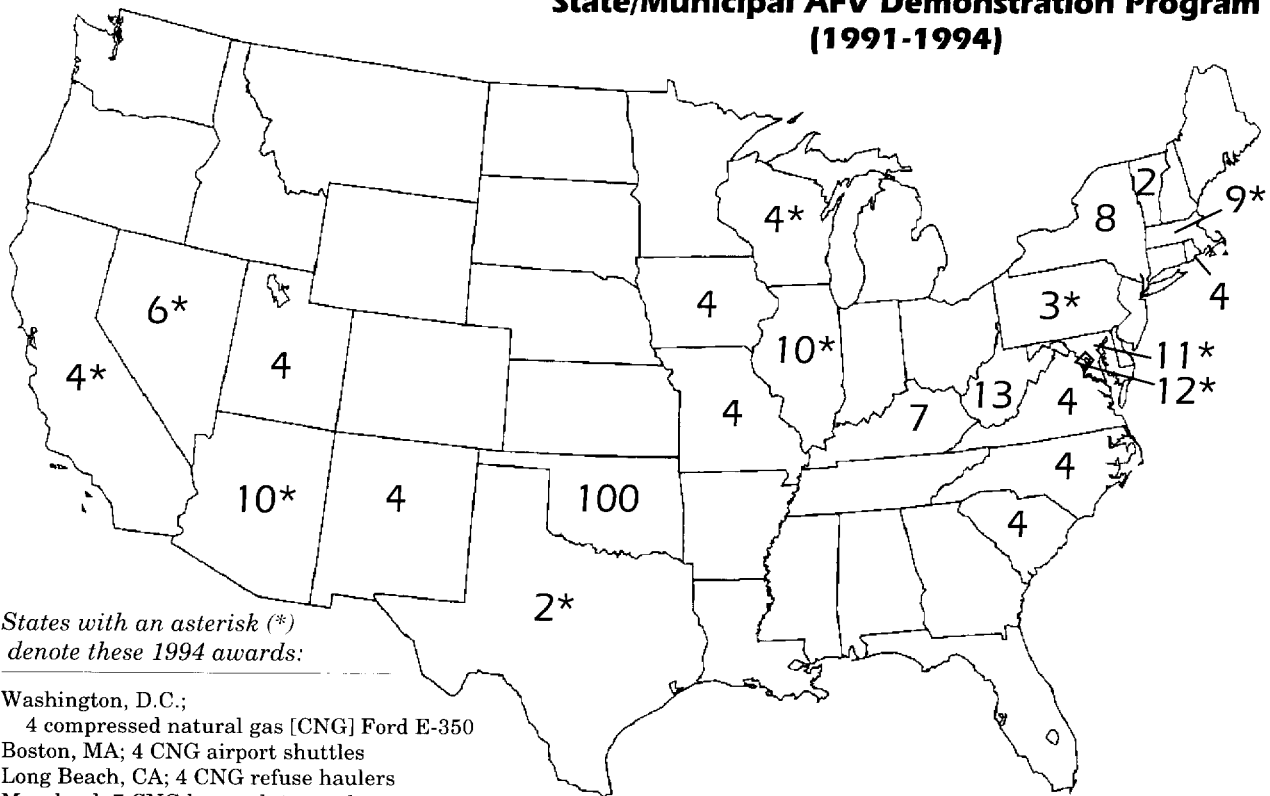
Although the grant program is not designed to gather data on the vehicles, the winners agreed to make the vehicles available for testing. To provide comparative results, the winners were also required to show they had control vehicles running on traditional fuels and performing similar duties.

Now in its fourth year, this grant program provides a starting point for localities to expand their

alternative fuel experience and infrastructure. DOE's Steve Goguen said the grants have worked well in the past as a catalyst to increase interest and help localities expand their alternative fuel fleets with their own money. The program has been funded again, and a solicitation for applications is expected in March 1995.

*Heavy duty vehicle data are available from the AFDC by using AFDC/View and AFDC/Menu. For information on accessing the AFDC, please call the National Alternative Fuels Hotline at 800-423-1363. □*

**Figure 1**  
**Number of Vehicles in DOE's Heavy-Duty State/Municipal AFV Demonstration Program (1991-1994)**



## Auto Manufacturers Offer Variety of AFVs in MY 1995

U.S. auto manufacturers continue to offer a variety of vehicles designed to run on alternative fuels, primarily compressed natural gas (CNG), liquefied petroleum gas (LPG), methanol, and ethanol.

In model year (MY) 1995, Ford and Chrysler will offer alternative fuel-powered passenger cars, light- and medium-duty trucks, and vans in models popular with fleets. Some of these vehicles are dedicated; others may run on gasoline, an alternative fuel, or both. General Motors (GM) recently announced it will not offer alternative fuel vehicles (AFVs) in MY 1995 but will continue with their development.

All three major manufacturers have invested in electric vehicle projects. In late 1994, Ford had

more than 100 electric EcoStar vans on the road in demonstration projects, and Chrysler had sold four electric TE Vans. GM's electric Impact sports car has continued to be popular with drivers testing it in 12 cities. It is not included in Table 2 because it is offered only as a test model.

To compensate for limited numbers of vehicles offered by original equipment manufacturers (OEMs) in some applications, vehicle aftermarket conversions will continue to fill a market niche. Conversions are being used in some automakers' AFV programs. Ford sold 50 CNG F-Series pickups last year through its Qualified Vehicle Modifier program, in which vehicles are delivered to an approved

converter before reaching the customer, maintaining their warranties. In the upcoming year, Ford will expand its program from Texas to Georgia and California.

Although GM has not announced when it will reenter the AFV market, the corporation continues to investigate programs to offer AFVs, according to GM's Gerald Barnes. In the near term, GM is developing product plans for gaseous AFVs. It expects to offer AFVs that are under warranty and serviced by GM dealerships.

*Current data on OEM AFVs can be accessed through AFDC/View, AFDC/Menu, Mosaic, and Lynx. For information about the AFDC, please call the National Alternative Fuels Hotline at 800-423-1363. □*

**Table 2. Major U.S. Automakers' AFV Production Plans MY 1995<sup>1</sup>**

Fuel(s)	Make	Model	Classification	Power Train	Fuel Capacity
M85 and gasoline	Chrysler	Dodge Intrepid	Mid-size car	3.3 Liter/V-6	18.0 gallons
M85 and gasoline <sup>2</sup>	Ford	Taurus	10B Full-size car	3.0 Liter	20.4 gallons
CNG	Chrysler	Ram Van/Wagon	Full-size van	5.2 Liter/V-8	14.4 or 15.7 GGE <sup>3</sup>
CNG	Chrysler	Ram Pickup	Full-size	5.2 Liter/V-8	17.1 GGE at 3,000 psi
CNG	Chrysler	Dodge Caravan/ Plymouth Voyager	Minivan	3.3 Liter/V-6	8.2 GGE at 3,000 psi
CNG	Chrysler	Dodge Dakota	Mid-size truck	5.2 Liter/V-8	14.6 GGE
CNG and gasoline	Ford	F-Series, Super Cab 4x4 F150/250	Full-size truck	4.9 Liter/ Inline-6	As much as 12.1 GGE of CNG plus 18.2 gallons gasoline
CNG and gasoline	Ford	Econoline E250 HD, E350	Full-size van	4.9 Liter/ Inline-6	Up to 12.1 GGE of CNG plus 35 gal. gasoline
LPG	Ford	F600/F700 Medium-Duty Chassis Cab Truck (21,000 -35,000GVWR)	Medium-duty truck	7.0 Liter, 218 HP	Depends on LPG tank installed by aftermarket converter.
Electricity	Chrysler	Dodge/Plymouth TE Van	Minivan	70 HP DC (Max), 35 HP DC (continuous)	

<sup>1</sup> Some models offered in limited quantities <sup>2</sup> Limited E85 Ford Tauruses authorized in 1995; E85 to become part of std. FFV option in 1996.

<sup>3</sup> GGE: gasoline gallon equivalent

Source: General Motors, Chrysler, and Ford

## DOE to Provide State and Local Incentives for AFVs

Later this year, the U.S. Department of Energy (DOE) will propose guidelines to states on obtaining federal assistance to develop alternative fuel programs designed to fulfill Section 409 of the Energy Policy Act of 1992 (EPACT).

For fiscal year 1995, \$1 million is available for this incentive program, said DOE's Frank Mallgrave. EPACT stipulates that DOE cannot fund the state and local programs at a level greater than 80% of the total program costs. Mallgrave added that under the proposed rule, DOE has restricted single-state grants to no more than 10% of the total program funding per year. The program is legislated for 5 years with authorized funding of \$50 million.

To obtain federal funding, states will be required to submit plans proposing projects to increase the use of alternative fuels and alternative fuel vehicles (AFVs) by the year 2000. States that submit innovative, resourceful, and creative programs, as well as those that are home to DOE-designated Clean Cities, will be looked on favorably, according to Mallgrave. In determining whether to approve the plans, states should take into account energy and environmental benefits and should examine the following mechanisms to increase the number of AFVs:

- State vehicle operations or procurements
- Sales or fuels tax exemptions

- Utility rate basing
- Special parking privileges
- Public education programs
- Treatment of alternative fuel sales
- Amendments to state laws or regulations
- Services provided by local governments or transportation authorities
- Integration of alternative fuels into Intermodal Surface Transportation Efficiency Act programs
- Other state programs.

The plans must be submitted through the state organization designated by the governor 1 year after the rule goes into effect. The notice of proposed rulemaking is expected to be released early this year in the *Federal Register*. □

### Bus Data Available (continued from page 1)

or 93% ethanol/5% methanol/2% kerosene); Tacoma (five CNG); New York (five M100); and St. Louis (five biodiesel).

Fuel economy statistics reveal that Peoria's and Minneapolis' E95 buses and Miami's M100 buses average fuel economies are almost

identical to those of the diesel control buses. Tacoma's buses have significantly higher fuel economies than those in other cities because Tacoma's buses do not have air conditioning. For a comparison of fuel economies, see Table 3.

Additional data, such as miles traveled per bus, road calls per 1,000 miles of operation, and other statistics are or will be available through the AFDC. Raw data are currently available; summary data and program reports will be available in April 1995. □

**Table 3. Fuel Economy (miles/gallon diesel #2equivalent)**

	Houston LNG/Diesel	Miami CNG	Tacoma CNG	Peoria E95*	Miami M100	Mpls. E95	New York M100	St. Louis Biodiesel
Alternative Fuel Engine	3.1	3.2	4.6	3.5	3.4	2.9	***	3.6
Diesel Control	3.6	3.6	5.8	3.5**	3.2	3.0	***	3.9
Ratio of Alternative Fuel to Diesel Control	0.86	0.89	0.79	1.0	1.0	1.0	***	0.92

\* As mentioned above, Peoria has switched to E93. These data, however, are on the original E95 buses.

\*\* Equipped with a particulate trap

\*\*\* Insufficient data at press time

Source: National Renewable Energy Laboratory/Battelle Columbus Laboratory

## Recent and Upcoming Meetings and Conferences

**March 21-23:** World Conference on Refinery Processing & Reformulated Gasolines, St. Francis Hotel-Union Square, San Francisco, CA. For information, call Greg Haigwood at 800-872-3835 or 703-528-3500, or write to: Information Resources, Inc., 1925 N. Lynn Street, Suite 1000, Arlington, VA 22209.

**April 3-6:** 6th Global Warming International Conference & Expo, Hyatt Regency SFO, San Francisco, CA. For information, call Sinyan Shen at 708-910-1551, or write to: Global Warming International Center, 7501 Lemont Road, Woodbridge, IL 60517.

**April 7-9:** Eco Expo West, Los Angeles Convention Center, Los Angeles, CA. For information, call 818-906-2700, or write to: Eco Expo, 14260 Ventura Boulevard, Suite 201, Sherman Oaks, CA 91423.

**April 30-May 2:** Alternative Vehicle Fuels Market Fair and Symposium, Austin Convention Center, Austin, TX. For information (no phone calls) write to: Alternative Vehicles Fuels Symposium, Texas General Land Office, 1700 N. Congress Ave., Room 620, Austin, TX 78701-1495.

**May 7-10:** 1995 Bus Operations and Technology Conference, Reno Hilton, Reno, NV. For information call Jerry L. Trotter at (202) 898-4087 or write to: American Public Transportation Association, 1201 New York Ave., NW, Washington, D.C. 20005.

**May 16-18:** Instructor's Course in Alternative Fuels Safety (CNG/LPG), Hayward, CA. For information, call Cindy Daniel at 405-954-3682, or write to Transportation Safety Institute, P.O. Box 25082, DTI-80, Oklahoma City, OK 73125-5050.

*Some upcoming events cannot be listed because of space limitations. For an expanded listing of conferences and events, please call the National Alternative Fuels Hotline at 800-423-1363. To access this information via Mosaic, the URL is <http://afdc.nrel.gov:70/>.*

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