

AFDC UPDATE

News of the Alternative Fuels Data Center

Alternative Fuels Data Center Information Available through Internet World Wide Web

You can now access the AFDC's World Wide Web (WWW) home page. (All windows and information described below are being continually updated, so contents and headings are subject to change.)

You can access the AFDC through the Office of Transportation Technologies section of the Energy Efficiency and Renewable Energy Network (EREN), by typing <http://www.eren.doe.gov>. Or you can access the AFDC directly typing <http://www.afdc.doe.gov> to find the following:

- Alternative Fuels Utilization
- Biofuels Information Center
- Clean Cities
- Refueling Sites
- Alternative Fuels Hotline
- Other Alternative Fuels Information.

The home page also allows access to other pertinent home pages, including those for the National Renewable Energy Laboratory (NREL), the U.S. Department of Energy's (DOE) Energy Efficiency and Renewable Energy Network, and FedWorld.



Alternative Fuels Utilization

You can access the following information categories through this page:

- Newsletter—*AFDC Update*
- Newsletter—*Alternative Fuels in Trucking*
- Fuel Utilization Reports & Citation Search
- Demonstration Projects
- Demonstration Analysis Reports
- How to Access the Demonstration Programs' Database
- Refueling Sites
- OEM AF Vehicle Offerings.

The "Newsletter" options let you see back issues of *AFDC Update*, and *Alternative Fuels in Trucking*, produced by NREL; both newsletters are published by DOE.

The "Fuel Utilization Reports & Citation Search" option allows you to access citations of technical documents produced for DOE and summary flyers of all current DOE research projects; the "Demonstration Projects" option provides background information on light- and heavy-duty vehicle and bus demonstrations, all supervised by DOE.

"Demonstration Analysis Reports" includes the following documents: *Update on AMFA Light-Duty Vehicle Demonstrations, October 1994* and *Alternative Fuel Transit Buses, May 1995*. The former document was discussed in Volume three, Issue four of the *AFDC Update*, page 4; the latter is highlighted in this issue, page 6.

Access to the data center is discussed in the "How to Access the Demonstration Programs' Database." The many methods of accessing the AFDC, including AFDC/View, AFDC/Menu, Mosaic, and others, are featured here.

"Refueling Sites" are listed under a heading below, and the "OEM AF Vehicle Offerings" page includes pictures and descriptions of alternative fuel vehicles available from the OEMs for the current model year.



Biofuels Information Center

Select this option from the AFDC's home page to access the following resources:

- Newsletter—*Biofuels Update*
- Biofuels Database Search
- Biofuels Reports
- Biofuels Information Network.

Click on "Newsletter" to access back issues of *Biofuels Update*.

"Biofuels Database Research Search" provides access to a technical database with more than 2,000 DOE and NREL publication

IN THIS ISSUE

- CNG Refuse Clean Up.....2
- Clean City Questions.....4
- DOE Scholarship Winners5
- New AFDC Database.....6
- Comment Period Extended...7
- AFV Numbers on the Rise7



citations. This page also gives instructions to obtain documents, and "Biofuels Reports" allows direct access to several brochures.

The Biofuels Information Network takes you to another home page that provides access to information about DOE's Biofuels Systems Division, Oak Ridge National Laboratory's biofuels feedstock research, back issues of the *Energy Crops Forum* newsletter, and links to other relevant information networks.



Clean Cities

This option currently offers two categories: "Newsletter—*Clean Cities Drive*" and "City Profiles." Click on "Newsletter" to access back issues of *Clean Cities Drive*, first published in summer 1994. The "City Profiles" category lists the 36 designated Clean Cities.

More information, including a list of Clean Cities coordinators and other background details, is also available through this page. For additional information about the Clean Cities Program, see page 4, this issue, and call (800) CCITIES or e-mail ccities@afdc.nrel.gov.



Refueling Sites

This feature allows you to obtain information about the alternative fuel refueling infrastructure. The page is divided among the following categories:

- Refueling Site Information Database
- U.S. Compressed Natural Gas Refueling Sites (Maps)
- U.S. E85¹ Refueling Sites Map
- U.S. M85² Refueling Sites Map
- U.S. LPG³ Refueling Sites Map.

The "Refueling Site Information Database" allows you to request specific refueling site

information according to such specifications as fuel type and geographical location.

The "U.S. Compressed Natural Gas Refueling Sites (Maps)" page contains a multi-colored map of the United States, from which you can click on any state. Finally, a road map of major cities and highways appears, displaying the state's CNG sites. These are viewed by obtaining Adobe Corporation's free Acrobat Reader from URL <http://www.adobe.com>.

The E85, M85, and LPG Refueling Sites "Map" pages display the number of refueling sites per state for each fuel. This number is expressed as a color-coded range; a state that is shaded blue on the E85 map, for example, contains one to three sites.



Alternative Fuels Hotline

This page describes the Alternative Fuels Hotline, a DOE-sponsored service that provides alternative fuels information to the public. It describes the services the hotline offers, including assistance accessing the AFDC. For more information about the hotline, call (800) 423-1DOE or e-mail hotline@afdc.nrel.gov.



Other Alternative Fuels Information

Five DOE alternative fuel information brochures and one additional page are accessible through this option. They include:

- *Alternative Fuel Information Sources*
- *Glossary of Alternative Fuel Terms*
- *State Alternative Fuel Laws & Incentives*
- *Comparison of CAAA 1990 and EPACT 1992*
- *Facts About CNG and LPG Conversions*
- *State and Federal Taxes Affecting Alternative Fuels.*

The first five documents were discussed in Volume three, Issue four of *AFDC Update*, page 4. "State and Federal Taxes Affecting Alternative Fuels" lists fuel specifications, excise taxes, exemptions, and other alternative fuel tax information.

For more information about obtaining data from the AFDC, you may request the document, Accessing the Alternative Fuels Data Center, by calling the Hotline at (800) 423-1DOE or e-mail hotline@afdc.nrel.gov.

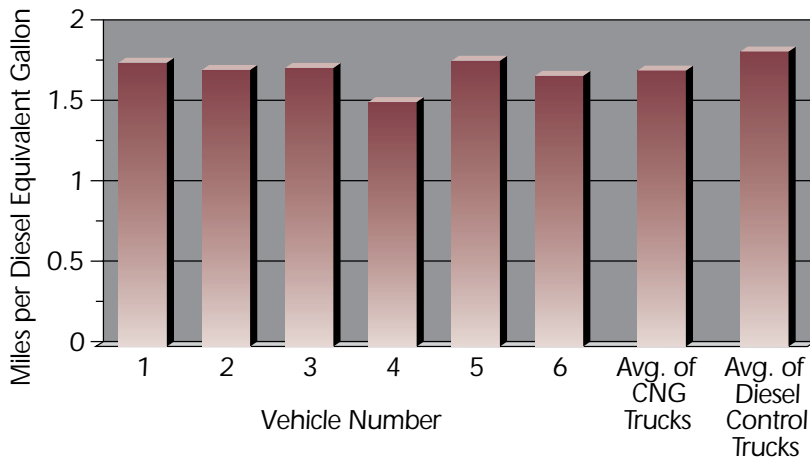
- 1 E85 85% ethanol, 15% gasoline
- 2 M85 85% methanol, 15% gasoline
- 3 LPG liquefied petroleum gas (propane)

Sanitation Department Operates Compressed Natural Gas Refuse Haulers

The New York Department of Sanitation (NYDOS), which manages trash collection in New York City, also helps clean the city in another way. By running 17 of its refuse haulers on compressed natural gas (CNG), NYDOS has taken a step toward reducing emissions caused by its diesel engines.

As a participant in the U.S. Department of Energy's Alternative Fuels Truck Commercial Applications Program, which supplies data to the AFDC, NYDOS has had information collected on nine of its refuse haulers: six that run on CNG (Cummins L10 engine) and three control vehicles that run on diesel. Ten new

NYDOS CNG Refuse Haulers—On-Road Fuel Economy



CNG refuse haulers were recently added to the fleet; five are equipped with Detroit Diesel Corporation Series 50G engines, and five have Caterpillar 3306G engines.

Tim Harte, NYDOS manager, said his employees have had positive experiences with the CNG vehicles.

“We’ve really enjoyed running the trucks on natural gas,” Harte said. “Our drivers are satisfied with the horsepower and speed. And the vehicles are quieter and cleaner, there’s no diesel knock, and there are no fumes.

“These vehicles are so quiet, our workers can listen to the radio on routes. With the diesel engines, that’s impossible.”

Fuel economy and mileage statistics have been tracked for each vehicle; two of NYDOS’ CNG vehicles were emissions tested. The project accumulated 36,700 miles through July 1994.

Data show that, on a diesel-gallon-equivalent basis, the CNG refuse haulers have a slightly lower average on-road fuel economy than their diesel controls.

Fuel economies of the CNG vehicles range between 1.5 and 1.8 miles per diesel gallon equivalent (See graph, above).

Emissions from two CNG vehicles, which were laboratory tested by West Virginia University’s Transportable Chassis Dynamometer, varied greatly because the natural gas engines used were still being developed. No emissions data were available on NYDOS’ diesel control vehicles. As the project continues, more data on these vehicles will be made available.

Harte identified only one setback with the CNG vehicles: refueling. Currently, the vehicles have only one refueling option in the area, Brooklyn Union’s Greenpoint fast-fill facility. This inconvenience adds a few minutes to the routes, Harte said. *(Continued on page 7)*

Warren Gretz, NREL



Compressed natural gas refuse hauler on the road in New York City

The National Alternative Fuels Hotline receives many calls about federal alternative fuels programs, such as Clean Cities. Here are answers to some of these inquiries.



Q. How has the Clean Cities Program progressed?

A. Since the program's inception in September 1993, more than 1,000 parties (Clean Cities "stakeholders") have become involved in the 38 designated Clean Cities, which span 23 states and the District of Columbia.

Designated Clean Cities to date include the following (in the order they were designated): Atlanta, GA; Denver, CO; Philadelphia, PA; Wilmington, DE; Las Vegas, NV; Washington, DC; Boston, MA; Austin, TX; Florida

Gold Coast; Chicago, IL; Albuquerque, NM; Wisconsin Southeast Area; Colorado Springs, CO; Long Beach, CA; Lancaster, CA; Salt Lake City, UT; White Plains, NY; Baltimore, MD; Louisville, KY; Rogue Valley, OR; State of West Virginia; Sacramento, CA; Oakland, CA; San Joaquin Valley, CA; San Francisco, CA; South Bay (San Jose), CA; Western New York; Portland, OR; St. Louis, MO; Norwalk, CT; Waterbury, CT; Norwich, CT; New London, CT; Peoria, IL; Southwest Kansas; Central New York; Dallas/Ft. Worth, TX; and Honolulu, HI.

Clean Cities is a locally based government/industry partnership, coordinated by the U.S. Department of Energy (DOE) to expand the use of alternative transportation fuels. By combining local decision-making with the

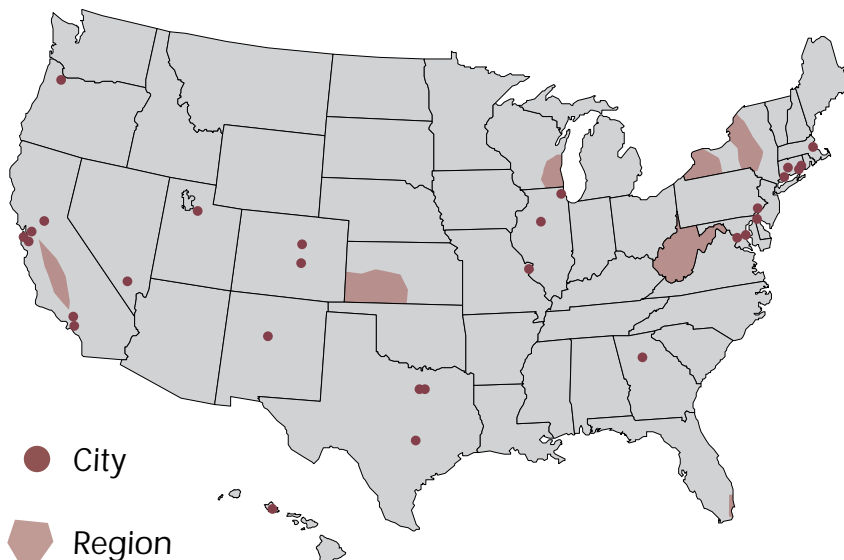
voluntary action of partners, the "grassroots" approach of Clean Cities departs from traditional "top-down" federal programs. It creates an effective plan, carried out at the local level, for creating a sustainable, nationwide alternative fuels market.

Q. What is on the horizon for Clean Cities from the U.S. Department of Energy?

A. As Clean Cities moves into its second full year, DOE will refocus the program from recruiting new Clean Cities to improving performance within existing Clean Cities through five major projects:

- **Troubleshooting:** Through a series of regional workshops, this project will focus on how a Clean Cities coalition, once organized, can be refined and made effective.
- **Vehicle Acquisition Initiative:** The Clean Cities Program has begun an initiative to work with automakers to facilitate the production of cost-competitive, original-equipment alternative fuel vehicles (AFVs) by using the Clean Cities stakeholders as a base from which to identify large groups of fleet operators looking to buy AFVs. The project will be initiated in targeted Clean Cities and expanded to the entire Clean Cities network.

DOE Designated "Clean Cities"



- **Communications Strategy:** To ensure effective, publicly supported Clean Cities programs, DOE will develop a communications strategy to work with designated Clean Cities to facilitate effective communications among Clean Cities stakeholders, the community, and the media.
- **Creative Funding:** The U.S. Department of Energy will continue to identify funding mechanisms for AFVs that will complement contributions from states, cities, utilities, and other nontraditional sources, such as the \$2 million award in grants last year to 19 state-directed pilot projects for alternative fuels.
- **Working with Other Federal Agencies:** Early this year, DOE established the Interagency Alternative Fuels Coordination Committee to define federal responsibilities for alternative fuels in a coordinated and effective manner. Work on this

issue began with the troubleshooting workshops in summer 1995, and it includes efforts to bring together regional staff of the U.S. Department of Transportation's Federal Highway Administration, the U.S. Environmental Protection Agency, the U.S. Postal Service, the General Services Administration, and DOE.

Q. How can I obtain more information about the Clean Cities Program?

A. For more details on the Clean Cities Program, call the Clean Cities Hotline at (800) CCITIES, or e-mail ccities@afdc.nrel.gov.

Q. How can I work with others on Clean Cities efforts?

A. Your name will be forwarded by the Clean Cities Hotline to regional DOE Clean Cities staff, who can tell you more about the program and activity in your area. Contact the Clean Cities Hotline for more detailed information on working with others.

U.S. Department of Energy Announces Certification and Training Scholarship Winners

On June 19, the U.S. Department of Energy (DOE) announced its certification and training scholarship winners. The scholarship, established in Section 411 of the Energy Policy Act of 1992 (EPACT) as part of the Certification of Higher-learning in Alternative Motorfuels Program (CHAMP), was created to train prospective alternative fuel vehicle (AFV) technicians, who will be able to perform conversions and repair AFVs and their fuel systems.

These technicians will be needed to satisfy the growing AFV and alternative fuels industry, which has been principally gener-

ated by EPACT. The scholarship, announced at the 1995 Ford Motor Company/American Automobile Association Student Auto Skills National Quality Care Challenge in Washington, D.C., is especially relevant to AFV original equipment manufacturers, such as Ford, which will need skilled technicians for its AFVs.

"The CHAMP scholarship awardees are not the only winners here today," Assistant Secretary for Energy Efficiency and Renewable Energy Christine Ervin said. "The nation also wins because by using alternative fuels and alternative fuel vehicles, and

ensuring that these vehicles are properly converted and maintained, we will decrease our dependence on foreign oil supplies and reduce pollution. But if we don't have the alternative fuel service infrastructure to properly maintain them, they will do neither."

The CHAMP scholarship, which generated 127 scholarships for fiscal year (FY) 1995, had \$200,000 in funding. The American Automobile Association will administer the scholarships and coordinate further private contributions.

Administered by DOE's Office of Alternative Fuels, the scholarship is "historic," DOE's Pauline Labrie said. "This is the first time ever for students to study future alternative fuels, vehicles, and technology."

(Continued on page 6)

(Continued from page 5)

CHAMP FY 1995 federal funding was \$700,000. More than \$2.3 million in federal funds is expected to be made available over a 5-year period, during which DOE will be engaged in a cost-shared cooperative agreement with the National Automotive Technician Education Foundation.

The National Automotive Technician Education Foundation will provide \$88,000 to the program in FY 1995 and at least \$476,000 during the 5 years. The foundation will assist DOE by recommending certification procedures and will provide training officials with written materials and other information.

The National Institute for Automotive Service Excellence, a private automotive certification organization, will award the certifications under the program.

"The key to CHAMP is that the certification process will guarantee uniform training," said Labrie, who also mentioned that other countries are interested in CHAMP because they hope to establish similar national certification programs.

New Fact Sheets, Bus Report Issued

The U.S. Department of Energy (DOE), through the National Renewable Energy Laboratory (NREL), recently released several new documents, including a group of fact sheets related to DOE projects and a bus report.

The fact sheets, divided between "Engine Optimization" and "Atmospheric Photochemistry" categories, describe projects undertaken by DOE subcontractors as part of the Alternative Fuels Utilization Program. "Engine Optimization" fact sheets include such research and development projects as *Analyzing Alternative Fuel Combustion*, *Ozone Productivity of Atmospheric Organics*, and *Development of a Dedicated Ethanol Ultra-Low Emissions Vehicle (ULEV)*; "Atmospheric Photochemistry" includes *Impacts of Alternative Fuels on Air Quality*, *Atmospheric Processes of Alternative Transportation Fuels*, *Dynamometer Study of Off-Cycle Exhaust Emissions*, and other topics.

NREL released *Alternative Fuel Transit Buses: Interim Results from the National Renewable Energy Laboratory Vehicle Evaluation Program, First Report* in May. It focuses on data collected on buses that run on liquefied natural gas, compressed natural gas, E93/E95 (93%/95% ethanol blends), M100 (100% methanol), and biodiesel (20% blends). Information on reliability, operating costs, emissions levels, and facility and capital cost implications of the fuels are among the data included in the report. (For additional background on the bus program, see Volume three, Issue three, page 1 of *AFDC Update*.)

To request any of these documents, please call the National Alternative Fuels Hotline at (800) 423-1DOE. These can also be viewed and obtained through the AFDC's World Wide Web home page (<http://www.afdc.nrel.gov>).

Hotline, Alternative Fuels Data Center Employs New, Improved Document Database

Within the past few months, the National Alternative Fuels Hotline and the Alternative Fuels Data Center (AFDC) started to work with an advanced printing and distribution software system to provide information to Hotline callers more quickly. The state-of-the-art information management system allows Hotline representatives to send requests for documents to the AFDC electronically. Requests are printed and distributed within 1 day of the call.

Hundreds of alternative fuel documents have been scanned into the database, and each selected document is printed or pulled from the shelf at the AFDC when phone requests are processed. The documents are then mailed to callers.

If a caller requests five documents, for example, each will be printed; this saves time that would be spent gathering documents from shelves.

In addition to alternative fuel documents, videos and AFDC software are available through the system. Please call the hotline at (800) 423-1DOE for all requests.

(Continued from page 3)

Nonetheless, Harte said his drivers constantly praise natural gas. "The drivers have become ambassadors for CNG," he said. "People in the community ask them lots of questions because they notice that the trucks are different. The trucks are so quiet, people ask, 'Is that engine running?' They also notice the lack of smoke."

NYDOS is not the only organization that wants to promote natural gas sanitation vehicles; in April, Volvo/General Motors Heavy Truck Corporation, in cooperation with Cummins, announced that it will offer natural gas engines as a factory option on its XPEDITOR refuse trucks. These vehicles will be available in January 1996.

Report Analyzes Alternative Fuel Vehicle Market Potential

Alternative fuel vehicle (AFV) sales will rise to 400,000–700,000 annually by the year 2000, according to a recent report, *National Alternative Fuel Vehicle Inventory and Analysis*, produced for the U.S. Department of Energy by Environomics, an environmental and energy consulting firm. By the year 2000, AFV populations will total 1–2 million, and will expand to 4–6 million by the year 2005, the report concludes.

Catalysts for growth include federal, state, and local legislation, which, according to the report, "will save years of valuable time when economic conditions alone warrant switching away from petroleum and possibly avoid serious hardship in the case of an oil supply interruption."

Comment Period Extended on Notice of Proposed Rulemaking

The U.S. Department of Energy (DOE) issued a notice of limited reopening of the comment period for an Alternative Fuel Transportation Program proposed rule.

The notice, which appeared in the *Federal Register* on June 12, allows further comments on DOE's program that will require certain alternative fuel providers and state government fleet operators to purchase alternative fuel vehicles under the Energy Policy Act of 1992 (EPACT). The 60-day public comment period on the proposed rule, which was published in the *Federal Register* on February 28, ended May 1.

In addition, legislation such as the Energy Policy Act of 1992 (EPACT) and the Clean Air Act Amendments of 1990 (CAAA) "will provide a significant level of energy security and serve the nation well in the future as oil supplies dwindle," the report says.

Although other vehicle population assessments have been conducted previously, Alex Farrell, the report's author, said this one is quite different. "This report differs because it estimates by [metropolitan statistical area] and by sector, including governments, fuel providers, commercial fleets, and combined numbers from Energy Policy Act, Clean Air Act Amendments and Low-Emission Vehicle Programs," Farrell said. "The analysis is also interesting based on the scenarios."

Report estimates initially took 12 economic scenarios into account, but three were deemed the most accurate: a low estimate that assesses sales sparked by EPACT; a middle one that includes EPACT, state, local, and

The period was extended by 30 days to allow organizations to comment on whether the statutory schedule allows adequate lead time for fleets to make purchase arrangements for the 1996 model year. Options being considered include a stay of enforcement, which would delay requirements for 1 or 2 model years, or for the time specified in sections 501 (for fuel providers) and 507(o) (for states) of EPACT (20 months and 16 months, respectively).

For further updates on the status of the rule, call the National Alternative Fuels Hotline at (800) 423-1DOE.

CAAA Clean Fuel Fleet Vehicle mandates; and a high one that includes the mandates of the middle scenario, plus sales prompted by the Northeast Low Emission Vehicle program.

Other results of the analysis include the following:

- EPACT and CAAA will inspire expansion of the alternative fuel infrastructure; there will be 4,000–7,000 refueling stations by the year 2000 and 13,000–20,000 by the year 2005.
- In the vehicle industry, 2,000–4,000 people will be employed by the year 2000 to perform AFV conversions. Employment numbers will climb to 5,000–7,000 by the year 2005.
- The construction industry will employ 1,600–3,000 people by the year 2000 to build alternative fuel stations; employment numbers will increase to 4,000 by the year 2005.

The analysis contains charts and tables that show these and other developments in the alternative fuels industry under the three scenarios, assessed for 1995–2005.

Meetings and Conferences

September 17-19: National Petroleum Refiners Association Fall Board of Directors Meeting, The Breakers Beach Club, Palm Beach, FL. For information, call V. Gentili at (202) 457-0480, or write to: National Petroleum Refiners Association, 1899 L Street, N.W., Suite 1000, Washington, DC, 20036.

September 19-21: Diesel Fuels & Engines Technology: ASTM Technical & Professional Training, Holiday Inn of Elk Grove Village, Elk Grove Village (Chicago), IL. For information, call K. Falkenstein at (215)299-5480, or write to: ASTM, 1916 Race Street, Philadelphia, PA, 19103.

September 19-22: 11th Annual Mobile Sources/Clean Air Conference, Beaver Run Resort, Breckenridge, CO. For information, call H. Cullinane at (303) 491-7767, or write to: Colorado State University, Office of Conference Services, Tiley House, Ft. Collins, CO, 80523.

September 30-October 3: American Gas Association's American Gas Conference, Marriott Marquis Hotel, Atlanta, GA. For information, call D. Harrington at (703) 841-8444, or write to: American Gas Association, 1515 Wilson Boulevard, Arlington, VA, 22209.

October 4-6: 48th Annual NPRA Question & Answer Session on Refining & Petrochemical Technology, Marriott Rivercenter Hotel, San Antonio, TX. For information, call (202) 457-0480, or write to: National Petroleum Refiners Association, 1899 L Street, N.W., Suite 1000, Washington, DC, 20036.

October 9-11: Sustainable Transportation & Solar & Electric Vehicle Symposium '95, World Trade Center, Boston, MA. For information, call W. Forbes at (413) 774-6051, or write to: Northeast Sustainable Energy Association, 50 Miles Street, Greenfield, MA, 01301.

October 11-13: International Conference on The Emission Inventory: Programs and Progress, Sheraton Imperial Hotel, Research Triangle Park, NC. For information, call (412) 232-3444, or write to: Air & Waste Management Association, One Gateway Center, 3rd Floor, Pittsburgh, PA, 15222.

October 15-17: 13th National Natural Gas Vehicle Conference & Exhibition, Los Angeles Convention Center, Los Angeles, CA. For information, call G. Zilberfarb at 703-841-8574, or write to: American Gas Association, 1515 Wilson Boulevard, Arlington, VA, 22209.

October 16-18: 1995 Conference on Clean Air Act Implementation & Reformulated Gasolines, J.W. Marriott Hotel, Washington, DC. For information, call K. Erickson at (800) 872-3835, or write to: Information Resources, Inc., 1925 N. Lynn Street, Suite 1000, Arlington, VA, 22209.

October 23-27: Automotive Technology Development Contractors' Coordination Meeting, Ritz-Carlton Hotel, Dearborn, MI. For information, call (703) 754-0066, or write to: Conference Management Associates, Inc., 1401 Spring Lake Drive, Haymarket, VA, 22069.

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