EPACT INITIATIVES
FOR ALTERNATIVE FUEL VEHICLES

An Integrated Approach For Implementing The Energy Policy Act

U.S. Department of Energy

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March 1995

U.S. Department of Energy
Office of Transportation Technologies
Office of Energy Efficiency and Renewable Energy
Washington, DC 20585

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"WE CANNOT AND WILL NOT WAIT FOR THE NEXT ENERGY CRISIS TO FORCE US TO RESPOND. . . .

. . . I AM CONFIDENT THAT AMERICA'S CAN-DO ATTITUDE AND SCIENTIFIC KNOW-HOW AND OLD FASHIONED PLAIN COMMON SENSE WILL PREVAIL. BY ACTING NOW, WE CAN BEQUEATH A LEGACY TO THE NEXT CENTURY OF A CLEANER, MORE PROSPEROUS AND, YES, MORE SECURE AMERICA."

President George Bush
July 26, 1989

. . . "AMERICANS WANT A CLEAN ENVIRONMENT, SECURE JOBS, AND A MORE INDEPENDENT COUNTRY, AND THESE ALTERNATIVE FUELS HELP US TO ACHIEVE THESE OBJECTIVES." . . .

President William J. Clinton
December 9, 1993

"BY ITS SHEER SIZE AND INFLUENCE, TRANSPORTATION HAS ENORMOUS IMPACT ON OUR ECONOMY AND OUR ENVIRONMENT, AND IT HOLDS THE NATION'S GREATEST POTENTIAL FOR CHANGE — CHANGE IN THE QUALITY OF OUR AIR, IN THE HEALTH OF SOME OF OUR MAJOR INDUSTRIES, IN THE AMOUNT OF PETROLEUM WE IMPORT FROM OVERSEAS, AND IN AMERICA'S BALANCE OF TRADE. TODAY, WE ARE WITNESSING THE BEGINNINGS OF A REVOLUTION IN TRANSPORTATION TECHNOLOGIES AND FUELS ...

...THE U.S DEPARTMENT OF ENERGY IS WORKING SIDE BY SIDE WITH THE STATE, LOCAL AND PRIVATE SECTORS TO DEVELOP AND DEPLOY A NEW GENERATION OF FUELS, THE VEHICLES TO USE THEM, AND THE INFRASTRUCTURE THAT WILL HELP PEOPLE EVERYWHERE TO HAVE ACCESS TO ALTERNATIVE FUELS." ...

Hazel O'Leary
Secretary of Energy
May 17, 1994

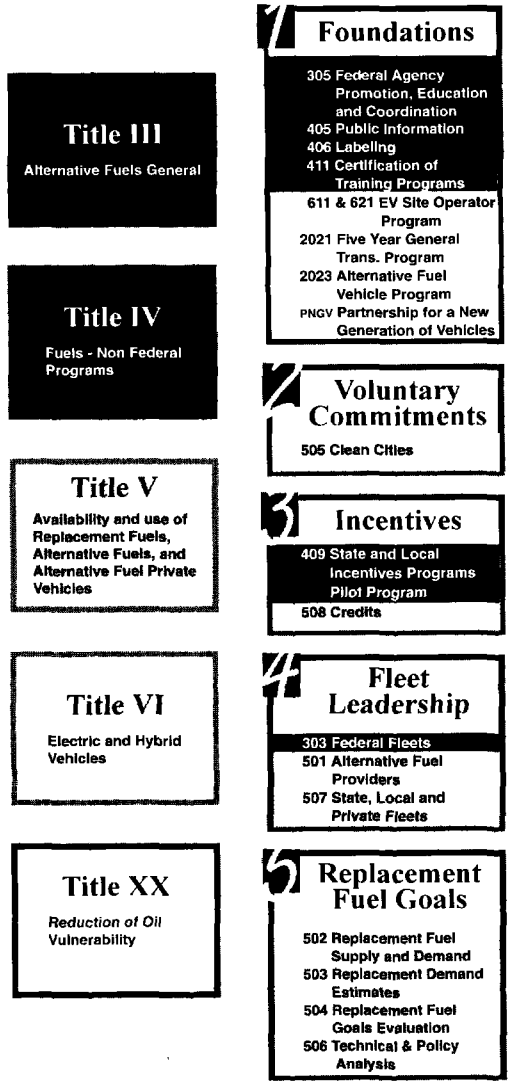
PAVING THE WAY

AN INTEGRATED APPROACH FOR IMPLEMENTING THE ENERGY POLICY ACT

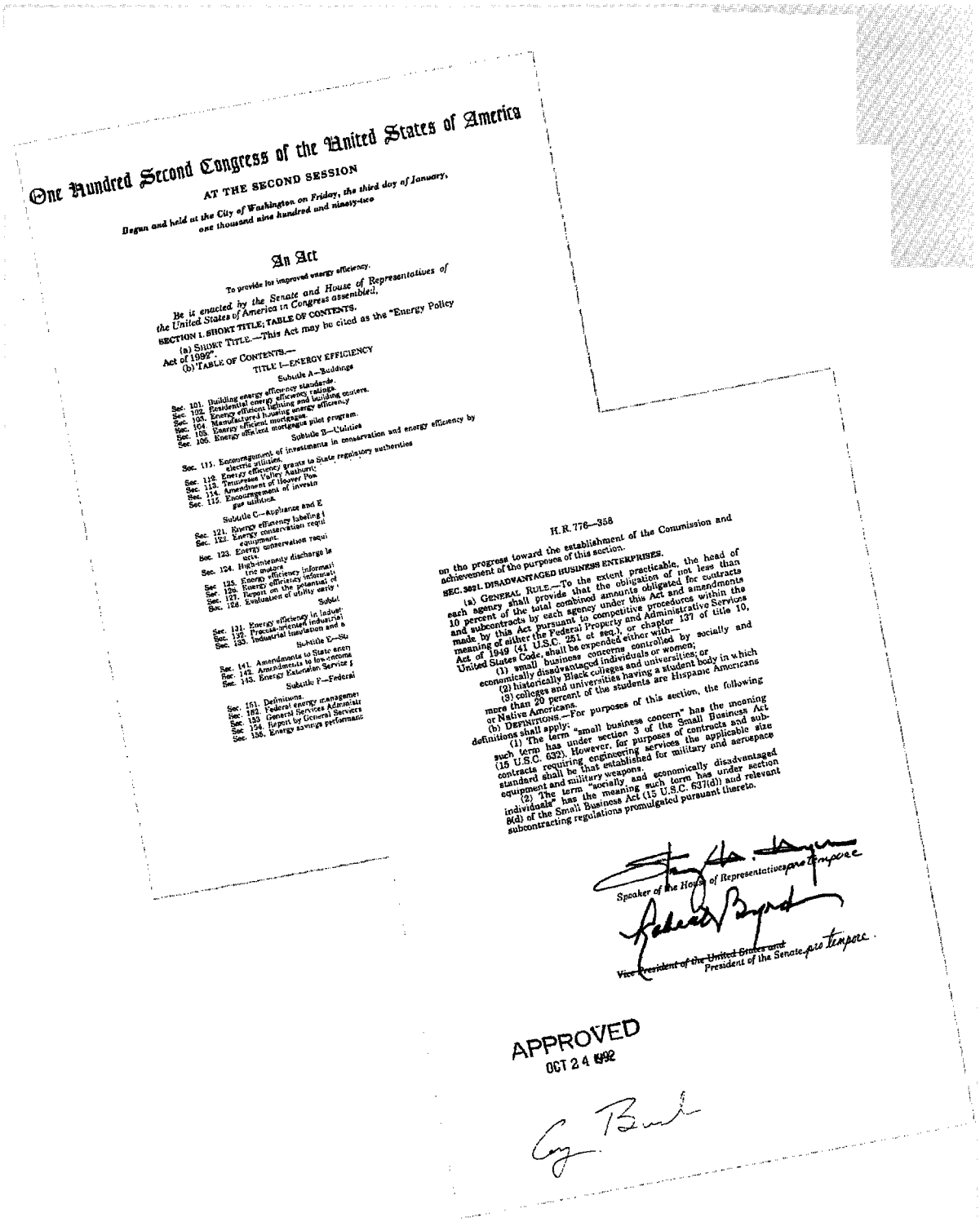
*By 2010, the transportation sector alone is expected to require 14.1 million barrels of oil per day — an amount that exceeds our projected national daily production by at least 7 million barrels!**

Our increasing dependence on imported oil prompted Congress to pass the Energy Policy Act (EPACT) of 1992. That Act gave the U.S. Department of Energy (DOE) the means to expand research and development in the transportation sector and to create programs for accelerating the large-scale introduction of alternative fuel vehicles (AFVs).

Through these programs, DOE — together with other Federal agencies — is actively building partnerships to fortify our nation's transportation system with the fuels and technologies it will need for the future. This booklet presents background on the Energy Policy Act as it relates to transportation and an overview of DOE's integrated, five-point approach to fulfilling the EPACT mandates.



* *Annual Energy Outlook 1994*, EIA, Jan. 94.



One Hundred Second Congress of the United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Friday, the third day of January, one thousand nine hundred and ninety-two

An Act

To provide for improved energy efficiency.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "Energy Policy Act of 1992".

(b) TABLE OF CONTENTS.—

TITLE I—ENERGY EFFICIENCY

Subtitle A—Buildings

Sec. 101. Building energy efficiency standards.
Sec. 102. Residential energy efficiency ratings.
Sec. 103. Energy efficient lighting and building centers.
Sec. 104. Manufactured housing energy efficiency
Sec. 105. Energy efficient mortgages.
Sec. 106. Energy efficient mortgages pilot program.

Subtitle B—Utilities

Sec. 111. Encouragement of investments in conservation and energy efficiency by electric utilities.
Sec. 112. Energy efficiency grants to State regulatory authorities
Sec. 113. Tennessee Valley Authority
Sec. 114. Amendment of Hoover Pow
Sec. 115. Encouragement of investm gas utilities.

Subtitle C—Appliance and E

Sec. 121. Energy efficiency labeling
Sec. 122. Energy conservation requi equipment.
Sec. 123. Energy conservation requi ucts.
Sec. 124. High-intensity discharge la tric motors
Sec. 125. Energy efficiency informati
Sec. 126. Energy efficiency informati
Sec. 127. Report on the potential of
Sec. 128. Evaluation of utility early

Subtit

Sec. 131. Energy efficiency in indust
Sec. 132. Process-oriented industrial
Sec. 133. Industrial insulation and a

Subtitle E—Sta

Sec. 141. Amendments to State ener
Sec. 142. Amendments to low-income
Sec. 143. Energy Extension Service

Subtitle F—Federal

Sec. 151. Definitions.
Sec. 152. Federal energy managemen
Sec. 153. General Services Administr
Sec. 154. Report by General Services
Sec. 155. Energy savings performanc

H.R. 776—358

on the progress toward the establishment of the Commission and achievement of the purposes of this section.

SEC. 3021. DISADVANTAGED BUSINESS ENTERPRISES.

(a) GENERAL RULE.—To the extent practicable, the head of each agency shall provide that the obligation of not less than 10 percent of the total combined amounts obligated for contracts and subcontracts by each agency under this Act and amendments made by this Act pursuant to competitive procedures within the meaning of either the Federal Property and Administrative Services Act of 1949 (41 U.S.C. 251 et seq.), or chapter 137 of title 10, United States Code, shall be expended either with—

(1) small business concerns controlled by socially and economically disadvantaged individuals or women;

(2) historically Black colleges and universities; or

(3) colleges and universities having a student body in which more than 20 percent of the students are Hispanic Americans or Native Americans.

(b) DEFINITIONS.—For purposes of this section, the following definitions shall apply:

(1) The term "small business concern" has the meaning such term has under section 3 of the Small Business Act (15 U.S.C. 632). However, for purposes of contracts and subcontracts requiring engineering services the applicable size standard shall be that established for military and aerospace equipment and military weapons.

(2) The term "socially and economically disadvantaged individuals" has the meaning such term has under section 8(d) of the Small Business Act (15 U.S.C. 637(d)) and relevant subcontracting regulations promulgated pursuant thereto.

Speaker of the House of Representatives pro tempore

Vice President of the United States and President of the Senate pro tempore

APPROVED
OCT 24 1992

THE ENERGY POLICY ACT

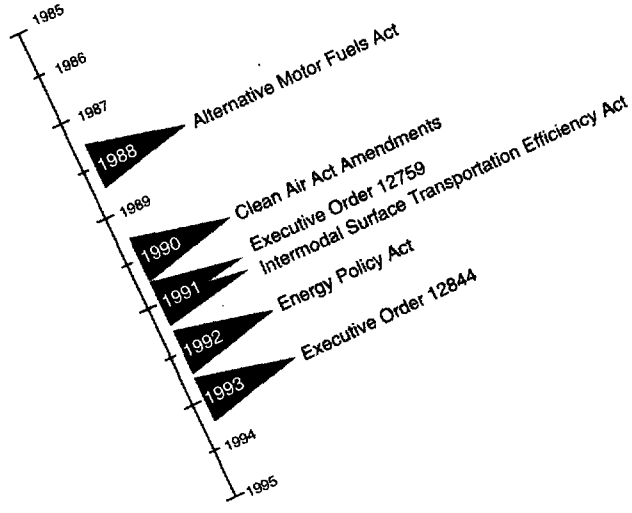
The consequences of America's heavy dependence on foreign oil have been dramatically demonstrated by two oil embargoes and loss of control over domestic oil prices. The ***Energy Policy Act of 1992 (EPACT)*** was enacted to stimulate the research, development, and accelerated introduction of technologies that can potentially shift the focus of national energy demand away from imported oil and toward renewable or domestically produced energy sources. EPACT requires DOE to establish a program that promotes the replacement of petroleum-based motor fuels to the maximum extent possible. In addition, DOE is to determine the technical and economic feasibility of achieving EPACT's ambitious petroleum replacement goals: at least 10 percent of motor fuels by the year 2000 and 30 percent by the year 2010 (on an energy equivalent basis).

The ***Alternative Motor Fuels Act*** *of 1988 (AMFA)* and the ***Clean Air Act Amendments*** *(CAAA) of 1990* laid the groundwork for these EPACT initiatives and helped to shape the Department of Energy's programs. Those Acts were strengthened by President Bush's **Executive Order 12759** (April 19, 1991) requiring Federal agencies to purchase annually the maximum number practicable of alternative fuel vehicles (AFVs).

EPACT requirements were similarly augmented by President Clinton's **Executive Order 12844** (April 21, 1993), which accelerates Federal Fleet AFV acquisition targets mandated for 1993-95 by 50 percent. Thus, the Federal fleet acquisition targets for those three years were increased to 7,500, 11,250, and 15,000 AFVs, respectively.

Executive Order 12844 also established a **Federal Fleet Conversion Task Force** comprised of key Federal and state officials, representatives of commercial fleet operators, and executives from the automotive and fuel provider industries. The task force was charged with recommending ways in which Federal actions could provide an impetus for developing and producing AFVs and for expanding refueling facilities as necessary to support large numbers of privately owned AFVs in the future.

Recent Federal actions affecting alternative fuels.



Need For Action

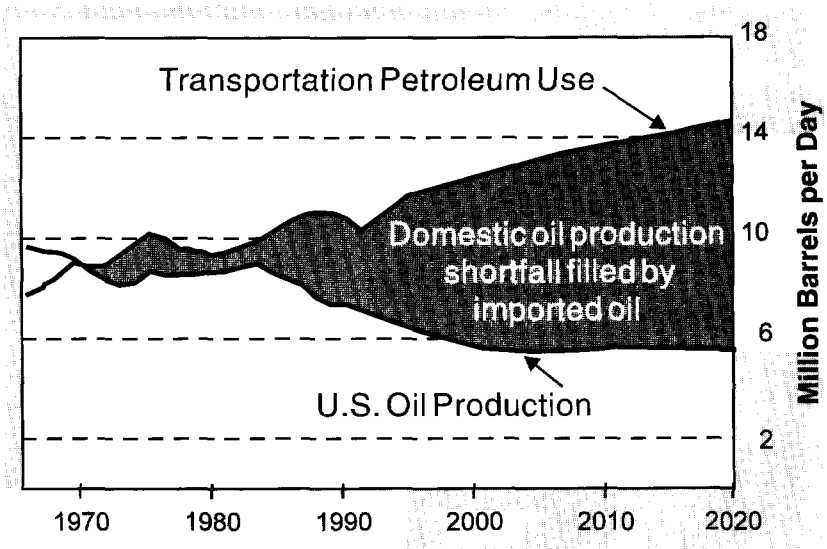
Action and leadership in the transportation sector are becoming increasingly critical as the gap continues to widen between our demand for petroleum and our domestic production. That gap is projected to rise to at least seven million barrels per day by the year 2010. The current gap requires large oil imports that add 40 to 50 billion dollars annually to the nation's trade deficit.

Massive dependence on petroleum to fuel our vehicles creates other disadvantages. Despite admirable advances in emissions control technology, many cities across the country are still unable to attain minimum clean air standards for ozone and carbon monoxide emissions. Currently the transportation sector accounts for approximately one-third of the U.S. total of greenhouse gas emissions, and this share is expected to increase 23 percent by 2010.

To reverse these trends, we must develop and deploy new vehicle technologies and make substantial changes in our everyday driving habits. The long-term benefits of alternative fuels and advanced technology vehicles will include reductions in oil imports, cleaner air, and a wider range of choices in both vehicles and fuel types. DOE is committed to an aggressive program of research, development, and deployment to help alternative fuel technologies reach their full potential.

Alternative fuels face a daunting challenge in competing with conventional propulsion systems and fuels. Conventional cars and trucks owe their high reliability, low operating costs, and ease of refueling to decades of refinement in design, materials, and production techniques. Changing current fuel use will require the successful development and deployment of new technologies and a major expansion of the alternative fuel infrastructure. This challenge will require sustained commitment, significant investment, and a willingness to pursue multiple technology paths.

The gap between transportation petroleum use and domestic crude oil production is projected to widen dramatically by 2010.



Source: Argonne National Laboratory

DOE'S APPROACH TO IMPLEMENTATION

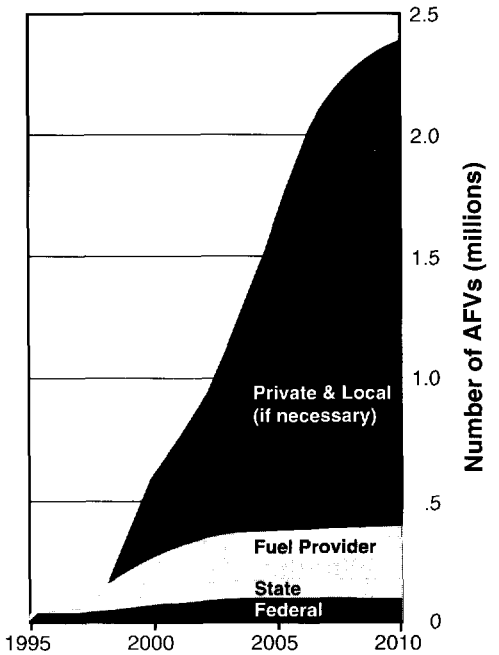
Titles III through VI of EPACT set forth a variety of regulatory mandates and incentives. As a group, they promote the use of alternative fuels and new technology and seek to replace substantial quantities of the oil consumed by motor vehicles, thereby reducing U.S. dependence on imported oil. DOE has developed an integrated, five-point approach for implementing these titles. This approach emphasizes voluntary, cost-effective partnerships and relies on regulations only when necessary.

1 **Foundations** for wider use of alternative transportation fuels are being established through public information campaigns, the certification of training programs for mechanics, the setting of standards for fuels and vehicles, the creation of labeling requirements, and continued research and development.

2 **Voluntary Commitments** are being sought to bring the necessary AFV infrastructure, supply, and demand on-line simultaneously. Fuel suppliers are being asked to build stations, automakers to build vehicles, and fleets to use those vehicles. Voluntary participation reduces the need for mandates and allows users to determine which technologies best meet their needs. DOE's **Clean Cities** program is working effectively to leverage Federal fleet AFV purchases by encouraging local public and private investments.

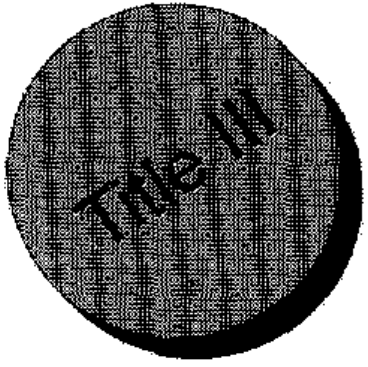
3 **Incentive Programs** to stimulate investment in alternative fuel vehicles and supporting infrastructure are being developed through Federal tax incentives and grants to states. Through these funding mechanisms, states will be rewarded for developing local incentive programs that encourage the early adoption of alternative fuels and vehicles.

4 **Fleet Leadership** is being sought from the Federal fleet, state fleets, and alternative fuel provider fleets. It is appropriate that these fleets assume a vital pioneering role in the greater implementation of AFVs, and their initial leadership is being secured through statutory requirements.

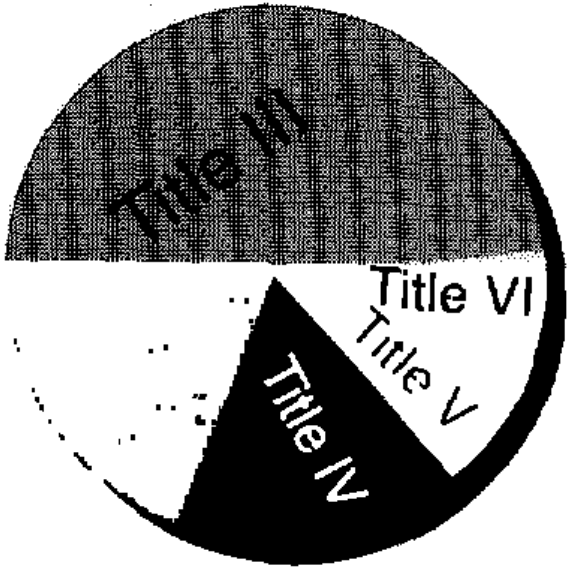


EPACT fleet mandates are projected to dramatically increase the number of alternative fuel vehicles on the road.

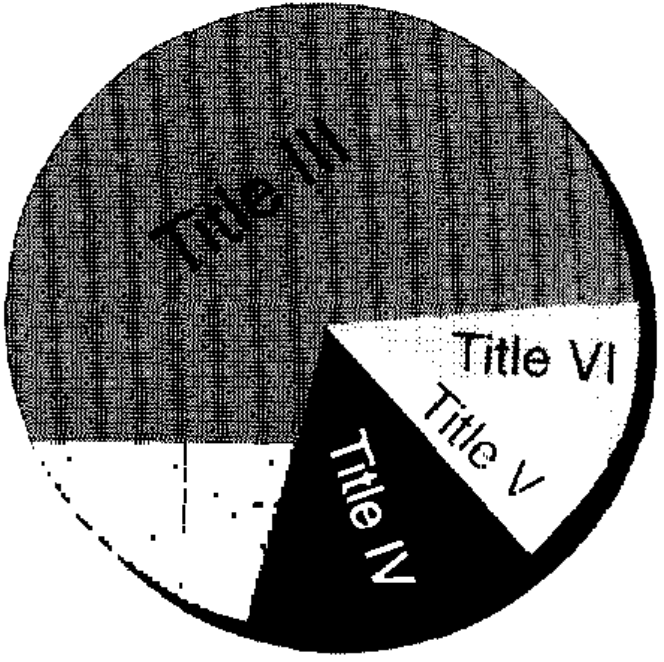
EPACT FY 93
$7 M



EPACT FY 94
$23 M



EPACT FY 95
$30 M



What Are Alternative Fuels?

EPACT defines Alternative Fuel as methanol, denatured ethanol, and other alcohols; mixtures containing 85 percent or more (or such other percentage, but not less than 70 percent, as determined by DOE, by rule, to provide for requirements relating to cold start, safety, or vehicle functions) by volume of methanol, denatured ethanol, and other alcohols with gasoline or other fuels; natural gas; liquefied petroleum gas; hydrogen; coal-derived liquid fuels; fuels (other than alcohol) derived from biological materials; electricity (including electricity from solar energy); and any other fuel DOE determines, by rule, is substantially not petroleum, and would yield substantial energy security benefits and substantial environmental benefits.

EPACT funding represents a significant portion of the total budget for the Office of Transportation Technologies.

Replacement Fuel Goals are being examined to determine whether it is technically and economically feasible to displace 10 percent of petroleum use by 2000 and 30 percent by 2010. Numerous analyses and determinations will be made on this issue, and information on the process and results will be broadly disseminated through the *Federal Register.*

This approach recognizes that important research and development breakthroughs must be followed by coordinated public and private action to effectively accelerate the use of alternative fuels. The Department's **Clean Cities** program therefore provides a vital framework of support networks through which many of DOE's alternative fuels programs are coordinated. Government and industry coalitions forged by the Clean Cities program at the state and local level provide an excellent mechanism for stakeholder input into EPACT programs.

EPACT funding for DOE's Alternative Fuel Transportation Program has increased steadily from $7 million in fiscal year 1993 to $30 million in fiscal year 1995. This growth in funding reflects a commitment by Congress and DOE to accelerate the use of alternative fuel vehicles and advanced technologies. The Department's program supports the development of all alternative fuel technologies. Through partnerships with consumers and industry, the Department is identifying the most cost-effective application for each of the alternative fuel types.

Although current DOE programs alone are unlikely to attain the ambitious 10 percent goal identified in EPACT--and achievement of the 30 percent goal would certainly require additional programs and policies (many of which are now under evaluation)--tangible successes are anticipated. For example, the Department's five-point approach can be expected to produce the following results:

- A dramatic increase in the population of alternative fuel vehicles and growth in the supporting infrastructure in the next 10 to 20 years, achieving significant displacement of imported oil,
- A decrease in the national trade deficit and a corresponding increase in domestic jobs,
- Technicians properly trained to maintain alternative fuel vehicles,
- A public that is sufficiently informed about alternative fuels and technologies so they may acquire AFVs with confidence,
- Clean Cities in all major metropolitan areas across the country, and
- Innovative state and local programs funded through DOE grants.

Achievements such as these will signal a solid beginning for the DOE programs, but much work clearly remains to be done. Continued progress will require further collaborative efforts by the

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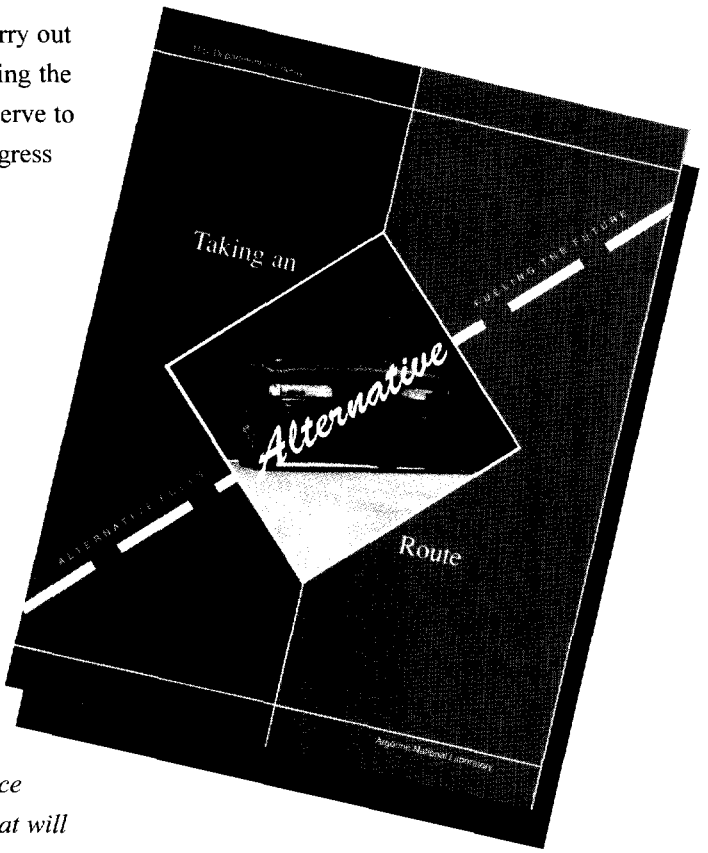
public and private sectors to identify and carry out the most cost-effective strategies for achieving the fuel replacement goals. Each success will serve to fuel further efforts and foster continued progress toward energy efficiency.

FOUNDATIONS

Successful deployment of alternative fuels and vehicles will require solid foundations that are provided through a public information campaign, certification of training programs, labeling and standards for fuels and vehicles, and concerted research and development efforts.



PUBLIC INFORMATION

EPACT Section 405 requires DOE to produce and disseminate an information package that will enable consumers to understand alternative fuels and vehicles and to choose among them with confidence.

The Department of Energy (DOE) is committed to providing useful information about alternative fuels to fleet owners and the general public. Through its broad-based campaign, the Department is disseminating a wide range of publications on alternative-fuel issues, including the following:

- A brochure, entitled **"Taking An Alternative Route,"** focuses on items of interest to fleet owners and managers and provides information that can help them comply with EPACT and *Clean Air Act* requirements.
- **"Fast Fuel Facts,"** fact sheets describing the characteristics of each of the alternative fuels available today, are meant to answer some basic questions about the use of alternative fuels.
- A series of pamphlets provides additional technical details about the fuels, the vehicles, and the regulations that may affect vehicle owners. Titles are as follows:

  - Alternative Fuel Information Sources,
  - Facts About CNG and LPG (Compressed Natural Gas and Liquefied Petroleum Gas) Conversion,
  - Comparative Alternative/Clean Fuels Provisions of the Clean Air Act Amendments of 1990 and the Energy Policy Act of 1992,

Hotline

DOE keeps information flowing to those most likely to be affected by EPACT and the Clean Air Act of 1990 through the National Alternative Fuels Hotline. The Hotline has been providing information since 1992 as part of the Alternative Motor Fuels Act's mandate to encourage the use of alternative fuels. It is linked to the Alternative Fuels Data Center (AFDC), an on-line data resource.

The Hotline also publishes a number of free newsletters, including Biofuels Update, Clean Cities Drive, and AFDC Update.

National Alternative Fuels Hotline and Alternative Fuels Data Center (AFDC)
1-800-423-1DOE

- State Alternative Fuel Laws and Incentives,
- Domestic Alternative Fuel Vehicle Outlook, and
- Glossary of Terms.

To ensure that all information developed by DOE is both relevant and objective, all products are reviewed in a two-tier process. First a group of industry experts (stakeholders) looks at the information to make certain that the most up-to-date facts have been included, and then a group of technical experts (from government and non-profit organizations) makes sure the information is as technically correct as possible. Only after both groups have reviewed the information is it released for distribution. This process ensures that the public has a source of unbiased information on which to base their own purchase decisions.

CERTIFICATION OF TRAINING PROGRAMS

EPACT Section 411 directs DOE to ensure that the Federal government establishes a program to certify training programs for the technicians that will perform AFV conversions and vehicle maintenance.

The Certification program is establishing national uniform training standards and certification processes for programs that train technicians to convert gasoline-fueled vehicles into AFVs, and repair and maintain AFVs and refueling systems. In developing the uniform standards and the certification processes, DOE is working closely with numerous private sector organizations. This approach makes maximum use of the best existing programs and processes currently employed by automobile manufacturers, vehicle conversion companies, fuel providers, equipment manufacturers, academic institutions, certification bodies, commercial training experts, and industry and consumer associations.

The Certification program has gained national popularity with industry and academia. The program will ensure high-quality training capability and make sure expert technicians will be readily available when needed--thereby accelerating public acceptance of alternative fuels.

The program's high standards will help to raise the international competitiveness of U.S. industry in alternative fuels, maintenance and repair technology, and training programs.

FEDERAL AGENCY PROMOTION, EDUCATION, AND COORDINATION

EPACT Section 305 requires that DOE, in cooperation with the Administrator of General Services (GSA), promote AFV programs and educate officials and employees of Federal agencies on the merits of alternative fuel vehicles (to be coordinated with Sections 303, 306, and 307).

DOE and GSA have successfully launched several promotional activities to provide technical assistance on AFV operation, maintenance, safety, and procurement and have published a directory of AFV refueling facilities. (Contact General Services Administration, Federal Supply Service, Washington, DC 20406)

LABELING

EPACT Section 406 requires the Federal Trade Commission to establish uniform labeling requirements for alternative fuels and AFVs.

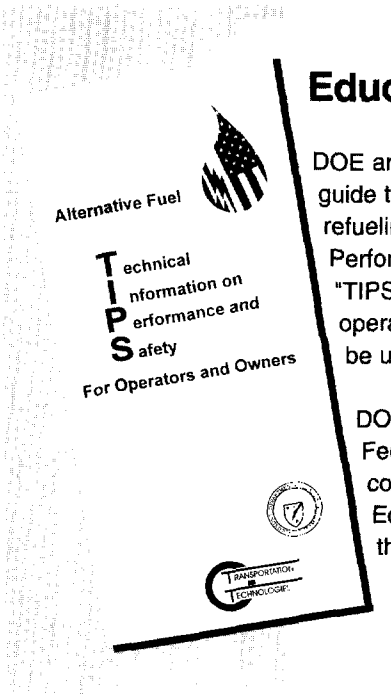
DOE has been providing technical assistance to the Federal Trade Commission (FTC) in establishing uniform labeling standards for alternative fuels and AFVs. DOE is coordinating this activity with its public information activities (Section 405). In May of 1994, the FTC proposed that standard labels include the common names of fuels, a fuel's principal component, fuel tank capacity, other factors consumers should consider, and reference to additional sources of objective information.

FIVE-YEAR GENERAL TRANSPORTATION PROGRAM

EPACT Section 2021 (in accordance with Sections 3001 and 3002) requires DOE to conduct a five-year program to promote cost-effective technologies that reduce the demand for oil in the transportation sector. This program considers a broad range of cost-effective technologies that increase energy efficiency and the use of alternative fuels.

To address these above requirements, DOE has devised a plan to define a long-term framework for transportation energy research, development, and demonstration. The plan, which provides an overview of DOE transportation technology development efforts, is based on a broad assessment of the potential costs and benefits of developing new technologies.

The most viable long-term solution to the transportation energy dilemma is to develop advanced technologies that are competitively priced and capable of performing at a level equal to, or better than, conventional technology. Programs and activities managed by the DOE Office of Transportation Technologies, Office of Alternative Fuels (OAF), are integral components of the Department's broad effort to assure an energy future that is more efficient, safer, and less dependent on foreign sources, and will meet the nation's energy needs well into the next century. OAF's goal is to reduce oil consumption by working with industry to improve vehicle fuel efficiency and encourage the use of alternative fuels. Further information on these programs and goals is available through the National Alternative Fuels Hotline.



Educating Federal Agencies

DOE and GSA have published a quick-reference guide to AFV safety, performance, driving, and refueling, called "Technical Information on Performance and Safety" (TIPS). Although "TIPS" is prepared for Federal fleet managers, operators, and other federal employees, it can be used by all operators of AFVs.

DOE conducts workshops on AFVs for Federal fleet operators at the annual conferences of the GSA Interagency Motor Equipment Advisory Committee (IMEAC) throughout the country.

ALTERNATIVE FUEL VEHICLE PROGRAM

EPACT Section 2023 (in accordance with Sections 3001 and 3002) requires DOE to carry out a program to improve technologies for using natural gas and other alternative fuels.

DOE is initiating and modifying existing programs that target improvements in alternative fuel technologies. These programs are being leveraged with private industry through joint ventures with fifty-percent cost sharing. DOE's current research and development (R&D) programs build on and benefit from programs that have been ongoing since 1973. The programs range from the fundamental measurement of fuel properties, to combustion studies in full-scale engines, to evaluations of total fuel systems both in solitary AFVs and in fleets. Virtually all ongoing R&D in this area is heavily leveraged with industry.

Research and Development

EPACT-mandated research and development is being conducted within the framework of the DOE Office of Transportation Technologies research and development program. This program is split into two major research and development focus areas: 1) advanced vehicle propulsion technologies that will enable substantial increases in vehicle fuel economy, and 2) cost-competitive domestic alternative fuels. Both of these areas will help to achieve energy security and diversity, greatly reduced emissions from mobile sources, and more competitive U.S. vehicle and fuel industries.

Advanced Vehicle Propulsion Technologies
Through strategic partnerships such as the United States Advanced Battery Consortium and the Partnership for a New Generation of Vehicles (PNGV), the advanced vehicle propulsion system development program is pursuing parallel research efforts in the following areas:

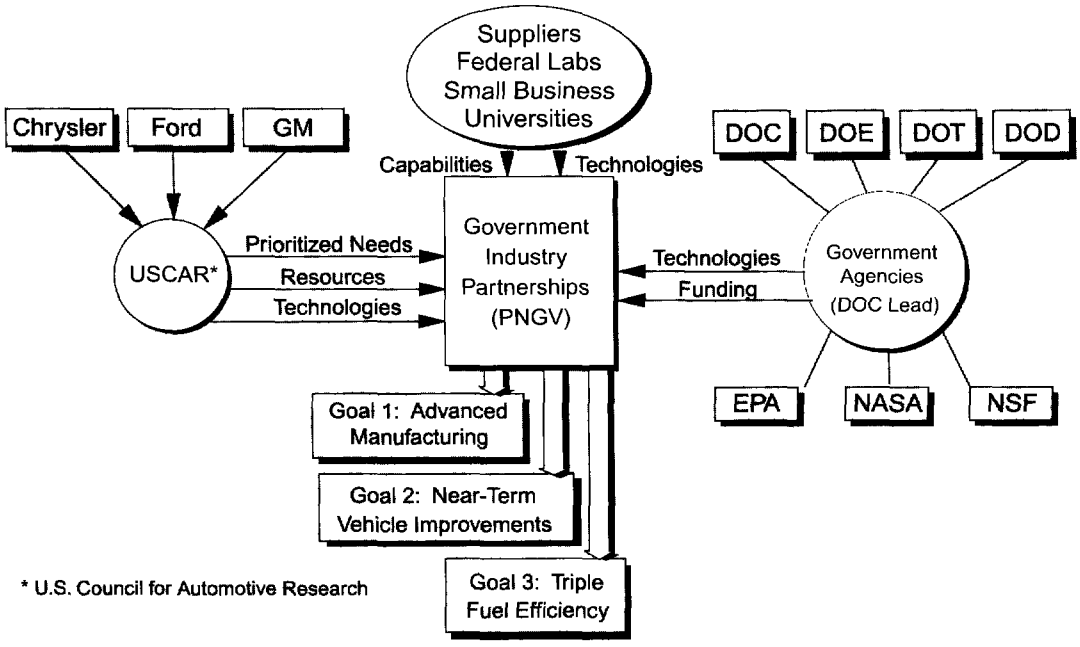
- hybrid propulsion systems,
- transportation fuel cell development,
- improved energy storage technology,
- advanced materials technology, and
- advanced heat engine technologies.

Alternative Fuels
The alternative fuels program is conducting several R&D projects to achieve the following objectives:

- stimulate development of technologies to lower the cost and improve the performance of vehicles that use alternative fuels, particularly natural gas, alcohols, and electricity,
- assist the introduction of alternative vehicles/fuels that can be competitive with conventional fuels and vehicles, and
- stimulate development of technologies that provide abundant, cost-effective fuels from domestic resources.

Not all of DOE's work is conducted in the test labs. As a continuation of earlier Alternative Motor Fuels Act of 1988-originated activities, on-road fleet testing is currently being conducted on a cross section of light duty vehicles, trucks, and buses. These fleet tests encompass several major geographical regions that represent diverse climate and use conditions.

The Partnership for a New Generation of Vehicles



PARTNERSHIP FOR A NEW GENERATION OF VEHICLES (PNGV)

Coincident with the development of the five-year research and development plan under Section 2021, an initiative by the Executive Branch has been formulated to develop a "New Generation" of vehicle.

This initiative, which was announced in September 1993, involves a joint effort between industry and government. The industry/government "Partnership for a New Generation of Vehicles" (PNGV) emphasizes the achievement of the following three goals:

- manufacturing productivity improvements,
- near-term efficiency and safety improvements, and
- new technologies that will result in a three-fold increase in the fuel efficiency of passenger cars.

The PNGV involves the participation of seven Federal agencies and Chrysler, Ford, and General Motors.

ELECTRIC VEHICLE COMMERCIAL DEMO AND INFRASTRUCTURE DEVELOPMENT PROGRAMS

EPACT Section 611 (Subtitle A) and EPACT Section 621 (Subtitle B) require DOE to conduct a program to demonstrate electric motor vehicles and their associated equipment in consultation with the site operators of the Electric and Hybrid Vehicle Program, manufacturers, and the electric utility industry.

Most of the Department's efforts on electric vehicles (EVs) involve research and development.

Hotline

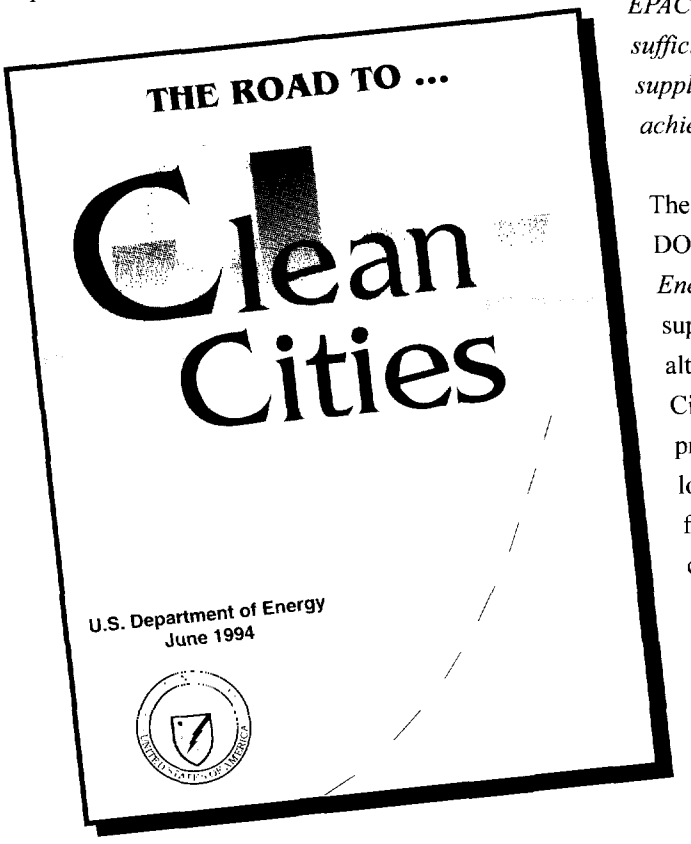
The Clean Cities Hotline is part of the National Alternative Fuels Hotline Center through which DOE keeps information flowing to those most likely to be affected by EPACT.

Further information on Clean Cities can be obtained by calling the Clean Cities Hotline at 1-800-CCITIES.

Literature on the Clean Cities program is available through the Hotline.

Its EV demonstration programs (designed to increase EV use) are much smaller than similar alternative fuel programs. DOE will continue to purchase, test, and evaluate electric vehicles through the DOE Site Operator Program. The Site Operator Program is a joint industry/government effort (comprised of 12 nationwide organizations) to test and evaluate near-term vehicles and batteries in real-world applications. Limited infrastructure development activities are also being conducted through the Site Operator Program. The following issues are among those being investigated through this program:

- electric vehicle recharging procedures,
- technical training,
- safety, and
- public awareness.



VOLUNTARY COMMITMENTS

While fleet leadership paves the way for alternative fuel use and fuel flexibility by demonstrating the practicality of AFV technology on a large scale, it will be voluntary commitments from fuel suppliers, vehicle suppliers, and fleet owners that form the critical partnerships necessary to achieve the 30 percent petroleum displacement goal by 2010. Voluntary commitments maximize choices at the local level, and test regulations Congress wrote into *EPACT*; they allow users to make their own decisions, guided by the marketplace.

CLEAN CITIES

EPACT Section 505 requires DOE to seek sufficient voluntary commitments from suppliers, providers, and fleet purchasers to achieve the fuel displacement goals.

The Clean Cities program was initiated by DOE to achieve goals established by the *Energy Policy Act of 1992* and to provide a supporting network for all of DOE's alternative fuels programs. The Clean Cities program establishes a systematic process of working with cities to develop local plans for creating an alternative fuels market. The program shepherds cities through the process of goal-setting, coalition-building, and commitments necessary to earn a Clean Cities designation. Through these commitments, key stakeholders pledge to pursue national goals for the replacement of conventional

transportation fuels with domestically produced, clean-burning alternative fuels; to increase acquisition and utilization of AFVs; to develop the alternative fuel supply infrastructure and vehicle conversion, maintenance, and related service industries; and to advance public understanding of the benefits and costs of using AFVs. The following are examples of local goals:

- Improve air quality and achievement of the attainment levels specified in the *Clean Air Act Amendments,*
- Fulfill state and Federal fleet requirements,
- Contribute to economic development,
- Develop the area's alternative fuels industry,
- Create new motor fuels industries,
- Benefit local businesses that use AFVs,
- Increase local taxable revenue,
- Increase local production of clean energy,
- Increase energy conservation and security.

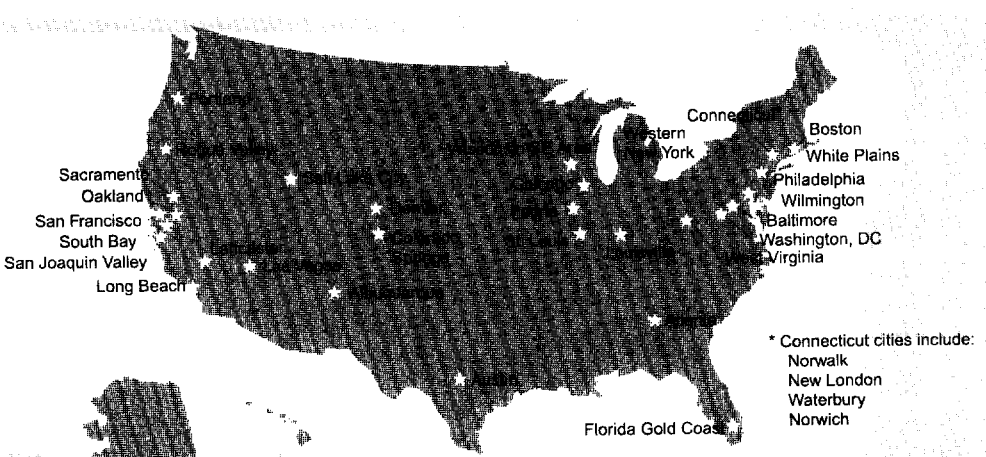
Creating a sustainable, nationwide alternative fuels market is a long-term prospect. Accordingly, Clean Cities must be an enduring program whereby cities continually pioneer innovations and aspire to attain national as well as local goals in promoting alternative fuels.

Clean Cities like Chicago provide the basis for a voluntary, "grass roots" movement to promote AFVs.

The Department's primary contributions to each participating Clean City are as follows:

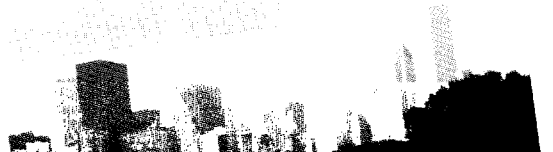
- Guiding the placement of Federal AFVs,
- Directing the award of Federal funds and grants as available,
- Providing general assistance and materials for public relations and promotional activities,
- Providing training for coordinators, fleet operators, and other participants,
- Providing Hotline/clearinghouse for technical and other information,
- Conducting information exchange workshops, and
- Providing assistance in public education activities.

Clean Cities participation is rapidly spreading across the United States.



Clean Cities

as of January 1, 1995



The Clean Cities program provides direct support for EPACT-mandated programs, including the Public Information Program (Section 405), the State and Local Incentives Program (Section 409), the Replacement Fuels Program (Section 502), and the Certification of Training Programs (Section 411). Additionally, Clean Cities seeks to advance the *Clean Air Act Amendments of 1990* and other Federal legislative and regulatory initiatives to promote the public and private sector use of alternative fuel vehicles. One of the strengths of the Clean Cities program is that it is highly adaptable, allowing each program to tailor its goals to the specific needs of the region, such as clean air or economic growth.

As of December 1994, the DOE Clean Cities program had established over 1,000 partnerships in 34 cities throughout the country, and the program continues to gain momentum. Although the list of Clean Cities will continue to grow during 1995, the focus will shift toward fulfilling the voluntary commitments already pledged.

EPACT Provisions for Tax Credits and Deductions

EPACT provides tax deductions for qualified vehicle properties based on vehicle weights and types, as follows:

Truck or van		Buses	All Other Vehicles
GVW in lbs.		Seating for 20+ adults	Not Incl. Off Road Vehicles
10,000-26,000	> 26,000		
$5,000	$50,000	$50,000	$2,000

The tax credit for qualified electric vehicles is 10 percent of the cost of the vehicles or $4,000, whichever is lower. These amounts shall be reduced according to the following schedule: 2002, 25 percent reduction: 2003, 50 percent reduction; and 2004, 75 percent reduction. These deductions and credits are available between 6/30/93 and 12/31/2004.

The tax deduction for a qualified clean-fuel vehicle refueling property shall not exceed $100,000 for a property placed in service by the taxpayer in the taxable year or preceding taxable years. This deduction is available between 6/30/93 and 12/31/2004.

Contacts:
U.S. Internal Revenue Service
1111 Constitution Avenue, NW
Washington, DC 20224

Joanne Johnson
Alternative Fuels Tax Provisions
202-622-3110

Frank Bolland
Alcohol Fuel Tax Information
202-622-3130

Toll-free Order Desk
Publ. #553
Alternative Fuel Vehicle Tax Deduction Booklet
800-829-3676

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3 INCENTIVES

Incentive programs form a key element in the successful implementation of EPACT. By targeting incentives to address the key barriers to alternative fuel technologies, the DOE programs will help those technologies to become competitive in the marketplace without subsidies. Through the competitive nature of the incentive programs, the most innovative and heavily cost-shared state and local programs will be selected to receive Federal assistance. The incentives are designed to reward the states and localities that assemble the most effective programs for leveraging Federal funds to stimulate the introduction of alternative fuels and alternative fuel vehicles. Targeted incentives also provide local areas with a high degree of flexibility in selecting the specific alternative fuel technologies that are most appropriate for them, based on local resources and organizations.

STATE AND LOCAL INCENTIVES PROGRAMS

EPACT Section 409 authorizes Federal-to-state assistance and incentive programs to accelerate the introduction and use of AFVs. DOE is required to implement this program through rulemaking.

The Congressionally authorized incentives program allows states to seek Federal assistance by submitting creative plans for the introduction of alternative fuels and vehicles in their state. These plans must examine the following incentives and issues:

- Exemption from state sales tax or other state or local taxes or surcharges (other than such taxes or surcharges that are dedicated for transportation purposes) for alternative fuel vehicles, alternative fuels, or alternative fuel refueling facilities,
- The introduction of alternative fuel vehicles into state-owned or operated motor vehicle fleets,
- Special parking privileges for AFVs at public buildings, airports, and transportation facilities,
- Public education programs to promote the use of alternative fuel vehicles,
- The treatment of sales of alternative fuels (for use in AFVs),
- Methods by which state and local governments might promote
  - wider availability of alternative fuels, and
  - public facilities for recharging electric motor vehicles,
- Allowing public utilities to include in their rates the incremental costs of
  - new alternative fuel vehicles,
  - converting conventional vehicles to operate on alternative fuels, and
  - installing alternative fuel refueling facilities, but only to the extent that the resulting rates would not create a competitive disadvantage for other market participants, and only after due consideration has been given to the effects on other utility customers (in terms of rates, service, and reliability),
- Such other programs and incentives as the state may describe
- Whether any of these measures would require

amendments to state laws or regulations, including traffic safety prohibitions,
- Services provided by municipal, county, and regional transit authorities, and
- Effects of such measures on programs authorized by the *Intermodal Surface Transportation Efficiency Act of 1991* and amendments made by that Act.

Various forms of assistance under the incentives program will be competitively awarded to those states that develop the most innovative plans to satisfy the EPACT criteria, including a minimum of 20 percent cost-sharing. Contact the National Alternative Fuels Hotline for up-to-date information on the implementation of this incentives program.

PILOT PROGRAM

Notice of Program Interest 10 CFR 600.15
Coordinated with Section 409

To stimulate interest and participation in DOE alternative fuels programs, the Office of Alternative Fuels published a Notice of Program Interest in the *Federal Register*. The notice invited unsolicited proposals for pilot programs demonstrating the feasibility of methods for accelerating the introduction of alternative fuels and alternative fuel vehicles. Grants for such demonstration programs would generally support DOE's alternative motor fuels programs, including the EPACT-mandated State and Local Incentives Program and DOE's Clean Cities program. Successful program proposals will contain incentive plans directed at cities that are currently involved in the DOE Clean Cities program and will include provisions for leveraging non-Federal and Federal resources. These pilot programs will provide DOE with information, knowledge, and experience in several areas. In addition to expanding the use of alternative fuels and AFVs, DOE seeks to collect data that will potentially increase the long-term effectiveness of EPACT, complement ongoing activities in the DOE Clean Cities program, and facilitate the integration and implementation of EPACT and *Clean Air Act* objectives at state and local levels. DOE also intends these pilot programs to showcase the cost-effective use of combined private and public funding; the cooperative involvement of multiple public and private market entities; and the development of alternative fuel market infrastructures (refueling, maintenance, etc.) with broad public access. The pilot programs will similarly serve as models for the promotion of all types of alternative fuels; the deployment of alternative fuels; the development of innovative, efficient energy technologies; air quality improvement; and the development and utilization of domestic resources.

Approximately $2.0 million has been made available for developing demonstration projects to support the Pilot Program. For up-to-date information on the implementation of this program, call the National Alternative Fuels Hotline.

CREDITS

EPACT Section 508 requires DOE to establish by rulemaking a vehicle credit trading program.

Congress created the credits program to encourage fleets or covered persons to adopt the use of AFVs early and aggressively. Credits are allocated when AFVs are acquired over and above the

amount required, or earlier than required. Since credits can be traded and sold, fleets have the flexibility to acquire alternative fuel vehicles on the most cost-effective schedule without impeding the achievement of national oil displacement goals.

FLEET LEADERSHIP

A vital part of DOE's five-point approach to EPACT implementation is its use of Federal fleets to provide leadership in acquiring and demonstrating alternative fuel vehicles. This fleet leadership, which began in 1990 under the *Alternative Motor Fuels Act* of 1988, is being expanded to other fleets, as required by the *Energy Policy Act.* These mandates, by themselves, are not expected to produce major reductions in U.S. petroleum use, but rather, are intended to demonstrate the viability of the technology and pave the way for increased alternative fuel use and fuel diversity in American society at large. In addition, the mandates are designed to catalyze markets into making alternative fuel vehicles and refueling facilities more widely available.

FEDERAL FLEETS

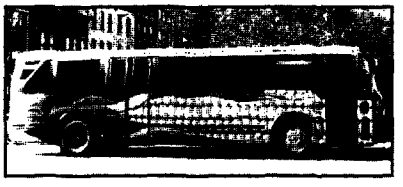
In April 1991, President Bush signed Executive Order 12759 requiring Federal agencies to annually purchase the maximum practicable number of alternative fuel vehicles. EPACT Section 303 requires the introduction of light duty AFVs into the Federal fleet, in specific incremental percentages, over the next several years. In

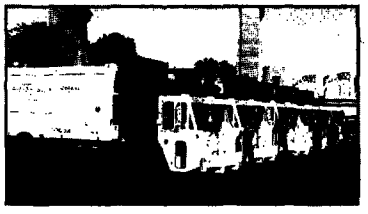
Alternative Motor Fuels Act of 1988 (AMFA)

As a first step on the road to penetration of alternative fuel vehicles into fleets, Congress introduced the *Alternative Motor Fuels Act of 1988 (AMFA)*, which mandated that the Federal fleets start the process of procuring and operating alternative fuel vehicles.

The purpose of *AMFA* is to encourage (1) the development and widespread use of methanol, ethanol, and natural gas as alternative transportation fuels, and (2) the production of alternative fuel vehicles using these fuels. DOE is the lead agency responsible for implementing this Act, in conjunction with other Federal agencies, state and local governments, and industry. *AMFA* conducts several studies of light-duty, heavy-duty, and bus alternative fuel vehicle fleets. The Energy Policy Act expanded AMFA activities, adding propane and other alternative fuels, expanding R&D programs, and repealing the termination date. In addition to mandating the procurement of alternative fuel vehicles (AFVs), DOE coordinates the collection of performance data and disseminates this information through the Alternative Fuels Data Center at the National Renewable Energy Laboratory. This activity set the stage for expanded efforts under EPACT by providing opportunities for industry and Federal agencies to demonstrate early AFV technology.

◀ *Flex-fuel Ford Taurus*
▼ *Ethanol Powered Bus*





Natural Gas Powered Garbage Trucks ▲
ULEV Certified Chrysler CNG Minivan ▶

April 1993, President Clinton signed Executive Order 12844, which increases those acquisition requirements by 50 percent for 1993-95.

As of September 1994, over 17,000 alternative fuel vehicles were either on the road or on order for Federal agencies, including the U.S. Postal Service, the Defense Department, and the General Services Administration, among other agencies. This program has dramatically increased the use of AFVs, has prompted automakers to expand AFV availability, and is encouraging the alternative fuel industry to plan and invest in a growing refueling infrastructure.

The Clean Air Act Amendments of 1990

The *Energy Policy Act's* primary purpose is to increase U.S. energy security through increased use of alternative fuels. In contrast, the *Clean Air Act* seeks to improve our nation's air quality.

The 1990 amendments to the *Clean Air Act* stress the use of cleaner fuels to help reduce vehicle emissions. The Act requires the U.S. Environmental Protection Agency (EPA) to, among other activities, regulate the emissions of certain pollutants from motor vehicles. States containing geographic regions that exceed national air quality standards for certain pollutants must develop State Implementation Plans (SIPs) for reducing air pollution and meeting national standards.

The provisions of Subpart C of Title II of the *Clean Air Act* require certain states to include a Clean Fuel Fleet Program in their SIPs. Under this program, specified percentages of new vehicles acquired by certain fleet owners in model year 1998 and after must meet clean-fuel fleet emission standards. As one of their strategies, states may find it effective to develop initiatives employing AFVs. While the use of reformulated gasoline is expected to meet nearly all the emissions standards established for the *Clean Air Act*, fleet operators may opt for AFVs because purchase of these vehicles will simultaneously satisfy the requirements of the *Clean Air Act* and EPACT.

STATE FLEETS

EPACT Section 507(o) mandates that state fleets acquiring light duty vehicles acquire specific and increasing percentages of light duty AFVs starting in model year 1996.

Beginning in 1996, state fleets are required to ensure that AFVs constitute at least 10 percent of their total new light duty vehicle acquisitions, and this percentage will increase each year until the model year 2000, at which time 75 percent of their new light duty vehicle acquisitions will have to be AFVs. To permit flexibility in compliance, the state fleet requirement allows local and private fleets to voluntarily join with state fleets to attain the mandated number of AFVs. This option also permits fleets to acquire converted vehicles, as long as these actions are voluntary and conform with all safety standards and requirements of the *Clean Air Act.*

ALTERNATIVE FUEL PROVIDERS

EPACT Section 501 mandates that covered alternative fuel providers must acquire increasing percentages of AFVs according to a set schedule.

Alternative fuel providers are expected to play a leadership role in the transition to AFVs. Under EPACT, starting in model year 1996, the covered providers must ensure that AFVs constitute at least 30 percent of their total light duty vehicle acquisitions the first year, increasing each year until model year 2000. Thereafter, at least 90 percent of their light duty vehicle acquisitions will have to be AFVs. This mandate applies to companies and businesses that produce, store, refine, process, transport, distribute, import, transmit, or sell alternative fuels other than

electricity. Covered persons whose principal business is electricity may delay compliance until January 1, 1998, if that person intends to acquire electric motor vehicles.

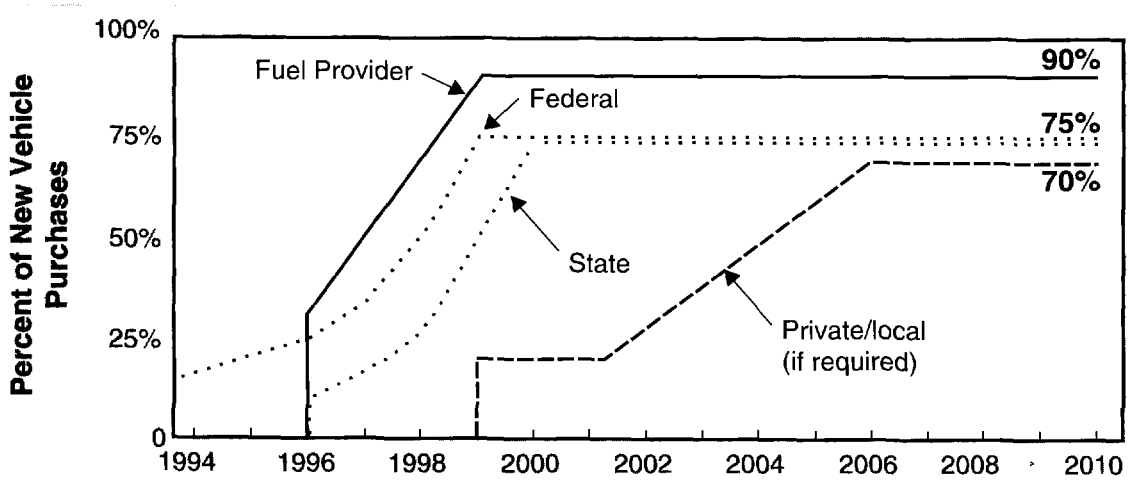
PRIVATE/LOCAL FLEETS

EPACT Section 507(a) mandates that, pending rulemaking determination of need and feasibility, private and municipal fleets that meet the criteria of this section must acquire alternative fuel vehicles according to the schedule in 507(b).

Section 507 requires DOE to undertake a staged rulemaking process to determine whether or not alternative fuel vehicle requirements should also be applied to other private fleets and local government fleets, starting no earlier than model year 1999. This mandate, if implemented, holds the greatest potential to significantly accelerate the use of alternative fuel vehicles. Analyses indicate that, with this rule, in 2010 2.5 million alternative fuel vehicles would be on the road, whereas without it, there would be only 400,000. A large-scale fleet acquisition program could play a pivotal role in catalyzing the market to provide the necessary alternative fuels and vehicles and could help resolve many of the "growing pains" characteristic of new markets.

The *Energy Policy Act* provides two opportunities to implement the mandate -- an early rulemaking and a later rulemaking. For the early rulemaking, the Department must determine that such a mandate is necessary to meet the alternative fuel goals of the Act, and the rulemaking must be finalized by December 15, 1996. If the Department finds such an early rulemaking unnecessary, it may finalize a later rulemaking by January 1, 2000.

Due to the potential importance of the fleet program in achieving the *Energy Policy Act* goals and industry's need for certainty in future markets, plus the statutory requirement, DOE has started work on an advance notice of proposed rulemaking, as required by Section 507(a)(3). Rather than propose findings or indicate intent, this advance notice would only identify and seek comment on a variety of issues that must be addressed in the rulemaking.



AFV acquisition percentages are projected to rise dramatically as a result of the EPACT mandates.

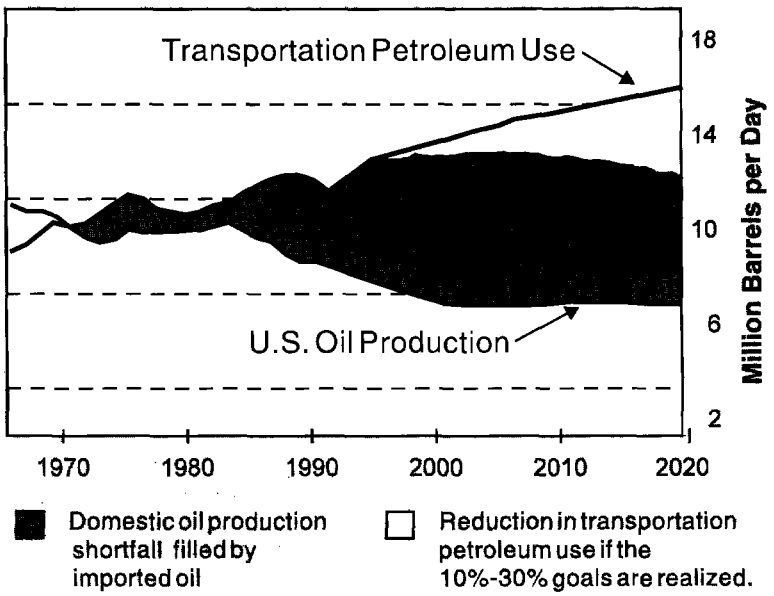
What Are Replacement Fuels?

EPACT defines replacement fuels as the portion of any motor fuel that is methanol, ethanol, or other alcohols; natural gas; liquefied petroleum gas (LPG); hydrogen; coal-derived liquid fuels; fuels (other than alcohol) derived from biological materials; electricity (including electricity from solar energy); ethers; and any other fuel that DOE determines, by rule, is substantially not petroleum and would yield substantial energy security and environmental benefits.

5 REPLACEMENT FUEL GOALS

Title V of the *Energy Policy Act* establishes ambitious goals for the replacement of petroleum-based motor fuels. Despite wholehearted and aggressive steps to increase alternative fuel use by state and local governments, industry, Clean Cities, and fleets, it is uncertain whether these efforts will be adequate to attain the EPACT goals. DOE is investigating additional programs that may be needed. For example, DOE is analyzing potential contributions of the alternative fuel fleet programs and increased energy efficiency in meeting the motor fuel displacement goals. The Department is encouraging an ongoing public dialogue on these issues, and will publish proposed programs and determinations in the *Federal Register*, providing ample opportunity for public comment.

Achievement of EPACT goals reduces the petroleum gap.



REPLACEMENT FUEL SUPPLY AND DEMAND

EPACT Section 502 requires DOE to establish a program to promote the development and use of domestic replacement fuels in light duty motor vehicles, and to estimate domestic and foreign production capacities for the replacement fuels and AFVs needed to meet the current fuel replacement goals.

Under this section, DOE is to determine the technological and economic feasibility of replacing 10 percent of traditional fuels by 2000, and 30 percent by 2010, with at least half of the replacement fuels coming from domestic sources. In addition, DOE is to determine the best means and methods for increasing U.S. production of alternative fuels, as well as the effects that the replacement fuels will have on greenhouse gas emissions. The methodology for this study was published in the *Federal Register* in December 1993. The Department is investigating programs that could help achieve these goals, and will be working with partners in industry and state and local governments to identify appropriate programs for implementation.

REPLACEMENT FUEL DEMAND ESTIMATES AND SUPPLY INFORMATION

EPACT Section 503 requires DOE to estimate, on an annual basis, the number and geographic distribution of each type of AFV in use in the United States, the amount and distribution of each type of alternative fuel, and the greenhouse gas emissions produced from the use of each alternative fuel.

This activity is being conducted by the DOE Energy Information Administration (EIA). Fuel suppliers and AFV manufacturers must provide EIA with information concerning fuel supplies and AFV production. EIA recently released the first of such reports entitled "Alternatives to Transportation Fuels: An Overview" (DOE/EIA/-0585/0). For further information, please call the National Alternative Fuels Hotline.

TECHNICAL AND POLICY ANALYSIS

EPACT Section 506 requires DOE to prepare a technical and policy analysis.

The report required under Section 506 gives the Department an opportunity to open a dialogue with industry and the public on the technical and policy issues raised by the *Energy Policy Act* goals. A March 1995 report will address the following issues:

- Progress made in achieving the goals described in Section 502,
- Actual and potential roles of replacement fuels and alternative fuel vehicles in significantly reducing U.S. reliance on imported oil, and
- Actual and potential availability of various domestic replacement fuels, dedicated vehicles, and dual-fuel vehicles.

The dialogue initiated by this report will allow DOE to explore and analyze various programs and policies to implement the EPACT goals.

SUMMARY

The Energy Policy Act of 1992 recognized that the successful deployment of alternative fuel vehicles can be significantly accelerated if AFV demand and the supporting infrastructure are developed concurrently. To implement the EPACT initiatives, DOE has developed a cohesive plan that strategically integrates these elements. It rapidly increases the demand for alternative fuels and vehicles by obtaining voluntary commitments from public and private stakeholders and by providing incentives and leadership through fleet deployment. At the same time, the DOE plan provides technology transfer and public outreach programs that will stimulate the development of a strong AFV infrastructure and lay the foundations for wide public acceptance of this new technology.

There is already a tremendous momentum toward success. When efforts to introduce alternative fuel vehicles were first begun in 1990, only two different combinations of AFV models and alternative fuel types were available; by 1996, AFV customers will be able to choose from approximately 12 different model/fuel type combinations. In addition, by 1996 the refueling infrastructure for alternative fuels will have increased by approximately 300 percent since 1993.

In partnership with its customers and stakeholders, DOE will continue these efforts to guarantee a more secure energy future.

Hotline

For general information on energy efficiency and renewable energy, call the Energy Efficiency and Renewable Energy Clearinghouse toll free at 1-800-363-3732 (for hearing impaired 1-800-273-2957).

For the most comprehensive information on the status of Energy Policy Act Alternative Fuel programs, call the National Alternative Fuels Hotline 1-(800)-4231DOE.

APPENDIX A: OTHER EPACT PROVISIONS

EPACT Section 301
Lists definitions for Titles III-V

EPACT Section 302
Alternative Fuels
Section 302(a)(4) expands the definition of alternative fuels and requires DOE to (1) conduct a study of heavy duty AFVs used by Federal agencies in cooperation with EPA and DOT; (2) report to Congress on that heavy duty vehicles study (one year after vehicles are acquired and annually thereafter); and (3) with GSA, report to Congress on a study of that feasibility and timing of deployment of heavy duty vehicles one year after study funds are appropriated. DOE will monitor agency acquisitions.

Section 302(a)(2) requires DOE to acquire both dedicated and dual-fuel vehicles, ensure each type is used by the Federal government, and issue regulations to require that at least 50 percent of the alternative fuels used in these vehicles are derived from domestic feed stocks. Currently well over 50 percent of the alternative fuel mix is domestic. A rulemaking may not be necessary until non-domestic alternative fuels become commonplace.

Section 302(a)(7) requires DOE to conduct a rulemaking to set the alcohol mix in alternative fuels and establish requirements related to cold start, safety, or vehicle functions. Industry contacts have indicated that, currently, no technical problems exist that require resolution through rulemaking. No rulemaking is planned until a technical need develops.

EPACT Section 304
Refueling Infrastructure for Federal Fleet
Authorizes Federal agencies to enter into commercial arrangements, as necessary, to promote commercial infrastructure development. At this time, in order to attract private infrastructure investment, Federal funds are being used to leverage programs that place vehicles in clusters such as in Clean Cities. However, should efforts to induce private investment fall short of targets, the Department and other Federal agencies will consider utilizing the authority provided in Section 304.

EPACT Section 306 (Coordinated with Sections 303, 305, and 307)
Agency Incentives Program - GSA
In order to encourage and promote the use of alternative fuel vehicles in Federal agencies, the Administrator of General Services may offer agencies a lower lease rate for alternative fuel vehicles than for comparable conventionally-fueled motor vehicles. This Section shall cease to be effective three years after the date of the enactment of this Act.

EPACT Section 307 (Coordinated with Sections 303, 305 and 306)
Recognition and Incentive Awards Program - GSA
GSA shall establish an annual awards program to recognize those Federal employees who demonstrate the strongest commitment to the use of alternative fuels and fuel conservation in Federal motor vehicles.

EPACT Section 308
Measurement of Alternative Fuels Use
Requires DOE, in consultation with GSA, to issue guidelines to Federal agencies for measuring the percentage of alternative fuel used in dual-fuel vehicles in their fleets. The program is proceeding in coordination with Federal measurement and data collection activities under the Federal Energy Management Program.

EPACT Section 309
Information Collection
Removes requirements to collect data on every alternative fuel vehicle acquired for the Federal fleet.

EPACT Section 310
General Services Administration Report - GSA
Requires GSA to report to the Congress on the GSA AFV program under this Act.

EPACT Section 311
United States Postal Service Report
Requires a report to the Congress on the Postal Service's alternative fuel vehicle program.

EPACT Section 401
Truck Commercial Application Program
Requires DOE to expand the Federal study of heavy duty commercial applications of alternative fuels to include all alternative fuels.

EPACT Section 402
Conforming Amendments
Requires that any Federal programs assisting state and local governments in testing buses be expanded to include all alternative fuels.

EPACT Section 403
Alternative Motor Fuels Amendments
Requires the determination of the appropriate gallons equivalent measurement for gaseous fuels other than natural gas. DOE is to provide technical assistance to DOT.

EPACT Section 404
Vehicular Natural Gas Jurisdiction
Amends Section 1 of the Natural Gas Act.

EPACT Section 407
Data Acquisition Program
Requires DOE, through EIA and in cooperation with appropriate state, regional, and local authorities, to establish a data collection program to be conducted in at least five geographically and climatically diverse regions of the United States. The purpose of

that collected data is to assist persons seeking to manufacture, convert, sell, own, or operate alternative fuel vehicles or alternative fueling facilities.

EPACT Section 408
Federal Energy Regulatory Commission Authority to Approve Recovery of Certain Expenses in Advance
Allows recovery of certain expenses in advance by natural gas companies.

EPACT Section 410
Alternative Fuel Bus Program - DOT
Allows the Secretary of Transportation, in consultation with DOE, to enter into cooperative agreements and joint ventures proposed by municipal, county, or regional transit authorities (in urban areas with current populations of over 100,000) to demonstrate the feasibility (including the safety of specific vehicle designs) of using alternative fuels in urban buses and other mass transit motor vehicles. In addition, the Secretary of Transportation may also provide financial assistance for the purpose of meeting incremental costs of school buses that are dedicated vehicles and used regularly during the school term. DOE has been coordinating closely with the DOT Federal Transit Administration in securing emission and performance data from mass transit buses operating on alternative fuels. This effort originated with the *Alternative Motor Fuels Act of 1988 (AMFA)* and currently includes over 100 buses covering all of the alternative fuels defined in EPACT.

EPACT Section 412
Alternative Fuel Use in Nonroad Vehicles and Engines
Requires DOE to (1) prepare a study on the use of alternative fuels in nonroad vehicles and engines (2 years after enactment) and (2) designate nonroad vehicles and engines as qualifying for the low-interest loan program (upon completion of the non-road study).

EPACT Section 413
Reports to Congress
Section 413 requires DOE (1) to identify and report to Congress on those purchasing policies of the Federal government that inhibit or prevent the purchase of alternative fuel vehicles by the Federal government, and (2) to report to Congress on Federal, state, and local traffic control measures and policies and suggest ways that the use of alternative fuel vehicles could be promoted by granting such vehicles exemptions or preferential treatment under such measures.

EPACT Section 414
Low Interest Loan Program
Requires DOE to establish a low-interest loan program for conversion or purchase of alternative fuel vehicles by small businesses that own or operate fleets.

EPACT Section 504
Replacement Fuel Goals Evaluation
Requires DOE (1) to examine the target dates and percentage goals for replacement fuels in the context of program goals to determine whether the dates or percentages should be modified, (2) to determine whether the dates and percentage goals are achievable and establish by rule, if goals are not achievable, alternative goals (which may include revised target dates) and, (3) to issue additional regulations, if necessary.

EPACT Section 509
Secretary's Recommendations to Congress
Requires DOE to issue a rule if it determines that a private and municipal purchase program is unnecessary, and to submit recommendations to Congress for alternative requirements or incentives, if needed.

EPACT Section 510
Effect on Other Laws
Requires that nothing in EPACT or the amendments made by EPACT shall modify the provisions in the *Clean Air Act*.

EPACT Section 511
Prohibited Acts
Makes it unlawful to violate any provision of Section 501, 503(b) or 507, or any regulation issued under such sections.

EPACT Section 512
Enforcement
Sets forth enforcement provisions for Section 511: (a) Whoever violates Section 511 shall be subject to a civil penalty of not more than $5,000 for each violation. (b) Whoever willfully violates Section 511 shall be fined not more than $10,000 for each violation. (c) Any person who knowingly and willfully violates Section 511 after having been subjected to a civil penalty for a prior violation of Section 511 shall be fined not more than $50,000.

EPACT Section 513
Powers of the Secretary
Appoints the Secretary of Energy as agent and sets forth her powers under Titles III, IV, V, and VI of EPACT.

EPACT Section 514
Authorization of Appropriation
Authorizes (for Title V) $10 million for each of the fiscal years 1993 through 1997, plus sums that may be necessary for fiscal years 1998 through 2000.

Title VI
Information on Title VI activities appears on page 11

EPACT Sections 3001 and 3002.
Research, Development, Demonstration, and Commercial Application Activities, Cost Sharing
These sections specify guidelines for Research, Development, Demonstration, Commercial Application, and Cost Sharing under EPACT. They are related to Sections 2021 and 2023 which are discussed in this document under Foundations.

Note: For the current status of all Energy Policy Act titles, refer to the **U.S. DOE EPACT Implementation Status Report**, published annually. (Contact the **National Alternative Fuels Hotline**: 1-800-423-1DOE)

APPENDIX B: LIST OF RELEVANT EPACT TITLES AND SECTIONS

Title III
§301 Definitions
§302 Amendments to the Energy Policy and Conservation Act
§303 Minimum Federal Fleet Requirement
§304 Refueling
§305 Federal Agency Promotion, Education, and Coordination
§306 Agency Incentives Program (GSA)
§307 Recognition and Incentive Awards Program (GSA)
§308 Measurement of Alternative Fuel Use
§309 Information Collection
§310 General Services Administration Report (GSA)
§311 United States Postal Service (Report)
Title IV
§401 Truck Commercial Application Program
§402 Conforming Amendments
§403 Alternative Motor Fuels Amendments
§404 Vehicular Natural Gas Jurisdiction
§405 Public Information Program
§406 Labeling Requirements
§407 Data Acquisition Program
§408 Federal Energy Regulatory Commission Authority to Approve Recovery of Certain Expenses in Advance
§409 State and Local Incentives Programs
§410 Alternative Fuel Bus Program (DOT)
§411 Certification of Training Programs
§412 Alternative Fuel Use in Nonroad Vehicles and Engines
§413 Reports to Congress
§414 Low Interest Loan Program
Title V
§501 Mandate for Alternative Fuel Providers
§502 Replacement Fuel Supply and Demand Program
§503 Replacement Fuel Demand Estimates and Supply Information
§504 Modification of Goals; Additional Rulemaking Authority (Replacement Fuel Goals Evaluation)
§505 Voluntary Supply Commitments
§506 Technical and Policy Analysis
§507 Fleet Requirement Program
§508 Credits
§509 Secretary's Recommendation to Congress
§510 Effect on Other Laws
§511 Prohibited Acts
§512 Enforcement
§513 Powers of the Secretary
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Title VI
§601 Definitions
§611 Program and Solicitation (EV Commercial Demonstration Programs)
§612 Selection of Proposals (EV Infrastructure Development Programs)
§613 Discount Payments
§614 Cost-Sharing
§615 Reports to Congress
§616 Authorization of Appropriations
§621 General Authority
§622 Proposals
§623 Protection of Proprietary Information
§624 Compliance with Existing Law
§625 Electric Utility Participation Study
§626 Authorization of Appropriation
(ALSO §2021 & 2023 Five Year General Transportation Program; Alternative Fueled Vehicle Program)
(Also §3001 & 3002 Research, Development, Demonstration, and Commercial Application Activities: Cost Sharing)

APPENDIX C: FEDERAL AGENCY PARTICIPATION

DEPARTMENT OF ENERGY (DOE)
DOE is responsible for ensuring that the maximum practical number of vehicles acquired annually by the Department are AFVs. In doing so, the agency is to provide Federal leadership on the acquisition and use of AFVs. This responsibility includes helping agencies develop five-year acquisition plans for AFVs, monitoring AFV performance through the agency's Alternative Fuels Data Center, providing guidance and funding for the conversion of vehicles to AFVs, and funding the incremental costs of AFV purchases.

ENVIRONMENTAL PROTECTION AGENCY (EPA)
EPA is responsible for implementing *Clean Air Act* programs designed to reduce air pollution. The *Clean Air Act*, as amended, is fuel neutral--any fuel that can burn cleanly may be used to satisfy vehicle emissions standards. However, one program established under the Act, the Clean Fuel Fleet Program, has the potential to encourage more widespread use of AFVs. This program requires certain fleets in nonattainment areas to acquire vehicles that do better than the basic requirements on emissions. If AFVs can accomplish this more readily than conventional vehicles, as some evidence suggests, then these fleets may be encouraged to acquire AFVs. On the other hand, EPA expects that vehicles operating on reformulated gasoline may be able to qualify as clean-fuel vehicles. The Clean Fuel Fleet Program also enables fleets to earn air pollution credits and other benefits by acquiring vehicles that run even cleaner than required, and this approach may also encourage the acquisition of certain very-clean-running AFVs.

GENERAL SERVICES ADMINISTRATION (GSA)
GSA is responsible for the management of the second largest fleet in the Federal government, the Interagency Fleet Management System, which includes about 145,000 vehicles. Most of these vehicles are leased to other agencies or their contractors. In addition, GSA is responsible for purchasing from automobile manufacturers the vehicles that GSA leases, as well as negotiating vehicle purchase contracts for most of the other vehicles that Federal agencies acquire for their fleets. As a result, GSA plays a major role in developing AFV specifications and requirements and in negotiating with automobile companies for the purchase of AFVs. It also helps determine where Federal AFVs will operate. In addition, GSA has engaged in efforts to encourage fuel providers to build refueling facilities to service the AFVs in the Federal fleet.

UNITED STATES POSTAL SERVICE
The Postal Service, which operates the largest single Federal fleet--about 180,000 vehicles--has been experimenting with the use of alternative fuels since the 1970s. The agency's current alternative fuels program focuses on converting vehicles to use compressed natural gas (CNG). In addition, the Postal Service is leasing or converting a limited number of electric vehicles to demonstrate their use in California. The AFVs are primarily mail-delivery vehicles that have been converted to CNG use by a private conversion company. The Postal Service plans to convert over 7,000 AFVs by 1996; additional conversions could potentially take place by the year 2000, depending on the cost, technology development, and the availability of refueling facilities.

DEPARTMENT OF DEFENSE (DOD)
Together, the combined Department of Defense (DOD) military services operate the third largest Federal fleet, with about 127,000 vehicles. Over the past several years, DOD has cooperated with DOE and GSA to acquire AFVs in order to help meet the goals established by EPACT and the two executive orders (*EO 12844 and EO 12759*). In addition to its normal fleet operations, DOD has also been given an increasingly significant role in AFV research, development, and demonstrations. DOD's Advanced Research Project Agency received fiscal year 1993 and 1994 funding to develop electric and hybrid vehicle technologies and alternative refueling facilities, and to demonstrate natural gas vehicles and refueling facilities.

DEPARTMENT OF TRANSPORTATION (DOT)
Since the inception of the Federal Transit Administration's (FTA) Alternative Fuels Initiative Program in 1988, local transit authorities have received grants to purchase well over 1,000 alternative fueled transit buses. FTA's Alternative Fuels Initiative Program has provided over $200 million in Federal funds for this deployment of alternative fuel vehicles into transit revenue service operations. The programs approach is to allow the local transit decision-makers to select the technology and fuel that is best suited for their particular operation. As a result, a variety of technologies and fuels are being tested in diverse locations across the country.

STAKEHOLDERS

It would be impossible to provide the names of every organization actively involved with developing, promoting, and distributing alternative fuels. Stakeholders and partners include original equipment manufacturers, conversion and parts companies, fuel providers (and growers), fuel associations, technology companies, state and local governments, fleet operators, other Federal agencies, National laboratories, and DOE Regional Support Offices, plus countless others without whose help and cooperation the Department of Energy could not implement these programs, and to whom DOE extends its sincere thanks.

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