Alternative Fuel For A Standard Diesel Engine

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Transitions to Alternative Vehicles and Fuels Routledge Here is unique information about ethanol, cellulosic ethanol, and E85 fuels from the DOE. Contents: Part 1: Handbook for Handling, Storing, and Dispensing E85; Part 2: Understanding the Growth of the Cellulosic Ethanol Industry. E85 Handbook: This document serves as a guide for blenders, distributors, sellers, and users of E85 as an alternative motor fuel. It provides basic information on the proper and safe use of E85 and offers supporting technical and policy references. E85 is an alternative motor fuel authorized by the Energy Policy Act (EPAct) of 1992, Section 301(2). As defined by EPAct, E85 is composed of 85% fuel grade ethanol and 15% hydrocarbons in the gasoline boiling range. Ethanol is a renewable, domestically produced fuel that can be made from grains, such as corn or wheat, or from biomass or cellulose sources, such as prairie grass and agricultural, forestry, or municipal waste matter. Several research studies show that E85 has the potential to substantially reduce petroleum fuel use and greenhouse gas emissions (GHGs). Driven by increasing gasoline prices, the market for E85 is growing. With consumer demand for alternative fuel vehicles (AFVs) increasing, auto manufacturers are working to produce more flexible fuel vehicles (FFVs), which are capable of operating on E85 or gasoline or a combination of the two. As of May 2010, there were 8.35 million FFVs on U.S. roads, and automakers were planning to produce several million more each year. FFVs are available in most vehicle classes, including sedans, minivans, trucks, and sport utility vehicles. The number of E85 fueling stations is growing rapidly nationwide. As of

June 2010, there were 2,051 retail stations (out of 162,000 nationwide) offering E85 across the country. Several key factors affecting E85 growth and acceptance were recently addressed. The U.S. Environmental Protection Agency (EPA) issued a guidance document to states defining a process by which they could determine whether "Stage II" gasoline vapor recovery equipment would be required for new E85 pumps. In October 2007, Underwriters Laboratories, Inc., (UL) established standardized testing procedures for E85 fuel dispensers that address the unique properties of alcohol fuels when blended with gasoline. This testing standard (UL Subject 87A) was updated in August 2009. In addition, UL announced equipment listed for E85 use in June 2010. Cellulosic Ethanol Industry: This report identifies, outlines, and documents a set of plausible scenarios for producing significant quantities of lignocellulosic ethanol in 2017. These scenarios can provide guidance for setting government policy and targeting government investment to the areas with greatest potential impact. A prototype version of the Biomass Scenario Model (BSM) was used to develop the scenarios. The analysis underlying the scenario-generation exercise focuses on understanding the impact of two types of proposed government policies on the deployment of cellulosic biofuels technologies: Policies focused on reducing operating costs associated with cellulosic ethanol production. These policies include payments to feedstock producers and subsidies associated with production of cellulosic ethanol. Policies focused on reducing capital costs associated with cellulosic ethanol production. These policies include capital subsidies for construction of full-scale cellulosic ethanol production plants.

Preliminary Observations on Corporate Average Fuel Economy Standards John Wiley & Sons

Exploring how to counteract the world's energy insecurity and environmental pollution, this volume covers the production methods, properties, storage, engine tests, system modification, transportation and distribution, economics, safety aspects, applications, and material compatibility of alternative fuels. The esteemed editor highlights the importance of moving toward alternative fuels and the problems and environmental impact of depending on petroleum products. Each self-contained chapter focuses on a particular fuel source, including vegetable oils, biodiesel, methanol, ethanol, dimethyl ether, liquefied petroleum gas, natural gas, hydrogen, electric, fuel cells, and fuel from nonfood crops.

Alternative Fuel Vehicles Transitions to Alternative Vehicles and Fuels

Most vehicles run on fossil fuels, and this presents a major emissions problem as demand for fuel continues to increase. Alternative Fuels and Advanced Vehicle Technologies gives an overview of key developments in advanced fuels and vehicle technologies to improve the energy efficiency and environmental impact of the automotive sector. Part I considers the role of alternative fuels such as electricity, alcohol, and hydrogen fuel cells, as well as advanced additives and oils, in environmentally sustainable transport. Part II explores methods of revising engine and vehicle design to improve environmental performance and fuel economy. It contains chapters on improvements in design,

aerodynamics, combustion, and transmission. Finally, Part III outlines developments in electric and hybrid vehicle technologies, and provides an overview of the benefits and limitations of these vehicles in terms of their environmental impact, safety, cost, and design practicalities. Alternative Fuels and Advanced Vehicle Technologies is a standard reference for professionals, engineers, and researchers in the automotive sector, as well as vehicle manufacturers, fuel system developers, and academics with an interest in this field. Provides a broad-ranging review of recent research into advanced fuels and vehicle technologies that will be instrumental in improving the energy efficiency and environmental impact of the automotive sector Reviews the development of alternative fuels, more efficient engines, and powertrain technologies, as well as hybrid and electric vehicle technologies

Hearing Before the Committee on Energy and Natural Resources, United States Senate, One Hundred Third Congress, Second Session ... June 17, 1994 DIANE Publishing

The United States has adopted fuel economy standards that require increases in the on-road efficiency of new passenger vehicles, with the goal of reducing petroleum use and (more recently) greenhouse gas (GHG) emissions. Understanding the cost and effectiveness of fuel economy standards, alone and in combination with economy-wide policies that constrain GHG emissions, is essential to inform coordinated design of future climate and energy policy. We use a computable general equilibrium model, the MIT Emissions Prediction and Policy Analysis (EPPA) model, to investigate the effect of combining a fuel economy standard with an economy-wide GHG emissions constraint in the United States. First, a fuel economy standard is shown to be at least six to fourteen times less cost effective than a price instrument (fuel tax) when targeting an identical reduction in cumulative gasoline use. Second, when combined with a cap-and-trade (CAT) policy, a binding fuel economy standard increases the cost of meeting the GHG emissions constraint by forcing expensive reductions in passenger vehicle gasoline use, displacing more cost-effective abatement opportunities. Third, the impact of adding a fuel economy standard to the CAT policy depends on the availability and cost of abatement opportunities in transport -- if advanced biofuels provide a cost-competitive, low carbon alternative to gasoline, the fuel economy standard does not bind and the use of low carbon fuels in passenger vehicles makes a significantly larger contribution to GHG emissions abatement relative to the case when biofuels are not available. This analysis underscores the potentially large costs of a fuel economy standard relative to alternative policies aimed at reducing petroleum use and GHG emissions. It further emphasizes the need to

consider sensitivity to vehicle technology and alternative fuel availability and costs as well as economy-wide responses when forecasting the energy, environmental, and economic outcomes of policy combinations.

Standard Compliance Guidelines to Help State and Alternative Fuel Provider Fleets Meet Their Energy Policy Act Requirements Createspace Independent Pub

div="" This book covers different aspects related to utilization of alcohol fuels in internal combustion (IC) engines with a focus on combustion, performance and emission investigations. The focal point of this book is to present engine combustion, performance and emission characteristics of IC engines fueled by alcohol blended fuels such as methanol, ethanol and butanol. The contents also highlight the importance of alcohol fuel for reducing emission levels. Possibility of alcohol fuels for marine applications has also been discussed. This book is a useful guide for researchers, academics and scientists. ^

The Potential of Methanol as an Alternative Fuel for Heavy Duty Engines CRC Press

The U.S. Environmental Protection Agency (EPA) grants Certificates of Conformity for alternative fuel conversion systems and also offers other forms of premarket registration of conversion kits for use in vehicles more than two model years old. Use of alternative fuels such as ethanol, natural gas, and propane are encouraged by the Energy Policy Act of 1992. Several original equipment manufacturers (OEMs) produce emissions-certified vehicles capable of using alternative fuels, and several alternative fuel conversion system manufacturers produce EPA-approved conversion systems for a variety of alternative fuels and vehicle types. To date, only one manufacturer (Flex Fuel U.S.) has received EPA certifications for ethanol fuel (E85) conversion kits. This report details an independent evaluation of a vehicle with a legal installation of a Flex Fuel U.S. conversion kit. A 2006 Dodge Charger was baseline tested with ethanol-free certification gasoline (E0) and E20 (gasoline with 20 vol % ethanol), converted to flex-fuel operation via installation of a Flex Box Smart Kit from Flex Fuel U.S., and retested with E0, E20, E50, and E81. Test cycles included the Federal Test Procedure (FTP or city cycle), the highway fuel economy test (HFET), and the US06 test (aggressive driving test). Averaged test results show that the vehicle was emissions compliant on E0 in the OEM condition (before conversion) and compliant on all test fuels after conversion. Average nitrogen oxide (NOx) emissions exceeded the Tier 2/Bin 5 intermediate life NO{sub X} standard with E20 fuel in the OEM condition due to two of three test results exceeding this standard [note that E20 is not a legal fuel for non-flexible-fuel vehicles (non-FFVs)]. In addition, one E0 test result before conversion and one E20 test result after conversion exceeded the NOX standard, although the average result in these two cases was below the standard. Emissions of ethanol and acetaldehyde increased with increasing ethanol, while nonmethane organic gas and CO emissions remained relatively unchanged for all fuels and cycles. Higher fraction ethanol blends appeared to decrease NO{sub X} emissions on the FTP and HFET (after conversion). As expected, fuel economy (miles per gallon) decreased with increasing ethanol content in all cases.

Infrastructure for Alternative Fuel Vehicles Sae International

[Truncated abstract] This thesis is set in the context of falling oil reserves and rising prices. It deals first with the complexity of the oil market and the evidence that peak oil is already here. As demand increases, the adoption of substitutes and more efficient technologies can be expected to reduce the heavy

reliance of the transport sector on oil-based fuel. LPG is widely available in Australia while ethanol and biodiesel are commercially available on a small scale. LPG and blends of ethanol (E20) and biodiesel (B20) were included in the choice scenarios presented to survey respondents. Hybrid petrol electric vehicles were included as a new technology and also potentially viable hybrids using LPG and E20. A household survey with optional on-line or mail back response provided the data for stated choice modelling and elasticity estimation. The results were used to address the following questions: 1. Are major changes in vehicle choice likely to occur among households? 2. Are fleets changing their vehicle mix to include alternative fuel vehicles and hybrid vehicles? 3. What impact would rising fuel prices have on household vehicle demand? 4. Are alternative fuel vehicles and hybrids likely to become mainstream vehicles in the near future? The Nested Logit model results indicate the importance of fuel price and vehicle purchase price in the choice of vehicles. In absolute magnitude, the estimated choice elasticities with respect to fuel price are much bigger than those for vehicle purchase price. Females are more likely to choose alternative fuels as well as hybrid cars while males are more attracted to diesel engines. As for the age coefficient, it supports the common perception that as people get older they tend to rely on long experience and are reluctant to try new options especially if little is known about them. The results from a two-class Latent Class Model for households show that there is a substantial group of people (Class 1) who take more action towards reducing their fuel consumption. Class 1 members prefer fuel-efficient vehicles and favour LPG. They also prefer manual transmission, which is consistent with their preference for fuel efficiency. Endogenous weighting has been applied to the choice model to generate choice elasticities at the population level. When demand elasticities are inferred from these, the resulting estimate of the elasticity of demand for conventional petrol vehicles with respect to petrol price is -0.46, which is similar to a number of estimates of the elasticity of demand for petrol alone. Further calculations indicate that household vehicle demand with respect to vehicle purchase price is very inelastic. Two potential future price scenarios were tested, one with a 40% increase in the real price of petrol, 30% in diesel, 20% in E20 and 10% in B20 and LPG. The second scenario assumes an 80% increase in petrol price, 60% in diesel, 40% in E20 and 30% in B20 and LPG. In both scenarios, a 10% real income increase is assumed; the application of the demand matrices, with symmetry corrections, results in projected demand increases for E20, B20 and LPG vehicles, despite the rise in fuel prices. In these projections, demand for standard petrol vehicles decreases substantially but demand for hybrid petrol cars also decreases...

Implementation of DOE's Alternative Fuel Vehicle and Fleet Programs National Academies Press

Alternative Fuel Vehicles gives full coverage of all associated qualifications and awards in the emerging field of alternative fuels. It is an essential introduction to the ever-growing demand for vehicles that operate using non-conventional fuels. This first book on AFVs endorsed by the IMI begins with an overview of the subject, ideal for beginners, before outlining what is meant by alternative fuels, why they are necessary, and why climate change and associated legislation are key drivers. Details of how alternative fuels are made, the supply infrastructure, and how these vehicles

work are all included. A chapter on fuel cells introduces learners to the use of hydrogen, and one on engines and engine management includes coverage of combustion as an aid to understanding why changing the type of engine fuel is complex. Some basic engine technology is included to help readers new to the subject. Real-life case studies and examples are used to illustrate different technologies in current use, and to speculate on new developments. This book is an ideal companion to any unit of study on alternative fuel, but will also be of interest to working technicians and keen amateurs.

Alternative Fuels CRC Press

Technologies and Approaches to Reducing the Fuel Consumption of Medium- and Heavy-Duty Vehicles evaluates various technologies and methods that could improve the fuel economy of medium- and heavy-duty vehicles, such as tractor-trailers, transit buses, and work trucks. The book also recommends approaches that federal agencies could use to regulate these vehicles' fuel consumption. Currently there are no fuel consumption standards for such vehicles, which account for about 26 percent of the transportation fuel used in the U.S. The miles-per-gallon measure used to regulate the fuel economy of passenger cars. is not appropriate for medium- and heavy-duty vehicles, which are designed above all to carry loads efficiently. Instead, any regulation of medium- and heavy-duty vehicles should use a metric that reflects the efficiency with which a vehicle moves goods or passengers, such as gallons per ton-mile, a unit that reflects the amount of fuel a vehicle would use to carry a ton of goods one mile. This is called load-specific fuel consumption (LSFC). The book estimates the improvements that various technologies could achieve over the next decade in seven vehicle types. For example, using advanced diesel engines in tractor-trailers could lower their fuel consumption by up to 20 percent by 2020, and improved aerodynamics could yield an 11 percent reduction. Hybrid powertrains could lower the fuel consumption of vehicles that stop frequently, such as garbage trucks and transit buses, by as much 35 percent in the same time frame.

Hearing Before the Committee on Energy and Commerce, House of Representatives, One Hundred First Congress, First Session, January 11, 1989 ASTM International

Transitions to Alternative Vehicles and FuelsNational Academies Press

Wartime Woodburners DIANE Publishing

Advances in Feedstock Conversion Technologies for Alternative Fuels and Bioproducts: New Technologies, Challenges and Opportunities highlights the novel applications of, and new methodologies for, the advancement of biological, biochemical, thermochemical and chemical conversion systems that are required for biofuels production. The book addresses the environmental impact of value added bio-products and agricultural modernization, along with the risk assessment of industrial scaling. The book also stresses the urgency in finding creative, efficient and sustainable solutions for

environmentally conscious biofuels, while underlining pertinent technical, environmental, economic, regulatory and social issues. Users will find a basis for technology assessments, current research capability, progress, and advances, as well as the challenges associated with biofuels at an industrial scale, with insights towards forthcoming developments in the industry. Presents a thorough overview of new discoveries in biofuels research and the inherent challenges associated with scale-up Highlights the novel applications and advancements for biological, biochemical, thermochemical and chemical conversion systems that are required for biofuels production Evaluates risk management concerns, addressing the environmental impact of value added bio-products and agricultural modernization, and the risk assessment of industrial scaling

Assessing Opportunities for Alternative Fuel Distribution Programs Springer Nature

For a century, almost all light-duty vehicles (LDVs) have been powered by internal combustion engines operating on petroleum fuels. Energy security concerns about petroleum imports and the effect of greenhouse gas (GHG) emissions on global climate are driving interest in alternatives. Transitions to Alternative Vehicles and Fuels assesses the potential for reducing petroleum consumption and GHG emissions by 80 percent across the U.S. LDV fleet by 2050, relative to 2005. This report examines the current capability and estimated future performance and costs for each vehicle type and non-petroleum-based fuel technology as options that could significantly contribute to these goals. By analyzing scenarios that combine various fuel and vehicle pathways, the report also identifies barriers to implementation of these technologies and suggests policies to achieve the desired reductions. Several scenarios are promising, but strong, and effective policies such as research and development, subsidies, energy taxes, or regulations will be necessary to overcome barriers, such as cost and consumer choice.

Advances in Feedstock Conversion Technologies for Alternative Fuels and Bioproducts Academic Press

A continuous rise in the consumption of gasoline, diesel, and other petroleum-based fuels will eventually deplete reserves and deteriorate the environment, Alternative Transportation Fuels: Utilisation in Combustion Engines explores the feasibility of using alternative fuels that could pave the way for the sustained operation of the transport secto

Technical Report One : Study Objectives and Methodologies Schiffer Pub Limited

This book presents the fundamentals needed to understand the physical and chemical properties of alternative fuels, and how they impact refueling system design and the modification of existing garages for safety. It covers a wide range of fuels including alcohols, gases, and vegetable oils.

Utilisation in Combustion Engines GRIN Verlag

Essay from the year 2007 in the subject Business economics - Economic Policy, grade: 96.00,

University of Phoenix, course: Utilizing Information in College Writing, language: English, abstract: The United States is in the midst of an energy crisis. The U.S. imports the majority of its fossil fuel petroleum products from overseas. The Department of Energy estimates that by 2010 the U.S. will import 75% of its required transportation fuels (Lauder, 2001). These petroleum-based fuels are not a limitless resource. At this time based on 2005 consumption rates of petroleum products, “ the world has 41 years of proven reserves ” (Dimotakis, Grober and Lewis, p. 5) Experts state that petroleum based exploration, discoveries and drilling will reach their peak by 2050. Increased awareness of the limits and over dependence on petroleum-based fossil fuels has led to a re-emergence of alternative fuels. The U.S. government has implemented an alternative energy initiative as part of their overall energy policy since the early 1970 ’ s. This new policy came because of the 1973 oil embargo. These alternative energy initiatives have focused primarily on bio-fuel sources. The two leading bio-fuel alternatives to the current petroleum-based fuels are bio-diesel and ethanol. “ Driven by environmental, economic, and energy security concerns, the availability of ethanol (E85) is growing nationally ” (U.S. Department of Energy, 2006). This evaluation judges if ethanol is the most promising bio-fuel to reduce the United States dependency on fossil fuels economically, practically, technically, and environmentally.

Fuel Economy and Emissions of a Vehicle Equipped with an Aftermarket Flexible-Fuel Conversion Kit

Transportation Research Board

Vehicles powered by electricity and alternative-fuels are becoming a more popular form of transportation since they have less of an environmental impact than standard gasoline vehicles. Unfortunately, their success is currently inhibited by the sparseness of locations where the vehicles can refuel as well as the fact that many of the vehicles have a range that is less than those powered by gasoline. These factors together create a "range anxiety" in drivers, which causes the drivers to worry about the utility of alternative-fuel and electric vehicles and makes them less likely to purchase these vehicles. For the new vehicle technologies to thrive it is critical that range anxiety is minimized and performance is increased as much as possible through proper routing and scheduling. In the case of long distance trips taken by individual vehicles, the routes must be chosen such that the vehicles take the shortest routes while not running out of fuel on the trip. When many vehicles are to be routed during the day, if the refueling stations have limited capacity then care must be taken to avoid having too many vehicles arrive at the stations at any time. If the vehicles that will need to be routed in the future are unknown then this problem is stochastic. For fleets of vehicles serving scheduled operations, switching to alternative-fuels requires ensuring the schedules do not cause the vehicles

to run out of fuel. This is especially problematic since the locations where the vehicles may refuel are limited due to the technology being new. This dissertation covers three related optimization problems: routing a single electric or alternative-fuel vehicle on a long distance trip, routing many electric vehicles in a network where the stations have limited capacity and the arrivals into the system are stochastic, and scheduling fleets of electric or alternative-fuel vehicles with limited locations to refuel. Different algorithms are proposed to solve each of the three problems, of which some are exact and some are heuristic. The algorithms are tested on both random data and data relating to the State of Arizona.

Acceptance of Alternative Fuel and Hybrid Vehicles in Australia DIANE Publishing

While strides are being made in the research and development of environmentally acceptable and more sustainable alternative fuels—including efforts to reduce emissions of air pollutants associated with combustion processes from electric power generation and vehicular transportation—fossil fuel resources are limited and may soon be on the verge of depletion in the near future. Measuring the correlation between quality of life, energy consumption, and the efficient utilization of energy, the Handbook of Alternative Fuel Technologies, Second Edition thoroughly examines the science and technology of alternative fuels and their processing technologies. It focuses specifically on environmental, technoeconomic, and socioeconomic issues associated with the use of alternative energy sources, such as sustainability, applicable technologies, modes of utilization, and impacts on society. Written with research and development scientists and engineers in mind, the material in this handbook provides a detailed description and an assessment of available and feasible technologies, environmental health and safety issues, governmental regulations, and issues and agendas for R&D. It also includes alternative energy networks for production, distribution, and consumption. What ' s New in This Edition: Contains several new chapters of emerging interest and updates various chapters throughout Includes coverage of coal gasification and liquefaction, hydrogen technology and safety, shale fuel by hydraulic fracturing, ethanol from lignocellulosics, biodiesel, algae fuels, and energy from waste products Covers statistics, current concerns, and future trends A single-volume complete reference, the Handbook of Alternative Fuel Technologies, Second Edition contains relevant information on chemistry, technology, and novel approaches, as well as scientific foundations for further enhancements and breakthroughs. In addition to its purposes as a handbook for practicing scientists and engineers, it can also be used as a textbook or as a reference book on fuel science and engineering, energy and environment, chemical process design, and energy and environmental policy.

Alternative Fuel Vehicles in World War II CRC Press

This compendium covers unconventional fuel sources, i.e., sources other than crude oil and natural gas with the aim of presenting these sources as future alternates to fossil fuels. The contents of this must-have volume are important aspects of the non-fossil fuel sources of availability of alternate sources of fuels. The properties of these fuels are well documented and compared to other fuels from non-petroleum sources (such as tar sand, coal, and oil shale). The environmental effects of non-petroleum fuels will also be compared to other fuels in terms of current environmental regulations.

Final Regional Alternative Fuels, Vehicles, and Infrastructure

Report National Academies Press

The light-duty vehicle fleet is expected to undergo substantial technological changes over the next several decades. New powertrain designs, alternative fuels, advanced materials and significant changes to the vehicle body are being driven by increasingly stringent fuel economy and greenhouse gas emission standards. By the end of the next decade, cars and light-duty trucks will be more fuel efficient, weigh less, emit less air pollutants, have more safety features, and will be more expensive to purchase relative to current vehicles. Though the gasoline-powered spark ignition engine will continue to be the dominant powertrain configuration even through 2030, such vehicles will be equipped with advanced technologies, materials, electronics and controls, and aerodynamics. And by 2030, the deployment of alternative methods to propel and fuel vehicles and alternative modes of transportation, including autonomous vehicles, will be well underway. What are these new technologies - how will they work, and will some technologies be more effective than others? Written to inform The United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA) and Environmental Protection Agency (EPA) Corporate Average Fuel Economy (CAFE) and greenhouse gas (GHG) emission standards, this new report from the National Research Council is a technical evaluation of costs, benefits, and implementation issues of fuel reduction technologies for next-generation light-duty vehicles. Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles estimates the cost, potential efficiency improvements, and barriers to commercial deployment of technologies that might be employed from 2020 to 2030. This report describes these promising technologies and makes recommendations for their inclusion on the list of technologies applicable for the 2017-2025 CAFE standards.

The Growth of the Cellulosic Ethanol Industry and the DOE Handbook on E85 - The Alternative Fuel for Advanced Vehicles World Scientific

A wide array of federal incentives support the development and deployment of alternatives to conventional fuels and engines in transportation. These incentives include tax deductions and credits for vehicle purchases and the installation of refueling systems, federal grants for conversion of older vehicles to newer technologies, mandates for the use of biofuels, and incentives for manufacturers to produce alternative fuel vehicles. The current array of incentives for alternative fuels and related technologies do not reflect a single, comprehensive strategy, but rather an aggregative approach to a range of discreet public policy issues, including goals of reducing petroleum consumption and import dependence, improving environmental quality, expanding domestic manufacturing, and promoting agriculture and rural development. Current federal programs are administered by five key agencies: Department of the Treasury, Department of Energy, Department of Transportation, Environmental Protection Agency, and the U.S. Department of Agriculture. The incentives and programs described in this report are organized by the responsible agency. Treasury (through the Internal Revenue Service, IRS) administers tax credits and deductions for alternative fuel and advanced technology vehicle purchases, expansion of alternative fuel refueling infrastructure, and incentives for the

production and/or distribution of alternative fuels. Many of these incentives have expired in recent years and may or may not be reinstated. DOE (mainly through the Office of Energy Efficiency and Renewable Energy, EERE) administers research and development (R&D) programs for advanced fuels and transportation technology, grant programs to deploy alternative fuels and vehicles, and a loan program to promote domestic manufacturing of high efficiency vehicles. DOT (mainly through the Federal Highway Administration, FHWA, and Federal Transit Administration, FTA) administers grant programs to deploy “clean fuel” buses and other alternative fuel vehicles. DOT (through the National Highway Traffic Safety Administration, NHTSA) also administers federal Corporate Average Fuel Economy (CAFE) standards, which include incentives for production of alternative fuel vehicles. EPA (mainly through the Office of Transportation and Air Quality, OTAQ) administers the Renewable Fuel Standard, which mandates the use of biofuels in transportation. EPA also administers grant programs to replace older diesel engines with newer technology. USDA (mainly through the Rural Business-Cooperative Service, RBS) administers grant, loan, and loan guarantee programs to expand agricultural production of biofuel feedstocks, conduct R&D on biofuels and bioenergy, and establish and expand facilities to produce biofuels, bioenergy, and bioproducts.