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Summary

A wide array of federal incentives supports 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

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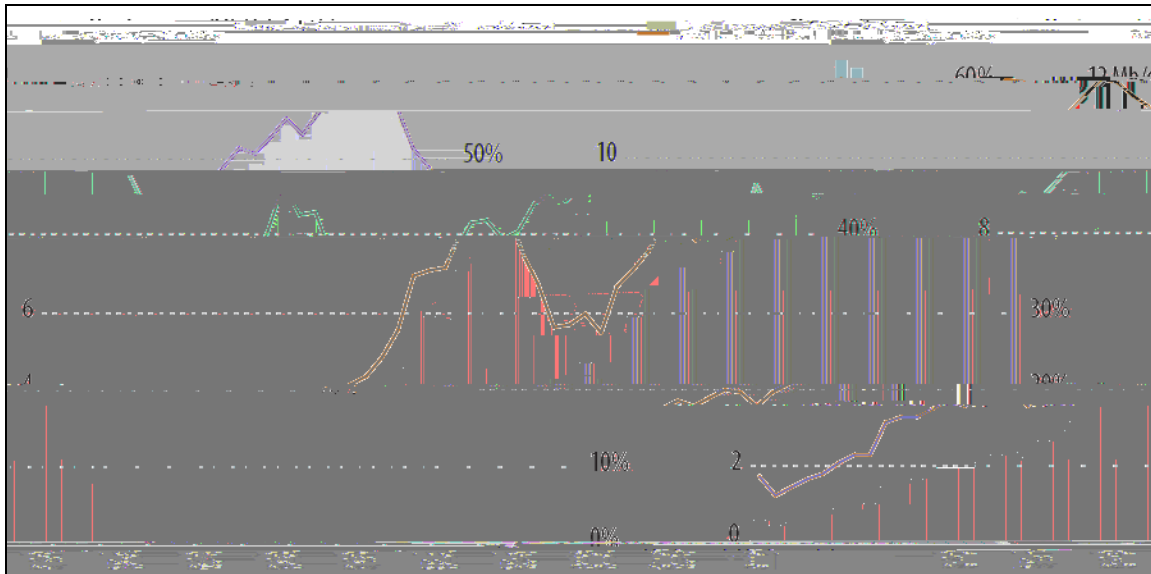
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Introduction

A wide array of federal incentives supports 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.

Many of the policy choices presented for alternative fuel and advanced vehicle technologies originated as a response to the nation's interest in reducing petroleum imports, a goal first articulated at the time of the two OPEC oil embargoes in the 1970s. While President Richard

Figure 1. Net Oil Imports



Source: *Petroleum & Other Liquid Fuels*

Note:

Factors Behind Alternative Fuels and Technologies Incentives

While a reliance on foreign sources of petroleum has been an overriding concern for the past 40 years, other factors, such as rural development, promotion of domestic manufacturing, and environmental concerns, have also shaped congressional interest in alternative fuels and technologies. A variety of programs affecting alternative fuels and technologies have been proposed and enacted, each with its own benefits and drawbacks. (This report does not evaluate the effectiveness of alternative fuel programs and incentives). Alternative fuels programs fall into one of the following six categories: expanding domestic ethanol production; establishing other alternative fuels; encouraging the purchase of non-petroleum vehicles; reducing fuel consumption and greenhouse gas emissions; supporting U.S. vehicle manufacturing; and funding U.S. highways.

Developing Domestic Ethanol Production

Ethanol has been seen as a homegrown alternative to imported oil and a number of programs were put in place to encourage its domestic development (instead of importing from other ethanol producers, such as Brazil). To spur establishment of this domestic industry, Congress has enacted a number of laws, which are also beneficial to states that have a large concentration of corn growers (corn being the raw material feedstock in most U.S. ethanol). Until recently, the incentives for ethanol production have most often been included in farm-related legislation and appropriations and hence have been administered by the U.S. Department of Agriculture (USDA),

ethanol excise tax credit (VEETC), which expired at the end of 2011, provided a tax credit to gasoline suppliers who blend ethanol with gasoline. The small ethanol producer tax credit provided a limited additional credit for small ethanol producers.

Establishing Other New Alternative Fuels

In addition to ethanol, Congress has sought to spur development of other alternative fuels, such as biodiesel, cellulosic biofuel, hydrogen, liquefied petroleum gas (LPG), compressed natural gas (CNG), and liquefied natural gas (LNG). Some of these fuels have been supported through tax credits² (such as the biodiesel tax credit), federal mandates (mainly the Renewable Fuel Standard (RFS)), and R&D programs (such as the Biomass Research and Development Initiative, which provides grants for new technologies leading to the commercialization of biofuels).

Encouraging the Purchase of Non-Petroleum Vehicles

Congress has enacted laws that seek to boost consumer interest by providing tax credits for the

2022.⁵ Under the RFS, GHG emission reduction requirements apply to biofuels from newer refineries.

Supporting U.S. Motor Vehicle Manufacturing

The Department of Energy (DOE), in partnership with U.S. automakers and academic institutions, has overseen research and development programs on vehicle electrification for nearly 40 years, in particular research focused on how to produce economical batteries that extend electric vehicle range. These R&D programs were supplemented in the American Recovery and Reinvestment Act (ARRA; P.L. 111-5) to include grants to build lithium-ion battery manufacturing plants in a bid to boost the international competitiveness of this sector. The Advanced Technology Vehicles Manufacturing (ATVM) loan program at DOE supports manufacturing plant investments to enable the development of technologies to reduce petroleum consumption, including the manufacture of electric and hybrid vehicles.⁶

Highway Funding and Fuels Taxes

As described below (see “Motor Fuels Excise Taxes”), one of the earliest fuels-related federal programs is the motor vehicle fuels excise tax first passed in the Highway Revenue Act of 1956 to fund construction and then maintenance of the interstate highway system.⁷ Originally, only gasoline and diesel were taxed, but as newer fuels became available (such as ethanol and compressed natural gas), they were added to the federal revenue program, but often at lower tax rates than gasoline or diesel. Lower tax burdens for some fuels or vehicles effectively incentivize those choices over conventional options. However, lower tax burdens for these vehicles and fuels could ultimately compromise federal highway revenue. The vehicles responsible for lower tax revenues include traditional internal combustion engine vehicles with higher mileage per gallon as well as new technology electric and hybrid cars.

Structure and Content of the Report

The federal tax incentives and programs discussed in this report aim to support the development and deployment of alternative fuels. There is no central coordination of how these incentives interact. In general, they are independently administered by separate federal agencies, including five key agencies: Treasury, DOE, DOT, EPA, and USDA.

This report focuses strictly on those programs that directly support alternative fuels or advanced vehicles, and does not address more general programs (e.g., general manufacturing loans, rural

⁵ CRS Report R40155, *Renewable Fuel Standard (RFS): Overview and Issues*, by Randy Schnepf and Brent D. Yacobucci.

⁶ For more information, see CRS Report R42064, *The Advanced Technology Vehicles Manufacturing (ATVM) Loan Program: Status and Issues*, by Brent D. Yacobucci and Bill Canis.

⁷

development loans.), or those that have been authorized but never funded. The programs are presented by agency, starting with those that generally address these issues, followed by those that are fuel- or technology-specific. Expired programs are included because there may be congressional interest in reinstating these programs (as was done for several provisions in P.L. 112-240) or establishing similar programs in the future.

The **Appendix** contains three tables:

1. A summary of the programs discussed in the body of the report, listed by agency (**Table A-1**);
2. A listing of programs and incentives for alternative fuels, by fuel type (**Table A-2**); and
3. A listing of programs and incentives for advanced technology vehicles, by vehicle type (**Table A-3**).

Department of the Treasury

Motor Fuels Excise Taxes

gasoline) were subject to exemptions from, or credits against, these taxes. These

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343, Div. B, Title II, §205(a). The American Recovery and Reinvestment Act of 2009 (P.L. 111-5, §141) amended Section 30D effective for vehicles acquired after December 31, 2009.

- JCT estimated tax expenditure for FY2012: \$200 million
- Scheduled termination: Phased out separate for each automaker when that

- For more information: See the IRS website at <http://www.irs.gov/businesses/article/0,,id=214841,00.html> and http://www.irs.gov/irb/2009-30_IRB/ar07.html.
- Related CRS Reports: CRS Report R41154, *The U.S. Motor Vehicle Industry: A Review of Recent Domestic and International Developments*, by Bill Canis and Brent D. Yacobucci, and CRS Report R41769, *Energy Tax Policy: Issues in the 112th Congress*, by Molly F. Sherlock and Margot L. Crandall-Hollick

Conversion Kits

- Administered by: IRS
- Original authorizing legislation and legislative history: American Recovery and Reinvestment Act (P.L. 111-5, §1143)
- JCT estimated tax expenditure for FY2012: \$0
- Scheduled termination: Expired December 31, 2011.
- Description: The credit was equal to 10% of the cost of converting a vehicle to a qualified plug-in electric drive motor vehicle and placed in service after February 17, 2009. The maximum amount of the credit was \$4,000. The credit does not apply to conversions made after December 31, 2011. A taxpayer was able to claim this credit even if the taxpayer claimed a hybrid vehicle credit for the same

- Description: Consumers who install qualified residential non-hydrogen fueling equipment receive a 30% tax credit of up to \$1,000; businesses receive a credit up to \$30,000. Special rules in place for 2009 and 2010 increased the credit rate to 50% for non-hydrogen property. Credit limits were also temporarily increased to \$2,000 for non-business property, \$50,000 for business property. The credit rate remained at 30% for hydrogen property in 2009 and 2010, but the maximum credit for businesses was increased to \$200,000.
- Qualified applicant/Covered entity: Consumers or businesses who install qualifying equipment/property.
- Applicable fuel/technology: Natural gas, liquefied petroleum gas, hydrogen, electricity, E85, or diesel fuel blends containing a minimum of 20% biodiesel.
- For more information: See IRS Form 8911 at <http://www.irs.gov/pub/irs-pdf/f8911.pdf>.
- Related CRS Reports: CRS Report R40168, *Alternative Fuels and Advanced Technology Vehicles: Issues in Congress*, by Brent D. Yacobucci, and CRS Report R41769, *Energy Tax Policy: Issues in the 112th Congress*, by Molly F. Sherlock and Margot L. Crandall-Hollick

Volumetric Ethanol Excise Tax Credit

- Administered by: IRS
- Original authorizing legislation and legislative history: Established in 2005 by the American Jobs Creation Act of 2004, §301 (P.L. 108-357); modified by the Food, Conservation, and Energy Act of 2008, §15331 (P.L. 110-246); further amended by the Energy Improvement and Extension Act of 2008 (P.L. 110-343,

- Description: Biodiesel producers (or producers of diesel/biodiesel blends) may claim a per-gallon tax credit through the end of 2013. The credit is valued at \$1.00 per gallon. Before amendment by P.L. 110-343, the credit was valued at \$1.00 per gallon of “agri-biodiesel” (biodiesel produced from virgin agricultural products such as soybean oil or animal fats), or 50 cents per gallon of biodiesel produced from previously used agricultural products (e.g., recycled fryer grease). The tax credit expired at the end of 2009 and was not extended until the passage of P.L. 111-312, which retroactively applied the extension to fuel produced in 2010. The tax credit also expired at the end of 2011 and was extended through 2013 by P.L. 112-240, which retroactively applied the extension to fuel produced in 2012.
- Qualified applicant/Covered entity: Biodiesel producers and blenders.
- Applicable fuel/technology: Biodiesel.
- For more information: see IRS Publication 510, Chapter 2: Fuel Tax Credits and Refunds at <http://www.irs.gov/publications/p510/ch02.html>; and the Alternative Fuels and Advanced Vehicles Data Center’s (AFDC’s) web page for the Biodiesel Mixture Excise Tax Credit at <http://www.afdc.energy.gov/afdc/laws/law/US/395>.
- Related CRS Reports: CRS Report R41631, *The Market for Biomass-Based Diesel Fuel in the Renewable Fuel Standard (RFS)*, by Brent D. Yacobucci, and CRS Report R41769, *Energy Tax Policy: Issues in the 112th Congress*, by Molly F. Sherlock and Margot L. Crandall-Hollick

Small Agri-Biodiesel Producer Credit

- Administered by: IRS
- Original authorizing legislation and legislative history: Established in 2005 by the Energy Policy Act of 2005, §1345 (P.L. 109-58); amended by the Energy Improvement and Extension Act of 2008 (P.L. 110-343, Division B), §202-203; extended by the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (P.L. 111-312), §701; extended through 2013 (retroactive for 2012) by the American Taxpayer Relief Act of 2012 (P.L. 112-240 §405).
- JCT estimated tax expenditure for FY2012: \$0
- Scheduled termination: December 31, 2013.
- Description: The small agri-biodiesel producer credit is valued at 10 cents per gallon of “agri-biodiesel” (see Biodiesel Tax Credit, above) produced. The credit may be claimed on the first 15 million gallons of ethanol produced by a small producer in a given year through the end of 2013. The tax credit expired at the end of 2009 and was not extended until the passage of P.L. 111-312, which retroactively applied the extension to fuel produced in 2010. The credit also expired at the end of 2011 and was extended through 2013 by P.L. 112-240, which retroactively applied the extension to fuel produced in 2012.
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- For more information: see IRS Publication 510, Chapter 2: Fuel Tax Credits and Refunds at <http://www.irs.gov/publications/p510/ch02.html>; and the Alternative Fuels and Advanced Vehicles Data Center's (AFDC's) web page for the Biodiesel Mixture Excise Tax Credit at <http://www.afdc.energy.gov/afdc/laws/law/US/342>.
- Related CRS Reports: CRS Report R41631, *The Market for Biomass-Based Diesel Fuel in the Renewable Fuel Standard (RFS)*, by Brent D. Yacobucci, and CRS Report R41769, *Energy Tax Policy: Issues in the 112th Congress*, by Molly F. Sherlock and Margot L. Crandall-Hollick

Renewable Diesel Tax Credit

- Administered by: IRS
- Original authorizing legislation and legislative history: Established in 2005 by the Energy Policy Act of 2005 (P.L. 109-58), §1346 ; amended by the Energy Improvement and Extension Act of 2008 (P.L. 110-343, Division B), §202-203; extended by the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (P.L. 111-312), §701; extended through 2013 (retroactive for 2012) by the American Taxpayer Relief Act of 2012 (P.L. 112-240 §405).
- JCT estimated tax expenditure for FY2012: \$0
- Scheduled termination: December 31, 2013.
- Description: Producers of biomass-based diesel fuel (or producers of diesel/renewable biodiesel blends) may claim a \$1.00 per gallon tax credit through the end of 2013. Renewable diesel is similar to biodiesel, but it is produced through different processes and thus was ineligible for the (above) biodiesel credits. The tax credit expired at the end of 2009 and was not extended until the passage of P.L. 111-312, which retroactively applied the extension to fuel produced in 2010. The credit also expired at the end of 2011 and was extended through 2013 by P.L. 112-240, which retroactively applied the extension to fuel produced in 2012.
- Qualified applicant/Covered entity: Renewable diesel producers and blenders.
- Applicable fuel/technology: Renewable diesel.
- For more information: see IRS Publication 510, Chapter 2: Fuel Tax Credits and Refunds at <http://www.irs.gov/publications/p510/ch02.html>; and the Alternative Fuels and Advanced Vehicles Data Center's (AFDC's) web page for the Biodiesel Mixture Excise Tax Credit at <http://www.afdc.energy.gov/afdc/laws/law/US/342>.
- Related CRS Reports: CRS Report R40168, *Alternative Fuels and Advanced Technology Vehicles: Issues in Congress*, by Brent D. Yacobucci; CRS Report R41631, *The Market for Biomass-Based Diesel Fuel in the Renewable Fuel Standard (RFS)*, by Brent D. Yacobucci; and CRS Report R41769, *Energy Tax Policy: Issues in the 112th Congress*, by Molly F. Sherlock and Margot L. Crandall-Hollick

Credit for Production of Cellulosic and Algae-Based Biofuel

- Administered by: IRS

- Original authorizing legislation and legislative history: Established on January 1, 2009, by the Food, Conservation, and Energy Act of 2008, §15321 (P.L. 110-246); amended by the Health Care and Education Reconciliation Act of 2010 (P.L. 111-152), §1408; amended by the Small Business Jobs Act of 2010 (P.L. 111-240), §2121; amended and extended through the end of 2013 by the American Taxpayer Relief Act of 2012 (P.L. 112-240 §404).
- JCT estimated tax expenditure for FY2012: \$0
- Scheduled termination: December 31, 2013.
- Description: Producers of cellulosic biofuel may claim a tax credit of \$1.01 per gallon. For cellulosic ethanol producers, the value of the production tax credit is reduced by the value of the volumetric ethanol excise tax credit and the small ethanol producer credit—the credit is currently valued at \$1.01 cents per gallon (the offsetting tax credits have expired). P.L. 112-240 amended the credit to include non-cellulosic fuel produced from algae feedstocks.
- The credit applies to fuel produced after December 31, 2008.
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- Description: A taxpayer may take a depreciation deduction of 50% of the adjusted basis of a new cellulosic or algae-based biofuel plant in the year it is put in service. Any portion of the cost financed through tax-exempt bonds is exempted from the depreciation allowance. Before amendment by P.L. 110-343 the accelerated depreciation applied only to cellulosic ethanol plants that break down cellulose through enzymatic processes—the amended provision applies to all cellulosic biofuel plants. Before amendment by P.L. 112-240 the provision did not apply to algae-based biofuel plants: the incentive for algae-based plants applies to property placed in service in 2013.
- Qualified applicant/Covered entity: Any cellulosic biofuel plant acquired after December 20, 2006, and placed in service before January 1, 2014, and any algae-based biofuel plant placed in service in 2013. Any plant that had a binding contract for acquisition before December 20, 2006, does not qualify.
- Applicable fuel/technology: Cellulosic and algae-based biofuels
- For more information: See Senate Finance Committee, Summary of House-Senate Agreement on Tax, Trade, Health, and Other Provisions, December 7, 2006 at <http://www.finance.senate.gov/newsroom/ranking/release/?id=97221a88-8b93-4000-b51c-5b03bc06e6fb>.
- Related CRS Reports: CRS Report RL34738, *Cellulosic Biofuels: Analysis of Policy Issues for Congress*, by Kelsi Bracmort et al.; CRS Report R42122, *Algae's Potential as a Transportation Biofuel*, by Kelsi Bracmort; and CRS Report R41769, *Energy Tax Policy: Issues in the 112th Congress*, by Molly F. Sherlock and Margot L. Crandall-Hollick

Department of Energy

Advanced Technology Vehicle Manufacturing Loan Program

- Administered by: Loan Programs Office (LPO)
- Original authorizing legislation and legislative history: Authorized by the Energy Independence and Security Act of 2007 §136 (P.L. 110-140), funded by the Consolidated Security, Disaster Assistance, and Continuing Appropriations Act, P.L. 110-329).
- FY2012 appropriated funds: \$6 million (for program administration)
- Scheduled termination: Facilities funded must be placed in service by the end of 2020.
- Description: Advanced Technology Vehicle Manufacturing (ATVM) was established in the late 1990s to provide financing for the development of advanced technology vehicles. The program was authorized by the Energy Independence and Security Act of 2007 (EISA) and is currently authorized through the Consolidated Security, Disaster Assistance, and Continuing Appropriations Act, 2012 (CSDA).

the program loan subsidy authority one time. Currently, loans have been made to five companies, using \$8.4 billion of the \$25 billion loan authority.

- Qualified applicant/Covered entity: an automotive manufacturer satisfying specified fuel economy requirements or a manufacturer of qualifying components. To be financially eligible for an ATVM loan, an applicant must be financially viable without the receipt of additional federal funding for the proposed project.
- Applicable fuel/technology: No limitations on specific technologies; rather, limits are stipulated for vehicle emissions and fuel consumption.
- For more information: DOE website, https://lpo.energy.gov/?page_id=43.
- Related CRS Reports: CRS Report R42064, *The Advanced Technology Vehicles Manufacturing (ATVM) Loan Program: Status and Issues* by Brent D. Yacobucci and Bill Canis; and CRS Report R40168, *Alternative Fuels and Advanced Technology Vehicles: Issues in Congress* by Brent D. Yacobucci

Vehicle Technologies Program

- Administered by: Office of Energy Efficiency and Renewable Energy (EERE)w

- Related CRS Reports: CRS Report R42064, *The Advanced Technology Vehicles Manufacturing (ATVM) Loan Program: Status and Issues*, by Brent D. Yacobucci and Bill Canis

Biomass and Biorefinery Systems Program

- Administered by: EERE
- Original authorizing legislation and legislative history: Federal Nonnuclear Energy Research and Development Act of 1974 (P.L. 93-577); Energy Policy and Conservation Act of 1975 (EPCA; P.L. 94-163); Energy Conservation and Production Act of 1976 (ECPA; P.L. 94-385); Department of Energy Organization Act of 1977 (P.L. 95-91); Energy Tax Act (P.L. 95-618); National Energy Conservation Policy Act of 1978 (NECPA; P.L. 95-619); Powerplant and Industrial Fuel Use Act of 1978 (P.L. 95-620); Energy Security Act of 1980 (P.L. 96-294); National Appliance Energy Conservation Act of 1987 (P.L. 100-12); Federal Energy Management Improvement Act of 1988 (P.L. 100-615); Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989 (P.L. 101-218); Clean Air Act Amendments of 1990 (P.L. 101-549); Solar, Wind, Waste, and Geothermal Power Production Incentives Act of 1990 (P.L. 101-575); Energy Policy Act of 1992 (EPACT; P.L. 102-486); Biomass Research

- Original authorizing legislation and legislative history: Federal Energy Administration Act of 1974 (P.L. 93-275); Federal Nonnuclear Energy Research and Development Act of 1974 (P.L. 93-577); Energy Policy and Conservation Act of 1975 (EPCA; P.L. 94-163); Electric and Hybrid Vehicle Research, Development and Demonstration Act (P.L. 94-413); Department of Energy

- Original authorizing legislation and legislative history: Established by the Surface Transportation and Uniform Relocation Assistance Act of 1987 (P.L. 100-17) §313; reauthorized and amended multiple times, most recently by the Moving Ahead for Progress in the 21st Century Act (MAP-21, P.L. 112-141).
- FY2012 appropriated funds: \$51.5 million
- Scheduled termination: September 30, 2014.
- Description: The program provides grants for the purchase of alternative fuel and advanced technology transit buses. Under conventional bus grants, FTA will fund up to 80% of the cost of a bus; under the Clean Fuels Grant Program, FTA funds 90% of the incremental cost of a “clean fuel” bus. The incremental cost is the difference between the cost of the clean fuel bus and a comparable conventional bus.
- Qualified applicant/Covered entity: Tribes, states, state departments of transportation, and metropolitan planning organizations.
- Applicable fuel/technology: buses run on compressed natural gas, liquefied natural gas, biodiesel, battery electric, ethanol, methanol, fuel cells, and clean diesel (clean diesel projects limited to 25% of total funding).
- For more information: See FTA, Clean Fuels Grant Program website at http://www.fta.dot.gov/grants/13094_3560.html.
- Related CRS Reports: CRS Report R42445, *Surface Transportation Reauthorization Legislation in the 112th Congress: MAP-21, H.R. 7, and H.R. 4348—Major Provisions*, coordinated by Robert S. Kirk

Environmental Protection Agency

National Clean Diesel Campaign

- Administered by: Office of Transportation and Air Quality (OTAQ)
- Original authorizing legislation and legislative history: Established in 2005 by the Energy Policy Act of 2005 (P.L. 109-58), §§791-797; amended in 2008 by P.L. 110-255, §3; and amended in 2011 by the Diesel Emissions Reduction Act of 2010 (P.L. 111-364), §2.
- FY2012 appropriated funds: \$30 million
- Scheduled termination: September 30, 2016.
- Description: EPA’s National Clean Diesel Campaign (NCDC) promotes clean air strategies by working with manufacturers, fleet operators, air quality professionals, environmental and community organizations, and state and local officials to reduce diesel emissions. States are allocated funds for their clean diesel programs through the Diesel Emission Reduction Act (DERA).
- Qualified applicant/Covered entity: Manufacturers, fleet operators, air quality professionals, environmental and community organizations, and state and local governments.

- Applicable fuel/technology: Technologies that significantly reduce emissions (EPA maintains a list of verified retrofit technologies and emerging technologies at <http://www.epa.gov/cleandiesel/verification/verif-list.htm>).
- For more information: See EPA's National Clean Diesel Campaign website at <http://www.epa.gov/cleandiesel/>.
- Related CRS Reports: CRS Report R42520, *Environmental Protection Agency (EPA): Appropriations for FY2013*, coordinated by Robert Esworthy.

Renewable Fuel Standard

- Administered by: Office of Transportation and Air Quality (OTAQ)
- Original authorizing legislation and legislative history: Established in 2005 by the Energy Policy Act of 2005, §1501 (P.L. 109-58); expanded by the Energy Independence and Security Act of 2007, §202 (P.L. 110-140)
- FY2012 appropriated funds: N/A
- Scheduled termination: None.
- Description: The Energy Policy Act of 2005 established a renewable fuel standard (RFS) for automotive fuels. The RFS was expanded by the Energy Independence and Security Act of 2007. The RFS requires the use of renewable fuels (including ethanol and biodiesel) in transportation fuel. In 2011, fuel suppliers were required to include 13.95 billion gallons of renewable fuels in the national transportation fuel supply; this requirement increases annually to 36 billion gallons in 2022. The expanded RFS also specifically mandates the use of “advanced biofuels”—fuels produced from non-corn feedstocks and with 50% lower lifecycle greenhouse gas emissions than petroleum fuel—starting in 2009. Of the 36 billion gallons required in 2022, at least 21 billion gallons must be advanced biofuels. There are also specific quotas for cellulosic biofuels and for biomass-based diesel fuel. On May 1, 2007, EPA issued a final rule on the original RFS program detailing compliance standards for fuel suppliers, as well as a system to trade renewable fuel credits between suppliers. On March 26, 2010, EPA issued final rules for the expanded program (RFS2), including lifecycle analysis methods necessary to categorize fuels as advanced biofuels, and new rules for credit verification and trading. While this program is not a direct subsidy for the construction of biofuels plants, the guaranteed market created by the RFS is expected to stimulate growth of the biofuels industry and to raise prices above where they would have been in the absence of the mandate.
- Covered entity: Gasoline and diesel fuel suppliers—generally refiners, but other entities may also be covered.
- Applicable fuel: All biofuels (conventional ethanol, biodiesel, renewable diesel, cellulosic biofuels, advanced biofuels).
- For more information: EPA website, Renewable Fuel Standard (RFS) <http://www.epa.gov/otaq/fuels/renewablefuels/index.htm>.
- Related CRS Reports: CRS Report R40155, *Renewable Fuel Standard (RFS): Overview and Issues*, by Randy Schnepf and Brent D. Yacobucci; CRS Report

R41106, *Meeting the Renewable Fuel Standard (RFS) Mandate for Cellulosic Biofuels: Questions and Answers*, by Kelsi Bracmort; and CRS Report R41631, *The Market for Biomass-Based Diesel Fuel in the Renewable Fuel Standard (RFS)*, by Brent D. Yacobucci

Department of Agriculture¹²

Biorefinery Assistance

- Administered by: Rural Business-Cooperative Service (RBS)
- Original authorizing legislation and legislative history: Established by the Food, Conservation, and Energy Act of 2008, §9001 (P.L. 110-246); extended through FY2013 by the American Taxpayer Relief Act of 2012 (P.L. 112-240 §701(f)).
- FY2012 appropriated funds: Mandatory funding of \$74 million in FY2009 and \$245 million in FY2010 was authorized for loan guarantees; no discretionary funding has been appropriated through FY2012
- Scheduled termination: September 30, 2013.
- Description: Grants to biorefineries that use renewable biomass to reduce or eliminate fossil fuel use.
- Qualified applicant: Biorefineries in existence at the date of enactment.
- For more information: See RBS website at <http://www.rurdev.usda.gov/rbs/busp/baplg9003.htm>.
- Related CRS Reports: CRS Report R41985, *Renewable Energy Programs and the Farm Bill: Status and Issues*, by Randy Schnepf

Repowering Assistance

- Administered by: RBS
- Original authorizing legislation and legislative history: Established by the Food, Conservation, and Energy Act of 2008, §9001 (P.L. 110-246); extended through FY2013 by the American Taxpayer Relief Act of 2012 (P.L. 112-240 §701(f)).
- FY2012 appropriated funds: Discretionary funding of \$15 million was appropriated only in FY2010
- Scheduled termination: September 30, 2013.
- Description: Grants to biorefineries that use renewable biomass to reduce or eliminate fossil fuel use. RBS issued a Notice of Funding Availability June 12, 2009, at <http://www.rurdev.usda.gov/rbs/busp/9004%20FR%20NOFA.pdf>.
- Qualified applicant: Biorefineries in existence at the date of enactment.

¹² For program details, see CRS Report R41985, *Renewable Energy Programs and the Farm Bill: Status and Issues*, by Randy Schnepf.

- For more information: See the RBS website at http://www.rurdev.usda.gov/BCP_RepoweringAssistance.html.
- Related CRS Reports: CRS Report R41985, *Renewable Energy Programs and the Farm Bill: Status and Issues*, by Randy Schnepf

Bioenergy Program for Advanced Biofuels

- Administered by: RBS
- Original authorizing legislation and legislative history: Established by the Food, Conservation, and Energy Act of 2008, §9001 (P.L. 110-246).
- FY2012 appropriated funds: No discretionary funding has been appropriated through FY2012; mandatory funding for FY2012 of \$65 million
- Scheduled termination: September 30, 2013; extended through FY2013 by the American Taxpayer Relief Act of 2012 (P.L. 112-240 §701(f)).
- Description: Provides payments to producers to support and expand production of advanced biofuels refined from sources other than corn kernal starch. RBS issued a Notice of Contract Proposal June 12, 2009, at <http://www.rurdev.usda.gov/rbs/busp/NOCP%20FR%209005.pdf>.
- Qualified applicant: Producers of advanced biofuels.
- For more information: See RBS website at <http://www.rurdev.usda.gov/rbs/busp/9005Biofuels.htm>.
- Related CRS Reports: CRS Report R41985, *Renewable Energy Programs and the Farm Bill: Status and Issues*, by Randy Schnepf

Biomass Crop Assistance Program

- Administered by: Farm Service Agency (FSA)
- Original authorizing legislation and legislative history: Established by the Food, Conservation, and Energy Act of 2008, §9001 (P.L. 110-246); extended through FY2013 by the American Taxpayer Relief Act of 2012 (P.L. 112-240 §701(f)).
- FY2012 appropriated funds: Mandatory Commodity Credit Corporation (CCC) funds of such sums as necessary are made available for each of FY2008-F2012. In FY2012, Biomass Crop Assistance Program (BCAP) mandatory spending was limited to \$17 million
- Scheduled termination: September 30, 2013.
- Description: Two separate payment programs for the establishment and supply of advanced biofuel feedstocks: (1) Establishment and annual payments, including a one-time payment of up to 75% of the cost of establishment for perennial crops, and annual payments for up to five or 15 years depending on the type of crop; and (2) dollar-for-dollar matching payments for collection, harvesting, storage, and transportation (CHST) of biomass to qualified biofuel production facilities (as well as bioenergy or biobased products), up to \$45 per ton.

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(P.L. 110-246); extended through FY2013 by the American Taxpayer Relief Act of 2012 (P.L. 112-240 §701(f)).

- FY2012 appropriated funds: \$40 million in mandatory funding
- Scheduled termination: September 30, 2013.
- Description: Grants are provided for biomass research, development, and demonstration projects. Eligible projects include ethanol and biodiesel demonstration plants.
- Qualified applicant: Wide range of possible applicants.
- For more information: See <http://www.brdisolutions.com/default.aspx>.
- Related CRS Reports: CRS Report R41985, *Renewable Energy Programs and the Farm Bill: Status and Issues*, by Randy Schnepf

U.S. Customs and Border Protection—Import Duty on Fuel Ethanol

- Administered by: U.S. Customs and Border Protection
- Original authorizing legislation and legislative history: Established in 1980 by the Omnibus Reconciliation Act of 1980 (P.L. 96-499); amended by the Tax ReRec

Program	Description	FY2012 Appropriation or JCT Estimated Expenditure	Expiration Date	Eligible Fuels or Technologies
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Program	Description	FY2012 Appropriation or JCT Estimated Expenditure	Expiration Date	Eligible Fuels or Technologies
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Department of Transportation

Program	Description	FY2012 Appropriation or JCT Estimated Expenditure	Expiration Date	Eligible Fuels or Technologies
Environmental Protection Agency				

Program	Description	FY2012 Appropriation or JCT Estimated Expenditure	Expiration Date	Eligible Fuels or Technologies
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Customs and Border Protection

Table A-2. Federal Taxes and Incentives for Alternative Fuels

Fuel	Excise Tax Rate (¢ per gallon)	Production Incentive	Incentive for Blending and/or Fuel Use	Federal R&D	Other Programs
Biofuels					

Fuel	Excise Tax Rate (¢ per gallon)	Production Incentive	Incentive for Blending and/or Fuel Use	Federal R&D	Other Programs
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Source:

Notes: Table 1

Table A-3. Federal Incentives for Alternative Fuel and Advanced Technology Vehicles

Vehicle Technology or Fuel Type	Manufacturing Incentive	Purchase Incentive	Federal R&D	Other Programs
Electrified Vehicles				

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