Tax Incentives for Alternative Fuel and Advanced Technology Vehicles

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Summary

Alternative fuel and advanced technology vehicles face significant market barriers, such as high purchase price and limited availability of refueling infrastructure. The Energy Policy Act of 2005 (P.L. 109-58) expands and establishes tax incentives that encourage the purchase of these vehicles and the development of infrastructure needed to support them. Among the new provisions are tax credits for the purchase of hybrid vehicles (replacing an existing tax deduction), tax credits for the purchase of advanced diesel vehicles (although it is unclear whether any current vehicles will qualify), and tax credits to expand refueling infrastructure. This report discusses current federal tax incentives for alternative fuel and advanced technology vehicles. It also outlines how the Energy Policy Act of 2005 changes those incentives. This report will be updated as events warrant.

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Introduction[1]

Alternative fuel and advanced technology vehicles face significant barriers to wider acceptance as passenger and work vehicles. Alternative fuel vehicles include vehicles powered by nonpetroleum fuels such as natural gas, electricity, or alcohol fuels. Advanced technology vehicles include hybrid vehicles, which combine a gasoline engine with an electric motor system to boost efficiency.[2] Often, these vehicles are more expensive than their conventional counterparts.[3] Further, fueling the vehicles is often inconvenient because the number of refueling stations for alternative vehicles is negligible compared with the number of gasoline stations nationwide; in some regions, the infrastructure is nonexistent. However, many of these vehicles perform more efficiently and are better for the environment than conventional vehicles. There has been significant interest in promoting these vehicles as a response to environmental and energy security concerns.

Current Tax Incentives (Through 2005)[4]

The Energy Policy Act of 1992 (P.L. 102-486, §1913) established individual and business tax incentives for the purchase of alternative fuel and advanced technology vehicles and for the installation of alternative fuel infrastructure. The Energy Policy Act of 2005 (P.L. 109-58) expands these existing tax incentives and creates new ones. Incentives existing prior to P.L. 109-58 include

- the Electric Vehicle Tax Credit;
- the Clean Fuel Vehicle Tax Deduction; and
- tax deduction for the installation of alternative fuel infrastructure.

Electric Vehicle Tax Credit

For 2005, a federal tax credit is available worth 10% of the purchase price of an electric vehicle, up to a maximum of $4,000 (26 U.S.C. 30). The credit, which was not extended by the Energy Policy Act of 2005, will be reduced to a maximum of $1,000 in 2006 and will be phased out completely after 2006.

Clean Fuel Vehicle Tax Deduction

For the purchase of alternative fuel vehicles, as well as hybrid electric vehicles, a Clean Fuel Vehicle Tax Deduction (26 U.S.C. 179A) is available. The amount of the deduction is based on

[1] This report supersedes CRS Report RS21277, Alternative Fuel Vehicle Tax Incentives and the CLEAR ACT.

[2] For more information on these vehicles, see CRS Report RL30758, *Alternative Transportation Fuels and Vehicles: Energy, Environment, and Development Issues*, by (name redacted).

[3] Some opponents of tax incentives argue that market barriers alone do not justify government intervention. Proponents argue that there may be noneconomic reasons (e.g. energy security, clean air) to promote one technology over another.

[4] For more information on the current tax incentives, see the Internal Revenue Service website at http://www.irs.gov.

the weight of the vehicle. Vehicles under 10,000 pounds gross vehicle weight (i.e., cars and light trucks) qualify for a $2,000 deduction in 2005; those between 10,000 and 26,000 pounds qualify for a $5,000 deduction. Vehicles above 26,000 pounds qualify for a $50,000 deduction. The Energy Policy Act of 2005 terminates this deduction after December 31, 2005, and replaces it with a tax credit (see below).

Prior to 2002, hybrid electric vehicles were not considered "clean-fuel vehicles" because the primary fuel for the vehicles is gasoline. However, in May 2002, the Internal Revenue Service (IRS) announced that taxpayers can claim the deduction for qualified hybrids.[5] As of December 2005, eight hybrid models are eligible for the deduction.

Fueling Infrastructure Tax Deduction

Businesses that install alternative fuel refueling infrastructure can claim a tax deduction of up to $100,000 (26 U.S.C. 179A). The Energy Policy Act of 2005 eliminates this deduction at the end of 2005 and replaces it with a tax credit (see below).

New Tax Credits Under P.L. 109-58 (2006 and Beyond)

The Energy Policy Act of 2005 expanded and extended the existing tax incentives for nonconventional vehicles. These new incentives are similar to those proposed in the Clean Efficient Automobiles Resulting from Advanced Car Technologies Act (CLEAR ACT, S. 971) and the Volume Enhancing Hardware Incentives for Consumer Lowered Expenses Technology Act (VEHICLE Technology Act, H.R. 626), as well as legislation discussed in the 108th Congress.

Among other provisions, Sections 1341 and 1342 of the Energy Policy Act of 2005 contain several tax incentives for alternative fuel and advanced technology vehicles. For example, the act

- replaces the existing clean-fuel vehicle tax deduction with a new tax credit for hybrid vehicles;
- creates a tax credit for the purchase of lean-burn passenger vehicles;[6]
- creates a new tax credit for the purchase of fuel-cell vehicles;
- replaces the existing clean-fuel vehicle tax deduction with an alternative fuel vehicle tax credit; and
- replaces the existing deduction for the installation of refueling infrastructure with a tax credit.

Each of these credits is discussed below; **Table 4** summarizes each one.

[5] Further, taxpayers who purchased hybrids in previous years may file an amended return to claim the deduction.

[6] Currently, these are exclusively diesel vehicles. Although lean-burn gasoline engines are technically feasible, no vehicles with lean-burn gasoline engines (as defined by §1341 of the act) are currently available.

Hybrid Electric Vehicle Tax Credit

Under the Energy Policy Act of 2005, the existing clean-fuel vehicle deduction for hybrid electric vehicles is replaced with a tax credit after 2005. The amount of the credit is based on several factors. For passenger vehicles, these factors are the fuel economy increase and the expected lifetime fuel savings when compared with a conventional vehicle of comparable weight. To qualify for the credit, a hybrid vehicle must meet certain emissions standards and technical specifications. For heavy-duty vehicles (more than 8,500 pounds), the credit is based on the fuel economy relative to a comparable vehicle, as well as the incremental cost of the hybrid vehicle above the cost of the conventional vehicle. The range of potential credits for each vehicle weight are shown in **Table 1**. The hybrid vehicle credit is scheduled to expire at the end of 2009.

Table 1. Hybrid Vehicle Tax Credit, by Gross Vehicle Weight

Up to 8,500 pounds	8,501 to 14,000 pounds	14,001 to 26,000 pounds	More than 26,000 pounds
$400 to $3,400[a]	$0 to $3,750[b]	$0 to $7,500[b]	$0 to $15,000[b]

Source: P.L. 109-58, §1341.

a. Depending on fuel economy and fuel savings.

b. Depending on fuel economy and incremental cost.

The American Council for an Energy-Efficient Economy estimates that 2006 tax credits for hybrid passenger vehicles will range from $0 (Honda Insight) to $3,150 (Toyota Prius).[7] However, the IRS has not yet announced the value of the credits for 2006.

Lean-Burn Vehicle Credit

The Energy Policy Act of 2005 established a tax credit for the purchase of passenger vehicles with "lean-burn" engines. For the most part, diesel-powered vehicles that meet certain emissions and fuel economy standards would qualify for the tax credit, which is structured like the hybrid tax credit and ranges from $400 to $3,400, based on fuel economy and fuel savings. The credit is scheduled to expire at the end of 2010.

However, no lean-burn passenger vehicles are available that meet the emission standard. Consequently, no vehicles on the market qualify for the credit, although many observers expect automakers to look for ways to reduce the emissions of such vehicles in future years so that the vehicles can qualify.

Fuel-Cell Vehicle Purchase Tax Credit

The Energy Policy Act of 2005 provides a tax credit for the purchase of fuel-cell vehicles. The credit increases with gross vehicle weight, as shown in **Table 1**. Passenger vehicles that achieve at least 50% better fuel economy than a comparable conventional vehicle also qualify for an

[7] American Council for an Energy-Efficient Economy, *Light-Duty Hybrid and Diesel Vehicle Tax Credits in the Energy Bill.* August 2005. http://www.aceee.org/transportation/hybtaxcred.htm Accessed December 15, 2005.

additional tax credit of between $1,000 and $4,000, depending on overall fuel economy. The credit expires at the end of calendar year 2014. However, because of technical and cost concerns, no fuel-cell vehicles are commercially available, and the development of a mass-market fuel-cell vehicle in the near future seems unlikely.

Table 2. Fuel-Cell Vehicle Tax Credit, by Gross Vehicle Weight

Up to 8,500 pounds	8,501 to 14,000 pounds	14,001 to 26,000 pounds	More than 26,000 pounds
$8,000 ($4,000 after 2009), plus up to $4,000, depending on fuel economy	$10,000	$20,000	$40,000

Source: P.L. 109-58, §1341.

Alternative Fuel Vehicle Tax Credit

The Energy Policy Act of 2005 replaces the existing clean-fuel vehicle tax deduction with a credit for the purchase of a new alternative fuel vehicle (AFV). The new credit is equal to a percentage of the incremental cost of the AFV, subject to certain maximum dollar amounts. The incremental cost is the difference between the higher cost of the AFV and its conventional counterpart. Under the act, the applicable percentage is 50% of the incremental cost plus an additional 30% if the vehicle meets certain emissions requirements. The maximum credit is based on the weight of the vehicle, as shown in **Table 3**. The credit expires at the end of 2010.

Table 3. Maximum Alternative Fuel Vehicle Tax Credit, by Gross Vehicle Weight

Up to 8,500 pounds	8,501 to 14,000 pounds	14,001 to 26,000 pounds	More than 26,000 pounds
up to $4,000[a]	up to $8,000[b]	up to $20,000[c]	up to $32,000[d]

Source: P.L. 109-58, §1341.

Notes: The maximum tax credit is based on applicable percentage of incremental cost. The maximum percentage of incremental cost is 80%.

a. Maximum incremental cost is $5,000.

b. Maximum incremental cost is $10,000.

c. Maximum incremental cost is $25,000.

d. Maximum incremental cost is $40,000.

To qualify for the credit, the vehicle is required to be a "dedicated" AFV, meaning that it must not be capable of operating on conventional fuel. This provision is a response to criticisms of previous AFV policies that included "dual-fuel" vehicles.[8] In many cases, dual-fuel vehicles operate solely on gasoline. Because some alternative fuels must be blended with a small amount of gasoline (e.g., ethanol, methanol), vehicles using these fuels qualify for a prorated tax credit.

[8] Dual-fuel vehicles can operate using either an alternative fuel or a conventional fuel (e.g., gasoline).

Alternative Fuel Refueling Infrastructure Credit

The Energy Policy Act of 2005 replaces the existing deduction for the installation of alternative fuel infrastructure with a tax credit. The credit is equal to 30% of the purchase or installation cost of the refueling property, subject to a maximum dollar amount. For retail property, the maximum credit is $30,000. For residential property, the maximum is $1,000. The credit expires after 2014 for hydrogen infrastructure; the credit for all other fuels expires after 2009.

Table 4. Summary of Alternative Fuel and Advanced Technology Vehicle Tax Incentives Under the Energy Policy Act of 2005

Tax Incentive Type	Maximum Passenger Vehicle Credit	Maximum Heavy-Duty Vehicle Credit	Maximum Infrastructure Credit	Expiration Date
Hybrid vehicle	$3,400	$15,000	n/a	Dec. 31, 2009
Lean-burn vehicle	$3,400	n/a	n/a	Dec. 31, 2010
Fuel-cell vehicle	$12,000	$40,000	n/a	Dec. 31, 2014
Alternative fuel vehicle	$4,000	$32,000	n/a	Dec. 31, 2010
Residential refueling infrastructure	n/a	n/a	$1,000	Dec. 31, 2009[a]
Retail refueling infrastructure	n/a	n/a	$30,000	Dec. 31, 2009[a]

Source: P.L. 109-58, §§1341-1342.

a. Dec. 31, 2014, for hydrogen infrastructure.

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