

[JOINT COMMITTEE PRINT]

**DESCRIPTION OF PROPOSALS RELATING
TO RENEWABLE ENERGY AND ENERGY
CONSERVATION TAX INCENTIVES**

SCHEDULED FOR HEARINGS

BEFORE THE

**SUBCOMMITTEE ON
ENERGY AND AGRICULTURAL TAXATION**

OF THE

SENATE COMMITTEE ON FINANCE

ON JUNE 13-14, 1991

PREPARED BY THE STAFF

OF THE

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On page 32, the table at the bottom of the page should be as follows:

Model years 1993 and 1994

Percentage by which a vehicle's fuel economy exceeds model type average fuel economy	Amount of credit
Less than 15 percent.....	0
15 to less than 20 percent	\$250
20 to less than 25 percent	400
25 percent or greater	750

Model years 1995 and beyond

Percentage by which a vehicle's fuel economy exceeds model type average fuel economy	Amount of credit
Less than 20 percent.....	0
20 to less than 25 percent	\$400
25 to less than 30 percent	750
30 to less than 50 percent	1,000
50 to less than 75 percent	1,500
75 percent or greater	2,000

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INTRODUCTION

This pamphlet,¹ prepared by the staff of the Joint Committee on Taxation, provides a discussion of various Senate tax proposals intended to provide incentives to enhance the conservation of energy resources and to increase the use and development of renewable sources of energy. The Senate Finance Subcommittee on Energy and Agricultural Taxation has scheduled public hearings on that subject on June 13-14, 1991.

The first part of the pamphlet is a summary of the bills (in numerical order) that are to be the subject of the hearings. The second part is a description of specific tax provisions and proposals relating to energy conservation and the use and development of energy from renewable sources, including present law, Senate legislative proposals, any related Administration proposal, and analysis of related issues.

¹ This pamphlet may be cited as follows: Joint Committee on Taxation, *Description of Proposals Relating to Renewable Energy and Energy Conservation Tax Incentives* (JCS-8-91), June 11, 1991.

I. SUMMARY OF BILLS

A. S. 26—Senators Moynihan, Packwood, D'Amato, Kasten, DeConcini, Chafee, and Lautenberg

Exclusion for Certain Employer-Provided Transportation

S. 26 would exclude from gross income a portion of the value of certain transportation provided by an employer to an employee. The exclusion would apply to (1) the value of employer-provided transportation between an employee's home and work that is provided in a commuter highway vehicle,² or (2) up to \$60 per month for any transit pass (i.e., any pass, token, farecard, voucher, or similar item that would entitle a person to transportation on mass transit facilities). In order to qualify for the exclusion, the transportation would have to be provided in addition to, rather than in lieu of, any compensation otherwise payable to the employee, and would have to be made available in a way that does not discriminate in favor of highly compensated employees.

The bill would be effective for taxable years beginning after December 31, 1990.

B. S. 83—Senator Symms

Exclusion for Public Utility Subsidies for Energy or Water Conservation Measures

S. 83 would provide an exclusion from gross income for the value of any subsidy provided by a public utility for the purchase or installation of an energy or water conservation measure. For this purpose, an energy or water conservation measure would include residential energy conservation measures described in section 210(11) of the National Energy Conservation Policy Act,³ commercial energy conservation measures described in section 710(b)(5) of the National Energy Conservation Policy Act (as in effect on the day before the date of enactment of the Conservation Service Reform Act of 1986), specially defined energy property under section 48(l)(5) of the Internal Revenue Code (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990),⁴ and any device designed to reduce water consumption.

The bill also would deny a deduction or credit, or in appropriate cases require a reduction in adjusted basis of property, to the

² For this purpose, a commuter highway vehicle generally would be any highway vehicle which seats at least seven adults (plus the driver), and at least 80 percent of the mileage use of which could reasonably be expected to be for the purposes of transporting employees between their homes and work.

³ 42 U.S.C. 8211(11).

⁴ Such property is discussed in detail in Part II.C.1. of this pamphlet.

extent that a subsidy was excluded from the gross income of the recipient.

The bill would be effective with respect to amounts received (or paid) after the date of enactment.

C. S. 129—Senators Mitchell and Cranston

Exclusion for Certain Employer-Provided Transportation

S. 129 would exclude from gross income a portion of the value of certain transportation provided by an employer to an employee. The exclusion would apply to (1) the value of employer-provided transportation between an employee's home and work that is provided in a commuter highway vehicle,⁵ or (2) up to \$30 per month for any transit pass (i.e., any pass, token, farecard, voucher, or similar item that would entitle a person to transportation on mass transit facilities). In order to qualify for the exclusion, the benefit would have to be provided in addition to, rather than in lieu of, any compensation otherwise payable to the employee. In addition, the benefit would have to be provided under a separate written plan of the employer which does not discriminate in favor of officers, shareholders, or highly compensated employees.

The bill would be effective for taxable years beginning after December 31, 1990.

D. S. 141—Senators Daschle and Packwood

Extension of Business Energy Tax Credits

S. 141 would extend for five years, through December 31, 1996, the present-law business energy tax credits for investments in qualified solar and geothermal energy property.

E. S. 201—Senators Gore and Wirth

Increase in Gas Guzzler Tax; Tax Credit for Purchase of Fuel-Efficient Automobiles

Increase in gas guzzler excise tax

Section 501 of S. 201 would require incremental increases in the graduated amounts of the gas guzzler tax (Code sec. 4064). The increase in the tax would first apply to 1992 model year automobiles, and additional increases would apply to automobiles manufactured in subsequent years. The bill's increases in the tax would be fully implemented with respect to automobiles with model years 2000 or later. For automobiles with those model years, the maximum amount of the tax would be \$16,400 (adjusted for inflation) and would be imposed on automobiles with fuel economies of less than 13.5 miles per gallon.

⁵ For this purpose, a commuter highway vehicle generally would be any highway vehicle which seats at least seven adults (plus the driver), and at least 80 percent of the mileage use of which could reasonably be expected to be for the purposes of transporting employees between their homes and work.

This provision of the bill would be effective with respect to 1992 and later year automobiles.⁶

Tax credit for purchase of fuel-efficient automobiles

S. 201 also would provide a nonrefundable income tax credit for purchases of new fuel-efficient vehicles (sec. 502 of the bill). With respect to model year 1993 and 1994 automobiles, the credit could be as large as \$750 if the fuel economy of the vehicle exceeds by at least 25 percent the average fuel economy of the model type in which the vehicle falls. For years 1995 through 2000, the maximum credit would be \$2,000 per automobile purchased, and would apply if the fuel economy of the vehicle exceeds by at least 75 percent the average fuel economy of the vehicle model type.

This provision of the bill would be effective for taxable years ending after December 31, 1991.

F. S. 326—Senator Specter

Exclusion for Public Utility Subsidies for Energy Conservation Measures; Tax Credit for Retrofit of Residential Oil Heaters; Employer Deduction for Employee Parking

Exclusion for public utility subsidies for energy conservation measures

Section 201 of S. 326 would provide an exclusion from gross income for the value of any subsidy provided by a public utility for the purchase or installation of an energy conservation measure. For this purpose, an energy conservation measure would include residential energy conservation measures described in section 210(11) of the National Energy Conservation Policy Act,⁷ commercial energy conservation measures described in section 710(b)(5) of the National Energy Conservation Policy Act (as in effect on the day before the date of enactment of the Conservation Service Reform Act of 1986), and specially defined energy property under section 48(l)(5) of the Internal Revenue Code (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990).⁸

The bill also would deny a deduction or credit, or in appropriate cases require a reduction in adjusted basis of property, to the extent that a subsidy was excluded from the gross income of the recipient.

This provision of the bill would be effective with respect to amounts received (or paid) after the date of enactment.

Tax credit for retrofit of residential oil heaters

Section 301 of the bill would provide a cumulative nonrefundable income tax credit of up to \$100 to individuals for expenditures made to retrofit oil heaters used in a taxpayer's principal residence. Under the bill, qualifying expenditures would include ex-

⁶ The bill specifies that it would apply with respect to 1991 and later model year automobiles; however, the bill's amendments to the gas guzzler tax rates first apply with respect to 1992 model year automobiles.

⁷ 42 U.S.C. 8211(11).

⁸ Such property is discussed in detail in Part II.C.1. of this pamphlet.

penditures for flame retention replacement burners for oil burners (or similar items specified by the Secretary of the Treasury). The adjusted tax basis of the residence would not be increased to the extent that the expenditure is allowed as a credit.

This provision of the bill would be effective for taxable years beginning after December 31, 1990; the credit would not be available in any taxable year beginning after December 31, 1994.

Employer deduction for employee parking

Section 602 of the bill would affect an employer's ability to claim a deduction for costs associated with parking subsidies provided to employees. Under the bill, no deduction would be allowed for such employer-provided parking costs unless the employer provides the parking subsidy pursuant to an arrangement under which the employee may elect, in lieu of the subsidy, to receive cash or a mass transit, car pool, or van pool subsidy in an amount equal to the value of the parking subsidy.

This provision of the bill would be effective for taxable years beginning with the third taxable year beginning after the date of enactment of the bill.

G. S. 466—Senators Grassley and Daschle

Tax Credit for Production of Qualified Electricity; Extension of Business Energy Tax Credits

Tax credit for production of qualified electricity

S. 466 would provide a nonrefundable income tax credit for the domestic production (or the production within a U.S. possession) of electricity through the use of qualified technologies property. Qualified technologies property for this purpose would be property related to the production of energy from the following sources: solar thermal, photovoltaic, wind, geothermal (other than dry steam geothermal), biomass, and others identified by the Secretary of Treasury in consultation with the Secretary of Energy. Initially, the credit would be equal to 2.0 cents (scaled down incrementally to 0.3 cents by the year 2001, but adjusted for inflation) per kilowatt hour of electricity produced with qualified technologies property and sold to unrelated persons.⁹ The credit would offset the regular tax, but not the alternative minimum tax.

This provision of the bill would apply with respect to electricity sold after December 31, 1991, and before January 1, 2009, that is produced with qualified technologies property (for which a business energy tax credit is not allowed) which is placed in service after December 31, 1991, and before January 1, 2002.

Extension of business energy tax credits

In addition, the bill would extend for five years, through December 31, 1996, the current business energy tax credits for investments in qualified solar and geothermal energy property.

⁹ A 50-percent reduction in the amount of the credit would apply to electricity produced from qualifying geothermal properties.

H. S. 661—Senator Burns

Tax Credit for Production of Qualified Electricity; Extension of Business Energy Tax Credits; Tax Credit for Telecommuting

Tax credit for production of qualified electricity

S. 661 would provide a nonrefundable income tax credit for the domestic production (or the production within a U.S. possession) of electricity through the use of qualified technologies property (sec. 7101(a) of the bill). Qualified technologies property for this purpose would be property related to the production of energy from the following sources: solar thermal, photovoltaic, wind, geothermal (other than dry steam geothermal), biomass, and others identified by the Secretary of Treasury in consultation with the Secretary of Energy. Initially, the credit would be equal to 2.0 cents (scaled down incrementally to 0.3 cents by the year 2001, but adjusted for inflation) per kilowatt hour of electricity produced with qualified technologies property and sold to unrelated persons.¹⁰ The credit would offset the regular tax, but not the alternative minimum tax.

This provision of the bill would apply with respect to electricity sold after December 31, 1991, and before January 1, 2009, that is produced with qualified technologies property (for which a business energy tax credit is not allowed) which is placed in service after December 31, 1991, and before January 1, 2002.

Extension of business energy tax credits

In addition, section 7701(b) of the bill would extend for five years, through December 31, 1996, the present-law business energy tax credits for investments in qualified solar and geothermal energy property.

Tax credit for telecommuting

Finally, section 1105 of the bill would provide an income tax credit for employers who offer or expand telecommuting flex-place programs. The credit would be a component of the general business credit and would not exceed the estimated net gasoline savings of the employees participating in such programs. The credit would apply to years 1992 through 1996.

I. S. 679—Senator Bradley

Exclusion for Public Utility Subsidies for Residential Energy Conservation Measures

S. 679 would exclude from the gross income of a residential consumer the value of any financial assistance or service provided by a public utility for the purchase or installation of a residential energy conservation measure as described in section 210(11) of the National Energy Conservation Policy Act.¹¹ The bill would deny a deduction or credit, or in appropriate cases require a reduction in

¹⁰ A 50-percent reduction in the amount of the credit would apply to electricity produced from qualifying geothermal properties.

¹¹ 42 U.S.C. 8211(11).

adjusted basis of property, to the extent that a subsidy was excluded from the gross income of the recipient.

The bill would be effective with respect to amounts received (or paid) after the date of enactment.

J. S. 731—Senator Packwood (by request)

Extension of Business Energy Tax Credits

S. 731 would provide a one-year extension, through December 31, 1992, of the present-law business energy tax credits for investments in qualified solar and geothermal energy property (section 2 of the bill).

K. S. 741—Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams and S. 743—Senator Wirth¹²

Tax Credit for Production of Qualified Electricity; Extension of Business Energy Tax Credits; Exclusion for Employer-Provided Parking or Transportation; Tax Credit for Residential Oil Retrofit Components; Exclusion for Public Utility Subsidies for Energy or Water Conservation Measures; Excise tax on Purchase of Motor Vehicles With Low Fuel Economy

Tax credit for production of qualified electricity

S. 741 contains a number of provisions related to renewable energy sources and energy conservation. First, S. 741 would provide a nonrefundable income tax credit for the domestic production (or the production within a U.S. possession) of electricity through the use of qualified technologies property (sec. 801(a) of the bill). Qualified technologies property for this purpose would be property related to the production of energy from the following sources: solar thermal, photovoltaic, wind, geothermal (other than dry steam geothermal), biomass, and others identified by the Secretary of Treasury in consultation with the Secretary of Energy. Initially, the credit would be equal to 2.0 cents (scaled down incrementally to 0.3 cents by the year 2001, but adjusted for inflation) per kilowatt hour of electricity produced with qualified technologies property and sold to unrelated persons.¹³ The credit would offset the regular tax, but not the alternative minimum tax.

The tax credit for the production of electricity would apply to electricity sold after December 31, 1991, and before January 1, 2009, that is produced with qualified technologies property (for which a business energy tax credit is not allowed) which is placed in service after December 31, 1991, and before January 1, 2002.

Extension of business energy tax credits

In addition, the bill would provide a five-year extension, through December 31, 1996, of the present-law business energy tax credits

¹² The tax provisions of these two bills are identical. Section references in the text refer to section numbers of S. 741.

¹³ A 50-percent reduction in the amount of the credit would apply to electricity produced from qualifying geothermal properties. Solar energy systems that produce thermal energy for commercial and industrial applications would be allowed a credit equal to 65 cents per thermal kilowatt hour.

for investments in qualified solar and geothermal energy property (sec. 801(b) of the bill).

This provision of the bill would apply to taxable years beginning after December 31, 1991.

Exclusion for employer-provided parking or transportation

A third provision of the bill would limit the exclusion from an employee's gross income for employer-provided parking or transportation (sec. 811 of the bill). The bill would exclude from gross income only the value of parking provided to an employee at an employer-operated parking facility which is located on the employer's premises and substantially all the use of which is by employees of the employer. The value of all other employer-provided parking would be included in the gross income of the recipient.

With respect to employer-provided transportation, the exclusion would apply to up to \$75 per month of the value of employer-provided transportation between an employee's home and work that is provided in a commuter highway vehicle,¹⁴ or on buses, trains, boats, or subways that are available to the general public and are scheduled along regular routes.

This provision of the bill would be effective for parking and transportation provided after December 31, 1991.

Tax credit for residential oil retrofit components

Section 821 of the bill would provide a cumulative nonrefundable income tax credit of up to \$100 to individuals for expenditures to install oil retrofit components used in a taxpayer's principal residence. Under the bill, an oil retrofit component is an unused item (1) which is a flame retention replacement burner for an oil burner or a similar item as specified by the Secretary of the Treasury, (2) which increases the insulation value of the residence (or an item within the residence, such as a water heater or a window), (3) which is an automatic thermostat control, and (4) which can reasonably be expected to remain in operation for at least three years.¹⁵

This provision of the bill would be effective for taxable years beginning after December 31, 1991; the credit would not be available in any taxable year beginning after December 31, 1995.

Exclusion for public utility subsidies for energy or water conservation measures

Another provision of S. 741 would provide an exclusion from gross income for the value of any subsidy provided by a public utility for the purchase, installation, use, or maintenance of an energy or water conservation measure or for energy savings delivered by such measures (sec. 831 of the bill). For this purpose, an energy or water conservation measure would include residential energy conservation measures described in section 210(11) of the National

¹⁴ For this purpose, a commuter highway vehicle generally would be any highway vehicle which seats at least eight adults (plus the driver), and at least 80 percent of the mileage use of which could reasonably be expected to be for the purposes of transporting employees between their homes and work.

¹⁵ It appears unlikely that a single item can satisfy all of these criteria. This may be a typographical error in the bill.

Energy Conservation Policy Act,¹⁶ commercial energy conservation measures described in section 710(b)(5) of the National Energy Conservation Policy Act (as in effect on the day before the date of enactment of the Conservation Service Reform Act of 1986), specially defined energy property under section 48(1)(5) of the Internal Revenue Code (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990),¹⁷ and any device designed to reduce energy or water consumption. The exclusion would not apply to payments to a qualified cogeneration facility or a qualifying small power production facility.

The bill also would deny a deduction or credit, or in appropriate cases require a reduction in adjusted basis of property, to the extent that a subsidy was excluded from the gross income of the recipient.

This provision of the bill would be effective with respect to amounts received (or paid) after the date of enactment of the bill.

Excise tax on purchase of motor vehicles with low fuel economy

Finally, S. 741 would impose a tax on the domestic sale of new motor vehicles with low fuel economies (sec. 841 of the bill). The tax would apply if the vehicle's fuel economy is less than the sales-weighted average fuel economy of all new motor vehicles within the same class.¹⁸ The amount of the tax would be determined under the following formula:

$$\text{Tax} = \$10 \times (M - M^1)$$

where

M = the estimated annual fuel consumption of the vehicle, equal to 10,000 divided by the MPG rating of the vehicle, as determined by the EPA Administrator under section 2003(d) of title 15, United States Code; and

M¹ = the sales-weighted average fuel consumption of all motor vehicles in the same class as the vehicle.

In addition, the bill would impose a tax (or provide a rebate) on the domestic sale of motor vehicles based on the vehicles' safety performances in crash tests.

The bill does not provide a specific effective date for this provision.

L. S. 922—Senators Daschle and Grassley

Exclusion for Electric Utility Subsidies for Energy Conservation Measures

S. 922 would provide an exclusion from gross income for the value of any subsidy provided by an electric utility for the purchase or installation of an energy conservation measure. For this purpose, an energy conservation measure would include residential

¹⁶ 42 U.S.C. 8211(11). (It appears that the bill erroneously refers to section 219(11) of the National Energy Conservation Policy Act.)

¹⁷ Such property is discussed in detail in Part II.C.1. of this pamphlet.

¹⁸ Conversely, the bill would provide a rebate for the domestic purchase of a new motor vehicle with a fuel economy that is greater than the sales-weighted average fuel economy of all new motor vehicles within the same class.

energy conservation measures described in section 210(11) of the National Energy Conservation Policy Act,¹⁹ commercial energy conservation measures described in section 710(b)(5) of the National Energy Conservation Policy Act (as in effect on the day before the date of enactment of the Conservation Service Reform Act of 1986), and specially defined energy property under section 48(l)(5) of the Internal Revenue Code (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990).²⁰ The proposal would not apply to any payment to or from a qualified cogeneration facility or qualifying small power production facility pursuant to section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA).

The bill also would deny a deduction or credit, or in appropriate cases require a reduction in adjusted basis of property, to the extent that a subsidy was excluded from the gross income of the recipient.

The bill would be effective with respect to amounts received (or paid) after the date of enactment.

M. S. 1157—Senator Daschle

Application of Business Energy Tax Credits to the Alternative Minimum Tax

In the case of a corporation, S. 1157 would permit the present-law tax credits for investments in qualified solar energy and geothermal property to offset both the regular tax and the alternative minimum tax. The bill would be effective for taxable years beginning after December 31, 1991.

N. S. 1178—Senators Rockefeller, Danforth, Boren, D'Amato, Bingaman, and Nickles

Tax Deduction and Government Payment for Cost of Clean-Burning Motor Vehicle Property

S. 1178 would provide a current deduction for a portion of the cost of clean-burning motor vehicle property and clean-burning motor vehicle refueling property that is originally used by a taxpayer during a taxable year. In addition, S. 1178 would require the Federal Government to pay a State or local government for a portion of the cost of clean-burning motor vehicle property that is originally used by the State or local government.

Clean-burning fuel would be defined under the bill as natural gas, liquefied petroleum gas, and any other fuel if at least 85 percent of the fuel is methanol, ethanol, any other alcohol, ether, or any combination of the foregoing.

The amount of the current deduction for clean-burning motor vehicle property would be limited for each motor vehicle based on the type and size of the motor vehicle. In the case of an automobile or a light truck, the deduction would be limited to \$2,000. In the case of a medium-size truck, the deduction would be limited to \$5,000. In

¹⁹ 42 U.S.C. 8211(11).

²⁰ Such property is discussed in detail in Part II.C.1. of this pamphlet.

the case of a heavy truck or bus, the deduction would be limited to \$50,000.

The amount of the current deduction allowed any taxpayer (or a related person or predecessor) for clean-burning motor vehicle refueling property would be cumulatively limited to \$75,000 per refueling location.

In the case of an individual, the deduction for clean-burning motor vehicle property would be allowed as an adjustment to gross income rather than as an itemized deduction. Consequently, the deduction would not be subject to the present-law 2-percent adjusted gross income floor that otherwise applies to miscellaneous itemized deductions or to the phase out of itemized deductions in the case of taxpayers with adjusted gross income in excess of \$100,000.

The bill would apply to property placed in service after September 30, 1992, and before October 1, 2002.

II. DESCRIPTION OF TAX PROVISIONS AND PROPOSALS

A. INCENTIVES FOR USE OF RENEWABLE ENERGY SOURCES: SOLAR, GEOTHERMAL, WIND, AND BIOMASS

1. Tax credit for production of electricity

Present Law

There are no provisions in present law that permit taxpayers to claim income tax credits for the production of electricity from renewable sources. However, through 1991, a general business income tax credit equal to 10 percent of qualified cost is allowed for investments in solar energy property or geothermal property (Code sec. 48(a)). Solar energy property that qualifies for the credit includes any equipment that uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat. Geothermal property that qualifies for the credit includes equipment which produces, distributes, or uses energy derived from a geothermal deposit, but in the case of electricity generated by geothermal power, only property utilized up to (but not including) the transmission stage.

A production credit of \$3 per barrel or BTU equivalent (generally adjusted for inflation) is available to taxpayers who produce non-conventional fuels (Code sec. 29). Fuels qualifying for the credit must be produced domestically from a well drilled or a facility placed in service before January 1, 1993. The production credit is available for fuels sold before January 1, 2003. Qualifying fuels include: (1) oil produced from shale or tar sands; (2) gas produced from geopressurized brine, Devonian shale, coal seams, a tight formation (tight sands gas), or biomass; or (3) liquid, gaseous, or solid synthetic fuels produced from coal (including lignite).

Legislative Proposals

S. 466 (Senators Daschle and Packwood), S. 661 (Senator Burns), S. 741 (Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams), and S. 743 (Senator Wirth)

S. 466, S. 661, S. 741, and S. 743 would provide a nonrefundable income tax credit against the regular income tax for the production of electricity through the use of certain qualified technologies property. Qualified technologies property for this purpose would be property related to the production of energy through the following technologies: solar thermal, photovoltaic (direct conversion of solar energy to electricity), wind, geothermal (other than dry steam geo-

thermal), and biomass.²¹ The credit would be based on the amount of electricity generated and sold to unrelated parties between January 1, 1992, and January 1, 2009. Generally, the credit rate would equal 2 cents per kilowatt hour (kwh) in 1992 and would be gradually reduced (after 1996) to 0.3 cents per kwh in 2001 (these figures would be adjusted for inflation). Production of electricity from qualifying geothermal properties would be eligible for a credit equal to one-half the regular credit rate.²² The proposed credit would not be available for electricity generated by property with respect to which the solar or geothermal business energy tax credits had been claimed.

Analysis

A production tax credit for electricity produced using renewable energy sources attempts to target the tax subsidy to producers who may find it difficult to find an economically attractive market for their product, given current technology. Such a credit provides a larger subsidy for those producers who utilize renewable energy technology in a more intensive manner.

It has been argued that it is more costly to develop technology to provide electricity from renewable energy sources than from conventional sources. To the extent this is true, it may be desirable to provide incentives for taxpayers to develop renewable energy technology. The gradual reduction in the credit rate may be an appropriate means to reduce the reliance of the producers on government tax subsidies and to promote reliance on market prices for their output. If the development of renewable energy technology takes place in response to this credit, then the gradual phaseout of the credit may be offset by the lowered cost of generating electricity through renewable energy sources caused by technological advances in this area.

By providing a relatively long life for the credit, the bill may encourage producers to invest in projects that may have long lead times before they are brought on line. In addition, the adjustment of the credit rate for inflation is designed to prevent the value of the credit from eroding over time due to price level changes.

The production credit provides a tax subsidy to renewable energy technologies without regard to the level of capital investment. This contrasts with investment credits (e.g., the present-law business energy tax credits) that provide greater subsidies to projects that are more capital intensive.

To the extent the production credit promotes the substitution of renewable energy sources for fossil fuels in the generation of electricity, there should be a reduction in atmospheric pollutants, including "greenhouse" gases. Moreover, this substitution of renewable for non-renewable energy sources may enhance the energy in-

²¹ The Secretary of Treasury, in consultation with the Secretary of Energy, would have the authority to identify additional qualifying technologies that are similar to the technologies specified in the bill.

²² In S. 741 and S. 743, solar energy systems which produce thermal energy for commercial and industrial applications would be allowed a credit equal to 65 cents per thermal kilowatt hour.

dependence of the United States, since reductions in energy imports may result.

Some may argue that the proposed credit is overly generous, in light of the Clean Air Act and the Public Utility Regulatory Policies Act (which generally provide favorable treatment for independent power producers that sell electricity to public utilities). For example, electric utilities may be required to purchase power from independent generators at avoided cost, generally a relatively high cost source of generating power.²³ Some view this requirement as a subsidy for independent power generators, and the proposed credit would provide an even larger subsidy for those generators utilizing renewable energy technology.

In addition, there is no guarantee that the credit would benefit either the purchasing electric utility or its customers. This may be an important consideration because the electric utility industry generally is not considered to be a competitive industry, but instead, is regulated by state public utility commissions. For example, when a utility is required to purchase electricity at avoided cost, the credit would benefit the generator, and not flow through to the purchasing electric utility and its customers.

Finally, some critics would contend that a production credit is inefficient to the extent that some of the benefits go to taxpayers who would have undertaken the investment in renewable energy technologies even in the absence of the credit. This criticism may be addressed somewhat by providing a reduced credit rate to electricity generated from certain geothermal properties which may be thought to require a lower subsidy in order to encourage development.

2. Business energy tax credits

Present Law

Nonrefundable 10-percent income tax credits are allowed for investments in qualifying solar energy property and geothermal property (the "business energy tax credits"). Solar energy property that qualifies for the credit includes equipment which uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat. Qualifying geothermal property includes equipment which produces, distributes, or uses energy derived from a geothermal deposit, but, in the case of electricity generated by geothermal power, only up to (but not including) the electrical transmission stage.²⁴

The business energy tax credits are included in the general business credit (Code sec. 38(b)(1)). The business energy tax credits, when combined with all other components of the general business credit, generally may not exceed for any taxable year the excess of the taxpayer's net income tax over the greater of (1) 25 percent of net regular tax liability above \$25,000 or (2) the tentative minimum

²³ In this context, avoided cost means the amount the utility would otherwise have to pay to generate this electricity itself.

²⁴ For purposes of the credit, a geothermal deposit is defined as a domestic geothermal reservoir consisting of natural heat which is stored in rocks or in an aqueous liquid or vapor, whether or not under pressure (Code sec. 613(e)(2)).

tax. An unused general business credit generally may be carried back 3 years and carried forward 15 years.

The business energy tax credits have been extended on a short-term basis through a succession of statutes since 1986. The Omnibus Budget Reconciliation Act of 1990 extended these credits through the end of 1991, at which time the credits are scheduled to expire.

President's Budget Proposal

The President's fiscal year 1992 budget proposal would extend the business energy tax credits for solar energy and geothermal property for one year, through December 31, 1992.

Legislative Proposals

S. 141 (Senators Daschle and Packwood) S. 466 (Senators Grassley and Daschle), S. 661 (Senator Burns), S. 741 (Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams), and S. 743 (Senator Wirth)

S. 141, S. 466, S. 661, S. 741, and S. 743 would extend for five years, through December 31, 1996, the business energy tax credits for investments in solar energy property and geothermal property.

S. 731 (Senator Packwood)

S. 731 would extend for one year, through December 31, 1992, the business energy tax credits for investments in solar energy property and geothermal property.

S. 1157 (Senator Daschle)

Under S. 1157, the business energy tax credits for investments in qualified solar energy and geothermal property would be permitted to offset both the regular tax and the alternative minimum tax of a corporation.

Analysis

Extension of the credits

It has been argued that the cost of developing alternative sources of energy is often greater than the cost of producing energy from conventional sources. Thus, taxpayers may be more likely to produce energy from less-costly conventional sources. The business energy tax credits may provide economic incentives sufficient to cause taxpayers to undertake projects that develop energy from nonconventional sources where they would not otherwise do so.

Since 1986, the business energy tax credits have been extended on a short-term basis. This may have acted as a relative deterrent to investment in qualifying property since qualifying projects may have long lead-times before they are completed. Consequently, at the time such a project is planned, investors are uncertain whether the credit will be available when the property is eventually placed in service. By providing a longer extension of the credits, as opposed to extending them on a year-by-year basis, taxpayers may be more likely to invest in qualified property to be used in long-term projects.

On the other hand, it may be argued that the business energy tax credits have been in existence for a period of time (since 1978) that should have been sufficient to encourage production and sales of alternative fuels at efficient, self-sustaining levels. If those levels have not been reached to date, then it may be argued that the market for alternative sources of energy remains unattractive. If that is the case, it may be unlikely that those levels will be attained solely because a tax credit is available.

Others have argued that, like the regular investment tax credit (which was repealed by the Tax Reform Act of 1986), the business energy tax credits are inefficient subsidies to the extent that taxpayers would undertake qualifying investments even in the absence of the credit. Other legislation (e.g., the Clean Air Act and the Public Utility Regulatory Policies Act) promote the use of alternative energy sources; thus, the business energy tax credits may be superfluous in this context.

Alternative minimum tax

The alternative minimum tax, as added by the Tax Reform Act of 1986, requires corporate taxpayers to pay tax at a rate of 20 percent on a broad measure of their economic income. The alternative minimum tax was designed to assure that taxpayers with economic income pay some income tax. As such, most targeted tax benefits (so-called "tax expenditures") are not permitted to offset the tentative minimum tax. In general, the only tax credit permitted as a minimum tax offset is the foreign tax credit, and even in that case, it is not permitted to fully offset the tentative minimum tax.²⁵

One argument in favor of the proposal set forth in S. 1157 is that it would increase the tax incentive to invest in qualified solar and geothermal projects for persons that might otherwise be subject to the alternative minimum tax. To the extent that this provision would allow taxpayers to shelter all or a large portion of their income from tax, however, other taxpayers may view the proposal as inequitable. Also, creating an alternative minimum tax exception for one industry may be viewed as precedent for other industries seeking minimum tax relief.

B. Incentives for Cleaning-Burning Motor Vehicles and Refueling Property

Present Law

In determining taxable income for Federal income tax purposes, a taxpayer is allowed a deduction for the depreciation of property used in a trade or business or held for the production of income. The depreciation deduction for tangible property generally is determined under the accelerated cost recovery system as modified by the Tax Reform Act of 1986 (depreciation for real property is computed a straight-line method). Under this cost recovery system, the depreciation deduction for automobiles and light general purpose trucks is determined by using a 5-year recovery period and the 200-

²⁵ The allowance of a foreign tax credit is not considered a tax expenditure. Rather, it is a mechanism designed to prevent double taxation of the same item of foreign source income.

percent declining balance method (with a switch to the straight-line method for the taxable year that the straight-line method yields a higher depreciation deduction). The depreciation deduction for other tangible personal property generally is determined by using a recovery period that is based on the class life of the property and either the 150-percent declining balance method (for 15-year and 20-year property) or the 200-percent declining balance method (for most other tangible personal property).

In lieu of a depreciation deduction, a taxpayer may elect, subject to certain limitations, to deduct the cost of up to \$10,000 of qualifying property for the taxable year that the property is placed in service (Code sec. 179). For this purpose, qualifying property generally is defined as depreciable tangible property that is purchased for use in the active conduct of a trade or business.

Legislative Proposal

S. 1178 (Senators Rockefeller, Danforth, Boren, D'Amato, Bingaman, and Nickles)

S. 1178 would provide a current deduction for a portion of the cost of clean-burning motor vehicle property and clean-burning motor vehicle refueling property that is originally used by a taxpayer during a taxable year. In addition, the bill would require the Federal Government to pay a State or local government for a portion of the cost of clean-burning motor vehicle property that is originally used by the State or local government.

Under the bill, clean-burning motor vehicle property generally would be defined as (1) a motor vehicle that is produced and designed so that the vehicle may be propelled by a clean-burning fuel, but only to the extent of the portion of the basis of the vehicle that is attributable to an engine which uses such fuel, to the storage or delivery to the engine of such fuel, or to the exhaust of gases from the combustion of such fuel; and (2) any part or component that is designed to modify a motor vehicle that is propelled by a fuel which is not a clean-burning fuel so that the vehicle may be propelled by a clean-burning fuel (but only to the extent such part or component is an engine (or modification thereof) which uses a clean-burning fuel, or is attributable to the storage or delivery to the engine of such fuel, or to the exhaust of gases from the combustion of such fuel). In addition, in order for property to qualify as clean-burning motor vehicle property, the original use of the property must commence with the taxpayer and the property generally must satisfy any applicable Federal or State environmental standards.

Clean-burning motor vehicle refueling property generally would be defined as property that is used to store clean-burning fuel or to dispense clean-burning fuel into the fuel tank of a motor vehicle propelled by such fuel, but only if the fuel is stored at the same location where the fuel is delivered into the fuel tank of the motor vehicle. In order for property to qualify as clean-burning motor vehicle refueling property, the original use of the property must commence with the taxpayer. In addition, in order for a deduction to be allowed for the cost of clean-burning motor vehicle refueling

property, the cost of the property must be incurred in connection with a trade or business carried on by the taxpayer.

Clean-burning fuel would be defined as natural gas, liquefied petroleum gas, and any other fuel if at least 85 percent of the fuel is methanol, ethanol, any other alcohol, ether, or any combination of the foregoing.

The amount of the current deduction for clean-burning motor vehicle property would be limited for each motor vehicle based on the type and size of the motor vehicle. In the case of an automobile or a light truck,²⁶ the deduction would be cumulatively limited to \$2,000. In the case of a medium-size truck,²⁷ the deduction would be limited to \$5,000. In the case of a heavy truck²⁸ or bus, the deduction would be limited to \$50,000.

The amount of the current deduction allowed any taxpayer (or a related person or predecessor) for clean-burning motor vehicle refueling property would be cumulatively limited to \$75,000 per refueling location. For purposes of this limitation, two or more refueling locations that are located less than two miles apart and that are owned or controlled by the taxpayer or a related person are considered a single location. In addition, the Treasury Department is provided regulatory authority to ensure that this limitation is not circumvented.

The basis of any property with respect to which a current deduction is allowed would be reduced by the amount of the deduction. In addition, the recapture provisions of Code section 1245, which characterize certain gain from the disposition of property as ordinary income, would apply to the current deduction allowed for the cost of clean-burning motor vehicle property and clean-burning motor vehicle refueling property.

In the case of an individual, the deduction for clean-burning motor vehicle property would be allowed as an adjustment to gross income rather than as an itemized deduction. Consequently, the deduction would not be subject to the 2-percent adjusted gross income floor that otherwise applies to miscellaneous itemized deductions or to the phase out of itemized deductions in the case of taxpayers with adjusted gross income in excess of \$100,000.

The amount that the Federal Government would be required to pay a State or local government with respect to clean-burning motor vehicle property used by the State or local government would be determined under regulations prescribed by the Treasury Department. The amount generally would equal the present value of the incremental benefit that would be available by reason of the deduction if the State or local government were subject to the Federal income tax and the clean-burning motor vehicle property were used in a trade or business.

The bill would apply to property placed in service after September 30, 1992, and before October 1, 2002.

²⁶ A light truck would be defined as a truck with a gross vehicle weight rating of 10,000 pounds or less.

²⁷ A medium-size truck would be defined as a truck with a gross vehicle weight rating that is greater than 10,000 pounds but not greater than 26,000 pounds.

²⁸ A heavy truck would be defined as a truck with a gross vehicle weight rating that is greater than 26,000 pounds.

Analysis

The purpose of S. 1178 is to encourage individuals, businesses, and State and local governments to purchase (or convert to) motor vehicles that may be propelled by clean-burning fuels (and to encourage businesses to provide the related refueling equipment) in order to reduce (1) the atmospheric pollution caused by motor vehicles and (2) the dependence of the United States on imported petroleum products. Health problems and related medical expenses may be reduced as a result of decreased emissions from motor vehicles powered by clean-burning fuels. In addition, the dependence of the United States on imported petroleum products may be curtailed to the extent that motor vehicles are propelled by domestically produced natural gas, ethanol, or methanol instead of refined petroleum products.

Some may argue that it is unclear, however, whether an incentive to purchase motor vehicles propelled by clean-burning fuels should be provided through the Federal income tax system and whether the tax benefits contained in the bill are appropriate to achieve the desired behavior. It is believed by some that the Federal income tax law should be designed solely to collect revenue in a manner that is least disruptive to the economy. By providing an income tax incentive for motor vehicles that may be propelled by certain clean-burning fuels and not by other sources (for example, electricity), the bill may distort investment decisions and result in a misallocation of resources. In addition, by providing an income tax incentive for motor vehicles that may be propelled by ethanol or other alcohol in addition to the existing alcohol fuel credit (Code sec. 40), it may be argued that taxpayers may invest disproportionately in the development of ethanol and other alcohol as a clean-burning fuel.

As an alternative to the income tax benefits, the purchase of motor vehicles that are propelled by clean-burning fuels could be required for certain businesses and for State and local governments. Under the Clean Air Act Amendments of 1990, certain businesses will be required by revised State implementation plans to use motor vehicles that are propelled by clean fuels. It may be argued that it is inefficient to provide an income tax benefit to encourage behavior that is required by law.

It may also be argued that the Federal income tax system should not be used to provide subsidies to entities, such as State and local governments, that are not subject to the Federal income tax. A direct appropriation to State and local governments is likely to be administratively simpler than requiring State and local governments to file refund claims with the Internal Revenue Service. Further, the bill provides insufficient guidance on how the Treasury Department would determine the amount of the payments to State and local governments. A direct appropriation might avoid the difficulties involved in determining the amount of such payments.

C. Energy Conservation Subsidies

1. Exclusion for utility rebates

Background

Regulated utilities have recently undertaken a variety of programs to reduce the use of energy or water by both residential and business customers. The programs have different goals. For example, some electric utility programs attempt to control energy demand during peak capacity periods, while others attempt to control overall demand so as to avoid the construction of costly new generating facilities. Some water utility programs attempt to save valuable resources in drought-stricken areas. Other programs attempt to provide subsidies to low-income consumers. The programs also take different forms. Some programs provide reduced utility rates to consumers that volunteer to have power diminished during certain peak periods. Other programs provide cash payments to consumers that purchase or install energy efficient appliances or devices from third-party vendors. The treatment of these programs by public utility commissions (PUCs) also varies. Some PUCs allow the utility to recover only the utility's cost of the program from ratepayers; others allow the utility to earn a profit on the program's anticipated cost savings.

Present Law

Under section 8217(i) of the National Energy Conservation Policy Act, any subsidy provided by a utility to a residential customer for an energy conservation measure was excluded from gross income. This exclusion expired June 30, 1989. The IRS has ruled that cash payments by a utility to encourage the installation of alternative heating systems are includible in the gross income of the recipients.²⁹ The heating systems were installed by third-party vendors. In the ruling, the IRS distinguished the taxable utility payments from nontaxable automobile manufacturer rebates (which are treated as adjustments to the purchase price of the automobile) on the grounds that the heating systems in the ruling were purchased from third-party vendors and not from the utility.

Utilities are required to provide the IRS and recipients of taxable payments of \$600 or more with an information return (Form 1099).

Although the appropriate tax treatment is unclear, it generally is understood that utilities deduct the amount of the payments for the year of payment.

Legislative Proposals

S. 83 (Senator Symms), S. 326 (Senator Specter), S. 679 (Senator Bradley), S. 741 (Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams), S. 743 (Senator Wirth), and S. 922 (Senators Daschle and Grassley)

S. 83, S. 326, S. 679, S. 741, S. 743, and S. 922 would each provide an exclusion from gross income for the value of any subsidy provid-

²⁹ Technical Advice Memoranda 8924002.

ed by a public utility for the purchase or installation of an energy conservation measure. For these purposes, an energy conservation measure generally would include residential energy conservation measures described in section 210(11) of the National Energy Conservation Policy Act,³⁰ commercial energy conservation measures described in section 710(b)(5) of the National Energy Conservation Policy Act (as in effect on the day before the date of enactment of the Conservation Service Reform Act of 1986),³¹ specially defined energy property under section 48(l)(5) of the Internal Revenue Code (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990),³² or, in some cases, any other measure designed to reduce energy consumption. S. 679 defines an energy measure to only include residential energy conservation measures described in section 210(11) of the National Energy Conservation Policy Act. S. 83, S. 741, and S. 743 also apply to water conservation measures, which are defined as any device designed to reduce water consumption. In addition, S. 741, S. 743, and S. 922 provide that the exclusion would not apply to payments to a qualified cogeneration facility or a qualifying small power production facility pursuant to section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA).

The bills also would deny a deduction or credit, or in appropriate cases require a reduction in adjusted basis of property, to the extent that a subsidy was excluded from the gross income of the recipient.

The bills would be effective with respect to amounts received (or paid) after the date of enactment.

Administration Proposals

The Department of Energy's National Energy Strategy, released February 20, 1991, proposed excluding from gross income electric

³⁰ Such measures include: caulking and weather-stripping of doors and windows; furnace efficiency modifications including certain replacement burners, furnaces or boilers which are determined to increase energy efficiency, certain devices for modifying flue openings, and certain electrical or mechanical furnace ignition systems; clock thermostats; ceiling, attic, wall, and floor insulation; water heater insulation; storm windows and doors, multiglazed windows and doors, heat-absorbing or heat-reflecting glazed window and door materials; devices associated with load management techniques; devices to utilize solar energy or windpower for any residential energy conservation purpose; and such measures as the Secretary of Energy by rule identifies for this purpose. 42 U.S.C. 8211(11).

³¹ Such measures include an installation or modification to an installation which is primarily designed to reduce the consumption of petroleum, natural gas, or electric power in a multifamily dwelling or commercial building, including caulking and weather-stripping; insulation of the building or dwelling structure and systems within the building; storm windows and doors, multiglazed windows and doors, heat-absorbing and heat-reflecting window and door systems, glazing, reductions in glass areas, and other window and door modifications; automatic energy control systems and associated equipment, furnace efficiency modifications including certain replacement burners, furnaces or boilers which are determined to increase energy efficiency, certain devices for modifying flue openings, and certain electrical or mechanical furnace ignition systems; certain replacements or modifications of lighting systems which increase energy efficiency without generally increasing overall illumination; energy recovery systems; cogeneration systems which produce electricity, as well as steam or other forms of thermal or mechanical energy, and which meet such fuel efficiency requirements as the Secretary of Energy may, by rule, prescribe; certain solar energy systems; and such measures as the Secretary of Energy by rule identifies for this purpose. 42 U.S.C. 8281(b)(5).

³² That section included the following types of property: A recuperator, a heat wheel, a regenerator, a heat exchanger, a waste heat boiler, a heat pipe, an automatic energy control system, a turbulator, a preheater, a combustible gas recovery system, an economizer, modifications to alumina electrolytic cells, and modifications to chlor-alkali electrolytic cells. This provision was repealed in the Omnibus Budget Reconciliation Act of 1990.

bill discounts that utilities grant to consumers that make investments in energy efficiency. However, cash payments from utilities to customers would be includible in gross income. The report also stated that the IRS should issue a ruling providing that the utility should capitalize the amount of the cash payments as an intangible asset.

Analysis

In general

Encouraging the purchase of energy-efficient appliances and machinery through tax-free utility rebates may foster some degree of energy conservation which helps promote energy independence and indirectly reduces pollution. To the extent overall energy consumption is decreased, utilities may build fewer generating and transmission facilities to meet future demand. Tax exemption could be tailored only to certain services, customers, or programs in order to reward only those that are the most energy efficient. However, favoring purchases of certain appliances or devices over other forms of energy conservation (such as turning down thermostats) may not necessarily generate energy conservation in the most efficient manner and may simply provide a windfall to the recipient of the tax benefit (particularly, if the consumer would have purchased the appliance without the added inducement of the tax benefit). For these and other reasons, it may be argued that energy programs generally would be more efficiently funded through direct appropriations and not the Federal income tax system.

The present-law treatment of the various types of current energy saving programs is unclear; some may be subject to tax while others may not. Some utility rebate programs may be sufficiently similar to nontaxable direct vendor rebate programs as to warrant the same tax treatment (i.e., exclusion from gross income of the recipient). Exempting payments from all conservation programs would clarify the law.

On the other hand, some utility rebate payments are clearly in the nature of compensation to consumers for specified behavior. Such compensation generally is subject to Federal income tax and should be included in the income of the recipient. In addition, permitting utility rebates to be excludible from the gross income of the recipient may create a mismeasurement of income problem within the tax system to the extent that a deduction from income is permitted for the cost of the rebate by the utility, with no corresponding income inclusion by the consumer.

Utility conservation rebates may cause compliance problems. Many payments made to residential customers are in amounts less than \$600 and are not required to be reported by the utility to the IRS or the customer. Thus, it is possible that a significant number of individuals are unaware of the present-law requirement to include such amounts in income. In addition, the lack of information reporting may hamper the ability of the IRS to audit taxpayer compliance with this requirement.

Finally, utility rebate programs differ by company. Providing an exclusion for all such utility rebates may be geographically inequitable. In addition, the granting of the tax expenditure through var-

ious utility rebate programs is not subject to Congressional oversight.

Differences among the bills

There are differences among the various bills. For example, S. 679 only applies to certain specific energy-saving measures that relate to residential buildings. Other listed bills apply to energy-saving measures that relate to not only residential and commercial buildings, but also to any "other measure designed to reduce energy consumption." Presumably, this broad definition would include industrial utility customers. Providing a broad range of qualified recipients may be over-inclusive and may include less efficient energy-saving programs; providing a limited range of qualified recipients may create definitional problems (e.g., some structures are multipurpose—both residential and commercial or both commercial and industrial).³³ In addition, payments to commercial and industrial consumers are more likely to be above the information reporting threshold (\$600) than are payments to residential consumers.

S. 83, S. 741, and S. 743 would also apply to measures that are designed to reduce water consumption. The conservation benefits of such programs may be different from the conservation benefits from energy-saving programs. Thus, it may not be appropriate to provide the same tax benefit to both types of programs.

Finally, S. 741, S. 743, and S. 922 each provide that the tax exclusion does not apply to payments made to a qualified cogeneration facility or a qualifying small power production facility. By not containing such a provision, S. 83 and S. 326 would presumably allow exclusions for PURPA payments made with respect to such facilities, since it could be argued that one of the primary goals of PURPA is energy conservation. This situation might permit the utility and the independent power producer to bargain over both the size and character (i.e., non-taxable conservation subsidy versus taxable revenue from sales) of the payments. The qualification of the PURPA payments for the tax exclusion may effectively exempt the operators of such facilities from tax. Congress may wish to consider whether it is appropriate to provide operators of qualified cogeneration facilities or qualifying small power production facilities benefits over and above those provided by PURPA itself.

2. Tax credit for oil retrofit components

Present Law

No tax credit is available under present law for taxpayers who undertake energy conservation measures for their personal residences. Generally, the amount of such expenditures increase the taxpayer's adjusted basis in the residence.

Prior Law

Under prior law, a nonrefundable income tax credit was available to homeowners and renters for certain purchases that in-

³³ However, it should be noted that PUCs and utilities in some service areas distinguish among types of customers in establishing and charging utility rates.

creased the energy efficiency of their residences (the "residential energy credit").³⁴ The credit was equal to 15 percent of the first \$2,000 of qualified expenditures over the life of the credit, meaning that a maximum credit of \$300 could be claimed by a taxpayer. Qualified expenditures were those incurred after December 31, 1977, and before January 1, 1986.

Qualified expenditures included insulation, replacement burners and devices to modify flue openings to increase fuel efficiency, electrical or mechanical furnace ignition devices that replaced pilot lights, storm or thermal windows or doors, automatic setback thermostats, caulking or weather-stripping, or energy usage meters. Under prior law, expenditures to retrofit oil burners to increase energy efficiency constituted qualified expenditures for purposes of the residential energy credit.

Legislative Proposals

S. 326 (Senator Specter), S. 741 (Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams), and S. 743 (Senator Wirth)

S. 326, S. 741, and S. 743 would provide a non-refundable income tax credit for expenditures made for qualified oil retrofit components used in taxpayers' principal residences. The credit would equal 100 percent of the expenditures, up to a lifetime limit of \$100 for any taxpayer. S. 326 specifies that qualified retrofit expenditures are unused flame retention replacement burners for oil burners (or similar items specified by the Secretary of Treasury). S. 741 and S. 743 specify that qualified retrofit expenditures are items (1) which are unused flame retention replacement burners (or similar items specified by the Secretary of Treasury), (2) which increase the insulation value of the residence (or of an item within the residence, such as a water heater or window), (3) which are automatic thermostat controls, and (4) which can reasonably be expected to remain in operation for at least three years.³⁵ Retrofit expenditures made with subsidized energy financing (including grants and low interest loans) from a Federal, State, or local program, would not be qualified expenditures for purposes of the credit. Any credit claimed would reduce the tax basis of the taxpayer's residence. Generally, the proposals would be effective for taxable years beginning after December 31, 1991, no credit would be allowed for taxable years beginning after December 31, 1995.³⁶

Analysis

The proposals are designed to target tax subsidies to those taxpayers who have yet to undertake qualified retrofit projects. The credit is not directly related to the increased energy efficiency of the property installed, since all qualifying expenditures receive a credit of 100 percent of the first \$100 of expenditure. If the cost of a

³⁴ Public Law 95-618.

³⁵ It appears unlikely that a single item can satisfy all of these criteria. This may be a typographical error in the bill.

³⁶ Note, however, that the effective date of S. 326 is for taxable years beginning after December 31, 1990, and no credit would be allowed for taxable years beginning after December 31, 1994.

qualified retrofit expenditure exceeds \$100, the credit would not affect the marginal behavior of the taxpayer (that is, increase the energy efficiency of whatever expenditure is made). However, the credit may encourage a taxpayer to engage in the one-time purchase of a significant capital improvement.

To the extent the credit influences taxpayer behavior and increases the utilization of oil retrofit components, the consumption of fuel in retrofitted homes should decline. This conservation of energy could help reduce oil imports into the United States and reduce emissions of pollutants, including "greenhouse" gases.

To the extent that the market price of oil is sufficient by itself to induce conservation, the provision of the retrofit credit may be seen as providing a windfall to taxpayers who would have undertaken the purchase of oil retrofit components even in the absence of the credit program. In this situation, the existence of the credit would not add significantly to the total amount or speed of investment in oil retrofit conservation technology.

The proposed credit might potentially bias conservation efforts in favor of qualified oil retrofit expenditures, and away from other conservation measures such as increased insulation, thermal windows and doors, lowered thermostat settings, etc. Moreover, it is uncertain if the market for oil retrofit components is sufficiently competitive that the entire value of the proposed credit, would accrue to the taxpayers claiming the credit, rather than being partially captured by the purveyors of oil retrofit components in the form of higher retail prices for these items.

The proposed credit may be perceived as inequitable to the extent it is targeted to the relatively small portion of the U.S. population that uses oil-fired burners to heat their homes. The Energy Information Administration reports that, in 1987, 12.2 million households used home heating oil or kerosene as their primary heating source (out of a total 90.5 million households in the United States).³⁷ Moreover, the same source shows the percentage of households using oil heat to be declining over time as newer homes tend to use natural gas or electricity as the primary heating source.

There is substantial evidence to indicate that potentially large energy conservation gains remain among the lowest income households. A non-refundable credit is of limited value to these households who generally are not subject to Federal income tax. Moreover, the credit is not available to landlords, and may not provide an effective subsidy to those households consisting of renters who would be unlikely to purchase a capital improvement that would ultimately benefit the owner of the residence.

³⁷ Energy Information Administration, *Annual Energy Review 1989*, Department of Energy, May 1990.

D. Parking and Transportation Subsidies: Treatment of Employer-Provided Parking or Commuting Costs

Present Law

Under present law, gross income does not include a fringe benefit that qualifies as a de minimis fringe (Code sec. 132). In general, a de minimis fringe is any property or service the value of which (after taking into account the frequency with which similar fringes are provided by the employer to employees) is so small as to make accounting for it unreasonable or administratively impracticable.

Under Treasury regulations, employer-provided public transit passes, tokens, fare cards, etc., are considered de minimis fringe benefits if the employer-provided value of the benefit does not exceed \$15 per month. This exclusion does not apply to the provision of any benefit to defray public transit expenses incurred for personal travel other than commuting. If the benefit exceeds \$15 per month, then the total value of the benefit is includible in gross income. The Treasury Department has issued proposed regulations stating that, to reflect increases in the cost of living, the \$15 per month exclusion will be raised to \$21 per month effective for benefits provided on or after July 1, 1991.

Present law provides an unlimited exclusion for the value of parking provided to employees on or near the business premises of the employer.

An employer generally may deduct expenses associated with employer-provided parking or mass transit as trade or business expenses.

Under prior law, certain employer-provided transportation between an employee's residence and place of work provided in a commuter highway vehicle was excluded from gross income. This exclusion expired for taxable years beginning after December 31, 1985.

Legislative Proposals

S. 26 (Senators Moynihan, Packwood, D'Amato, Kasten, DeConcini, Chafee, and Lautenberg), S. 129 (Senators Mitchell and Cranston), S. 741 (Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams), and S. 743 (Senator Wirth)

In general, S. 26, S. 129, S. 741, and S. 743 would each provide an unlimited exclusion from gross income for employer-provided commuting in a commuter highway vehicle (e.g., van pooling) and would eliminate the present-law cliff on the exclusion for employer-provided transit passes and increase the amount that could be excluded from gross income. The transit pass exclusion would apply to up to (1) \$30 per month under S. 129, (2) \$60 per month under S. 26, and (3) \$75 per month under S. 741 and S. 743.

S. 741 and S. 743 would also modify the exclusion for employer-provided parking by providing that it applies only to parking operated by the employer on the business premises of the employer and only if substantially all the use of the parking is by employees of the employer.

S. 326 (Senator Specter)

S. 326 would provide that no deduction is allowable to an employer for costs associated with parking subsidies provided to employees unless the employer provides the subsidy pursuant to an arrangement under which the employee may elect, in lieu of the subsidy, to receive cash or a mass transit, car pool, or van pool subsidy in an amount equal to the value of the parking subsidy.

S. 661 (Senator Burns)

S. 661 would provide an income tax credit for employers who offer or expand telecommuting flex-place programs. The credit would be a component of the general business credit (Code sec. 38), and would not exceed the estimated net gasoline savings of the employees participating in such programs. The credit would apply to years 1992 through 1996.

Analysis

Commuting subsidies

Present law provides more favorable income tax treatment for employer-provided parking than for employer-provided mass transit subsidies. Critics of present law argue that this treatment is inappropriate both from a tax policy perspective and from an environmental and energy perspective.

From a tax policy point of view, some may argue there is no reason to exclude from income any employer-provided commuting expenses—whether for parking or for use of mass transit or commuter vehicles. All such amounts should be includible in gross income as compensation.

From an environmental perspective, critics of present law argue that the unlimited exclusion for parking encourages people to drive rather than use mass transit. Thus, some of the legislative proposals attempt to make the tax laws more neutral between forms of commuting by expanding the exclusion for nonparking commuting expenses.

It is unclear whether expanding the exclusion for nonparking expenses alone will result in the desired behavioral response. Some argue that there will be little change from driving to commuting by other means unless drivers face some or all of the cost of parking; i.e., unless the cost of driving and parking is substantially increased relative to the cost of other means of commuting.³⁸ Thus, they argue that the exclusion for parking should be limited or eliminated.

Some people argue that another way to make employees bear some of the cost of parking is to give employees a choice between excludable parking, cash, or mass transit subsidies.³⁹ That is, to apply a proposal similar to S. 326 at the employee level. Such a proposal may encourage some employees to take cash instead of

³⁸ See, for example, Richard Willson and Donald Shoup, "Parking Subsidies and Travel Choices: Assessing the Evidence," *Transportation*, vol. 16, 1990.

³⁹ This point has been made by Donald Shoup and Richard Willson, in "Employer-Paid Parking: The Influence of Parking Prices on Travel Demand," a paper presented at the Commuter Parking Symposium, Seattle, December 1990.

parking, and then use some or all of the cash to pay for commuting. On the other hand, to the extent such a proposal would allow employees to convert cash compensation into a nontaxable benefit such as parking, it may actually induce more people to drive, and may also result in a greater revenue loss.

Any proposals that require valuing employer-provided parking could create administrative problems for both the IRS and taxpayers. This determination could be particularly difficult in areas that do not have a significant market for paid parking. Valuation issues could be reduced somewhat by adopting a safe harbor rule for valuing parking or if parking up to some specified amount is excludable from income. In the latter case, only parking in excess of the cap need be valued.

S. 326 adopts an alternative approach and denies the employer a deduction for certain employer-provided parking expenses. Some argue that this approach is less desirable than those that affect employees because the employer should in any event be entitled to a deduction for compensation. Moreover, this proposal would treat tax-exempt employers differently than fully taxable employers since only the latter are affected by the denial of a deduction. This distinction may be viewed as inequitable. The proposal would also create administrative problems—for example, the employer cost of subsidized parking may be difficult to determine in some cases (e.g., it is unclear what portion of a depreciation deduction should be denied if the parking were provided in a building owned by the employer).

Tax credit for telecommuting

It is technologically possible for some workers to perform their employment-related tasks without necessarily being present at a particular location. For example, some workers may be able to complete the same tasks at home as they could at their ordinary place of work. Maintaining telecommunications links between an employee's home and place of employment may be an effective substitute for requiring the employee to commute to the place of employment. Through so-called "telecommuting," the congestion and atmospheric pollution caused by automobile commuting could be mitigated. A tax credit for the employer's costs incurred in setting up and maintaining telecommuting programs is intended to provide encouragement for such programs. To the extent that social costs such as congestion and pollution (called externalities by economists) are not reflected in the private decision about whether to commute by automobile, a tax subsidy for telecommuting may be one way to address this imbalance between social and private costs.

The proposal would provide a credit for up to 100 percent of the costs incurred by an employer in offering or expanding a telecommuting program for its workforce. The credit amount would be capped by the estimated net savings in gasoline costs for the employees included. This credit may be perceived as overly generous to the employers involved, since it is based on all costs incurred that are related to implementation of the telecommuting program, not just on the additional costs incurred in excess of ordinary business needs. Under the bill, taxpayers would have the incentive to

reclassify expenditures as being related to the telecommuting program in order to maximize the amount of credit that could be claimed.

The proposed credit would provide greater benefits to certain industries than to others. For instance, attorneys may be able to perform much of their work at home, while machine operators may not. The benefit of the credit, then, would likely be unevenly distributed across the economy.

Finally, the limitation on the credit to an amount equal to estimated net gasoline savings could have arbitrary consequences. It may be perceived as unfair that two similar employers who incur similar costs in setting up telecommuting programs receive differing amounts of credit because one employer's workers happen to commute a greater distance (on average) than do the workers of the other employer. In addition, the bill's requirement that the employer compute its employees' estimated gasoline savings (net of Federal, State, and local excise taxes) may impose administrative complexities on the employer.

E. Proposals to Encourage Use of Fuel Efficient Automobiles

Present Law

An excise tax (the "gas guzzler" tax) is imposed on automobiles that do not meet statutory standards for fuel economy (Code sec. 4064). The gas guzzler tax is imposed on the manufacturer or importer of the automobile and generally applies to passenger automobiles with unloaded gross vehicle weights of 6,000 pounds or less. The amount of tax varies according to the fuel efficiency of a model of automobile. For 1991 and thereafter, no gas guzzler tax is imposed if the fuel economy of the automobile model is at least 22.5 miles per gallon (as determined by the Environmental Protection Agency). For the automobile models that do not meet that standard, the tax begins at \$1,000 and increases to \$7,700 for the automobile models with fuel economy ratings of less than 12.5 miles per gallon.⁴⁰ In general, the gas guzzler tax does not apply to light trucks and vans.

The table below presents the tax applicable to each automobile.

Fuel Economy (miles per gallon)	Tax
At least 22.5.....	0
At least 21.5 but less than 22.5.....	\$1,000
At least 20.5 but less than 21.5.....	1,300
At least 19.5 but less than 20.5.....	1,700
At least 18.5 but less than 19.5.....	2,100
At least 17.5 but less than 18.5.....	2,600
At least 16.5 but less than 17.5.....	3,000
At least 15.5 but less than 16.5.....	3,700
At least 14.5 but less than 15.5.....	4,500
At least 13.5 but less than 14.5.....	5,400
At least 12.5 but less than 13.5.....	6,400
Less than 12.5.....	7,700

⁴⁰ The Omnibus Budget Reconciliation Act of 1990 doubled the prior tax rates, from beginning at \$500 and increasing to \$3,850, effective on January 1, 1991. The prior tax rates applied for 1986 through 1990.

*Legislative Proposals**S. 201 (Senators Gore and Wirth)**In general*

S. 201 generally would increase the fuel efficiency threshold below which the gas guzzler tax applies and increase the amount of the tax for 1992 and later model year automobiles. The bill also would provide a credit against the regular income tax to the manufacturer for each qualified passenger vehicle if the vehicle's fuel economy rating exceeds, by a specified percentage, the average fuel economy of such vehicle's model type.

Rates of tax

The bill generally would increase the fuel efficiency threshold for vehicles subject to the gas guzzler tax by one mile per gallon per year for each model year between 1992 and 2000. For example, under present law the threshold fuel economy below which vehicles are subject to tax is 22.5 miles per gallon (MPG). Under S. 201, in the 1992 model year, vehicles with fuel economies less than 23.5 miles per gallon would be subject to tax; and in the 1993 model year, vehicles with fuel economies less than 24.5 miles per gallon would be subject to tax. In addition, the bill would annually increase the rate of tax applicable to vehicles with fuel economies below the threshold. The tables below report the tax which would apply under S. 201 for model year 1992 and for model year 2000 and beyond. The tables which would apply in intervening model years 1993-1999 are presented in the Appendix.

1992 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 23.5.....	0
At least 22.5 but less than 23.5.....	\$1,000
At least 21.5 but less than 22.5.....	1,300
At least 20.5 but less than 21.5.....	1,700
At least 19.5 but less than 20.5.....	2,200
At least 18.5 but less than 19.5.....	2,800
At least 17.5 but less than 18.5.....	3,500
At least 16.5 but less than 17.5.....	4,300
At least 15.5 but less than 16.5.....	5,200
At least 14.5 but less than 15.5.....	6,200
At least 13.5 but less than 14.5.....	7,200
At least 12.5 but less than 13.5.....	8,200
Less than 12.5.....	9,200

2000 and later model year automobiles

Fuel economy (miles per gallon)	Tax
At least 31.5.....	0
At least 30.5 but less than 31.5.....	\$1,000
At least 29.5 but less than 30.5.....	1,300
At least 28.5 but less than 29.5.....	1,700
At least 27.5 but less than 28.5.....	2,200
At least 26.5 but less than 27.5.....	2,800
At least 25.5 but less than 26.5.....	3,500
At least 24.5 but less than 25.5.....	4,300
At least 23.5 but less than 24.5.....	5,200
At least 22.5 but less than 23.5.....	6,200
At least 21.5 but less than 22.5.....	7,200
At least 20.5 but less than 21.5.....	8,200
At least 19.5 but less than 20.5.....	9,200
At least 18.5 but less than 19.5.....	10,200
At least 17.5 but less than 18.5.....	11,400
At least 16.5 but less than 17.5.....	12,400
At least 15.5 but less than 16.5.....	13,400
At least 14.5 but less than 15.5.....	14,400
At least 13.5 but less than 14.5.....	15,400
Less than 13.5.....	16,400

The rates of tax specified in the above tables would be indexed for the rate of inflation using the GNP deflator and using 1991 as the base year for indexing.

Rates of credit

The following tables specify the amount of credit applicable to qualifying vehicles for model years 1993 and beyond.

Model years 1993 and 1994

Percentage by which a vehicle's fuel economy exceeds model type average fuel economy	Amount of credit
Less than 15 percent.....	0
15 to less than 20 percent.....	\$250
20 to less than 25 percent.....	400
25 percent or greater.....	750
Less than 20 percent.....	0
20 to less than 25 percent.....	\$400
25 to less than 30 percent.....	750
30 to less than 50 percent.....	1,000
50 to less than 75 percent.....	1,500
75 percent or greater.....	2,000

The amount of credit would not be indexed for inflation. The total credit allowed the taxpayer would not exceed the excess of the regular income tax for the taxable year reduced by the sum of credits allowed under code sections 27 (the foreign tax credit), 28 (the credit for clinical testing expenses for certain drugs for rare diseases or conditions), and 29 (the nonconventional fuels production credit) over the tentative minimum tax.

Effective date

The taxes imposed or increased under S. 201 would be effective with respect to 1992 and later model year automobiles. The tax credit would be effective for taxable years ending after December 31, 1991.

S. 741 (Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams) and S. 743 (Senator Wirth)

In general

S. 741 and S. 743 would retain the present-law gas guzzler tax and, in addition, would impose a tax at the time of sale on the purchase of each new motor vehicle sold in the United States, the fuel economy of which, as determined by the Administrator of the Environmental Protection Agency (EPA), is less than the sales-weighted average fuel economy of all new motor vehicles within the same class. The bills also would provide a rebate voucher at the time of purchase to the purchaser of each new motor vehicle purchased in the United States, the fuel economy of which exceeds the sales-weighted average fuel economy of all new motor vehicles within the same class.

In addition, the bills would impose a tax at the time of sale on the purchaser of each new motor vehicle sold in the United States, the composite safety factor of which is less than the sales weighted average composite safety factor of all new motor vehicles within the same class. A rebate voucher would be given at the time of purchase to the purchaser of each new motor vehicle purchased in the United States, the composite safety factor of which exceeds the sales-weighted average composite safety factor of all new motor vehicles within the same class. Rebate vouchers must be presented to the Secretary of the Treasury for payment of the rebate amount. Any such rebate received would be deemed a reduction in the price paid for the motor vehicle rather than income for Federal income tax purposes.

Calculation of tax and rebate

Fuel economy tax/rebate.—The fuel economy tax/rebate would be calculated by a formula which assesses a tax (rebate) of \$10 for each gallon of gasoline estimated to be consumed annually by a given vehicle in excess of (less than, in the case of a rebate) the estimated average annual fuel consumption of all motor vehicles within that vehicle's class. The estimated average annual fuel consumption of a vehicle is determined by dividing 10,000 miles by the EPA estimated miles per gallon (MPG) rating of the vehicle. The computation of the estimated average fuel consumption of the vehicle's class is described below. The explicit formula is:

$$\text{Tax/rebate} = \$10 \times [M - M^1], \text{ where}$$

M = 10,000/mpg of vehicle, and

M¹ = estimated average annual fuel consumption of all vehicles in the vehicle's class.

Vehicle safety tax/rebate.—The vehicle safety tax/rebate would be calculated by a formula which assesses a tax (rebate) of \$10 for each unit by which the composite safety factor of a vehicle exceeds (is less than, in the case of a rebate) the sales-weighted average composite safety factor of all motor vehicles within that vehicle's class. The explicit formula is:

$$\text{Tax/rebate} = \$10 \times [S - S^1], \text{ where}$$

S = composite safety factor of vehicle, and

S¹ = average composite safety factor of all vehicles in the vehicle's class.

The composite safety factor (S) is determined by crash test data gathered from tests conducted at 35 miles per hour under the test protocol set forth in 49 CFR section 571.208. The tests provide data on dummies positioned in driver's and front passenger's seats. For each dummy the Head Acceleration (H), Thorax Acceleration (T), and Left Leg Force (L) and Right Leg Force (R) are measured. The bills would compute a Driver's Injury Factor and a Passenger's Injury Factor as:

$$\text{Driver's Injury Factor} = H + (12.525 \times T) + (0.11) \times L + (0.11) \times R$$

$$\text{Passenger's Injury Factor} = H + (12.525 \times T) + (0.11) \times L + (0.11) \times R$$

The composite safety factor would then be determined as 0.1 multiplied by the sum of the Driver's Injury Factor plus one-half the value of the Passenger's Injury Factor.

Computation of vehicle class averages

Fuel consumption.—The sales weighted average fuel consumption applicable to the next model year would be calculated by first determining the average estimated fuel consumption of all vehicles

sold during the 12-month period spanning the first half of the current model year and the last half of the preceding model year. The average fuel consumption of such vehicles would be as determined by the Administrator of the EPA under section 2003(d) of title 15, United States Code. This average would then be adjusted ⁴¹ by the percentage change in average fuel economy for the preceding 12-month period.

Average composite safety factor.—The average composite safety factor for a vehicle class would be calculated by first determining the sales weighted average composite safety factor of all vehicles sold in the vehicle class in the 12-month period spanning the last half of the preceding model year and the first half of the current model year. This average would then be adjusted ⁴² by the percentage change in such average from the preceding 12-month period.

Other

The average fuel economy figures and average composite safety figures would be required to be determined no later than July 1 of each year. The fuel economy and safety tax/rebate applicable to each motor vehicle would be required to be published by the Secretary of the Treasury no later than July 31 of each year.

For motor vehicles propelled by fuels other than gasoline, the Secretary of the Treasury would be required to determine an equivalent estimated fuel consumption based on the amount of carbon dioxide emissions produced by such vehicles when compared to gasoline-powered vehicles.

The Secretary of the Treasury would be authorized to modify the composite safety factor formula to account for other factors such as side impact collisions or anti-lock braking systems, provided that the total value of safety taxes collected does not differ by more than 10 percent from the total value that would have been collected under the formula specified above.

Effective date

Neither bill provides a specific effective date for this provision.

Analysis

Taxes on specific automobiles to encourage energy conservation (or safety)

If the tax or credit is passed on to the consumer in the form of higher (lower, in the case of the credit) prices, through time, the demand for less fuel efficient cars should decline while the demand for more fuel efficient cars should increase. If the tax (credit) is borne by the producer in the form of lower (higher, in the case of the credit) profits per vehicle, manufacturers will find relatively less fuel efficient cars less profitable than currently may be the case. The profit motive, then, may induce manufacturers to produce more fuel efficient automobiles. Similarly, a tax or credit based on the measured safety performance of automobiles would be expected to change consumer choice among automobiles.

⁴¹ The bills do not specify, but imply the adjustment shall be an increase.

⁴² The bills do not specify, but imply the adjustment shall be an increase.

At present, the market for fuel efficient automobiles is dominated by imported automobiles. In the short run, a tax or credit rewarding fuel efficiency may lead to increased sales of imported cars at the expense of domestic manufacturers. To the extent that domestically manufactured automobiles outperform imported automobiles in crash tests, a tax based on safety may relatively benefit domestic manufacturers.

The impetus for the gas guzzler tax was to use the force of market prices to encourage purchasers of automobiles to choose models which are relatively more fuel efficient, and thereby generally foster energy conservation.⁴³ It is correct that to the extent the tax is passed on to the automobile purchaser and to the extent automobile purchasers are responsive to price differences, the present-law gas guzzler tax discourages the purchases of relatively less fuel efficient cars. However, the efficiency of imposing a gas guzzler tax with the goal of generating energy conservation more generally has been questioned.

The cost of each mile driven is less costly in a more fuel efficient automobile than in a less fuel efficient automobile. This may induce drivers to drive fuel efficient cars more than they otherwise would have in a less fuel efficient car. By raising the cost of new cars, the tax also may induce some consumers to retain and use their older, less fuel efficient cars longer.

In addition, automobile designs to achieve fuel efficiency may result in patterns of usage by consumers which lead to increased mileage per car. For example, smaller cars generally are more fuel efficient than larger cars. Smaller cars, however, generally have smaller seating capacity. As a result, parents may have to utilize three small, fuel efficient cars to transport their children's soccer team rather than two, larger, less fuel efficient cars. In addition, because the cost of the vehicle has been affected rather than the cost of fuel, drivers may not change driving habits to maximize fuel economy (e.g., driving slower). As a consequence, the gains in average automobile fuel economy may not necessarily completely translate into gains in energy conservation. Table 1 presents data on the average annual mileage per passenger car in the United States and the average fuel efficiency of passenger cars in the United States.

⁴³ See, U.S. House of Representatives, *Report of the Committee on Ways and Means on Title II of H.R. 6831, The Energy Tax Act of 1977*, Report No. 95-496, July 13, 1977, pp. 48-49.

Table 1.—Number of Passenger Cars, Average Annual Mileage Per Car, and Average Fuel Efficiency 1966–1988

Year	Passenger cars (millions)	Thousands of miles per car	Miles per gallon
1966.....	78.1	9.92	14.1
1967.....	80.4	10.06	14.1
1968.....	83.6	10.14	13.9
1969.....	86.9	10.16	13.6
1970.....	89.2	10.27	13.5
1971.....	92.7	10.42	13.5
1972.....	97.1	10.52	13.4
1973.....	102.0	10.26	13.3
1974.....	104.9	9.61	13.4
1975.....	106.7	9.69	13.5
1976.....	110.4	9.79	13.5
1977.....	113.7	9.88	13.8
1978.....	116.6	9.84	14.0
1979.....	120.2	9.40	14.4
1980.....	121.7	9.14	15.5
1981.....	123.5	9.19	15.9
1982.....	123.7	9.43	16.7
1983.....	126.7	9.48	17.1
1984.....	127.9	9.56	17.8
1985.....	132.1	9.56	18.2
1986.....	135.4	9.61	18.3
1987.....	137.3	9.88	19.2
1988.....	141.3	¹ 10.12	¹ 20.0

¹ Estimate.

Source: Federal Highway Administration as reported in Energy Information Administration, Department of Energy, *Annual Energy Review 1989*, pp. 53 and 55.

While many other factors, such as the price of fuel, may affect the number of miles driven, Table 1 shows that between 1979 and 1988, average fuel economy of passenger cars has risen 39 percent, annual mileage per car has risen almost eight percent, and the number of cars has risen by almost 18 percent.⁴⁴

The automobile purchaser makes his or her choice on the basis of many factors in addition to fuel economy. For example, the purchase of an automobile involves a decision about the automobile's seating capacity, luggage capacity, safety, design, and comfort. In this light, the purchase of an automobile represents the purchase of a bundle of often conflicting attributes. For example, reducing the weight of an automobile makes it more fuel efficient, but also may make it less safe; increasing cargo capacity may make for a less fuel efficient automobile. A tax or credit that is targeted at one dimension may bias the market against the other attributes. Consequently, gains from a tax on less safe vehicles or relatively fuel inefficient vehicles may cause the purchaser to inefficiently choose

⁴⁴ If measured from 1980 to 1988, fuel economy increased 29 percent, while annual mileage per car increased by almost 11 percent, and the number of cars increased by 16 percent.

the bundle of attributes in an automobile. The distortion of prices among automobiles created by such taxes may distort consumer choice, imposing explicit or implicit losses on consumer well-being. Some critics of downsizing of automobiles to achieve improved fuel economy argue that such design changes have cost the consumer in terms of safety, cargo capacity, seating capacity, and comfort.

Some economists argue that distortions of market prices may be justified only if market prices do not reflect the true social cost or social benefit of the product. The difference between the cost to the private person and the cost to society is called an externality. Some analysts suggest that purchasers of relatively fuel inefficient automobiles impose an externality on society because fuel inefficiency wastes natural resources and reduces the United States' energy and economic security. Other analysts suggest that hypothesized external costs relate to energy consumption rather than to the automobiles themselves and that gains in fuel conservation can more efficiently be attained by increasing the market price of fuel.⁴⁵ They argue that increasing the cost of fuel provides the consumer more options for conserving on fuel such as driving less, car pooling, taking mass transit, or purchasing a fuel efficient car, whereas raising the price of less fuel efficient cars is targeted at only one dimension of fuel use.

On the other hand, individuals may base decisions on the purchase of energy using consumer durables on incorrect data or fail to take proper account of economic costs of using such durables. For example, some argue that in the purchase of consumer durables which use energy, consumers use an excessively high discount rate in evaluating the value of relatively more energy efficient durables in comparison to less energy efficient durables.⁴⁶ Arguably, incorrect consumer decisions about the economic value of certain products create a market inefficiency which could be addressed through taxes designed to alter the price of such products.

Similarly, some argue that consumers do not undertake an informed calculus of the value of safety when making purchases. They argue that a lack of information creates an externality in the market place which might create a role for corrective taxation. Critics of this view observe that the market for auto insurance puts a market value on safety by varying rates both by the driver and the model of car. They further argue that if the market inefficien-

⁴⁵ See, for example, Michael Munger, "The Cost of CAFE," unpublished working paper, Bureau of Economics, Federal Trade Commission, August 1985, and Andrew Kleit, "The Effect of Annual Changes in Automobile Fuel Economy Standards," *Journal of Regulatory Economics*, vol. 2, Summer 1990. These studies argue that policies designed to alter the fuel economy of vehicles produced for the marketplace, such as CAFE standards, are less efficient at generating fuel economy than would be an increase in the price of motor fuels achieved through an increase in the motor fuels excise tax. Kleit, for example, calculates that reducing consumption of gasoline by one gallon costs consumers approximately \$10 in lost consumer welfare if achieved by increasing the CAFE standards, but would cost less than \$1 in lost consumer welfare if achieved by increasing the price of gasoline.

⁴⁶ See, Jerry A. Hausman, "Individual Discount Rates and the Purchase and Utilization of Energy-using Durables," *Bell Journal of Economics and Management Science*, vol. 10, Spring 1979. Hausman's study concluded that the mean household discount rate for evaluating the purchase of a more efficient room air conditioner was between 15 and 25 percent in 1975 to 1976. These discount rates generally exceeded consumer loan rates at that time. In addition information about the relative efficiency of different models was available. During this time period, room air conditioners carried information tags reporting the energy efficiency and expected operating costs of various models.

cy arises from a lack of information, a more efficient outcome might be attained by provision of the information rather than through corrective tax policy. They note that the choice of a tax based on safety measures is likely to be arbitrary, and may not necessarily correspond to the value society gains from an increase in automobile safety.

Analysis specific to S. 201

S. 201 would annually increase the threshold fuel economy rating at which an automobile becomes subject to the gas guzzler tax and increase the rate of tax for those automobiles with fuel economy rates below the threshold. Unlike the present law gas guzzler tax, these taxes are indexed for inflation in order to preserve their real value. The bill also would provide a credit for the sale of relatively more fuel efficient automobiles. However, the value of the credit is not indexed for future inflation and its real value to the producer or consumer would be expected to decline over time.

Under the bill, gains in fuel economy are more valuable to relatively fuel inefficient automobiles than to relatively fuel efficient automobiles. A relatively fuel inefficient automobile generally can reduce its accompanying tax liability by improving its miles per gallon rating by one mile per gallon.⁴⁷ The maximum, unindexed credit a relatively fuel efficient car can receive is \$750 in 1993 and 1994, and \$2000 thereafter. If an automobile already qualifies for the maximum credit, an increase in its fuel economy rating generates no further tax benefit.

Analysis specific to S. 741 and S. 743

The calculation of the tax or rebate in S. 741 and S. 743 is in comparison to other automobiles within the vehicle's model class. In particular, the tax is calculated based on the deviation of a specific automobile from the mean of its class. While the application of the tax to model classes reduces the incentive of the market place to downsize, and rather is designed to encourage fuel (and safety in the case of the safety tax/rebate) gains within existing model classes, the value of gains within each model class is different.

For example, consider two automobiles each with fuel economy five miles per gallon lower than the average fuel economy of the applicable vehicle class. Car A is in a model class with an average fuel economy of 40 miles per gallon and car B is in a model class with an average fuel economy of 25 miles per gallon. If car A has an estimated fuel economy of 35 miles per gallon, then it will be subject to a tax of \$357.⁴⁸ If car B has an estimated fuel economy of 20 miles per gallon, then it will be subject to a tax of \$1,000.⁴⁹

⁴⁷ An automobile that moves from just below the threshold to above the threshold by one mile per gallon saves \$1,000 in tax. For automobiles in the six categories immediately below the threshold level, the tax saving from a one mile per gallon improvement ranges from \$300 to \$900. Thereafter, the tax saving is \$1,000 per mile per gallon gained with the exception of one \$1,200 increment.

⁴⁸ This is calculated by dividing 10,000 by the 35 mpg rating of car A and subtracting the result from 10,000 divided by the 40 mpg average class rating. The difference is then multiplied by \$10.

⁴⁹ This is calculated by dividing 10,000 by the 20 mpg rating of car B and subtracting the result from 10,000 divided by the 25 mpg average class rating. The difference is then multiplied by \$10.

An additional fuel economy gain in a lower fuel economy model class is worth more than in a higher fuel economy model class. A similar analysis would apply to model classes with lower average safety values in comparison to model classes with higher average safety values. These examples may overstate the value of fuel economy gains because each model's performance will affect the average for the model class and subsequently affect the tax imposed or credit received on a specific automobile.

More generally, the value of the tax or credit will depend on the sales performance of other automobiles in the model class which may increase or decrease the value of the tax/credit applicable to any specific model depending upon the effect that sales of other automobiles have on the model average. Because the model average is computed with a lag compared to current sales, this may create uncertainty for producers who may attempt to plan investments based on the anticipated tax/credit applicable to future planned models. On the other hand, the moving average against which each automobile is compared may provide producers with the incentive to always increase fuel economy and safety, because the strategy of no change would rarely improve the competitive position of a given automobile in the absence of specific knowledge about the performance of competitors' newly introduced automobiles.

APPENDIX

Gas Guzzler Tax Rates for Model Years 1993 through 1999 Under S. 201

1993 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 24.5.....	0
At least 23.5 but less than 24.5.....	\$1,000
At least 22.5 but less than 23.5.....	1,300
At least 21.5 but less than 22.5.....	1,700
At least 20.5 but less than 21.5.....	2,200
At least 19.5 but less than 20.5.....	2,800
At least 18.5 but less than 19.5.....	3,500
At least 17.5 but less than 18.5.....	4,300
At least 16.5 but less than 17.5.....	5,200
At least 15.5 but less than 16.5.....	6,200
At least 14.5 but less than 15.5.....	7,200
At least 13.5 but less than 14.5.....	8,200
At least 12.5 but less than 13.5.....	9,200
Less than 12.5	10,200

1994 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 25.5.....	0
At least 24.5 but less than 25.5.....	\$1,000
At least 23.5 but less than 24.5.....	1,300
At least 22.5 but less than 23.5.....	1,700
At least 21.5 but less than 22.5.....	2,200
At least 20.5 but less than 21.5.....	2,800
At least 19.5 but less than 20.5.....	3,500
At least 18.5 but less than 19.5.....	4,300
At least 17.5 but less than 18.5.....	5,200
At least 16.5 but less than 17.5.....	6,200
At least 15.5 but less than 16.5.....	7,200
At least 14.5 but less than 15.5.....	8,200
At least 13.5 but less than 14.5.....	9,200
Less than 13.5	10,200

1995 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 26.5.....	0
At least 25.5 but less than 26.5.....	\$1,000
At least 24.5 but less than 25.5.....	1,300
At least 23.5 but less than 24.5.....	1,700
At least 22.5 but less than 23.5.....	2,200
At least 21.5 but less than 22.5.....	2,800
At least 20.5 but less than 21.5.....	3,500
At least 19.5 but less than 20.5.....	4,300
At least 18.5 but less than 19.5.....	5,200
At least 17.5 but less than 18.5.....	6,200
At least 16.5 but less than 17.5.....	7,200
At least 15.5 but less than 16.5.....	8,200
At least 14.5 but less than 15.5.....	9,200
At least 13.5 but less than 14.5.....	10,200
Less than 13.5.....	11,400

1996 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 27.5.....	0
At least 26.5 but less than 27.5.....	\$1,000
At least 25.5 but less than 26.5.....	1,300
At least 24.5 but less than 25.5.....	1,700
At least 23.5 but less than 24.5.....	2,200
At least 22.5 but less than 23.5.....	2,800
At least 21.5 but less than 22.5.....	3,500
At least 20.5 but less than 21.5.....	4,300
At least 19.5 but less than 20.5.....	5,200
At least 18.5 but less than 19.5.....	6,200
At least 17.5 but less than 18.5.....	7,200
At least 16.5 but less than 17.5.....	8,200
At least 15.5 but less than 16.5.....	9,200
At least 14.5 but less than 15.5.....	10,200
At least 13.5 but less than 14.5.....	11,400
Less than 13.5.....	12,400

1997 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 28.5.....	0
At least 27.5 but less than 28.5.....	\$1,000
At least 26.5 but less than 27.5.....	1,300
At least 25.5 but less than 26.5.....	1,700
At least 24.5 but less than 25.5.....	2,200
At least 23.5 but less than 24.5.....	2,800
At least 22.5 but less than 23.5.....	3,500
At least 21.5 but less than 22.5.....	4,300
At least 20.5 but less than 21.5.....	5,200
At least 19.5 but less than 20.5.....	6,200
At least 18.5 but less than 19.5.....	7,200
At least 17.5 but less than 18.5.....	8,200
At least 16.5 but less than 17.5.....	9,200
At least 15.5 but less than 16.5.....	10,200
At least 14.5 but less than 15.5.....	11,400
At least 13.5 but less than 14.5.....	12,400
Less than 13.5.....	13,400

1998 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 29.5.....	0
At least 28.5 but less than 29.5.....	\$1,000
At least 27.5 but less than 28.5.....	1,300
At least 26.5 but less than 27.5.....	1,700
At least 25.5 but less than 26.5.....	2,200
At least 24.5 but less than 25.5.....	2,800
At least 23.5 but less than 24.5.....	3,500
At least 22.5 but less than 23.5.....	4,300
At least 21.5 but less than 22.5.....	5,200
At least 20.5 but less than 21.5.....	6,200
At least 19.5 but less than 20.5.....	7,200
At least 18.5 but less than 19.5.....	8,200
At least 17.5 but less than 18.5.....	9,200
At least 16.5 but less than 17.5.....	10,200
At least 15.5 but less than 16.5.....	11,400
At least 14.5 but less than 15.5.....	12,400
At least 13.5 but less than 14.5.....	13,400
Less than 13.5.....	14,400

1999 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 30.5.....	0
At least 29.5 but less than 30.5.....	\$1,000
At least 28.5 but less than 29.5.....	1,300
At least 27.5 but less than 28.5.....	1,700
At least 26.5 but less than 27.5.....	2,200
At least 25.5 but less than 26.5.....	2,800
At least 24.5 but less than 25.5.....	3,500
At least 23.5 but less than 24.5.....	4,300
At least 22.5 but less than 23.5.....	5,200
At least 21.5 but less than 22.5.....	6,200
At least 20.5 but less than 21.5.....	7,200
At least 19.5 but less than 20.5.....	8,200
At least 18.5 but less than 19.5.....	9,200
At least 17.5 but less than 18.5.....	10,200
At least 16.5 but less than 17.5.....	11,400
At least 15.5 but less than 16.5.....	12,400
At least 14.5 but less than 15.5.....	13,400
At least 13.5 but less than 14.5.....	14,400
Less than 13.5.....	15,400