Y 4
T19/4
En2/2

DOCUMENTS

AUG 28 1979

FARRELL LIBRARY
KANSAS STATE UNIVERSITY

GOVERNMENT
Storage

[JOINT COMMITTEE PRINT]

DESCRIPTION OF ADMINISTRATION PROPOSALS REGARDING ENERGY-RELATED TAX INCENTIVES

PREPARED FOR THE USE OF THE

COMMITTEE ON WAYS AND MEANS

BY THE STAFF OF THE

JOINT COMMITTEE ON TAXATION

JULY 30, 1979

U.S. GOVERNMENT PRINTING OFFICE

49-142 O WASHINGTON : 1979 JCS-36-79

AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

CONTENTS

	Page
Introduction	1
I. Summary of Administration Proposals	2
II. Description of Proposals	4
A. Solar energy tax credits	6
B. Tax credit for wood burning stoves	9
C. Oil shale tax credit	11
D. Tax credit for unconventional gas	14
E. Gasohol tax incentives	17
III. Appendix	19
A. Energy tax incentives enacted in the Energy Tax Act of 1978	19
B. House-passed or Senate-passed energy tax incentive provisions not accepted by Conference Committee on the Energy Tax Act of 1978	21

INTRODUCTION

This pamphlet, prepared by the staff of the Joint Committee on Taxation, provides a description of the energy-related tax incentives proposed by the Administration in phase III of its 1979 energy program. The proposals are scheduled for markup by the Committee on Ways and Means on July 31, 1979. These proposals include energy-related tax credits as well as tax incentives related to gasohol.

The first part of the pamphlet contains a summary of each proposal; the second part provides detailed descriptions of the proposals, including some background information and a description of the relevant present law. In addition, the pamphlet contains a two-part appendix. Part A of the appendix summarizes the tax incentive provisions of the Energy Tax Act of 1978. Part B of the appendix contains a summary of the various energy tax incentives approved by either the House or Senate during consideration of the 1978 Energy Tax Act but not enacted.

Public hearings were held by the Committee on Ways and Means on the Administration's proposals on July 20 (Administration witnesses) and on July 24–25, 1979 (witnesses from the general public and Members of Congress).

I. SUMMARY OF ADMINISTRATION PROPOSALS

A. Energy Tax Credits

1. Solar energy

The Administration has proposed several tax credits for various forms of solar energy. These tax credits would be charged against the revenues in the Energy Security Trust Fund.

a. Passive solar construction

Builders of new passive solar multi-family and commercial buildings would be provided with a tax credit of $20 per million Btu's of estimated annual energy savings. To be eligible, the savings would have to result from designs for thermal efficiency at a specified level above the baseline Building Energy Performance Standard established in conformance with the Energy Conservation and Production Act of 1976 (ECPA). The maximum credit would be $10,000 per building.

A tax credit would be provided to builders of new residences with passive solar systems. Prior to 1983, the credit would be 20 percent of the cost of eligible passive solar energy equipment for each unit (up to four residential units per building). The maximum credit would be $2,000 per unit. Starting in 1983, builders who exceeded the Building Energy Performance Standards, established by the Federal Government under ECPA, by more than 50 percent would be eligible for a $2,000 tax credit.

The tax credits for both residential and commercial buildings would be effective through December 31, 1985.

b. Solar process heat

An additional 15-percent tax credit would be provided for solar equipment used to produce process heat in agricultural and industrial applications. The credit would be effective through December 31, 1989.

2. Woodburning stoves

Airtight woodburning stoves installed in principal residences would be eligible for the 15-percent residential energy tax credit. The tax credit for this equipment would be available through December 31, 1982.

3. Unconventional gas

A tax credit of 50¢ per million Btu's would be provided to domestic producers of natural gas from unconventional sources. The credit, which would be nonrefundable, would be phased-out as when the price of imported oil, adjusted for inflation, rose above $22 per barrel, phasing out completely at a price of $27.56. The credit would apply to gas production from Devonian shale. Western tight sand formations, coal seams, and geopressured reservoirs.

4. Shale oil

A tax credit of $3 per barrel would be provided to domestic producers of shale oil. The credit would expire on January 1, 2000, and would be phased-out as the price of imported oil, adjusted for inflation, rose above $22 a barrel, phasing out completely when the adjusted price exceeded $27.56 per barrel.

B. Gasohol Tax Incentives

Under the Administration proposal, the present exemption from the current 4-cents-per-gallon Federal gasoline excise tax for gasoline-alcohol mixtures would be made permanent.[1] The exemption was enacted in the Energy Tax Act of 1978 and does not apply to alcohol produced from petroleum, natural gas or coal. This exemption is presently in effect through September 30, 1984.

---

[1] There are also three other bills related to gasohol tax incentives which are listed for Committee consideration on July 31, and which are described in Part II of this pamphlet: H.R. 2648 and H.R. 4781 (relating to amortization of gasohol production facilities) and H.R. 4215 (relating to regulations regarding production of distilled spirits for fuel use).

II. DESCRIPTION OF PROPOSALS

A. Solar Energy Tax Credits

1. Present law

Residential credits

The tax credit for renewable energy sources, which includes solar, wind and geothermal energy, was enacted in the Energy Tax Act of 1978 and applies to solar property that is installed in connection with a dwelling and which transmits or uses solar energy for heating or cooling the dwelling or providing hot water for use within the dwelling. The dwelling must be the taxpayer's principal residence.

The tax credit is 30 percent of the first $2,000 of expenditures and 20 percent of the next $8,000 of expenditures, for a maximum tax credit of $2,200. In years when the credits exceed tax liability, unused credits may be carried forward. This credit expires December 31, 1985.

Business credits

Solar energy property which is used to generate electricity or to heat, cool or provide hot water for use in a structure is eligible for the special 10-percent investment tax credit for energy property. This property is also eligible for the regular 10-percent investment credit even when it is considered a structural component of the building. Solar energy tax credits are refundable and expire on December 31, 1982. An appropriations act would be required to pay out tax credits in excess of tax liability, and the relevant legislation has not yet been enacted.

2. Background

Passive solar designs rely upon the design of a structure, the materials used for its components, where it is placed on the lot, and the direction it faces to reduce the energy needed to heat or cool a structure. The objective of passive solar designs is to use the transfer of energy to and from a building for heating and cooling purposes by using natural conduction, convection, and radiation.

Passive solar design is capable of saving significant amounts of energy. The main issue in drafting a tax credit to encourage passive solar design is defining just what expenditures should be eligible for the tax credit.

The Administration's proposed passive solar tax credit contains different sets of rules for the periods before and after January 1, 1983. Before 1983, the credit would be available for purchases of certain kinds of eligible equipment, the exact nature of which has not yet been specified by the Administration. The State of California provides such a credit, and a description of the equipment eligible for the California credit is listed below. After the end of 1982, the Administration proposes to provide the credit to any builder who exceeds the Federal Building Energy Performance Standards, which will be promulgated pursuant to 1976 legislation, by more than 50 percent. What would be involved in administering this tax credit depends on the exact nature of those standards and their interaction with State and local building codes.

Eligible passive solar equipment under the California tax credit

Under California's passive solar tax credit, the following types of equipment are eligible:

1. *Solar glazing.*—Solar glazing materials installed in south facing walls and roofs of buildings must comply with specified criteria. Glazing walls must face in a range between southeast and southwest and be exposed to direct solar radiation for a minimum amount of time on the shortest day of the year. Glazing must have a minimum shading coefficient. Variations in the glazing requirements apply where the amount of direct solar radiation on the building is greater or less than specified amounts.

Control of glazings to improve performance of the glazed area qualify for the credit and include (a) movable insulation and shades, (b) summer shading which includes roof overhangs, wing walls and exterior shades attached to the building, (c) reflectors, (d) transparent insulating glazing, and (e) special coatings. Performance standards apply to all.

2. *Solariums.*—Solariums must meet minimum exposure standards for direct solar radiaton on the shortest day of the year. The system must provide for natural or forced warm air flow into the building during the heating season and venting or full shading during the cooling season. The glazing area shall meet certain minimum space requirements and a minimum shading coefficient.

3. *Thermal ponds.*—Thermal ponds involve tanks, liners, operable lids or shutters, controls, glazing, fluid treatment, and extra structural supports. The ponds may be roof ponds or other ponds. Roof ponds must have a direct thermal contact, above a specified coefficient, with the livable space. Roof ponds also must meet criteria related to sun exposure on the shortest day of the year, must have protection from cool outside temperatures during the heating season, and must prevent evaporative cooling during the heating season. Other analogous criteria apply to isolate the ponds from hot exterior temperatures during the cooling seasons.

4. *Thermal mass.*—Thermal mass construction components may be installed within the insulated shell of a building or as underground construction as part of a passive thermal system. If the thermal mass is part of the exterior wall of a building, it must lie within the insulated shell, and the latter must meet specified State energy conservation standards. Night-time ventilation which meets specified standards must be provided in heating/cooling and cooling areas. Materials used must meet performance standards. Thermal mass standards vary according to heating, cooling or heating/cooling requirements of the climate, glazing standards and area of the building.

5. *Ventilation systems.*—Ventilation may be provided by natural cross ventilation or mechanical systems. Natural cross ventilation must provide a cool air flow across the building mass. Special components needed for this purpose must meet performance standards. Mechanical ventilation systems must provide six air changes per hour of outside fresh air during ventilation cooling hours.

Other related provisions of law

Under the Solar Heating and Cooling Demonstration Act of 1974 (P.L. 93–409), various Federal officers are authorized to promote the

development and use of solar energy in residential, commercial, industrial, and agricultural contexts. To aid in the accomplishment of this goal, the Act specifically provides for the preferential consideration of Federally assisted mortgage loan applications for properties with solar cooling or heating equipment. The Act also provides for the promulgation of definitive performance criteria for such equipment, and for the establishment of procedures whereby manufacturers of solar components and systems can have those items tested and certified as meeting the performance criteria.

Under the Solar Photovoltaic Energy Research, Development, and Demonstration Act of 1978 (P.L. 95–590), the Secretary of Energy is authorized to enter into agreements for the design, purchase, fabrication, testing, installation, and demonstration of photovoltaic [1] components and systems. This authority includes providing up to 75 percent of the purchase and installation cost of such a system, and arranging for the use of photovoltaic systems in Federal buildings and enclaves. The Act further requires the Secretary to establish performance criteria, which may be revised annually, for the testing and certification of photovoltaic systems and components.

Current related proposal for Solar Bank

The Administration also is is proposing the establishment of a Solar Bank within the Department of Housing and Urban Development. The Bank's board of directors would be chaired by the Secretary of Housing and Urban Development, and would include the Secretaries of Energy and Treasury.

The proposed Bank would pay subsidies to private lenders for the purchase and installation of solar energy systems. These lenders would, in turn, provide below-market financing to builders or owners of residential and commercial properties. The subsidized portion of a loan allocable to the purchase and installation of solar energy systems would be limited to $10,000 per unit for a one- to four-family structure, $5,000 per unit (up to a maximum of $500,000) for structures containing more than four units, and $200,000 for commercial properties.

Funds for operation of the Solar Bank would be derived from the proposed Energy Security Trust Fund. For this purpose, authorized expenditures would be up to (a) $35 million for fiscal year 1980 and (b) $150 million annually for fiscal years 1981 through 1985. Personnel within the Department of Housing and Urban Development, including personnel of the Government National Mortgage Association, would be used to administer Solar Bank programs.

3. Description of proposals

a. Residential passive solar construction credits

For taxable years beginning between 1979 and 1982, builders would be permitted a tax credit of 20 percent of the cost of residential passive solar energy property up to a maximum tax credit of $2,000 per residential unit (for up to four units per building).

---

[1] The term "photovoltaic effect" is defined by section 3(4) of the Act as referring to ". . . the physical phenomenon exhibited under certain circumstances by some materials in which a portion of the light energy striking the material is directly converted into electrical energy."

The Department of Energy will, pursuant to the Energy Conservation and Production Act, promulgate Building Energy Performance Standards (BEPS), prior to January 1, 1983, for residential construction. BEPS will establish energy-efficiency standards for residential units on a regional basis. BEPS will be expressed in terms of Btu's per square foot per year required for heating, cooling and hot water. States will be requested to conform housing codes to BEPS. percent or less than BEPS.

After December 31, 1982, the full $2,000 credit would be available for residential units whose design indicates energy requirements 50 percent or less than BEPS.

The Secretary of the Treasury would issue regulations indicating the procedure under which a design must be certified as meeting or exceeding BEPS. If a State housing code conforms to BEPS, a certification by an architect, engineer or other person designated by the State that the design conforms to the energy efficiency requirement of the code will suffice. Where a State housing code does not conform to BEPS, the Secretary of the Treasury would require the builder to establish that his construction meets the qualifications for a credit.

It is intended that the credit will be provided out of the Energy Security Trust Fund. A reserve will be established in the Fund based upon the estimated cost of the credit to ensure the availability of funding.

Conformity with residential credit.—Purchasers of dwellings having such passive solar property will not qualify for the residential renewable energy tax credit (if the property otherwise qualifies) if the builders receive a tax credit for passive solar residential construction.

Effective date

The credit for passive solar equipment would become effective for installations of qualified property in residential units completed and ready for occupancy after April 5, 1979 and before January 1, 1983.

The credit for exceeding the BEPS would apply to residential units completed and ready for occupancy after December 31, 1982, and before January 1, 1986.

b. Commercial passive solar construction

The Department of Energy will, pursuant to the Energy Conservation and Production Act, promulgate BEPS for multifamily or commercial construction, which will be expressed in terms of Btu's per square foot per year needed to heat and cool a structure and to provide hot water. Builders of multifamily (more than 4 residential units per building) and commercial buildings will be provided with a tax credit of $20 per million Btus saved per year beyond a specified level of energy use below the BEPS. The Secretary of the Treasury will issue regulations describing the manner in which a design must be certified as achieving a given estimated thermal performance.

It is intended that the credit would be provided out of the Energy Security Trust Fund. A reserve would be established in the Fund based upon the estimated cost of the credit to ensure the availability of funding.

Effective date

This credit would apply only to buildings on which construction begins after April 5, 1979, and which are put into service before December 31, 1985.

c. Solar process heat for use in industry and agriculture

The special business energy investment credit would be expanded to include as qualified property the cost of solar property used to generate process heat in agricultural and industrial applications. As in the case of the existing solar and wind energy investment tax credit, the credit would be refundable. The credit for this property would be 15 percent, rather than the 10-percent energy percentage generally applicable, leading to a total credit of 25 percent.

It is intended that the credit would be provided out of the Energy Security Trust Fund. A reserve would be established in the Fund based upon the estimated cost of the credit to ensure the availability of funding.

Effective date

This credit would apply to equipment placed in service after April 5, 1979, and before September 31, 1989.

B. Tax Credit for Wood Burning Stoves

1. Present law

Under present law, there is no tax credit available to taxpayers for the purchase of a wood burning stove.

In the Energy Tax Act of 1978, a tax credit of 15 ercent was made available for the first $2,000 of expenditures on energy conservation property through December 31, 1985. Three kinds of qualified property relate to sources of heating, but none of them is an entire heating unit, e.g., a stove or a furnace. The specific components eligible for this credit include a fuel efficient replacement burner for a furnace, a device to modify flue openings, and an electrical or mechanical furnace ignition system to replace a gas pilot light.

(A floor amendment by Senator McIntyre to the Energy Tax Act would have made wood or peat burning stoves eligible for this credit. The amendment was deleted from the bill by the conference committee.)

2. Background

Wood burning stoves for heating a room were used widely in this country, but their use declined after the start of widespread installation of central heating. In recent years, however, sales of wood burning stoves have experienced a significant increase, from 160,000 units in 1972 to 1,150,000 units in 1978. Imports have accounted for about one-third of domestic sales beginning in 1975, and the major foreign suppliers have been firms in Taiwan. Prices for all types range from $200 to $600.

An assessment of the wood burning stove for residential heating was made for the Department of Energy.[1] A summary of its findings follows.

At current market prices for wood, wood heating is slightly cheaper than oil or electric heat pump heating, but with the inclusion of equipment amortization and maintenance costs, wood heating is generally uneconomic compared to conventional fuels. A 15-percent tax credit would reduce the annualized heating costs by less than five percent. Fuel oil savings are estimated at 10 million barrels of oil per year. Imports of stoves are expected to remain at the current ratio to domestic sales. The total oil saving, if reflected in reduced oil imports, from all use of wood burning equipment is expected to outweigh the balance of payments effects of imported wood burning stoves. Increased wood harvesting has potential negative effects on the natural environment which may be controllable, but increased wood burning may cause limited air pollution from chemicals and particulates in valleys and urban areas. Wood supplies appear to be sufficient to meet a rise in demand.

---

[1] Booz, Allen and Hamilton, *Assessment of Proposed Federal Tax Credits for Residential Wood Burning Equipment*, March 21, 1979, Bethesda, Md.

3. Description of proposal

The cost of high efficiency wood burning stoves would be included in the definition of qualified expenditures for purposes of the residential energy credit under section 44C of the Internal Revenue Code. The purchase and installation cost of a chimney and the installation cost of the stove would not qualify. Unlike the other qualifying expenditures under the residential energy credit, a wood burning stove would qualify even if installed in a new residence (constructed after April 20, 1977). With the exception of the effective date, all other provisions of section 44C (residential energy credit) would apply. The credit would equal 15 percent of the first $2,000 of all qualified expenditures (including wood burning stoves), up to a maximum of $300. To be eligible, a wood burning stove would have to be installed in the taxpayer's principal residence.

It is intended that the credit would be provided out of the Energy Security Trust Fund. A reserve would be established in the Fund based upon the estimated cost of the credit to ensure the availability of funding.

The Secretary of the Treasury would issue regulations defining high efficiency wood burning stoves. Generally, such equipment would have to have a closed combustion chamber with variable drafts.

Effective date

The wood burning stove credit would apply to installations made after April 5, 1979, and would terminate (unlike the other provisions of section 44C) on December 31, 1982.

C. Oil Shale Tax Credit

1. Background and present law

Oil shale processing

Oil shale are underground sedimentary layers of finely grained rock which is rich in organic matter. The oil (kerogen) which can be extracted from this shale requires only minimal additional refining in order to make it equivalent to conventional crude petroleum.

Oil shale is a major, undeveloped fossil energy resource in the United States. Total U.S. oil shale resources have been estimated to contain 2,400 billion barrels of oil. Depending on their quality, the oil shale deposits could produce from 10 to 100 gallons of oil per ton, with approximately a quarter of the deposits generally estimated to contain 25 or more gallons per ton. High grade oil shale deposits containing approximately 600 billion barrels of oil—an amount equal to the known world reserves of oil—are located in Colorado, Utah, and Wyoming. These resources are more than 10 times greater than U.S. proved petroleum reserves, and some claim they could supply enough oil for 100 years at current consumption rates.

The Federal Government owns approximately 84 percent of these western oil shale resources. Another 10 percent is privately held, and the ownership of the rest is being contested.[1]

Two methods of extracting oil from shale have been tested, both on smaller than commercial scale. The first method involves conventional deep mining or surface (strip) mining combined with subsequent processing of oil shale on the surface. A variety of surface processing techniques have been tested; all require that the mined shale be crushed and then retorted (heated to 480° C) to release the oil, which closely resembles crude petroleum.[2]

Although the technology for surface processing is relatively certain, it entails some significant problems. This method often requires enormous quantities of water; it might reduce an area's water supply and increase the salinity of the remaining water. Furthermore, the spent shale, from which oil has been extracted, has been expanded by the retorting (heating) process and takes up approximately 12 percent more space than the area from which it was mined. Thus, all the spent shale could not be put back in the mine. Surface or strip mining of oil shale entails many of the same problems as strip mining of coal. Although most of these ecological problems can be alleviated, they substantially increase the cost of the mining processes.

The second method of producing oil from shale is *in situ* retorting, the underground processing of oil shale. This method largely dispenses with mining and surface processing. In *in situ* retorting, approxi-

---

[1] Brazil, Scotland, Estonia, Russia, Yugoslavia, China, Zaire, South Africa, and Australia also have oil shale deposits which, though smaller than those in the United States, are significant.

[2] Oil produced from shale is much closer chemically to conventional crude petroleum than is oil produced by coal liquefaction.

mately one-fifth of an underground cavity is mined out. The remaining shale is blasted with explosives, leaving a cavern of broken oil shale. Then this underground shale is ignited. The fire is controlled by the amount of air pumped into the cavity. The retorted (heated) shale releases oil which is brought to the surface.

Although some government and industry authorities have reservations about the viability of the *in situ* method, others believe that it will be a commercially viable means of production. While this method has the advantage of avoiding the ecological surface destruction entailed in mining oil shale, all its effects are not readily predictable. If conducted on a large scale, the *in situ* method would transform a deep, sturdy layer of shale rock to a weaker, broken layer which might cause shifting and subsidence, thereby damaging the earth's surface. The effect of the *in situ* method on underground water supplies has not been determined.

In 1974, the Department of Interior leased four tracts to private industry for oil shale development. Development was undertaken on two tracts in Colorado, and two tracts in Utah. Some private companies withdrew from the program at the end of 1975, but development was continued by the remaining leaseholders. The Interior Department suspended lease payments and operations on the two Colorado tracts in August 1976. In August 1977, the Department approved resumption of the development of the two Colorado tracts.

In coordination with the Department of the Interior, the Navy and private industry, the Energy Research and Development Administration (ERDA) is attempting to expedite the commercial-scale production of energy from oil shale. Research includes both *in situ* and modified *in situ* technologies. The DOE has been attempting to expedite the production of shale oil through a variety of administrative means. Many other Federal agencies are engaged in environmental, socio-economic, health and safety research related to oil shale.

On July 11, 1979, the Environmental Protection Agency's Denver office issued an air pollution permit to Colony Development Operation, a joint venture of Atlantic Richfield and Tosco Corporation, for a shale oil plant. The plant is estimated to cost $1.2 billion and would be capable of processing 66,000 tons of shale a day into 55,000 barrels of oil. Before construction of the plant can begin, however, several other permits must be obtained.

Oil price controls

Oil produced from oil shale is not subject to price control regulations.

Tax law

Present law provides a 15-percent depletion allowance for oil shale. Under provisions enacted in 1969, the point of application for the depletion allowance was changed from the value of the mined rock to the (higher) value of the oil after retorting (heating), but before hydrogenation, a subsequent process which makes shale oil generally equivalent in quality to conventional crude petroleum.

Businesses engaged in oil shale production would be entitled to all applicable business tax incentives, such as the investment credit. In addition, under the Energy Tax Act of 1978, shale oil equipment which is used to mine, extract, or produce oil from oil-bearing shale rock is eligible for an additional 10-percent energy tax credit through 1982.

2. Description of proposal

Under the Administration's proposal, a $3 per barrel tax credit would be provided to domestic producers of shale oil. The credit would expire on January 1, 2000. It also would be phased out as the price of imported oil, adjusted for inflation rose above $22 per barrel, phasing out completely if the adjusted price exceeded $27.56 per barrel.

Under the proposal, the credit would be fixed at $3 per barrel and would not be adjusted for inflation. It would be nonrefundable.

A shale oil facility would have to be placed in service by December 31, 1993, for its production to be eligible for the credit. Only shale oil produced from properties located in the United States or territories and possessions of the United States would be eligible.

The $5.56 range for the phaseout of the credit takes into account the fact that, for a taxpayer in the 46-percent top corporate income tax bracket, a $3 tax credit is equivalent to a price increase of $5.56 because the additional revenue from the price increase would be subject to tax A $5.56 price increase leads to $2.56 of additional tax (46 percent of $5.56 is $2.56), leaving after-tax income of $3. Thus, as long as the price of imported oil exceeds $22 and the U.S. uncontrolled oil price equals the world price, the $3 oil shale tax credit and the phaseout would be equivalent to a price support of $27.56. The oil shale producer would be guaranteed that price either from the market or from the tax credit. The credit would be phased out by reducing it by 54 percent of the amount by which the reference price exceeds $22, adjusted for inflation. The phaseout range would be $5.56, so that the credit would phase out entirely at a price of $27.56. The reference price, determined by the Secretary of the Treasury, generally would be the average price of imported oil for the first eight calendar months of a producer's taxable year. It would be adjusted to eliminate the effect of inflation between January 1, 1979, and the date of the reference.

The credit would be charged against the Energy Security Trust Fund. A reserve would be established in the Fund based upon the estimated cost of the credit to ensure the availability of funding.

In addition, on-site access would have to be allowed to the facility for the purpose of environmental testing to insure the shale oil will be developed in an environmentally acceptable manner.

It is anticipated that the Administration's proposed Energy Security Corporation (ESC) will provide financial assistance for the production of shale oil. To ensure that there will be no duplication of subsidies, the following rules would apply to the availability of the tax credit:

(1) Receipt of any financial assistance from ESC would make a facility ineligible for any tax credit.

(2) Eligibility for the tax credit would be determined on a facility-by-facility basis. For example, a taxpayer could be eligible for assistance from ESC for one oil shale plant and the $3 per barrel tax credit with respect to production from another.

(3) Receipt of a tax credit would not make a facility ineligible for financial assistance from ESC in future years. No refunding would be required of credits received before any ESC assistance. However, ESC is expected to take into account assistance from tax credits in determining the level of financial assistance it will provide.

D. Tax Credit for Unconventional Gas

1. Background and present law

Devonian shale and Western tight sand formations

Shales containing gas, which were formed from 400 million to 350 million years ago in the Devonian period of the Paleozoic era, are located in Ohio, West Virginia, Pennsylvania, New York, Kentucky, Michigan, Indiana, Illinois, Virginia, Tennessee, Mississippi, and Alabama. It is estimated that about 285 trillion cubic feet of producible gas lies beneath Ohio, West Virginia, Pennsylvania, Kentucky, and New York. At the request of ERDA, the U.S. Geological Survey has begun a 5-year study to assess the gas potential of the black shales of the Devonian age which underlie more than 150,000 square miles in the Appalachian basin.

Although some natural gas is being produced on a very small scale from these deposits, commercial exploitation of the Devonian shale resources apparently will not be economically feasible until further research develops better methods for locating the hard-to-detect gas in the tight rock formations and for extracting the gas from the rock.

ERDA is developing an enhanced gas recovery program to study, test and demonstrate the feasibility of producing unconventional sources of naturally occurring gas including low permeability sandstone reservoirs. Devonian shale, geopressured aquifers and methane from coal seams. Currently, analytic studies and field tests are being conducted on Devonian shale in the Appalachian Basin and on the Western gas sands in Utah, Colorado, and Texas.

Geopressured gas

Geopressured gas is natural gas dissolved in water and contained in a geopressured aquifer,[1] up to and including 1,000 standard cubic feet (one mcf) per barrel of fluid for approximately the first 100 million cubic feet of production.[2]

Geopressured gas generally is located in deep (1 to 4 miles) zones of pressurized water with widely varying salinity in which the pressure exceeds the corresponding pressure of the water at that depth. The most extensive source of geopressured gas in the U.S. probably is the Gulf Coast.

Price controls

Gas produced from coal seams, geopressured brine, or from Devonian shale was deregulated by the Natural Gas Policy Act of 1978. In

---

[1] A geopressured aquifer is a sandstone formation filled with saline water and dissolved gas, including methane, at a static formation pressure in excess of .6 psi per foot of depth. These features generally distinguish geopressured gas from natural gas which is produced along with some water.

[2] It is estimated that this quantity should be reached in approximately the first three months of geopressured gas production. After the first 100 million cubic feet of production, the amount of methane per barrel of water may increase above 1,000 standard cubic feet due to separation of the gas and water in formation.

addition, that Act authorized the Federal Energy Regulatory Commission to determine that gas produced from Western tight sands is a high-cost gas entitled to a special price. In all instances, the Act further provides that these gases are not entitled to an unregulated price to the extent that any Federal tax adjustment is specifically allowable with respect to that gas. However, an unregulated price can be obtained if the producer elects it in lieu of any special tax adjustment.

Tax law

Percentage depletion

Generally, natural gas producers are not entitled to percentage depletion. However, independent producers and royalty owners are eligible for percentage depletion at a 22-percent rate. This rate is scheduled to phase down to 15 percent by 1984. The amount of gas eligible for percentage depletion is limited to the mcf equivalent of 1,200 barrels of oil per day in 1979, and is scheduled to phase down to a permanent mcf equivalent level of 1,000 barrels of oil per day in 1980.

Percentage depletion is limited to 65 percent of the taxpayer's taxable income, computed without regard to the deduction for depletion. For any property, the allowable percentage deduction is limited to 50 percent of the taxable income from that property, computed without regard to the deduction for depletion. In addition, with respect to each property, any excess of the depletion deduction over the adjusted basis of the property at the end of the taxable year, computed without regard to the depletion deduction for that year, is an item of tax preference subject to the minimum tax.

The Energy Tax Act of 1978 provided that geopressured gas (as defined in the Natural Gas Policy Act of 1978) is eligible for percentage depletion at a 10-percent rate for wells drilled after September 30, 1978, and before January 1, 1984. Wells drilled during this period will continue to be entitled to the 10-percent rate for their producing lives without regard to the generally applicable limitations on the availability of percentage depletion in the case of gas wells, i.e., the limitations relating to integrated companies, 65 percent of taxable income, and the number of eligible barrels. Wells drilled before or after these dates are to be treated as natural gas wells.

Intangible drilling costs

Under present law, gas producers may elect to deduct intangible drilling costs (IDCs), rather than to capitalize them and recover them through depletion or depreciation deductions. However, "excess" IDCs are both an item of tax preference for individuals, are subject to the minimum tax, and are subject to recapture as ordinary income upon certain dispositions of the property.

The amount of any loss (otherwise allowable for the year) which may be deducted in connection with exploring for, or exploiting, oil and gas cannot exceed the aggregate amount with respect to which the taxpayer is at risk with regard to the property.

Energy tax credit

To the extent that it qualifies, equipment used to recover gas is eligible for the regular 10-percent investment tax credit. In addition, the Energy Tax Act of 1978 provided that equipment to extract or

produce gas from geopressured brine (as defined in the Natural Gas Policy Act) is eligible for an additional 10-percent energy investment credit if placed in service before January 1, 1983.

2. Description of proposal

Under the Administration's proposal, a tax credit of $.50 per million Btu's would be provided to domestic producers of natural gas from unconventional sources. One million Btu's of energy is contained is slightly less than one thousand cubic feet (mcf) of natural gas. The credit, which would be nonrefundable, would be phased out beginning when the price of imported oil, adjusted to eliminate the effect of inflation, exceeds $22 a barrel.

Only natural gas produced from properties located in the United States or territories and possessions of the United States would be eligible for the credit. The credit would be phased out to the extent that the adjusted reference price for imported oil in a producer's taxable year exceeded $22. The credit would be reduced by 9 percent of the amount by which the adjusted reference price exceeded $22. Thus the credit would be phased out entirely when the adjusted reference price reached $27.56. The adjusted reference price, determined by the Secretary of the Treasury, generally is to be the average price of imported oil from the first 8 calendar months of a producer's taxable year. It would be adjusted to eliminate the effects of inflation between January 1, 1979, and the date of the reference.

The credit would be charged to the Energy Security Trust Fund, and a reserve would be established in the Fund based upon the estimated cost of the credit to ensure the availability of funding.

It is anticipated that the Energy Security Corporation (ESC) will provide financial assistance for the production of gas from unconventional sources. To ensure that there will be no duplication of subsidies, the following rules would apply to the availability of the tax credit:

(1) Receipt of any financial assistance from ESC would make a facility ineligible for any tax credit.

(2) Eligibility for the tax credit would be determined on a facility-by-facility basis. For example, a taxpayer could be eligible for assistance from ESC for one facility producing gas from unconventional sources and for the tax credit with respect to production from another.

(3) Receipt of a tax credit would not make a facility ineligible for financial assistance from ESC in future years. No refunding will be required of credits received before any ESC assistance. However, ESC is expected to take into account assistance from tax credits in determining the level of financial assistance it will provide.

E. Gasohol Tax Incentives

1. Present law

Fuel which is a mixture containing at least 10 percent alcohol is exempt from the 4-cent-per-gallon excise tax on gasoline. Alcohol includes methanol (wood alcohol) and ethanol (grain alcohol), except that produced from petroleum, natural gas or coal. This exemption expires on October 1, 1984. Several States provide similar exemptions from State gasoline taxes.

Also, equipment used to produce alcohol for use as a fuel is eligible for the 10-percent energy investment credit, as well as the regular 10-percent investment credit.

Plants producing alcohol are subject to various Treasury regulations intended to control use of alcohol for beverages.

2. Background

Use of alcohol in motor vehicles dates back to the early days of the auto industry. The Model T Ford could run on alcohol, gasoline or any mixture of the two. More recently, all 33 cars in the 1978 Indianapolis 500 ran on methanol.

When blended with gasoline, alcohol is useful both as an octane enhancer and as an additional source of fuel. Gasohol, generally a mixture of 10-percent ethanol and 90-percent gasoline, can be used in existing cars with at most minor engine modifications. Low concentrations of methanol can be burned in present cars with a few modifications; however, methanol can also be converted directly to gasoline.

Recently, there has been a significant increase in use of 10-percent gasohol. This appears to be the result of sizable subsidies provided to gasohol through the State and Federal tax systems. The exemption of 10-percent gasohol from the 4-cent Federal gasoline tax is equivalent to a subsidy of 40 cents per gallon of alcohol, or $16.80 for a 42-gallon Iowa gasoline tax is equivalent to a $27.30 subsidy per 42-gallon further subsidies; for example, the exemption from the 6½-cent-per-gallon Iowa gasoline tax is equivalent to a $27.30 subsidy per 42-gallon barrel of alcohol. Thus, in the States which have provided gasoline tax exemptions, gasohol can be competitive with gasoline even when its cost is $60 per barrel.

Currently, ethanol costs about $1.20 to $1.50 per gallon, or $50 to $63 per barrel. These costs could be reduced if ethanol is produced in larger plants, if low-cost agricultural waste products are used as feedstock, or if the by-products of alcohol production are used as food. Methanol, particularly that made from coal, is considerably less costly than ethanol.

Even with modern technologies, considerable energy may be needed to produce ethanol. For example, producing ethanol from corn consumes 580 Btu's to produce only 610 Btu's of energy. If the energy used is oil or gas, there would be little reduction in oil imports from this technology. However, other feedstocks, particularly agricultural wastes, have a better net energy balance; and it is possible to use fuels other than oil and gas to produce the alcohol.

3. Description of proposals

a. Administration proposal

The Administration proposes to make the exemption from the 4-cents-a-gallon excise tax permanent to encourage investment in plants which would produce alcohol beyond 1984. The Administration is concerned that such investment would not take place without a permanent exemption.

The proposal also would incorporate those provisions of the Technical Corrections Bill of 1979 (H.R. 2797, as passed by the House), which provide that persons who pay the excise tax on gasoline mixed with alcohol are entitled to a refund or credit of the excise tax paid.

b. H.R. 2648 (Mr. Glickman, et al.)

This bill would provide an elective 60-month period for the amortization of certain qualified alcohol-producing facilities. This five-year amortization period would apply to any tangible property which is of a character subject to the allowance for depreciation, and which is used in producing alcohol, the primary use of which is fuel or other petroleum substitution, from coal or biomass. Buildings and their structural components would not be covered by the amortization election unless the building was used exclusively as an alcohol-producing facility.

c. H.R. 4781 (Mr. Fisher)

This bill would provide a similar amortization election for tangible property of a character subject to the allowance for depreciation which is used as an integral part in the production of alcohol, the primary use of which is fuel or other petroleum substitution, from coal, biomass, or agricultural (including forestry) products. The amortization election contained in this bill also would apply to research facilities used in connection with the production of alcohol as a fuel substitute, and to facilities for the bulk storage of fungible commodities used in the alcohol production process. The election, however, would not apply to air conditioning or heating units, or to buildings or their structural components unless the building is used exclusively in the alcohol production process or as part of a qualified facility.

d. H.R. 4215 (Messrs. Ullman, Conable and Glickman)

This bill would provide that distilled spirit plants may be established solely for the production of alcohol for fuel use and would give the Secretary of the Treasury authority to waive the existing distilled spirits rules for such plants.

This bill was submitted in response to section 221(d) of the Energy Tax Act of 1978, which directed the Secretary to recommend legislation to simplify the regulation of persons producing ethanol for use in producing gasohol.

III. APPENDIX

A. Energy Tax Incentives Enacted in the Energy Tax Act of 1978

1. Residential conservation credits

Under the Act, a credit of 15 percent is available for the first $2,000 of qualified energy conservation expenditures on a principal residence for:

(a) insulation;
(b) a fuel efficient replacement burner for a furnace;
(c) a flue opening modifier;
(d) an electrical or mechanical furnace ignition system;
(e) exterior storm or thermal windows and doors;
(f) an automatic energy saving setback thermostat;
(g) exterior caulking or weatherstripping; and
(h) an energy usage display meter.

In addition, the Secretary was given discretionary authority to add to the list property which increases the energy efficiency of the building.

The credit expires after 1985. Credits for installation in 1977 (after April 19, 1977) must be claimed on 1978 tax returns. In years when credits exceed tax liability, the credits may be carried over to subsequent years through 1987, i.e., 2 years after expiration of the credit.

2. Residential renewable energy source credits

Tax credits of 30 percent of the first $2,000 of expenditures and 20 percent of the next $8,000 of expenditures (i.e., $2,000 to $10,000) are available for expenditures on solar energy property, property which uses energy derived from geothermal deposits, and property which uses wind energy for heating, cooling, or providing hot water to a principal residence. The Secretary was given discretionary authority to add to this list other property which meets performance and quality standards.

The credit expires after 1985. Credits for installations in 1977 (after April 19, 1977) must be claimed on 1978 returns. In years when credits exceed tax liability, the credits may be carried over to subsequent years through 1987, i.e., 2 years after expiration of the credit.

3. Business energy investment credits

The Act provided an investment tax credit of 10 percent for investment in certain types of energy property. This credit is allowed in addition to the regular 10-percent investment credit for which such property also may be eligible under existing law. The energy credit is generally available for costs incurred for qualifying property after September 30, 1978, and before January 1, 1983.

Energy property is defined to include boilers and burners which use a substance other than oil or natural gas, i.e., an alternate substance, as a fuel, plus related on-site fuel handling and pollution control equipment. Equipment to convert an alternate substance into a synthetic fuel or industrial feedstock and costs to modify existing oil or gas burning equipment to use an alternate substance as a partial fuel or feedstock also are covered. In addition, related equipment for fuel or feedstock handling and pollution control are eligible. Energy property also includes geothermal energy equipment, solar and wind energy

equipment, recycling equipment, shale oil, production equipment, equipment to produce natural gas from geopressured brine and certain specially defined equipment which reduces energy consumption in an existing commercial or industrial facility or process. Eligible property must have a useful life of at least 3 years and meet prescribed performance and quality standards.

Generally, the additional investment credit is not available for public utility property within the meaning of Code section 46(f)(5). However, the credit is available for eligible property, e.g., geothermal equipment, which is not used by a public utility.

The general rules for applying the regular investment credit are also made applicable to the energy investment credit, with several exceptions. The structural components (sec. 48(a)(1)) and lodging (sec. 48(a)(3)) limitations are not applicable to the energy credits. In addition, energy credits may be used against 100 percent of income tax liability.

The credits for solar and wind energy equipment are refundable to the extent they exceed tax liability, and special stacking rules are provided for the energy credits and the regular investment credit to allow the maximum use of energy credits under these rules.

4. Unconventional energy sources

a. Geothermal

The Energy Tax Act of 1978 extended to the operators of geothermal wells the election to deduct currently intangible drilling and development costs (IDCs). (Complementary provisions also were enacted on the treatment of excess IDCs for purposes of recapture, the at risk rules, and application of the minimum tax.) The Act further provided that geothermal deposits are eligible for the same rate of percentage depletion as that applicable to oil and gas, *i.e.*, 22 percent for 1979. However, percentage depletion in the case of geothermal deposits was not restricted to independent producers, a specified number of barrels, or to 65 percent of the taxpayer's taxable income.

The Act also provided that equipment used to produce, distribute, or use geothermal energy generally is eligible for an additional 10-percent tax credit. In addition, the Act provided that property for the residential use of geothermal energy generally qualifies for the residential energy credit as renewable energy source property.

b. Geopressured gas

The Energy Tax Act of 1978 provided that geopressured gas (as defined in the Natural Gas Policy Act of 1978) is eligible for percentage depletion at a 10-percent rate for wells drilled after September 30, 1978, and before January 1, 1984. Wells drilled during this period will continue to be entitled to the 10-percent rate for their producing lives, without regard to the generally applicable limitations on the availability of percentage depletion in the case of gas wells. Wells drilled before or after these dates are to be treated as natural gas wells.

The Act also provided that equipment to extract or produce gas from geopressured brine is eligible for an additional 10-percent energy credit.

c. Shale oil

The Act provided an additional 10-percent energy tax credit for equipment for producing or extracting oil from shale rock. (The credit was not extended to equipment for hydrogenating or refining, or to equipment used for processes subsequent to retorting.)

B. House-Passed or Senate-Passed Energy Tax Credit Provisions Not Accepted by Conference Committee on the Energy Tax Act of 1978

The following is a listing of the various residential and business energy-related tax credits that were passed by either the House or Senate but which were not accepted by the Conference Committee on the Energy Tax Act of 1978.

1. Residential credits

Senate-passed bill

(*1*) *Energy conservation credits*—

(*a*) a heat pump which replaces an electric resistance heating system.

(*b*) replacement fluorescent lighting systems.

(*c*) evaporative cooling devices.

(*d*) residential equipment which uses hydrogen as a fuel

(*e*) residential equipment designed to use wood or peat as a fuel.

(*2*) *Renewable energy sources*—

(*a*) equipment using solar energy in the production of electricity.

(*b*) leased solar energy equipment.

(*c*) equipment using wind energy for transportation.

2. Business energy investment credits

a. House-passed bill

(*1*) *Alternative energy property*—

(*a*) nuclear and hydroelectric power equipment.

(*b*) public utility property.

(*2*) *Energy property*—

cogeneration equipment

(*3*) *Business insulation property*—when added to an existing building would be made eligible for the regular 10-percent investment credit.

b. Senate-passed bill

(*1*) *Alternative energy property*—

(*a*) nuclear power equipment, other than turbines or generators.

(*b*) hydroelectric power equipment, including turbines, generators and dams.

(*c*) equipment to produce coke or coke gas.

(*d*) equipment to convert ocean thermal energy or tidal power into useful forms of energy.

(*e*) equipment used in construction of, and in research and development on, electric highway motor vehicles.

(2) *Specially defined energy property*—

(*a*) industrial heat pumps.

(*b*) energy efficient replacement electric motors.

(*c*) fuel cells, gas turbines and external combustion engines with demonstrated fuel efficiencies.

(*d*) fluorescent replacement lighting systems.

(*e*) silicone controlled rectifier units.

(3) *Energy property*—

(*a*) transportation equipment designed to reduce energy consumption by commercial motor carriers.

(*b*) on-site electrical heat processing equipment which is replacement equipment and which uses electricity produced with an alternate substance.

(*c*) electric motor vehicles purchased for use in a trade or business on public streets, roads or highways.

(*d*) cogeneration equipment.

(4) *Other*

Business insulation property when added to an existing building would be made eligible for the regular 10-percent investment credit.

3. Production credits

Senate-passed bill

In conjunction with its consideration of the Energy Tax Act of 1978, the Senate approved nonrefundable income tax credits for production of nonconventional oil and gas in or offshore of the United States or its possessions. The credits were:

(*a*) $3 per barrel for shale oil;

(*b*) $3 per barrel for oil from tar sands;

(*c*) 50 cents per mcf for geopressured natural gas; and

(*d*) 50 cents per mcf for tight rock formation gas.

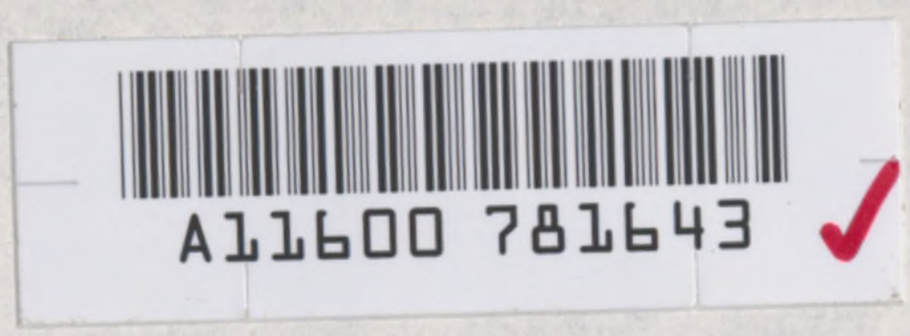
Credits would have been allowed according to the ratio of the taxpayer's gross income from the property to total gross income from the property. Credits would have been reduced on a project-by-project basis according to the ratio between Federal grants for equipment and facilities and total investment in equipment and facilities for nonconventional energy processes. The credits would have applied for taxable years beginning after December 31, 1977.

4. Other credits

House-passed bill

Electric motor vehicles for personal use on public roads.

○


A11600 781643