[COMMITTEE PRINT]

ENERGY PROGRAM

7

ENERGY TAX PROPOSALS RELATING TO RESIDENTIAL CONSERVATION

PREPARED FOR THE

COMMITTEE ON WAYS AND MEANS
HOUSE OF REPRESENTATIVES

BY THE STAFF OF THE

JOINT COMMITTEE ON TAXATION

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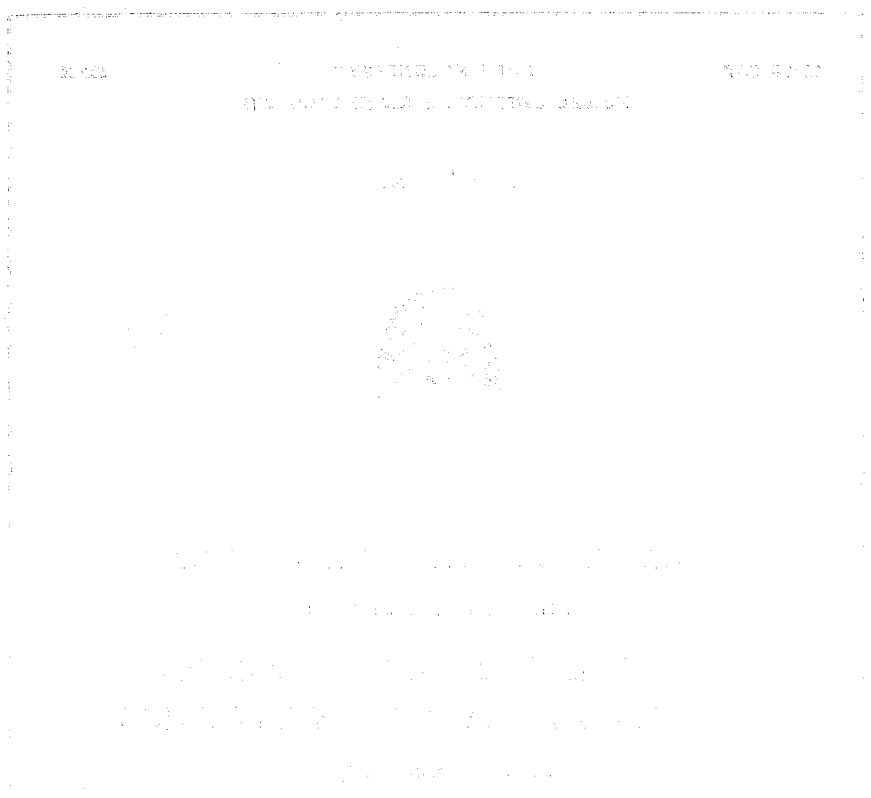
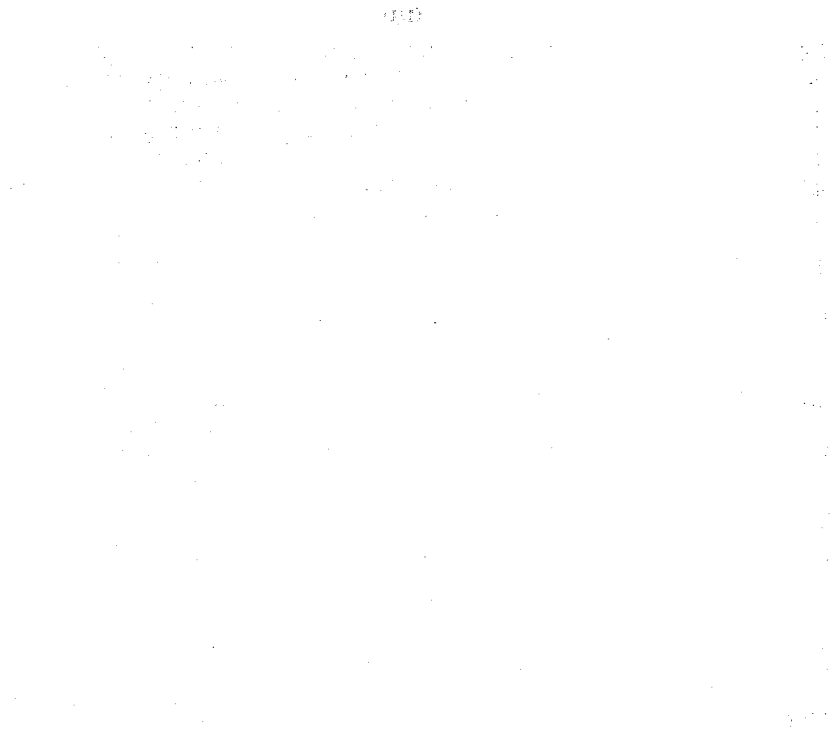


TABLE OF CONTENTS

	Page
I. Introduction	1
II. Home insulation credit	3
A. Background	3
B. Present law	12
C. Administration proposal	12
D. Action in the 94th Congress	14
E. Staff analysis	15
F. Members' proposals	17
G. Other proposal	18
H. Areas for committee consideration	18
III. Solar energy equipment credit	20
A. Background	20
B. Present Law	22
C. Administration proposal	22
D. Action in the 94th Congress	24
E. Staff analysis	25
F. Members' proposals	26
G. Other proposal	27
H. Areas for committee consideration	27
IV. Other residential energy equipment credits	28
A. Present law	28
B. Administration proposal	28
C. Action in the 94th Congress	28
D. Members' proposals	29
E. Areas for committee consideration	30



I. INTRODUCTION

This pamphlet is the seventh in a series prepared for use by the Committee on Ways and Means during its consideration of the Administration's energy tax proposals. This pamphlet is intended to describe in detail the energy tax proposals relating to residential conservation forming part of the Administration's energy program (H.R. 6831) referred to the Committee on Ways and Means. This description includes sections on economic and other background information, present law, members' and other proposals, staff analysis, areas for committee consideration, as well as the relevant energy tax proposals considered by the 94th Congress.

In the 94th Congress, the major bill considered in connection with energy tax proposals was H.R. 6860. This bill was reported by the Ways and Means Committee and was amended on the House floor. Markup sessions on H.R. 6860 were held by the Finance Committee in July 1975, and tentative decisions were made in many areas, but the bill was not reported at that time. Many of the provisions approved by the Finance Committee were added to H.R. 10612, the Tax Reform Act of 1976, as Title XX, but all of the energy provisions were deleted in conference. In August of 1976 the Finance Committee reported the provisions of Title XX (as passed the Senate) as an amended version of H.R. 6860. This bill was never taken up on the Senate floor and the provisions expired with the adjournment of the 94th Congress.

Unless otherwise indicated, the provisions discussed below with respect to action in the 94th Congress reflect H.R. 6860 as approved by the Ways and Means Committee. Also, unless otherwise specifically indicated, references to the Finance Committee bill refer to title XX of the Tax Reform Act (as passed by the Senate) and to the Finance Committee's reported version of H.R. 6860. Amendments on the House floor or on the Senate floor (to title XX of the Tax Reform bill) are specifically noted.

II. HOME INSULATION CREDIT

(SECTION 1101 OF THE ADMINISTRATION BILL)

A. Background

Introduction

Residential energy use varies substantially by region and source of energy. Overall, it is estimated [1] that the household and commercial buildings use 31.6 percent of all energy in the United States. Of the sales of distillate fuel oil in 1974, 46 percent was used for heating; [2] of the sales of natural gas in 1974, 28 percent of the volume was for residential use and 44 percent of the dollar value was for residential use.[3] In view of the substantial share of energy used by the residential sector, measured either by physical volume or value of sales, conservation efforts in this sector could substantially alter the overall rate of energy utilization in the economy. For example, based on a 30-percent tax credit on the first $500 of conservation investments in single-family residential homes, the FEA projected that the demand for distillate fuel oil would be 1.3 percent lower in 1980, and 1.4 percent lower in 1990; the demand for natural gas would be 0.6 percent lower in 1980; and the demand for electricity would be 2.8 percent lower in 1980.[4]

Types of conservation devices

There are a number of energy conservation techniques available to residential structures which can materially alter their energy use. The principal techniques examined by the National Bureau of Standards [5] in 1975 include: (i) attic insulation, (ii) wall insulation, (iii) floor insulation, (iv) duct insulation in unheated areas, (v) storm windows, (vi) storm doors, (vii) weatherstripping, (viii) vapor barriers, (ix) clock thermostats, (x) flue dampers, and (xi) burner modifications. While other techniques have some energy impact, they are not among the major techniques currently subject to technological review.

The economics of residential conservation

For the individual, the decision to modify an existing structure by adding insulation, storm windows, or other conservation devices is very similar to that facing an individual with savings who wants to invest in assets of various maturities and rates of return. Savings from energy conservation investments accrue over time, so that future benefits need to be discounted by an appropriate rate of interest. The homeowner should be willing to invest in additional energy conservation measures up to the point where the additional cost of an invest-

[1] Department of the Interior, Bureau of Mines, *News Release* (March 14, 1977), p. 4.
[2] Minerals Yearbook (1974), p. 1017.
[3] Minerals Yearbook (1974), p. 852.
[4] FEA, 1977 National Energy Outlook, vol. II, p. K–43.
[5] National Bureau of Standards (1975), "Recommended Criteria for Retrofit Materials and Products Eligible for Tax Credit" (MBSIR 75–795).

ment in energy conservation is matched by the energy saving from that investment. Thus, it would not be economical to concentrate one's entire energy conservation budget on, say, attic insulation, since modest amounts of other insulation, e.g., weatherstripping, will initially yield rather substantial energy savings.

The techniques an individual homeowner will choose to apply will depend on the climate he faces, the relative prices and energy efficiencies of each conservation techniques, and the price of the type of energy being used. As the price of energy rises, the value of conservation investments increases. Also, the more severe that the climate becomes, the more warranted conservation investments become.

These various considerations are displayed in table 1 which contains 3 hypothetical allocations of energy conservation devices for various budget sizes.[6] The house in question is 1,200 square feet (relatively small) in size, single story, with wall insulation and weatherstripping. It is in Washington, D.C. and annually experiences 4,000-degree days [7] and 1,000 cooling hours.

TABLE 1.—*Allocation of limited energy budgets under alternative energy price assumptions*

Energy prices heating/cooling (per Btu)	Attic insulation	Floor insulation	Storm windows	Total investment
1. $0.15/$0.45	$162 (4″)	$174 (4″)	$125 (5)	$461
2. $0.30/$0.45	162 (4″)	174 (4″)	200 (8)	536
3. $0.45/$0.45	222 (6″)	234 (6″)	275 (11)	731

Thus, in case 1, above, where heating costs are $0.15 per Btu and cooling costs are $0.45 per Btu, the overall energy savings resulting from 4 inches of attic and floor insulation and 5 storm windows would warrant an energy conservation investment of $461. In case 3, above, where heating costs are $0.45 per Btu and cooling costs are $0.45 per Btu, an overall energy conservation investment of $731 would be warranted.

U.S. housing stock

In 1975, there were 77.6 million year-round housing units (of which, 72.5 million were occupied) in the United States.[8] Of the total units, 49.5 million units, or 64 percent were single detached units. Another 3.1 million were single units, but attached (e.g., common wall) to one another.

Another 9.8 million units were attached in 2 to 4 units, and 11.8 million were attached in a structure of 5 or more units. Mobile homes

[6] Example is from: S. R. Peterson (1974), "Retrofitting Existing Housing for Energy Conservation: An Economic Analysis" (National Bureau of Standards, Department of Commerce), p. 28–40.

[7] The number of degree days during a year equals the sum of the degrees by which the mean temperature for each day of the year falls below 65 degrees Fahrenheit. A cooling hour is the number of hours per year in which the temperature exceeds 72 degrees Fahrenheit.

[8] U.S. Bureau of the Census, "Annual Housing Survey: 1975 (Part A, General Housing Characteristics)," April 1977, Table A–1.

accounted for 3.3 million units or 4.3 percent of the total housing stock.

Of the 77.6 million units, 46.9 million units, or 60 percent of the total, were owner occupied; the bulk of which (39.8 million) were detached single units. Of the remaining 30.7 million rental units, 7.1 million were single, detached units, and the rest were multi-units.

Since 1970, there have been rather marked shifts in the type of heating sources used and the extent to which air conditioning is being added. (See table 2.) Fuel oil was used in 26.0 percent of all heating units in 1970, 22.5 percent in 1975. Only 9.4 percent of new units constructed in 1975 were heated by fuel oil. Electric heat, by contrast, has experienced a very rapid increase. In 1970, electric heat represented 7.7 percent of all units, and 12.6 percent of all units in 1975. Of units constructed in 1975, 37.6 percent were heated by electricity. Natural gas has experienced a decline recently. In 1975, 56.4 percent of all units were heated by natural gas, but of the new units constructed in 1975, only 44.7 percent of the units were so heated.

TABLE 2.—*Sources of heat for residential use: 1970 and 1975*

[Percent of units which use various fuels]

Source	1970 [2]	1975 [2]	New units 1975 [1, 3]
Utility gas	55.2	56.4	44.7
Tank gas	6.0	5.7	7.3
Fuel oil	26.0	22.5	9.4
Electricity	7.7	12.6	37.6
Coal	2.9	.8	----
Wood	1.3	1.2	.5
Other	.4	.1	----
None	.6	.6	.5
Total	100.0	100.0	100.0
Item: Total number of occupied units (thousands)	63,446	72,522	10,181

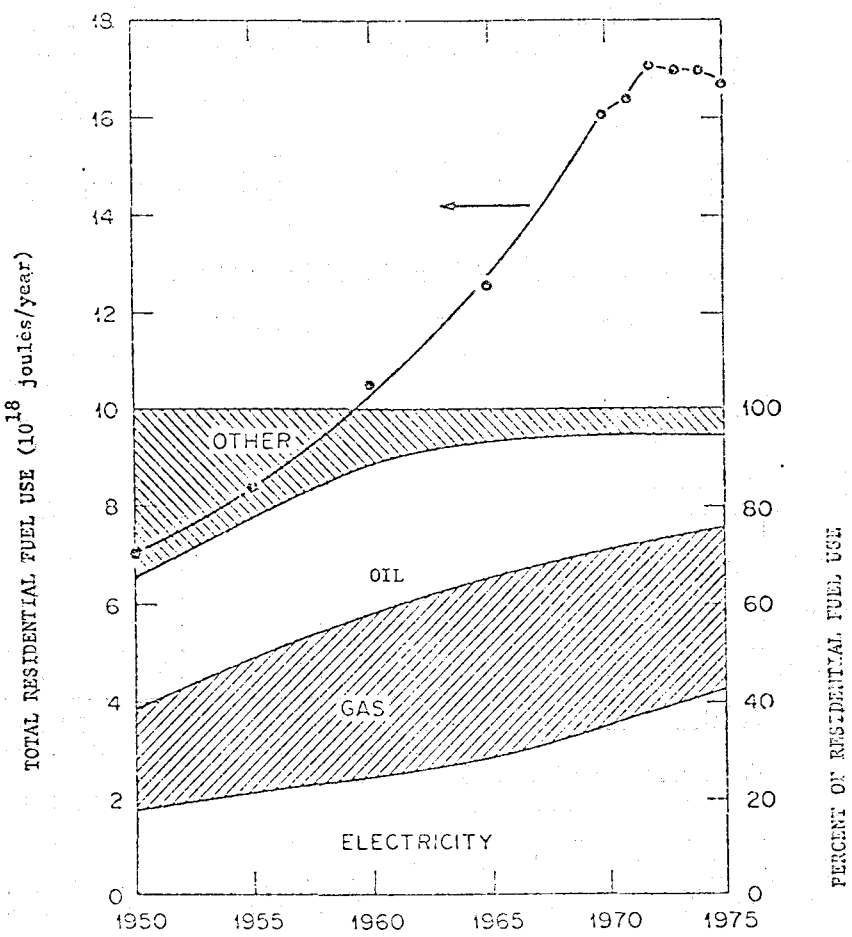
[1] Includes multifamily dwellings and apartments.
[2] Source: U.S. Census Bureau, *Annual Housing Survey: 1975*, table A–1, p. 8.
[3] Source: U.S. Census Bureau, *Annual Housing Survey: 1975*, table A–4, p. 26.

Diagram 1 displays the pattern of residential energy use in terms of the total quantity of energy used and the type of energy used. (This includes both cooling, heating and cooking.) The composition of energy uses follows the pattern in table 2, which only relates to the type of heating installed. Also of interest is that reliance on oil has fallen off dramatically.

These rather marked shifts in energy sources for heating indicate that recent changes in relative energy prices, as well as expected future price relationships, influence changes in energy source utilization. Cessation of natural gas hookups for residential space heating and cooling and hot water heating in some metropolitan areas represents part of the shift from natural gas to electricity. It should be noted, how-

ever, that increased reliance on electric heat requires the use of some form of energy—oil, hydro, coal or nuclear power—to generate the electricity for such heat and, therefore, on an overall basis, may be energy inefficient.

DIAGRAM 1. LEVEL OF COMPOSITION OF RESIDENTIAL ENERGY USE BY TYPE OF ENERGY



There is some evidence which suggests that in the long run (i.e., a sufficient period of time for individuals to adjust their choice of energy use either through retrofitting or when putting in an original heating/cooling system), the residential demand for various energy sources is price-sensitive.[9] Estimates for electricity indicate that

[9] E. Hirst, J. Cope, S. Cohen, W. Lin, and R. Hoskins (April 1977), "An Improved Engineering-Economic Model of Residential Energy Use" (Oak Ridge National Laboratory), ORNL/COW-8.

a 10-percent increase in the price of electricity reduces the demand for electricity by 8.4 percent; estimates for natural gas indicate that a 10-percent increase in the price of natural gas reduces demand by 9.3 percent; and estimates for home heating oil indicate that a 10-percent increase in the price of such oil reduces demand by 16.4 percent.

Public demand for air conditioning has increased markedly. In 1970, 35.2 percent of the housing stock had some form of air conditioning, and by 1975, it had increased to 49.4 percent. In this 5-year period, the percentage of units with central air conditioning doubled from 10.2 percent in 1970 to 20 percent in 1975. Of the new units constructed in 1975, 67.6 percent had some form of air conditioning. Half of all new units constructed in 1975 had central air conditioning. (See table 3).

TABLE 3.—*Extent of air-conditioning in housing stock*

[In percent]

	1970	1975	New units 1975
Room air-conditioners	25.0	29.4	17.4
Central air	10.7	20.0	50.2
Subtotal	35.7	49.4	67.6
None	64.3	50.6	32.4
Total	100.0	100.0	100.0

Source: U.S. Census Bureau, Annual Housing Survey, 1975, table A–1, A–4.

Conservation devices in housing stock

Systematic information is not available to the public on all the conservation devices being used in existing housing. Such information would be significant because it would make it possible to estimate how much additional investment is physically possible and what the potential energy savings could be. Some information from the 1975 Annual Housing Survey is available with respect to single family dwellings. (See table 4.) Occupied single family dwellings numbered 53.1 million in 1977 out of a total housing inventory of 77.6 million, or 71 percent of the total. Of these 53 million units, 56 percent had some or all windows covered with storm windows, 59.5 percent had some or all doors covered with storm doors, and 74 percent had some sort of attic insulation. About 45 percent had some form of all three conservation devices.

TABLE 4.—*Conservation devices in housing stock: 1975*
(occupied single family units)

[In percent]

	United States	Northeast	North-central	South	West
Storm windows:					
All windows covered	46.0	76.3	80.5	21.7	11.9
Some windows covered	10.0	14.6	10.7	8.5	7.2
Storm doors:					
All doors covered	47.8	77.9	81.9	25.0	11.1
Some doors covered	11.7	12.7	9.2	14.6	8.9
Attic insulation	74.0	78.6	83.9	67.3	67.4
Item: Total number of units (thousands)	53,095	9,600	14,725	18,822	9,948
Item: Region's share of all units (percent)		18.1	27.7	35.4	18.7

Source: U.S. Bureau of the Census, Annual Housing Survey: 1975, table A–1, B–1, C–1, D–1, E–1.

There is substantial regional variation in the extent to which these three devices were used in 1975, which probably reflects regional variations in weather. For example, 76.3 percent of the houses in the Northeast had all windows covered with storm windows, while only 11.9 percent of the houses in the West had such devices. The use of storm doors displays the same regional variation with the Northeast and Northcentral regions (because of their more severe winters), both having a high percentage of all doors covered (above 77 percent) as compared to the South and West (25 percent or less). Attic insulation appears to be the most prevalent form of conservation, ranging from 67.3 percent in the South to 83.9 percent in the Northcentral region. These figures do not, however, reflect the efficiency of such devices in conserving energy. Since the oil embargo in 1973–74, the heightened concern for conservation has resulted in higher efficiency standards for all types of insulation.

Of related interest is that the extent to which conservation devices are used varies by type of fuel use. About 92 percent of houses which use electricity as a source of heat had at least one type of conservation, while 85 percent of houses heated by natural gas had at least one type of conservation.

There is a marked difference in the extent to which rental houses and owner-occupied houses are insulated. Whereas 90 percent of owner-occupied homes have at least one form of conservation device, only 60 percent of the rental houses had at least one form.[10] Since rentors tend to pay their own utility bills and also tend to be transient, this differential is understandable. Rental houses are, however, a small fraction (15 percent) of the single unit market.

[10] Unpublished tabulations from the 1975 Annual Housing Survey.

Extent of new residential conservation investments

The rapid increase in the price of home heating oil and other energy sources has prompted many homeowners and some rentors to add various conservation devices. As noted earlier, as the price of energy rises, the value of energy savings increases, and additional conservation measures become economical.

In 1975, 9.1 million or 22 percent of the occupied, single family detached houses added some form of insulation (storm doors, storm windows, attic insulation, wall insulation or weatherstripping). About 14 percent of such homes only added storm doors, storm windows or attic insulation in 1975. Table 5 displays the numbers of units which added four of these types of insulation, and reflects a 5.6-percent increase over 1974 in attic insulation. Storm window installation increased by 11.1 percent.

TABLE 5.—*Home insulation added in 1975*

Insulation device:	*Total*
Storm doors added (thousands)	2,477.7
Increase over 1974 (percent)	9.5
Storm windows added (thousands)	2,657.4
Increase over 1974 (percent)	11.1
Attic insulation added:	
Total (thousands)	2,003.4
Under 3 in. (percent)	6.4
3 to 6 in. (percent)	58.5
6 in. plus (percent)	32.6
Increase over 1974 (percent)	5.6
Wall insulation added	1,549.8

Source: Unpublished tabulations from 1975 Annual Housing Survey.

The dollar amounts of these expenditures are displayed in Table 6. The bulk of these expenditures (61 percent) were under $100. Fourteen percent were between $100 and $200. Only 8.4 percent of the additions were more than $400.

TABLE 6.—*Size distribution of outlays for new insulation*[1] *in 1975*

Total cost of insulation	Number	Percent
Up to $100	5,739.8	61.4
$101 to $199	1,304.8	13.9
$200 to $399	730.1	7.8
$400 plus	784.0	8.4
None or no change	152.5	1.6
Don't know cost	407.1	4.4
No response	236.0	2.5
Total	9,354.9	100.0

[1] Insulation is defined as storm windows, storm doors or other insulation.
Source: Unpublished tabulations from *1975 Annual Housing Survey.*

Conservation and income class

The extent to which insulation devices are used varies significantly by income class. (See table 7.) Families in single homes with income of less than $2,000 had only 39.6 percent utilization rate of storm windows; half the families with income under $2,000 had attic insulation. On the other hand, 88.7 percent of families in single homes with income of $25,000–$35,000 had attic insulation; 62.7 percent of such families had storm windows. The pattern of new insulation added by income class is roughly the same, with attic insulation being the most income sensitive. Only 1.6 percent of the families in single homes with income under $2,000 added attic insulation in 1975, while 6.3 percent of the families in single homes with income of $25,000–$35,000 added attic insulation; 9.6 percent of families in single homes with income between $12,500 and $15,000 added attic insulation.

TABLE 7.—*Insulation of homes and family income class in 1975*

Census money income class of families in single-family units	Percent with all or some storm windows in 1975	Percent with all or some storm doors in 1975	Percent with attic insulation in 1975	Single-family detached units		
				Percent adding storm windows in 1975	Percent adding storm doors in 1975	Percent adding attic insulation in 1975
Under $2,000	39.6	43.6	49.9	3.8	2.6	1.6
$2,000 to $3,000	44.0	49.5	47.3	4.5	3.0	1.7
$3,000 to $4,000	47.6	51.0	56.3	4.9	3.4	2.1
$4,000 to $5,000	50.2	55.9	56.7	4.4	3.3	2.7
$5,000 to $6,000	49.3	53.2	61.8	5.7	4.5	2.6
$6,000 to $7,000	49.1	54.6	64.5	5.6	4.1	2.9
$7,000 to $8,000	52.3	56.8	65.3	4.9	4.0	6.6
$8,000 to $10,000	52.7	58.3	70.0	5.4	4.7	6.6
$10,000 to $12,500	58.3	63.8	78.1	6.2	5.4	5.2
$12,500 to $15,000	59.0	65.8	80.0	5.8	6.7	9.6
$15,000 to $25,000	62.8	66.8	85.5	6.5	6.6	6.2
$25,000 to $35,000	62.7	64.4	88.7	5.4	5.8	6.3
$35,000 and over	61.6	60.4	89.5	5.5	5.0	6.6

Source: U.S. Bureau of the Census, 1975 Annual Housing Survey, unpublished tabulations (May 1977).

B. Present Law

No special tax credit or deduction is presently allowed for expenditures in relation to a taxpayer's residence to install insulation, more efficient heating systems, or other energy saving components. However, such capital expenditures are added to the taxpayer's basis in a residence which he owns and will decrease any gain on its sale or exchange.

The Energy Conservation and Production Act of 1976 (P.L. 94–385) included a number of measures designed to encourage the weatherization of dwellings. The act authorized appropriations for insulation, caulking, weatherstripping, storm windows and doors, and energy saving mechanical equipment (up to $50 in value) for dwellings of low-income persons. In general, the amount of this assistance per residence was limited to $400. In addition, the act established energy performance standards for new residential, commercial, and public buildings, authorized funds for State plans providing information on energy-conservation modifications for buildings and industrial plants, directed the Secretary of Housing and Urban Development to test financial incentives for conserving energy in existing dwellings, and authorized the FEA to guarantee loans for installations of energy conservation measures in existing buildings (including State and local governmental buildings and residential buildings containing more than two dwelling units) and industrial facilities.

C. Administration Proposal

Tax proposals

The credit proposed for qualified residential energy conservation expenditures would be 25 percent of the first $800 and 15 percent of the next $1,400 of expenditures, for a maximum credit of $410. No additional credit would be allowed for expenditures over $2,200. The credit would be allowed for the amounts expended after April 20, 1977, and before January 1, 1985. The maximum credit is the cumulative total credit that would be allowed during the entire period with respect to a taxpayer's principal residence. The credits would be nonrefundable, i.e., they could not exceed an individual's tax liability in any year.

Credits would be allowed only for qualified energy conservation expenditures made with respect to the taxpayer's principal residence, whether owned or rented, if the residence is located in the United States and in existence on April 20, 1977.

Qualified energy conservation expenditures include those for insulation, a replacement furnace burner designed to reduce fuel consumption through increased combustion efficiency, a device to modify flue openings, an electrical or mechanical furnace ignition system replacing a standing gas pilot light, a storm or thermal window, a clock thermostat, and caulking or weatherstripping of exterior doors and windows (but only if installed together with insulation or one other energy conserving component). Each type of equipment must be new and have a useful life of at least 3 years. The Secretary of the Treasury would be given the power to add to or delete by regulation from the list of items for which the credit would be allowed. The increase in the taxpayer's basis for his residence for qualifying expenditures would be reduced by the amount of credit allowed.

In the case of a cooperative housing association, each tenant stockholder would be entitled to a credit based upon his proportionate share of qualified expenditures made by the association. (The proposal contains no similar provision for condominium owners.)

Revenue estimate

Estimated Effect of the Administration Home Insulation Credit on Fiscal Year Receipts, 1978–85

	Millions
1978	−$360
1979	−445
1980	−469
1981	−494
1982	−520
1983	−550
1984	−581
1985	−517

Source: Office of the Secretary of the Treasury.

Energy saving estimate

The Administration estimates that the residential energy tax credit will reduce the residential demand for energy in 1985 by .96 quadrillion ("quad") British thermal units. This energy savings is composed of a .33 quad reduction in petroleum demand, a .48 quad reduction in natural gas demand and a .15 quad reduction in the demand for coal. These savings represent both the direct and the indirect effect of the credit. The direct effect reflects the smaller use of energy by consumers as a result of insulation devices, e.g., less natural gas per home. The indirect effect reflects the fact that less energy will be needed to produce the energy that is finally consumed, e.g., fewer additional electric plants will be built because of smaller end use demand; not building the plants saves the energy used to make the steel, etc.

The savings of .96 quads as a result of the credit in 1985 represents 23 percent of the energy savings (measured in quads) achieved by the conservation portion of the Administration's program in that year.

The Congressional Budget Office estimates that the residential tax credit will result in much smaller direct energy savings than that estimated by the Administration. Under the assumption that an additional 7.8 million dwelling units would be insulated as a result of the credit, and that such insulation can save 35 million Btu's per house per year, the CBO estimates that about .3 quads will be saved in 1985, as compared to the .96 quads estimated by the Administration. It would seem unlikely that the indirect effects of the credit could account for the difference between the Administration's estimate of .96 quads saving (which includes the direct and indirect effects of the credit) and the CBO estimate of .3 quad saving (which includes just the direct effects of the credit).

Nontax proposals

1. Gas and electric utilities would be required to offer their customers a residential energy conservation service. If the customer decides to avail himself of this service, the utility would arrange for the in-

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stallation of energy conservation equipment (such as insulation), and the customer would repay the utility through additions to the monthly utility bills. Customers would have the option of having the equipment installed by a supplier other than the utility. The utilities would also be required to inform customers of other available residential conservation programs and how to obtain financing, materials and labor to perform residential conservation themselves. (Referred to Committee on Interstate and Foreign Commerce.)

2. Loans for residential energy conservation would be made eligible for purchase by the Federal Home Loan Mortgage Corporation and the Federal National Mortgage Association. (Referred, concurrently, to the Committee on Interstate and Foreign Commerce and the Committee on Banking.)

3. Funding would be increased for the existing low-income residential conservation program (weatherization) to $130 million in fiscal 1978 and $200 million per year in fiscal 1979 and 1980. (Referred, concurrently, to the Committee on Interstate and Foreign Commerce and the Committee on Banking.)

4. A Federal grant program would assist public and non-profit schools and hospitals in financing conservation measures. The program would be funded at a rate of $300 million per year for 3 years. (Referred, concurrently, to the Committee on Interstate and Foreign Commerce and the Committee on Banking.)

D. Action in the 94th Congress

The Ways and Means Committee bill provided a nonrefundable income tax credit for 30 percent of the first $500 of insulation expenditures, for a maximum credit of $150. The credit was to be available for the cost of insulating the taxpayer's principal residence, whether owned or rented. The residence was required to have been in existence on March 17, 1975. The credit was to be allowed for the period March 18, 1975, through December 31, 1977. The limitation on the amount of qualifying expenditures was to have been reduced by prior expenditures of any taxpayer on the same residence if the credit for those expenditures, whether or not claimed, was allowable.

Qualifying insulation included regular insulation, storm or thermal windows and doors, or similar items such as weatherstripping and caulking designed primarily to reduce heat loss or gain of a building. Whether materials such as a clock thermostat were to qualify was left to administrative determination. A useful life of at least 3 years was required and the materials and equipment had to meet certain performance standards prescribed by the Treasury Department (after consultation with the Federal Energy Administration and the Department of Housing and Urban Development). Used property did not qualify. The increase in basis for qualifying expenditures was to have been reduced by the amount of credit allowed.

No changes to this part of the Ways and Means Committee bill took place on the House floor.

The Senate Finance Committee adopted a similar provision, except that (1) clock thermostats were specifically made eligible for the

credit, (2) the maximum credit was increased to 30 percent of the first $750 of expenditures, or $225, (3) the credit was made refundable, (4) the credit was made available for all residences of the taxpayer, (5) the limitation on the amount of qualifying expenditures would only have been reduced by prior expenditures for which the credit was actually allowed, and (6) the credit was made allowable for the period July 1, 1976, through December 31, 1978, on homes in existence on May 25, 1976.

Three amendments to this provision were made on the Senate floor. First, the credit was extended to retention head burners, or comparably efficient new burners, and to certain electronic or mechanical ignition devices. Second, the credit was extended to the insulation of furnaces, boilers, ducts, and steam or hot water pipes. Third, clock thermostats were deleted from the definition of the term "insulation."

E. Staff Analysis

The Committee's assessment of the benefits of a residential insulation credit perhaps involves the resolution of the basic issue of whether, given greater consumer interest in insulation as a result of higher energy prices, further stimulus is needed to achieve further energy conservation.

First, there is the question, in the case of the fiberglass insulation industry, as to whether increases in demand for insulation (which a credit would create) would result in greater amounts of insulation at current prices, greater amounts of insulation at higher prices, or actual shortages of insulation (with higher prices and higher quantities of insulation sold). There are only a few (3) firms which manufacture fiberglass insulation. Table 7 displays the volume of shipments by weight and the average price per pound over the period 1969–75. In several instances (1970, 1974, and 1975), the average price of insulation rose while the volume of shipments (by weight) declined over the previous year. In 1975, the price of such insulation rose 18.5 percent while the volume of shipments declined 5.1 percent.

On the other hand, the fiberglass insulation industry responds primarily to the residential construction cycle. To the extent this cycle forces the industry to have extra capacity to meet peak periods, there may not be substantial problems in meeting the demands of retrofit customers. However, the short-term retrofit market is in the neighborhood of 20 million attics, in comparison to the 1 to 2 million new homes built each year.

Examination of other industries which manufacture insulation devices does not reveal any potential problems. The storm door and storm window industry is quite competitive. The thermostat industry is also reasonably competitive. Possibly mitigating against supply problems in the fiberglass insulation industry is the appearance of viable substitutes: cellulose insulation, rock wool insulation, and styrofoam insulation.

TABLE 7.—*Volume by weight and price of fibrous glass shipments* [1]

Year	Shipments (thousands of pounds)	Average price per pound
1975	1,103,055	$.346
1974	1,162,137	.292
1973	1,179,686	.262
1972	1,054,755	.254
1971	890,155	.245
1970	1,186,294	.299
1969	1,202,673	.295

[1] Structural insulation for insulating homes, commercial and industrial buildings, Standard Industrial Classification Code 32961 15.

Source: U.S. Bureau of the Census, *Current Industrial Reports*, series MA–32J, annual issues.

A related question involves the question of whether an additional stimulus to demand is needed (irrespective of supply conditions) in view of the high level of insulation activity. In 1975, 22 percent of all houses added some form of insulation. The insulation industry estimates that 8 million attics were insulated in the past 3 years.

These figures reflect the growing consumer awareness that insulation and insulation-related expenditures are sound investments with a high rate-of-return in the form of future energy dollars saved.

Furthermore, according to a recent Congressional Budget Office ("CBO") study ("President Carter's Energy Proposals: A Perspective," May 31, 1977), the proposed insulation tax credit would increase the $6.3 billion that would be spent without the credit on insulation and related materials over the next 7 years by $2.9 billion. The study estimates that 7.8 million of the 23.8 million households expected to make insulation improvements over this period would be induced to do so by the proposed credit; 16 million of these households would make the improvements by 1985 in any event.

The primary incentive to insulate a dwelling, or to increase the insulation therein, derives from high fuel costs and the wide recognition of the fact that increased insulation can reduce fuel consumption by 30 to 40 percent. Thus, assuming that the average home currently uses 100 million Btu's per year (approximately the amount of Btu's provided by 17 barrels of crude oil) for heating purposes, a 35-percent annual energy saving per home would be equivalent to an approximate saving of 6 barrels of oil per home. At $14 per barrel, the energy reduction would be worth about $84 for each year of the useful life of the structure.

According to the CBO study, the total fuel saving which would result from improvements installed subsequent to the passage of the proposed credit would be equivalent to about 2.9 billion barrels of oil over the next 27 years. The present value to consumers of the decreased energy consumption, in terms of reduced fuel expenditures, is projected by CBO to be equal to $29 billion. As a result, the study concludes, the energy dollars saved by consumers will exceed insulation costs regardless of the enactment of the proposed credit; the

presence of a credit would increase the benefit-cost ratio from about 3:1 to approximately 4:1. In other words, the fuel savings are three times the insulation cost without a credit, and four times that cost with the insulation credit.

Table 8 summarizes the conclusions reached by CBO as to taxpayer response to the credit and the resultant energy saving. According to this table, the credit would decrease oil consumption by 44 million barrels annually by 1985, and by a total of 890 million barrels, worth $9.2 billion, by the year 2004. The estimated revenue cost of the credit from 1978 to 1985 is $2.1 billion, or $2.42 per barrel of oil saved.

TABLE 8.—*Estimated responses to insulation credits, energy savings, and credit costs, 1977–85*

Year	Homes insulated in response to tax credit [1] (millions)	Annual energy saving stimulated by tax credit (million barrels of oil)	Credits paid in following fiscal year (millions)	
			1977 dollars	Budget dollars
1977	0.8		$224	$224
1978	1.4	4.2	358	379
1979	1.3	12.0	348	391
1980	1.1	19.2	345	411
1981	1.0	25.8	313	395
1982	.9	31.8	272	364
1983	.6	36.6	230	326
1984	.7	40.2	209	314
1985		44.4		
Total 1977–84	7.8		2,299	2,804

[1] The figures represent homes that would not have been improved without the credit; they do not show the total number of homes reinsulated from 1977–84.

NOTE.—Present value of private energy saving, $9.2 billion; present value of tax expenditure $2.1 billion.

Source: Congressional Budget Office.

F. Members' Proposals

Mr. Pickle

The insulation credit would be available for all residences (in addition to a taxpayer's principal residence), and the credit would be refundable. In addition, prior expenditures would not reduce the amount of credit available for any taxpayer unless the taxpayer actually received a credit for the prior expenditures. Also, condominium residents would be eligible for a pro rata portion of the credit for expenditures made with respect to more than one condominium unit.

Mr. Rangel

The tax credit for home insulation would be provided for renters, owners of condominiums, as well as for shareholders of cooperatives. In addition, one-half of the full credit would be provided for insulation of a residence other than a principal residence.

Mr. Tucker

Institutional lenders of consumer loans would receive a credit for a portion of the interest earned on consumer loans for residential energy conservation. To the extent that the interest rates on qualified residential energy conservation loans do not exceed the prevailing prime rate by more than 3 percentage points, an annual credit equal to 10 percent of such interest would be allowed. This provision would be effective for years beginning after December 31, 1976, and ending before January 1, 1983.

Mr. Lederer

The credit for home insulation would be reduced by 10 percentage points, using the revenues thereby saved for low-interest loans by banks to individuals who want to borrow to insulate their homes. Banks would receive a tax credit of 5 percent of the amount loaned for home insulation loans made at a 4 percent interest rate.

Mr. Duncan

A credit of 25 percent of qualified expenditures up to $2,500 would be allowed for insulation expenditures. The credits apply to expenditures incurred after December 31, 1976, and before January 1, 1982.

Mr. Vander Jagt

Insulation expenditures for principal residences would be eligible for a credit of 25 percent of expenditures up to $1,000 if the expenditures are incurred in 1977 or 1978.

Mr. Steiger

The credit would be reduced to 25 percent of the first $400 of expenditures and 15 percent of the next $700 of expenditures.

Mr. Martin

A home insulation credit would be provided for 25 percent of qualified expenditures up to a maximum credit of $375 ($750 for a joint return). The credit would apply to all taxable years beginning after 1977.

G. Other Proposal

The home insulation credit could be made a flat 20 percent of the initial $2,000 of expenditures (for a maximum credit of $400) instead of the Administration's proposal of 25 percent of the initial $800 and 15 percent of the next $1,400 (for a maximum credit of $410).

The insulation credit could be terminated at the end of 1980, instead of 1984.

H. Areas for Committee Consideration

The Administration's proposal and the history of H.R. 6860 in the last Congress indicate that the basic decisions to be made with regard to a tax incentive, if any, for insulating residences include the following:

(1) the maximum permissible amount of the credit and its structure (i.e., the total amount of insulation expenditures to qualify and the percentage of such expenditures which should qualify for the credit);

(2) the specific types of equipment and materials which would qualify for the credit, and the discretion (if any) to be left to administrative agencies to determine which equipment and materials would qualify;

(3) the period during which the credit would be available;

(4) whether the credit should be confined to insulation of principal residences, both owned and rented;

(5) whether the credit should be refundable or nonrefundable; and

(6) whether the credit should be allowed for newly-constructed residences as well as existing residences.

III. SOLAR ENERGY EQUIPMENT CREDIT

(SECTION 1101 OF THE ADMINISTRATION BILL)

A. Background

Increases in the prices of fuels have led to the consideration of alternative energy sources. One source, solar energy, involves the transformation of sunlight into heat or electricity. Solar energy has been used to generate electricity for space satellites (photovoltaic cells), and a significant amount of research is underway to create efficient solar energy systems for residential use.

To heat a house with solar energy, a device on the roof (or "collector") is installed which creates hot air as a result of absorbing sunlight. The hot air is then circulated to a rock bed which holds the heat and, in effect, stores it. Thermostats inside the home activate a fan which circulates the hot air generated by the collector and/or hot air around the rocks. Residential solar energy systems usually include a heat exchanger which utilizes the hot air created by the collector to create hot water. The hot water may then be used as the sole source of hot water or to warm water which is then subsequently heated by a conventional gas or electric hot water heater. Alternatively, the collectors may have water tubing imbedded in them; the resulting hot water can then be used directly for hot water heating. Both systems usually have a conventional backup heating system to provide heat when the sunlight is insufficient or the temperature is extremely cold.

The feasibility of installing solar energy systems into new or existing homes is affected by a number of factors: the amount and intensity of sunlight available over the year, the heating needs of the particular area, and the relative cost of a solar system as compared to a conventional system. Since the operating cost of a solar system is very low as compared to conventional gas and electric heated systems, a comparative cost analysis must examine what future conventional energy prices are likely to be, and what interest costs are likely to be for the capital-intensive solar energy system. Perhaps, the most important consideration is the likely prices of solar versus conventional heating equipment. Presumably, a large increase in the use of residential solar heating systems should develop the market and lower the price for these systems over time. Also, improved technology may make collectors more efficient in BTU's collected per dollar invested.

It is generally thought that retrofitting solar space heating is likely to be very expensive. Existing roofs may not be properly angled and directed for effective use of sunlight. Existing roofs may be partly shaded by neighboring trees or structures.

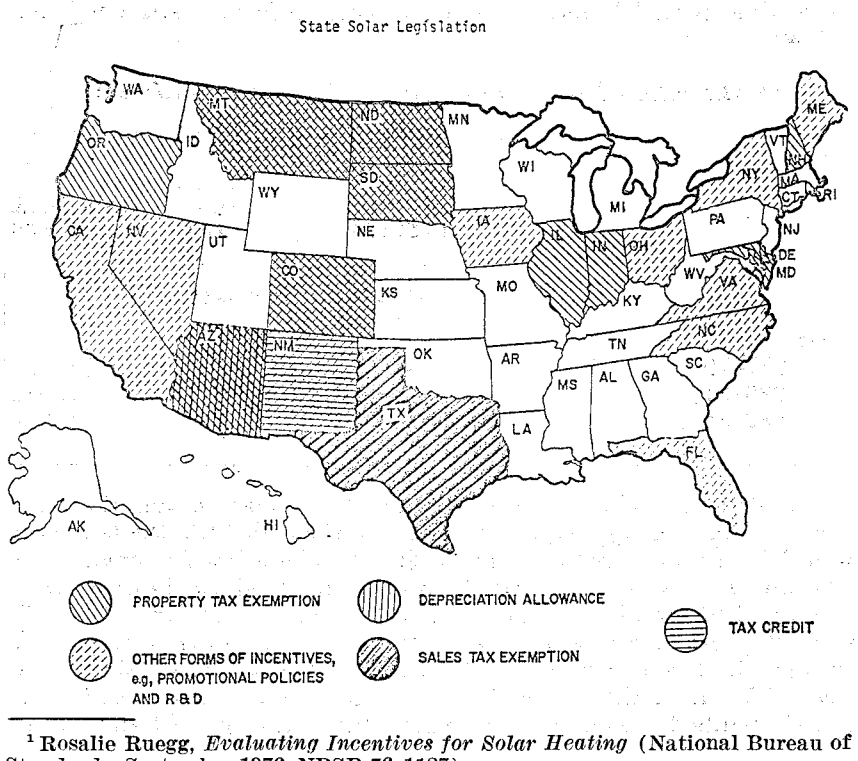
Most solar heating and hot water systems installed in new homes in 1977 will cost $7,500 to $10,000. A solar hot water system installed in a new home will cost $1,600 to $2,000. These are national averages; actual costs vary by region. Retrofitting is at least 15 to 20 percent

more expensive, not including the extra financing cost (home improvement rate compared to mortgage rate).

A recent National Bureau of Standards study [1] costed out a solar system for a 1,500-sq.-ft. (relatively small) house at $7,000. Such a system would provide 47 percent of the necessary heat for such a home in Wisconsin and 75 percent for a house in New Mexico. Because total heating requirements are larger in Wisconsin than in New Mexico, such a system would become more economical (at higher fuel prices) in Wisconsin than New Mexico. However, in both cases, a backup system is necessary to provide the balance of required heat (53 percent, in the case of Wisconsin, and 25 percent, in the case of New Mexico).

A number of States have provided incentives for the use of residential solar heating. New Mexico currently provides a tax credit of the lesser of $1,000 or 25 percent of the equipment cost of a solar system. At least seventeen State [2] allow a property tax exclusion of all or part of the value of a solar system for a period of time (from 5 years to the life of the system). Texas exempts from State sales tax the receipts from selling, leasing, or renting solar energy devices. Arizona allows individuals and businesses to write off the value of a solar device in 5 years. Diagram 2 displays the various State incentives being provided as of 1976.

DIAGRAM 2



[1] Rosalie Ruegg, *Evaluating Incentives for Solar Heating* (National Bureau of Standards, September 1976, NBSR 76–1127).

[2] Indiana, Arizona, Colorado, Illinois, Maryland, Delaware, Montana, New Hampshire, North Dakota, Oregon, South Dakota, Connecticut, Georgia, Hawaii, Massachusetts, Michigan, and Vermont.

B. Present Law

No special Federal tax credit or deduction is presently allowed for expenditures for solar or other types of energy-conserving equipment for a taxpayer's residence. However, such capital expenditures are added to the taxpayer's basis in a residence which he owns and will decrease any gain on its sale or exchange.

Presently, the Federal Government is directly involved in the demonstration of solar technologies of selected solar installations through the Solar Heating and Cooling Demonstration Act (Public Law 93–409). Under this Act, selected projects are partially funded to demonstrate the technological and economic viability of solar heating and cooling technologies. Thus far (as of June 1, 1977), 326 projects, embracing 5,022 residential installations and 186 commercial demonstrations, have been announced, commenced, or completed.

C. Administration Proposal

Tax proposal

For qualified solar energy expenditures, a taxpayer would be allowed a nonrefundable tax credit of up to $2,000 in 1977, 1978, and 1979; $1,580 in 1980 and 1981; and $1,210 in 1982, 1983, and 1984.

The rates of credit (and maximum amount of credit for the applicable time periods) under the Administration's proposal are listed below:

Credit allowed on solar energy equipment expenditures

	Expenditures of—		
	0 to $1,000	Over $1,000	Maximum credit
	Credit	percentage—	
Years:			
1977–79	40%	25%	$2,000
1980–81	30	20	1,580
1982–84	25	15	1,210

The structure of the credits through these years means that, for qualified solar energy expenditures made through 1979, the taxpayer would be allowed credits of up to $2,000. The allowable credits for 1980 and 1981, when aggregated with the credits allowed during 1977 through 1979, would be $1,580; the allowable credits for 1982, 1983, and 1984, when aggregated with the credits allowed during 1977 through 1981, would be $1,210. Thus, if the taxpayer has taken more than $1,580 in credits before 1980, he would not be allowed any additional credits for solar energy expenditures during 1980 and subse-

quent years. Similarly, if a taxpayer has taken more than $1,210 in credits before 1982, he would not be allowed any additional credits for solar energy expenditures during 1982 and subsequent years.

The effect of the absolute limit on the amount of the credit for expenditures made entirely within one of the three periods is to allow no credit for expenditures above $7,400. In those instances, however, where the expenditures overlap these periods, the amount eligible for the credit would be less than $7,400.[3]

Solar energy tax credits would apply to expenditures for installations made after April 20, 1977, and before January 1, 1985, in a dwelling unit, whether in existence or newly-constructed, which is located in the United States and used by the taxpayer as his principal residence. The credit available with respect to a newly-constructed principal residence would only be for specified expenditures relating to the cost and installation of solar energy equipment. The type of solar energy equipment which would qualify for the credit would be defined in regulations, but the equipment would have to be new, used to cool or heat a building or to heat its hot water, and have a useful life of at least 5 years. The Secretary of the Treasury would be given the power to add to or delete by regulation from the list of items for which the credit would be allowed. Any increase in the taxpayer's basis for his residence for these expenditures would be reduced by the amount of credit allowed.

Energy savings estimate

The Administration estimates that the solar tax credit will reduce the demand for energy in 1985 by .08 quadrillion British thermal units. This saving is composed of a .04 quad Btu's reduction in the demand for petroleum, a .01 quad Btu's reduction in the demand for natural gas, and a .03 quad Btu's reduction in the demand for coal. These savings represent both the direct and indirect effects of the credit.

The savings of .08 quad Btu's as a result of the credit in 1985 represents 2 percent of the energy savings (measured in quads) achieved by the Administration's program.

The Congressional Budget Office estimates that the residential solar tax credit will result in much smaller direct energy savings than that estimated by the Administration. Under the assumptions that the credit will induce the purchase of an additional 309,000 solar units, that the preponderance will be for hot water heating, and that the annual Btu savings per unit is 21.8 million Btu's, CBO estimates that .007 quads Btu's will be saved as a result of the residential solar tax credit. The differences in energy savings estimates reflects differences of opinion on whether the credit will encourage both solar heating and solar hot water heating or just solar hot water heating.

[3] For example, if a taxpayer made qualifying expenditures during 1977–1979 of $1,000, for a credit of $400, the aggregate credit limitation of $1,580 for 1980–1981 would restrict any further qualified expenditures during 1980–81 to $5,900 (remaining credit of $1,180 ($1,580–$400) divided by the 20 percent 1980–81 credit rate applicable to expenditures over $1,000). Thus, in this instance, where the expenditures overlapped periods subject to different credit limitations, the total amount of expenditures eligible for the credit would be $6,900 ($1,000+$5,900).

Revenue estimate:

Estimated Effect of the Administration Home Solar Energy Equipment Credit on Fiscal Year Receipts, 1978–85

	Millions
1978	−$32
1979	−68
1980	−75
1981	−59
1982	−68
1983	−66
1984	−81
1985	−99

Source: Office of the Secretary of the Treasury:

Nontax proposal

Up to $100 million would be spent over the next 3 years to add solar hot water and space heating to suitable Federal buildings to reduce consumption of conventional fuels and to demonstrate the commercial potential of such uses of solar energy. (Referred to the Committee on Public Works and Transportation.) (For a summary of the Administration's general nontax proposals regarding energy-saving materials for buildings, please see the discussion of the Administration's nontax proposals regarding home insulation, *supra.*)

D. Action in the 94th Congress

The Ways and Means Committee bill provided for a nonrefundable tax credit for 40 percent of the first $1,000 of solar energy equipment expenditures and 20 percent of the second $1,000, for a maximum credit of $600. The credit was to be available for the period March 18, 1975, through December 31, 1980, for expenditures for the purchase and installation of solar energy equipment in or on existing principal residences and newly constructed principal residences owned by the taxpayer. The amount of expenditures qualifying for the credit was to be reduced by creditable expenditures of prior owners of the residence, even if credits for such expenditures were not claimed. Use of the full allowable amount of credit for one residence would not prevent a taxpayer from claiming the credit for equipment installed on a new principal residence.

Qualifying equipment was to meet definitive performance criteria prescribed by the Secretary of Housing and Urban Development and was to use solar energy to heat or cool the residence or to provide hot water for use within the residence. Used equipment was not to qualify. The increase in basis for qualifying expenditures was to be reduced by the amount of the credit allowed.

An amendment on the House floor changed the credit limitation to 25 percent of the first $8,000 of expenditures, for a maximum credit of $2,000. Other floor amendments (1) permitted the solar energy equipment to qualify if it were installed "in connection with" the building, not merely "in or on" it, and (2) permitted the solar energy equipment to qualify if it were to meet "interim" HUD criteria, even if it did not meet "definitive" criteria.

The Senate Finance Committee adopted a similar provision except that (1) the rate of credit was to be 40 percent of the first $1,000 and 25 percent of the next $6,400 of qualified expenditures, for the same maximum credit of $2,000, (2) the credit was to be refundable, (3) the credit was to be available for all residences (rather than only for principal residences), (4) the dollar limitations used in computing the credit for solar equipment were to include expenditures by the taxpayer for any residence for heat pumps and geothermal energy equipment, (5) the qualifying expenditures of prior residents were not to be taken into account in determining whether the dollar limitations had been exceeded, (6) the credit was to be available to tenants as well as owners, (7) the credit was not to be allowed if the value of the solar equipment was included in the valuation of the residence for property tax purposes, and (8) the credit would have been allowed for the period July 1, 1976, through December 31, 1980.

E. Staff Analysis

Although the energy-saving potential of the widespread use of solar equipment is great, so is its potential cost. The cost of a solar system is significantly higher than the initial cost of alternative, more conventional, systems. Nevertheless, solar systems currently may be attractive investments in areas of the country which have clear skies and expensive alternative energy sources or in new dwellings where the solar costs can be offset partially by savings on the avoidance of the cost of a conventional system.[4] The advantage of new installations over retrofits also derives from such factors as the lower cost of money (mortgage rates being lower than home improvement rates) and the economies of scale for design and installation.

Despite the higher costs, solar equipment sales are rapidly increasing. In 1976, sales equalled approximately $70 million. This figure is expected by some to double in 1977. The Congressional Budget Office estimates (in "President Carter's Energy Proposals: A Perspective," May 31, 1977) that, in the absence of any tax credit, 464,000 households will own solar equipment by 1985, and that the number would increase by 309,000 to 773,000 if the solar energy tax credit is enacted.[5] CBO also estimates that the tax credit would increase solar equipment expenditures, from 1977–1984, by $460 million, at a present-value tax cost of $262 million. It is estimated that the increased public expenditure would save the affected homeowners $240 million in fuel costs over a 20-year period. According to CBO estimates, the cost of the reduced consumption to the Federal treasury resulting from the solar energy tax credit would be the equivalent of $11.28 per barrel saved. Compared to the CBO estimated cost of $2.42 per barrel for each barrel of oil saved under the insulation tax credit proposal, the cost of the solar tax credit is extremely high. Notwithstanding the relatively high tax cost of the solar energy credit, one cannot ignore the magnitude of the energy savings involved and the possibly resulting diminished demand for imported oil.

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[4] Of course, to the extent that the solar system installed requires a supplementary conventional system, the savings will be diminished to some extent.

[5] This estimate by CBO falls substantially below the Administration's projection of 1.3 million households.

Since the proposed credit is nonrefundable, it would be available only to taxpayers with sufficient tax liabilities to cover the amount of credit. Generally, only those families with incomes in excess of $18,000 would qualify for the full $2,000 solar energy tax credit; single taxpayers with incomes in excess of $12,000 would similarly qualify.

One drawback to the creation of an incentive to invest in solar energy equipment concerns the present developmental state of solar technologies and of solar energy products. Aside from the particular financial considerations involved regarding any solar energy related expenditure, the consumer generally will be faced with the necessity of making decisions on the basis of relatively insufficient information as to the quality of any solar energy product or improvement. Moreover, at least until solar energy technology further develops, consumers will have few qualified alternatives from which to choose. However, while no official consumer report has been issued concerning the quality of the various solar systems or products, the Government has established a National Solar Heating and Cooling Information Center. The Center's function is to make available the results of governmental tests as to the reliability of various solar units and products. Thus, as products and systems are developed, the Center should be able to provide taxpayers with sufficient information regarding developments in solar technologies. Moreover, the National Bureau of Standards (NBS), HUD, and various private organizations are actively involved in the development of standards for solar energy equipment.

F. Members' Proposals

Mr. Pickle

The credit for solar and other energy saving equipment would be available for all residences (in addition to a taxpayer's principal residence) and for all solar equipment installed "in connection with" a residence. The credit would be refundable. In addition, prior expenditures would not reduce the amount of credit available for any taxpayer unless the taxpayer actually received a credit for the prior expenditures. Also, condominium residents would be eligible for a pro rata portion of the credit for expenditures made with respect to more than one condominium unit.

Mr. Rangel

The tax credits for residential solar equipment and other energy saving devices would be provided for owners of condominiums, as well as shareholders of cooperatives and renters. In addition, one-half of the full credit would be provided for solar equipment and other energy saving devices for a residence other than a principal residence.

Mr. Jones

The solar energy credit would be modified to make clear that swimming pools used as a storage medium in conjunction with solar heating and cooling systems would be eligible for the residential solar energy tax credit.

Mrs. Keys

Wind energy equipment for any residential use would be eligible for the solar energy residential tax credit.

Mr. Duncan

A credit of 25 percent of qualified expenditures up to $2,500 would be allowed for residential solar energy equipment expenditures, residential heat pump expenditures and electric vehicle expenditures. The credits apply to expenditures incurred after December 31, 1976, and before January 1, 1982. The credit would be allowed only if for State property tax purposes the value of the solar equipment cannot be included in the value of the residence.

Mr. Vander Jagt

Solar energy equipment installed in existing residences or purchased with a new residence would be eligible for a credit of 50 percent of expenditures up to $5,000 for 1977 through 1981 and 25 percent of expenditures up to $5,000 from 1982 through 1986.

Mr. Steiger

The solar energy credit would be 25 percent of the first $4,000 of expenditures in each year.

G. Other Proposal

The solar energy credit could be made a flat 25 percent of the first $8,000 of expenditures (maximum credit of $2,000) rather than 40 percent of the first $1,000 and 25 percent of the next $6,400 (maximum credit of $2,000). The rate could decline to 20 percent for 1980 and to 15 percent for 1982. The credit would terminate at the end of 1982.

H. Areas for Committee Consideration

The Administration's proposal and the history of the tax-related energy provisions in the last Congress indicate that the basic decisions to be made with regard to a tax incentive for residential solar energy equipment including the following:

(1) whether to provide a credit for installations of solar energy equipment;

(2) the amount of the credit;

(3) whether the credit is to be refundable;

(4) whether any discretion is to be left to administrative agencies to determine whether particular equipment is to qualify for the credit;

(5) the period during which the credit is to be available;

(6) whether the credit should be confined to installations on principal residences only;

(7) whether the credit should be available to tenants as well as owners; and

(8) whether the credit should be allowed for newly-constructed residences as well as existing residences.

IV. OTHER RESIDENTIAL ENERGY EQUIPMENT CREDITS

A. Present Law

No special tax credit or deduction is presently allowed for expenditures for such types of energy-conserving equipment as geothermal, heat pump, and wind-related equipment for residential use. However, such capital expenditures are added to the taxpayer's basis in a residence which he owns and will decrease any gain on its sale or exchange.

B. Administration Proposal

None.

C. Action in 94th Congress

Geothermal energy equipment

The Tax Reform Bill, as reported by the Senate Finance Committee, included a tax credit for residential geothermal energy equipment in the same amount as the credit for solar energy; that is, 40 percent of the first $1,000 and 25 percent of the next $6,400 of qualified expenditures, for a maximum credit of $2,000. In general, the same rules applicable to the solar energy equipment credit for residential installations were also to apply to the credit for geothermal equipment. Qualifying geothermal equipment was required to be equipment which was necessary to distribute or use geothermal steam and associated geothermal resources (as defined in sec. 2(c) of the Geothermal Steam Act of 1970—30 U.S.C. 1001(c)). The rule disallowing the solar equipment credit if its value was taken into account for property tax purposes was not applied to the geothermal credit.

Under the bill, as reported by the Senate Finance Committee, the maximum amount of allowable expenditures in computing either the solar equipment credit, the heat pump credit, or the credit for geothermal energy equipment was to be reduced by the aggregate of the previous expenditures by the taxpayer for all of these types of equipment installed on the residence which had been taken into account in determining the credit for a previous taxable year.

The Ways and Means Committee did not provide a tax incentive for geothermal equipment in reporting H.R. 6860, nor did the House include such an incentive in passing that bill.

Heat pump credit

The Tax Reform Bill, as reported by the Senate Finance Committee, provided a tax credit for 20 percent of the first $1,000 and 12½ percent of the next $6,400, for a maximum credit of $1,000, for qualifying heat pump expenditures. This credit was half the amount of the credit for solar or geothermal equipment expenditures. The credit was to be allowed for the cost and installation of the heat pump and the equipment necessary to permit a heat pump to function in a home.

The same rules applicable to the credits for solar and geothermal energy equipment were generally applicable to the heat pump credit. However, the heat pump credit was to be available only for residences occupied or habitable on May 25, 1976. The rule disallowing the solar equipment credit if its value was taken into account for property tax purposes was not applied to this credit.

A Senate floor amendment restricted this credit to heat pumps which replace or supplement existing electric resistance space heating.

Under the bill, as reported by the Senate Finance Committee, the maximum amount of allowable expenditures in computing either the solar credit, the heat pump credit, or the credit for geothermal energy equipment was to be reduced by the aggregate of the previous expenditures by the taxpayer for all of these types of equipment installed on the residence which had been taken into account in determining the credit for a previous taxable year.

The Ways and Means Committee did not provide a tax incentive for heat pump expenditures in reporting H.R. 6860, nor did the House include such an incentive in passing that bill.

Wind-related energy equipment credit

The Tax Reform Bill, as passed by the Senate, provided a tax credit for wind-related energy equipment (such as a windmill) equal in amount to the credits it provided for solar and geothermal energy equipment; that is, 40 percent of the first $1,000 of qualified expenditures, plus 25 percent of the next $6,400, for a maximum credit of $2,000. Qualifying equipment for which the credit could be claimed was that which uses wind-related energy to generate electricity to heat or cool a residence (or residences) or to provide hot water for use inside it. Otherwise, the same rules applicable to the solar energy equipment credit for residential installations were also to apply to the credit for wind-related energy equipment. However, the rule disallowing the solar equipment credit if its value was taken into account for property tax purposes was not applied to this credit.

The amount of expenditures which could be taken into account in determining the credit would be reduced by the aggregate of previous solar, geothermal, heat pump, or wind-related energy equipment expenditures by the taxpayer which had been allowed for a credit on account of installations on the same residence.

This provision was added to the Tax Reform Bill by the Senate Finance Committee in a floor amendment. Neither the Tax Reform Bill, as originally reported by the Finance Committee, nor H.R. 6860, as reported by the Ways and Means Committee, or as passed by the House, included a tax incentive for wind-related energy equipment.

D. Members' Proposals

Mr. Jones

A tax credit would be established for the installation of qualified wind-related equipment. The credit would be 20 percent of the cost of the resident equipment installed between 1977 and 1980, and 10 percent of residential equipment installed between 1980 and 1982.

Mrs. Keys

Wind energy equipment for any residential use would be eligible for the solar energy residential tax credit.

E. Areas for Committee Consideration

The Administration's proposal and the history of the tax-related energy provisions in the last Congress indicate that the basic decisions to be made with regard to a tax incentive, if any, for the cost of certain residential energy producing and conservation equipment include the following.

(1) whether to provide a credit for installations of either geothermal, heat pump, or wind-related energy equipment, or all of these;

(2) the amount of the credits;

(3) whether the credits are to be refundable;

(4) whether any discretion is to be left to administrative agencies to determine whether particular equipment is to qualify for the credit;

(5) the period during which the credit is to be available;

(6) whether any of the credits should be confined to installations on principal residences only;

(7) whether any of the credits should be available to tenants as well as owners;

(8) whether the credits should be allowed for newly-constructed residences as well as existing residences; and

(9) whether to reduce the maximum amount of creditable expenditures for one class of equipment, such as solar equipment, geothermal equipment, etc., by prior creditable expenditures for other classes of equipment.

O