Y4
W36
WMCP
95-25

95th Congress
1st Session

COMMITTEE PRINT

WMCP: 95–25

GOVERNMENT
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COMMITTEE ON WAYS AND MEANS
U.S. HOUSE OF REPRESENTATIVES

TAX ASPECTS OF THE PRESIDENT'S ENERGY PROGRAM HEARINGS

DOCUMENTS
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PREPARED STATEMENTS OF PUBLIC WITNESSES

(Appearing May 20, 1977)

May 20, 1977

Printed for the use of the Committee on Ways and Means

U.S. GOVERNMENT PRINTING OFFICE
90–373 O WASHINGTON : 1977

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SOLAR ENERGY INDUSTRIES ASSOCIATION Suite 632 1001 Connecticut Avenue, NW Washington, DC 20036 202 293 1000

TESTIMONY OF SHELDON H. BUTT, PRESIDENT
AND
PAUL W. CRONIN, CHAIRMAN, GOVERNMENT AFFAIRS COMMITTEE,
OF THE SOLAR ENERGY INDUSTRIES ASSOCIATION
BEFORE THE COMMITTEE ON WAYS AND MEANS
U. S. HOUSE OF REPRESENTATIVES
MAY 20, 1977

On behalf of the Solar Energy Industries Association, we want to express our appreciation for being allowed to appear before you to testify relative to the solar provisions of the "National Energy Act." Our comments will be directed to Title II of the Act.

The detailed previous recommendations of S.E.I.A. for solar incentives are incorporated in our "Proposed Solar Incentive Program" of March 3, 1977, a copy of which is appended. There are differences between the program as proposed by S.E.I.A. and the program incorporated in the Act. However, before we analyze the differences between the National Energy Act and the S.E.I.A. proposals, we would like to point out the very great importance of the timing of the incentive program.

The Importance of Timing

The President's general support of solar energy and his proposals for solar tax credits, which were included in his April 20 message to the Congress and which now appear in the Act, have already heightened public interest in solar applications and in some cases, have led to additional solar business activity. However, in many cases, prospective buyers of solar equipment are adopting a "wait and see" attitude towards the incentive program despite the President's proposal that the tax credits become effective April 20, 1977. We fear that the general public does not appreciate the great amount of work which must be done by the Congress to develop sound and effective legislation, particularly in an area as broad and important as that encompassed by the National Energy Act. We fear that they may interpret the necessary delay in the development of a complete legislative "energy package" as being representative of considerable uncertainty regarding solar tax incentives and their effective date. We fear that, as time passes, the tendency of potential users to "wait and see" will become more pronounced and, in turn, lead to a substantial, although temporary, interruption to the growth of the solar business.

Most of the companies presently in the solar heating and cooling business are in the small business category and many do not have the resources to survive a long dry spell. For this reason, we urge speedy passage of the solar tax credit program. However, we recognize that there are many measures included in the National Energy Act which are very complex and controversial and which, therefore, may require lengthy consideration by the Congress before a decision is reached. Therefore, we recommend that the solar tax credit and related solar programs, together with the tax credits for energy conservation expenditures, be separated and expedited as separate legislation through the legislative process.

General Comparison of Tax Benefits to Homeowners

The following table compares the tax credits provided in the National Energy Act with those called for in our proposals:

Homeowner Solar Tax Credits

	National Energy Act			S.E.I.A. Basic Proposals (Not including gas retrofit credit)	
	Credit On 1st $1,500	Maximum Credit		Credit On 1st $1,500*	Maximum Credit*
1977-79	$525	$2,000	1977-80	$667	$2,267
1980-81	400	1,580	1981-84	467	1,467
1982-84	325	1,210			
			1985-88	267	667

*Net average after tax benefit to the homeowner.

The comparisons are made at two levels; the $1,500 level representing generally the typical installed cost of a solar water heater and the maximum benefit which the consumer can obtain. Through 1980, the S.E.I.A. proposals provide for somewhat higher benefits. In the year 1981, the benefits are approximately the same; in the years subsequent to 1981, the S.E.I.A. proposals again provide for the larger benefit.

The economics of a solar installation vary with climatic factors and also with the cost and availability of conventional energy sources. There is no single level of benefits which would be universally adequate. Thus, the higher benefits which we proposed would be expected to have a somewhat greater impact upon the market than those included in the National Energy Act. However, the differences are rather moderate and therefore, the impact of the National Energy Act program upon the homeowner market for solar equipment will not be too greatly less than the program which we had proposed with one exception.

The Gas Retrofit Bonus

S.E.I.A. proposed a special bonus credit for homeowners (as well as others) installing solar equipment to replace consumption of natural gas. Where available and when compared to the other energy sources available to the homeowner, natural gas is still relatively very low priced. As a result, our studies show that the payout time for solar installations replacing natural gas consumption is generally overly long. This will still be true, but to a lesser extent, when the incentives provided for in the National Energy Act are taken into account. At the same time, we recognize that natural gas is the energy resource which is in particularly short supply.

The potential for retrofitting with solar to reduce residential natural gas consumption is further complicated by other measures incorporated in the Act which would have the effect of reducing industrial and large commercial natural gas consumption in such manner as to help assure the homeowner of continuing supplies of natural gas at relatively reasonable prices. As homeowners, we certainly can appreciate the importance of these measures, and it is not our purpose to argue against them. However, these measures have the effect of increasing the importance and potential impact of proposals for additional credits to be granted only to those retrofitting with solar devices replacing natural gas.

The S.E.I.A. proposal provided a net average after tax benefit of 16.7% of the first $6,000 of qualified solar expenditures or a maximum of $1,000 additional average benefit. We recommend that the following additional paragraph (3) be added to the amendment proposed as new Section 44B(a) in the Internal Revenue Code as called for in Section 1101 of the National Energy Act:

"(3) In the case of qualified solar expenditures made by the taxpayer with respect to the taxpayer's existing principal residence during the taxable years ending in 1978 thru 1984 inclusive, an additional credit equal to the lesser of $1,000 or 15% of such expenditures."

Section 1301 of the National Energy Act, dealing with business energy credits, provides for a 20% total tax credit for solar installations through 1983. This credit may be compared with that proposed by S.E.I.A. as follows:

Business Solar Tax Credits

National Energy Act (Total Credit)		S.E.I.A. Basic Proposals (Credit not including gas retrofit bonus)		
1977-83	20%	1977-80	1st $50,000	45%
			Next $50,000	40%
			All Over $100,000	30%
		1981-84	1st $50,000	35%
			Next $50,000	30%
			All Over $100,000	25%
		1985-88	1st $50,000	30%
			Next $50,000	25%
			All Over $100,000	20%

The credits now proposed through 1983 are materially lower than those proposed by S.E.I.A. and do not include the additional credit offered for the relatively smaller installations, such as might be made to supply solar energy to smaller apartment complexes, small commercial establishments and small industry.

We recognize that justification exists for reducing the level of tax credits for businesses since the relative economic position of solar installations will benefit as the result of the increases in business costs for petroleum products and natural gas called for by Part D, Section 1401 and Part E, Section 1501 of the National Energy Act. However, we point out that the computation of the oil and gas consumption taxes provided for in Section 1501 has the effect of exempting smaller business users from the tax. The effect is to reduce the incentive to convert to solar for the smaller business. Accordingly, we recommend that the total credit for the period 1977-1983 provided in the National Energy Act be established at 30% for the first $50,000 of qualified expenditure, 25% for the next $50,000 and the 20% now called for in the Act for all over $100,000.

The original S.E.I.A. incentive proposal also called for an additional "bonus" tax credit for solar installations when made as retrofit installations replacing natural gas. It appears that Section 4992 of the National Energy Act, which provides for a natural gas consumption tax, eliminates the need for the "natural gas retrofit bonus" in the case of all except the smaller business users (who would be provided for by the proposal made to provide larger tax credits for nonresidential solar investments on the first $50,000 and on the first $100,000 invested).

Returning now to the subject of tax credits for homeowners, we make note that the S.E.I.A. proposal actually called for taxable rebates rather than a direct tax credit. (The figures quoted in the comparisons made previously for "net average after tax benefit" were based upon subtracting from the gross rebate the portion of the rebate which would be

repaid in taxes by the taxpayer.) The purpose of proposing taxable rebates rather than a direct tax credit is explained in some detail in the S.E.I.A. proposal. Basically, it was to provide a mechanism by which the net after tax benefit to higher income families would be less than for lower income families. We feel that it is, in principle, appropriate to do this. However, we gather that there is material concern for the administrative burden which would be imposed upon the Treasury Department were they called upon to process substantial numbers of requests for taxable tax rebates. In the final analysis, we believe that our position must be that the principle of the taxable rebates is a desirable principle but it is not our purpose to propose the creation of a system which would be administratively overly burdensome.

SUMMARY

We believe that the program for solar tax credits as now proposed in the National Energy Act will be an effective means of accelerating wide use of solar energy. We believe that the timing of the passage of the tax credit legislation is of critical importance to many of the smaller firms now in the industry. Additionally, we believe that an additional bonus tax credit for homeowners retrofitting with solar to replace natural gas should be added and that the tax credits allowed for businesses should be increased for the first $100,000 of the businesses' solar investment. We believe that these two changes will add to the cost-effectiveness of the proposals as they now stand.

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SOLAR ENERGY INDUSTRIES ASSOCIATION Suite 632 1001 Connecticut Avenue, NW Washington, DC 20036 202 293 1000

March 3, 1977

SOLAR ENERGY INDUSTRIES ASSOCIATION
PROPOSED SOLAR INCENTIVE PROGRAM

EXECUTIVE SUMMARY

We propose a system of incentives intended to accelerate commercialization of the production and use of solar-thermal energy for heating, hot water and cooling. Results expected, expressed in terms of equivalent barrels of oil saved per day, are:

1982	38,000 barrels per day
1987	365,000 barrels per day
1992	1,653,000 barrels per day

Production of solar energy at these rates represents a major contribution to our Nation's energy problem ten to fifteen years hence.

The cost of the incentive program, based upon these projections, is as follows:

1977	$ 16,000,000
1978	30,000,000
1979	106,000,000
1980	268,000,000
1981	457,000,000
1982	829,000,000

In these and other calculations, we allow for future inflation at an average rate of 5% per year.

It is presently proposed that incentives be provided for the years 1977-1982, with results and rates to be reviewed during the fifth year. If nonrenewable energy prices rise no more rapidly than we expect, we expect that the program will need to be continued through 1988, but at decreasing levels of incentives.

Investments made in solar equipment are "new" investments and conventional equipment is needed as "backup" to the solar facilities. Thus, solar investments are additive to GNP. We expect them to total (including inflation):

1977-82	$ 4.43 billion
1983-87	42.0 billion
1988-92	230.4 billion

This new economic activity will add to Federal revenues. At the 1976 average, Federal receipts are 19% of GNP. Based on this percentage, new Federal revenues, offsetting program cost, are estimated at:

Billions of Dollars
(Including Inflation)

	Cost Of Incentives	Additional Revenues
1977-82	1.7	.84
1983-87	9.1*	8.0
1988-92	3.7*	43.8

*Estimated future program costs assuming incentive program continued beyond 1982.

Increased economic activity also means new jobs. We expect that the solar industry will create 74,000 new jobs in 1982; 347,000 in 1987 and 931,000 in 1992.

The solar resource is diffuse and commercialization means that literally millions of individuals and businesses must become producers of solar energy. Even with the help of incentives, this takes time. The timing of the program is important. We must begin it now if we are to reach long term goals.

In developing our incentive proposals, our objective has been to encourage commercialization in the most cost-effective and equitable manner possible. We have structured our program to particularly assist low income individuals and small businesses who are most heavily impacted by energy shortages and by high energy prices. The table which follows details our proposals.

TABLE 1
PROPOSED SOLAR INCENTIVES

A. For Individuals; Treasury Rebates, taxable as income to the individuals as follows:

1. General, for all applications:

1977 - 1980

	Gross Taxable Rebate	Net Average After Tax Benefit
First $1,000 expended on a solar system	70%	46.7%
Next $2,000 " " " "	60%	40 %
Next $3,000 " " " "	50%	33.3%

1981 - 1982

First $1,000 expended on a solar system	50%	33.3%
Next $2,000 " " " "	40%	26.7%
Next $3,000 " " " "	30%	20 %

2. Additional taxable rebate, limited only to retrofit systems replacing natural gas.

1977 - 1980

First $6,000 expended on a solar system	25%	16.7%

1981 - 1982

First $6,000 expended on a solar system	25%	16.7%

3. Limitation; maximum rebate, including the natural gas retrofit bonus; 85% gross (56.7% net average).

4. Provision for restudy; Five years after implementation, the incentive system shall be reviewed to determine if it is to be continued and, if so, at what rates.

5. Assignability of Rebates; The buyer shall be permitted to assign to the seller all or any part of the rebate to which he is entitled.

B. For Corporations

1. The status of solar facilities is to be clarified. Facilities producing solar thermal energy from solar radiation

are to be positively classified and defined as production equipment and thereby made eligible for regular investment tax credits at the same rates as those provided by law for other energy production facilities.

2. In lieu of depletion allowances and other incentives and to encourage the use of renewable energy sources, the following additional tax credits are to be provided:

a. For all applications:

1977 - 1980

	Investment Tax Credit
First $50,000 expended on a solar system	35%
Next $50,000 " " " "	30%
All over $100,000 " " " "	20%

1981 - 1982

First $50,000 expended on a solar system	25%
Next $50,000 " " " "	20%
All over $100,000 " " " "	15%

b. Additional tax credits limited only to retrofit systems replacing natural gas.

1977 - 1980

First $100,000 expended on a solar system	20%

1981 - 1982

First $100,000 expended on a solar system	15%

3. Limitation; Maximum tax credit allowed in any one year, 50% of taxable income, with provisions for carry-forward as in present tax credit systems.

4. Provision for restudy; Five years after implementation, the incentive system is to be reviewed to determine if it is to be continued and, if so, at what rates.

C. Federal Loan Guarantees

Federal loan guarantees, without subsidy and at prevailing rates, to provide solar producer-users with access to the invest-

ment funds required at reasonable rates. Both individuals and corporations are eligible for guaranteed loans. The guaranteed loans are to be made available for terms of up to fifteen years.

D. Solar Government Buildings Program

A solar Government buildings program mandating that the Federal Government utilize solar energy in new and existing Federally owned or controlled structures when a life cycle cost analysis indicates that this is justified after crediting the cost of the solar installation with investment tax credits at the rates called for in Section B. In the case of structures owned or controlled by other Governmental Agencies (State and local), grants for solar installations are to be made available to these entities at the investment tax credit rates called for in Section B.

SOLAR ENERGY INDUSTRIES ASSOCIATION
PROPOSED SOLAR INCENTIVE PROGRAM

SUMMARY

The Opportunity

The technology needed to "produce" solar energy for heating building space and heating hot water is well developed and available today. The basic technology required for solar air-conditioning is available; however, some work is required to improve the economics of available equipment. The incentive program, together with ongoing existing programs, is intended to accelerate the commercialization of these available solar technologies. By their nature, "direct thermal" solar technologies generally must be applied by the producer-user at the point of use. Thus, commercialization of solar-thermal energy means the installation of a very large number of individual production facilities. One implication is that commercialization takes time.

With the incentive program and continuance of present solar programs, we expect these results; expressed in terms of the equivalent number of barrels per day of crude oil replaced by solar-thermal energy:

1982	38,000 barrels per day
1987	365,000 barrels per day
1992	1,653,000 barrels per day

Production of solar energy at these rates represents a major contribution to our Nation's energy problems ten to fifteen years hence. The basis for our projections is discussed in detail later in this paper.

The Cost of the Incentive Program

The key element in the incentive program is the payment of rebates/tax credits to individuals and corporations who install solar equipment and thus become producers of solar energy. We propose incentives initially for the years 1977-1982 inclusive, with rates declining in the final two years. Based upon our present projections, it is likely that an incentive program at decreasing incentives rates will be required through 1988. However, since forecasting the future course of prices of oil, gas and other nonrenewable energy sources becomes more difficult the further we try to see into the future, we propose that, at the end of the fifth year, the incentive program be reviewed and the rates for subsequent years and the duration of the program be reevaluated at that time.

Based upon the solar energy installation projections from which the expected fuel savings are based, anticipated expenditures upon the incentive program are as follows:

1977	$ 16,000,000
1978	30,000,000
1979	106,000,000
1980	268,000,000
1981	457,000,000
1982	829,000,000

The total for the six year period is $1.7 billion.

In these and all other calculations, we allow for future inflation at an average rate of 5% per year.

If nonrenewable energy prices rise no more rapidly than we project and it is found desirable to continue the program beyond 1982, the total cost for the years 1983-1988 inclusive would be $12.8 billion.

Effect of Economic Stimulation

Federal Revenues. The investment made in solar-thermal energy producing facilities is additive. By this, we mean that solar heating equipment does not replace conventional heating equipment but is installed in addition to the conventional equipment, which then serves as a "backup" to the solar equipment. Thus, investments made in solar equipment are "new" domestic investments and may be added directly to the Gross National Product. During the five year period 1977-1982, the cumulative total solar investment is $4.43 billion. In the period 1983-1987, it is $42.0 billion and in the period 1988-1992, it is $230.4 billion (including the effect of inflation).

In 1976, Federal Government receipts are estimated to have been 19% of the Gross National Product. Thus, additional revenues to the Federal Government deriving from increased GNP may be compared to the cost of the incentive program:

Billions of Dollars
(Including Inflation)

	Cost Of Incentives	Additional Revenues (19% Of Increased GNP)
1977-1982	1.7	.84
1983-1987	9.1	8.0
1988-1992	3.7*	43.8

*1988 only; no incentives after 1988.

Economists have theorized as to the indirect stimulative effect of "new" and productive economic activity. There is no general agreement as to the magnitude of the "multiplier" which might be applied to a new activity such as the manufacture and installation of solar equipment. Suffice to point out that, if the multiplier were no greater than two, the cost of the incentives during the 1977-1982 time frame would then be fully offset by new revenues and the multiplier would have to be even less during the next time interval to accomplish the same purpose.

Jobs. In 1976, GNP per employed person was approximately $20,000. Assuming that this factor increases at a rate of 7-1/2% per year in the future (5% inflation, plus 2-1/2% gain in productivity), we can calculate the number of new jobs which the new investment in solar will create:

	Solar Investment (Including Inflation)	Direct New Jobs
1982	$ 2.29 billion	74,000
1987	15.4 billion	347,000
1992	59.2 billion	931,000

Balance of Payments Effect

The most important result of accelerating the commercialization of solar-thermal energy is that it will replace a substantial volume of nonrenewable fossil energy resources. Since we import large quantities of petroleum and as it appears that we will continue to do so, the potential effect of the solar program upon imports and the balance of payments should also be considered.

Potential Balance of Payments Effects

	Barrels Per Year (Millions)	Value At 1977 Prices* (Millions)	Value At Future Prices* (Millions)
1982	14	$ 182	$ 296
1987	133	1,729	4,589
1992	603	7,839	33,880

*Current landed cost of imports approximately $13.00 per barrel. Future prices adjusted for the effect of 5% per year general inflation plus 5% per year escalation in petroleum prices above the general rate of inflation.

Conservation and Other "New"
Energy Initiatives

Solar-thermal energy can make a substantial contribution to resolving the problem of finding replacements for diminishing fossil energy resources, particularly oil and gas. However, we recognize that the problem is larger than the solar contribution--even in 1992. We want to record our support for vigorous and imaginative conservation efforts, as well as for efforts to develop other new or under utilized energy resources. We have not made a definitive study of those measures which might advantageously be adopted in the conservation and other areas and therefore, cannot make specific recommendations.

Offsetting Revenues

The question of whether or not the "cost" of the solar incentive program should be offset by new revenues is not one which we are competent to decide. However, we would not think it inappropriate to offset the anticipated cost of the solar program (and also of conservation and other initiatives) through the mechanism of a tax upon fossil energy resources--perhaps particularly upon imported resources.

The Importance of Timing

As indicated previously, the basic technology required for direct use of solar-thermal energy is available today. Solar devices are being produced and marketed today. However, the solar resource is diffuse and therefore, the production of solar thermal energy involves the installation of a very large number of relatively small producing units. The majority of these installations will serve the needs of individual consumers. The import of these factors is that the rate at which installations are made will necessarily be low at the outset and continually expand. Even though the volume of solar energy produced in the first five years is relatively modest, the first five years' development are the most important and very critical to much larger scale expansion in the second five years and in turn, the accomplishments expected in the 1983-1987 time frame are essential to the still larger goals established for 1988-1992. Therefore, it is of great importance that we make a beginning now. If we don't begin now, we will not be able to reach 1982 goals; and if we don't reach them, we will not be able to reach subsequent objectives.

The Incentive Program

We have studied the subject of the incentives required to accelerate solar-thermal energy commercialization. Our objective has been to provide program recommendations which would accomplish this purpose in the most cost-effective and equitable manner possible. In structuring our proposed program, we have adopted concepts designed to particularly assist

those consumers, particularly low income persons and small businesses, who are now, and potentially will be, most heavily impacted by current and future conventional energy supply problems and escalating prices. Our proposals are detailed in Table 1. Following Table 1, the reasoning behind the structure of the proposals is discussed.

11.

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tively classified and defined as production equipment and thereby made eligible for regular investment tax credits at the same rates as those provided by law for other energy production facilities.

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A solar Government buildings program mandating that the Federal Government utilize solar energy in new and existing Federally owned or controlled structures when a life cycle cost analysis indicates that this is justified after crediting the cost of the solar installation with investment tax credits at the rates called for in Section B. In the case of structures owned or controlled by other Governmental Agencies (State and local), grants for solar installations are to be made available to these entities at the investment tax credit rates called for in Section B.

DISCUSSION OF THE INCENTIVE PROGRAM

Why Is It Proposed That The Incentives to Individuals Be Made in The Form of "Taxable Rebates" Rather Than As Tax Credits?

By using the device of "taxable rebates," the net benefit to the individual will vary with the individual's income level. The very low income individual, such as retired persons living upon fixed incomes, may often have no tax liability and will, thereby, realize a net benefit equal to the gross taxable rebate. The "typical" homeowner will obtain a net benefit equal to approximately two-thirds of the gross rebate, while the more affluent individual; for example, an individual with a taxable income of $40,000; will receive a net benefit equal to only 58% of the gross taxable rebate. In effect, the system provides for greater benefits for lower income individuals. We believe that this principle is sound and desirable from two points of view. In the first place, lower income individuals have been generally more heavily impacted by rising energy costs and are in most urgent need of relief.

Secondly, lower income individuals are less able to allocate personal funds for purchases, such as the purchase of solar equipment, which are primarily justified by longer term benefits than are higher income individuals. In effect, the net level of incentives needed to induce low income individuals to invest in solar equipment is higher than in the case of higher income persons. An incentive system providing a non-taxable tax credit, at the level called for in Table 1, as the "net average after tax benefit," would often not provide sufficient incentive for the low income individual while providing a greater incentive than necessary for high income persons. Therefore, it is cost-effective to offer incentives as taxable rebates to individuals so as to tailor the net benefit to the needs of individual sectors of the market rather than to offer a tax free tax credit at a fixed rate. Table 2 provides examples of the variable effect of the taxable rebate system.

TABLE 2
VARIABLE IMPACT OF THE TAXABLE REBATE SYSTEM
UPON INDIVIDUALS AT VARYING INCOME LOADS

Case 1: A solar water heater installation made during the 1977-1980 time period and costing $1,500. Taxable Gross Rebate: $950.

a. A retired couple, with a gross income of $3,600, excluding Social Security, and eligible for over 65 tax exemptions and the standard deduction. Has no tax liability.

Net Benefit	$ 950
% of Cost ($1,500)	63.3%

b. A modest income family with a taxable income of $11,000 and taking the standard deduction. The incentive payments increase the standard deduction to which the taxpayer is entitled to an amount equal to 16% of the additional income received as a taxable rebate. Thus, the effective tax rate is 84% of the 22% tax rate to which they are presently liable, or 18.48%.

Net Benefit	$ 774
% of Cost ($1,500)	51.6%

c. A "typical" homeowner with a taxable family income of $20,000.

Net Benefit	$ 646
% of Cost ($1,500)	43.1%

d. An "above average" homeowner with a taxable family income of $30,000.

Net Benefit	$ 580
% of Cost ($1,500)	38.7%

e. An "affluent" homeowner with a taxable family income of $40,000.

Net Benefit	$ 551
% of Cost ($1,500)	36.7%

Case 2: A retrofit solar water and space heating installation made during the 1977-1980 time period. Cost for a modest home $4,100, for a larger home $5,000 and for a large home $8,000.

16.

a. A retired couple (described above). Only that portion of the rebate above $2,500 is taxable at 15%. Occupies a modest home; system cost $4,100.

Gross Rebate:	$2,450	Net Benefit	$2,450
		% of Cost ($4,100)	59.8%

b. A modest income family (described above). Occupies a modest home; system cost $4,100.

Gross Rebate:	$2,450	Net Benefit	$1,997
		% of Cost ($4,100)	48.7%

c. A "typical" family (described above). Occupies a larger home; system cost $5,000.

Gross Rebate:	$2,900	Net Benefit	$1,972
		% of Cost ($5,000)	39.4%

d. An "above average" family (described above). Occupies a larger home; system cost $5,000.

Gross Rebate:	$2,900	Net Benefit	$1,769
		% of Cost ($5,000)	35.4%

e. An "affluent" family (described above). Occupies a large home; system cost $8,000.

Gross Rebate:	$3,400	Net Benefit	$1,972
		% of Cost ($8,000)	24.7%

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How Will The Taxable Rebate System Work?

Upon completion of a solar energy installation, the individual will certify to a designated agency of the Federal Government that the installation has been completed, furnishing such supporting information, documentation and descriptive matter as may be called for by the Federal Agency. The U. S. Treasury will then issue a check to the individual (or to his designee) in the amount of the gross taxable rebate to which the individual is entitled. The full amount of the gross rebate is considered as taxable income to the individual in the year in which the rebate is received and is reported by him upon his income tax return as a portion of his gross income for purposes of computing his Federal tax liability. The provision that the gross rebate be issued upon receipt of proper certification ensures prompt payment of the incentive, thereby removing the potential disincentive which would result were a tax credit provided, in which event as much as fifteen months might elapse from the time at which the installation was made and paid for and the time at which the tax credit was received.

Why Should the Tax Rebates Be Made Assignable?

It is anticipated that the seller of the solar equipment will accept assignation of the rebate (or a portion thereof) in lieu of a down payment. Of course, assignation of the rebate costs the Government nothing. By providing the "down payment" for the solar equipment, it makes it easier for the individual to purchase the equipment.

Why Do The Incentive Percentages Vary With the Magnitude of The Individual's Solar Investment?

There are several reasons for this. In the first place, the lower income individuals typically occupy smaller residences which require smaller solar installations. The graduated rebate scale provides a higher percentage incentive for smaller installations. Again, the principle is established that the lower income individual, more heavily impacted by high energy costs, receives the greater proportional benefit.

Secondly, the graduated rebate schedule provides an incentive to reduce the cost of solar installations and thereby improve their cost-effectiveness in the future. In effect, the graduated rebate schedules provides a disincentive to wasteful practices.

The graduated schedule offers maximum incentive to the installation of solar water heaters, with cost generally in the range of $1,000 to $1,500. Since solar water heaters operate year-round, they have potential to replace larger quantities of conventional energy per unit size than heating systems which are only used during part of the year. Thus, the Government incentive expenditures tend to be more cost-effective in

this area. Furthermore, one of the early objectives of the incentive program is to develop broad based public acceptance for the use of solar energy. In terms of public acceptance, a relatively low cost water heater, installed and operating in a neighboring residence, has very nearly the same impact upon its neighbors as does a larger system providing both space heat and hot water. At the same time, the Government expenditure upon the water heater, because of its lower cost, is smaller than upon space heating equipment. Thus, the objective of developing broad public acceptance of solar devices can be accomplished at less cost to the Government by emphasizing those measures which provide increased incentives for water heaters. In effect, a program which provided rebates at a uniform level for all levels of expenditure and which was tailored to produce the same net long term effect as the graduated rebate system, would cost more.

Why Are No Rebates Provided For Individual Solar Expenditures Above $6,000?

Again, one of the reasons for the $6,000 cutoff is to incentivize lower cost, more cost-effective solar systems. At the same time, it should be noted that relatively large systems would tend to be required upon relatively large residences, typically occupied by relatively higher income individuals. The high income individuals have less need of incentives.

The $6,000 cutoff level is one of the elements of the program which should be reviewed at the end of the fifth year after the program has been enacted. Depending upon the rate of general inflation which ensues during the next five years, as well as the extent to which the cost of solar hardware may be reduced, it may then be appropriate to either leave the cutoff level at $6,000, increase it or decrease it.

Why Is An Additional Rebate Provided for Retrofit Installations in Which Natural Gas is Replaced?

The events of the past winter amply demonstrate that conservation of natural gas must be a priority concern. At the same time, natural gas prices to the consumer reflect the gas utilities' average cost for "old" gas received by them at relatively very low prices pursuant to long term contracts or in accord with Government regulation, as well as progressively higher priced natural gas contracted for more recently. Thus, despite its scarcity and great value, the retail price of natural gas is still relatively low (as compared to other energy resources) and is expected to increase only gradually.

The net result is that, in order for the incentives to be at an effective level to induce users to make solar installations to re-

place natural gas, the incentive level must be higher than when oil or electric energy are being replaced.

The additional "natural gas" incentive is offered only on retrofit applications for two reasons. In the first place, to an increasing extent, gas utilities are not providing gas hookups to new residential customers. To the extent that natural gas is not available to new residences, the need for special incentives for natural gas replacement does not exist.

Secondly, it would be administratively easy to verify that a retrofit installation did, in fact, replace gas and is, therefore, eligible for the additional incentive. It is much more difficult to judge and determine whether or not a new solar installation replaced gas. Extension of the additional credits to new installations could lead to claims that were argumentative and difficult or impossible to verify and document.

In the Case of Corporations, Why Is the Additional Natural Gas Rebate Limited to the First $100,000 Expended On A Solar System?

This limitation is imposed for the sake of cost-effectiveness. To an increasing extent, large users of natural gas are experiencing interruptions to their supply or being cut off completely. Thus, in the case of many large users, the solar system would not have to compete with natural gas but with some other alternative. Certainly, exceptions to this general thesis may be found; however, we believe that offering the "natural gas incentive" for large solar installations would tend to not be cost-effective since the standard incentives should be sufficient in most cases.

What Are the Incentive Levels Which Will Probably be Required Subsequent to 1982?

The extent of future inflation and the extent to which conventional energy prices rise at a rate more rapid than the general rate of inflation are somewhat difficult to project. The extent of potential error in these projections becomes greater the further they are extended into the future. It is also more difficult to project the costs of solar equipment into the more distant future. Thus, projections of the probable incentive level beyond 1982 are imprecise. These are the reasons why we have called for a review of the incentive program five years after enactment so that rates to be applied in 1983 and subsequent years can be adjusted to relate properly to the circumstances which then exist. Based upon our current thinking, the probable rates which would be called for in 1983-1988 are as shown on Table 3.

TABLE 3
POTENTIAL INCENTIVE RATES
1983 - 1988

A. For Individuals: Treasury Rebates, taxable as income to the individual as follows:

1. General for all applications.

1983 - 1984

	Gross Taxable Rebate	Net Average After Tax Benefit
First $1,000 expended on a solar system	50%	33.3%
Next $2,000 " " " "	40%	26.7%
Next $3,000 " " " "	30%	20 %

1985 - 1988

First $1,000 expended on a solar system	30%	20 %
Next $2,000 " " " "	20%	13.3%
Next $3,000 " " " "	10%	6.7%

2. Additional taxable rebate, limited only to retrofit systems replacing natural gas.

1983 - 1984

First $6,000 expended on a solar system	25%	16.7%

1985 - 1988

First $6,000 expended on a solar system	25%	16.7%

B. For Corporations

1. For all applications.

1983 - 1984

	Investment Tax Credit
First $50,000 expended on a solar system	25%
Next $50,000 " " " "	20%
All over $100,000 " " " "	15%

1985 - 1988

	Investment Tax Credit
First $50,000 expended on a solar system	20%
Next $50,000 " " " "	15%
All over $100,000 " " " "	10%

2. Additional tax credits limited only to retrofit systems replacing natural gas.

1982 - 1984

First $100,000 expended on a solar system	15%

1985 - 1988

First $100,000 expended on a solar system	10%

C. Provisions for assignability, limitations, loan guarantees and the Government Buildings Program to continue in 1983-1988.

State Eligibility For
Incentive Programs

The individual states have a substantial stake in the accelerated commercialization of solar energy. To assure that individual states make a reasonable contribution to solar commercialization, legislation should provide that eligibility of solar installations in a state for Federal incentive payments be limited to those states which take all of the following steps:

a. Exempt solar energy installations from state and local property taxes.

b. Exempt the sale of solar equipment from state and local sales and use taxes.

c. Exempt rebates to individuals from state and local income taxes.

d. By regulation or legislation, as may be required, permit (but not require) gas and combination utilities to own and operate solar installations and market the thermal energy produced to users at regulated rates, including allowing that the cost to the utility of the solar installation be "rolled in" the utility's gas (but not electric) rate base, subject to regulatory scrutiny. This provision is not to be construed as preventing individual states from making provisions for electric utility ownership of solar installations should the individual state so elect. However, provisions with respect to electric utility participation are not mandated.

Eligible Systems

Within a reasonable period of time (to be determined by the Congress), subsequent to the passage of legislation implementing a Solar Incentive Program, the Secretary of Housing and Urban Development shall be required to publish standards for solar equipment eligible for incentives for residential applications and the Administrator of the Federal Energy Administration (or its successor organization) shall be required to publish standards for eligibility of solar systems for nonresidential applications.

These standards should be limited to those necessary to assure reasonable durability, to assure safety and to assure reasonable suitability for their intended purpose, recognizing climatic and other factors. One reason for this stipulation is to avoid, insofar as practical, the establishment of standards which have the effect of limiting innovation. Standards should not specify that portion of the thermal require-

ments which must be met by the solar installation. The optimum solar contribution varies widely with geography and the type of application and the selection of system size for optimum cost-effectiveness can be left up to the normal function of the marketplace.

To provide further assurance that the effect of standards is not to restrict innovation and further assurance that they are not otherwise unduly restrictive, both H.U.D. and F.E.A. should be required to form permanent review boards which will include representatives of the solar industry and of consumers. Furthermore, appeal procedures should be provided. In summary, the intent and purpose of procedures establishing standards to determine eligibility for incentives should be limited to the necessary functions of assuring durability, safety and suitability, leaving other functions to the marketplace and to the voluntary standards system.

Standards should be established for both "active" and "passive" solar systems.

Other Programs

Successful broad scale commercialization of the use of solar-thermal energy depends not only upon making the economics "right" for the producer-user through incentives but also upon continuing Government support in the following areas, already mandated by existing legislation.

The Demonstration Program. Short term, the Demonstration Program is important since it places solar installations at key points in the country where they will be visible to the public and will assist in developing public credibility. As private sector activity continues to increase, this need for a Government sponsored Demonstration Program will diminish. If the incentive program is enacted, we foresee reduced need for continuing Government demonstrations in the areas of space heating and water heating beyond 1978, and demonstration activities in the area of solar-thermal energy subsequent to 1978 can be confined to demonstrating improved solar cooling equipment as it becomes available and to demonstrating new technological advances. Since little has been done to date, there will also be a continuing need for demonstration in the area of industrial and agricultural process heat.

In any event, it can be argued that acceleration of the private sector market which will accompany implementation of an incentives program will tend to reduce the scope and the magnitude of future Government demonstration programs.

Research and Development Support. Present research and development programs supporting solar-thermal energy should be continued.

Again, the need for such support will diminish with time as private sector activity increases. Again, emphasis will shift away from space heating and hot water heating oriented projects towards those relating specifically to air-conditioning and to industrial and agricultural process heat applications.

General Commercialization Activity. On the basis of legislation passed in August, 1976, the Federal Energy Administration was given an overall assignment to take and/or recommend actions to accelerate commercialization of solar applications. Pursuant to this mandate, we understand that F.E.A. has been developing a comprehensive commercialization plan. This plan should include public education activities and the like aimed at developing consumer awareness and acceptance. During the next few years, assistance of this sort is required. As in the other two cases, the need for these activities will gradually diminish and they can be phased out.

Results To Be Expected

In the foregoing discussion, we have summarized the anticipated results of the incentive programs. Table 4, which follows, provides more information on a year by year basis and also compares the results with those to be expected if present programs are continued (as discussed above) but incentive programs are not implemented.

TABLE 4
HIGHLIGHTS OF SOLAR PROGRAM
RESIDENTIAL PLUS NONRESIDENTIAL

	1	2	3	4	5	6
	WITH INCENTIVES AND OTHER NEW PROGRAMS					
	Investment In Solar In Year Millions Of Dollars	Cumulative Total Investment In Solar Millions Of Dollars	Net Incentives In Year Millions Of Dollars	Cumulative Total Net Incentives Millions Of Dollars	OIL EQUIVALENT SAVED Thousands Of Barrels Per Year	OIL EQUIVALENT SAVED Barrels Per Day
1977	34.6	34.6	16.2	16.2	107	294
1978	65.4	100	30.3	46.5	307	840
1979	224	324	105.7	152.2	1,012	2,772
1980	550	874	267.8	420	2,752	7,539
1981	1,270	2,144	457	877	6,763	18,530
1982	2,290	4,434	829	1,706	13,982	38,307
1983	3,392	7,826	1,183	2,889	25,294	69,298
1984	5,013	12,839	1,675	4,564	39,701	108,770
1985	7,415	20,254	1,510	6,074	61,505	168,507
1986	10,808	31,062	1,998	8,072	92,145	252,453
1987	15,376	46,438	2,770	10,842	133,389	365,448
1988	21,111	67,549	3,631	14,473	187,971	514,988
1989	28,158	95,707	0	14,473	259,318	710,460
1990	37,052	132,759	0	14,473	350,181	959,399
1991	84,901	217,660	0	14,473	463,768	1,270,597
1992	59,214	276,874	0	14,473	603,286	1,652,837
	BASED ON EXISTING PROGRAMS					
1977	19.5	19.5	N.A.	N.A.	60	165
1978	35.8	55.3			172	470
1979	85.7	141			442	1,211
1980	138	279			885	2,425
1981	216	495			1,620	4,437
1982	372	867			2,803	7,680
1983	578	1,445			4,439	12,163
1984	892	2,337			7,377	20,212
1985	1,294	3,631			11,285	30,918
1986	1,804	5,435			16,598	45,473
1987	2,574	8,009			23,975	65,684
1988	3,798	11,807			34,430	94,328
1989	5,647	17,454			49,364	135,245
1990	8,382	25,836			70,751	193,839
1991	12,604	38,440			101,716	278,673
1992	18,343	56,783			145,434	398,448

DISCUSSION AND DOCUMENTATION

INTRODUCTION

Sunshine Is A Natural Resource

The solar radiation--sunshine--which falls upon the surface of the earth provides a very large-scale and almost infinitely renewable energy resource. This natural resource is fundamentally nonpolluting and its use presents minimal hazards to health or safety. Sunshine is free and essentially available to all. However, solar radiation must be collected, converted into useful energy and these, in turn, must often be stored before solar energy can be effectively utilized. Thus, an investment in energy "production" facilities is required to produce useful energy from the solar resource.

Although the quantity of solar energy received by the United States is many times our total energy consumption, it is diffuse in nature and the amount of energy falling upon a square foot of land area is only moderate. Therefore, substantial investments are required in equipment to produce large amounts of useful energy from the solar resource. Solar energy may be converted into many useful forms. Particularly, the conversion of solar energy into thermal energy requires only simple (and now available) technology. (An excellent description of the simple equipment required is included in the consumer booklet, "Solar Energy and Your Home," prepared by H.U.D. and E.R.D.A. A copy is appended as Appendix A.) The efficiency with which solar energy may be converted into thermal energy with existing technology is relatively high. At the same time, the transport of thermal energy at the moderate temperatures normally available from solar radiation is relatively costly and inefficient.

Production of Thermal Energy From Solar Is Different

The production of thermal energy from sunlight, a diffuse resource, is and will continue to be undertaken in a diffuse manner at or close to the point of use. It follows that there will be a very large number of solar energy producers. These will include literally millions of individual homeowners, the individual owners of apartment complexes, of commercial establishments, of office buildings, of farms and of industries. The diffuse "production" of solar thermal energy is both a problem and an advantage. It is a problem since, in order for solar thermal energy production to have large impact upon the nation's energy problems, literally millions of individuals and companies must elect to become solar energy producers. Diffusion is an advantage since it does provide a very large number of individuals with the opportunity to make a direct contribution to their own welfare, to the welfare of the community and the nation

and to the welfare of society. Sociologists tell us that participation by the individual in helping to solve the problems of society is an important means of stabilizing the society. The contrast between the diffuse nature of solar-thermal energy production and the production of other energy forms is an important difference. Production of very nearly all other energy resources is carried out by large institutionalized organizations--by large corporations and in some cases, by large Government agencies.

BASIC PURPOSES OF THE SOLAR-THERMAL ENERGY COMMERCIALIZATION PROGRAM

The basic purpose of the solar-thermal energy commercialization program, as proposed by the Solar Energy Industries Association, is to accelerate the sound and orderly growth of the production and use of solar-thermal energy for heating and cooling. We believe that implementation of a strong and aggressive program will lead, within fifteen years, to production of solar-thermal energy at a rate which is at least equivalent to the net energy contained in 1.6 million barrels of oil per day. Furthermore, the net contribution of solar-thermal energy will continue to increase thereafter.

Solar-Thermal Energy Should Be Available To All

The program for legislative and administrative action to accomplish this basic purpose which S.E.I.A. proposes is structured with the particular intent of making the benefits of solar energy production available to individual "producers" at all economic levels. The S.E.I.A. program is designed to encourage development of lower cost solar energy production equipment and to encourage innovation in its design, construction and installation. Our program is intended to encourage continuing competition among equipment manufacturers. Finally--and importantly--the solar producer-user incentives--the most important new initiative recommended--are structured so as to minimize cost to the Federal Government. The cumulative cost of the incentives, both those applicable in the 1977-1982 time frame and those "probable" in the period 1983-1988, including allowances for future inflation, totals $14.5 billion distributed over a span of twelve years. In the period extending from the present through 1992, the total new investment made in solar equipment is expected to be $276 billion (again, including provision for future inflation). Thus, the new economic activity engendered by the solar program will generate new tax revenues substantially in excess of the direct cost to the Government. The cost to the taxpayer of the other elements in the S.E.I.A. program is relatively small.

JUSTIFICATION FOR INCENTIVES

The basic purpose of the solar incentives program, as well as other stimulative programs, is to accelerate the rate at which solar-thermal energy is produced from solar radiation and used as a replace-

ment for or alternative to fossil energy resources, particularly oil and natural gas, which are expected to become in increasingly critical short supply in the future. Furthermore, solar energy is nonpolluting and its production does not create adverse environmental impacts and hazards. These factors constitute the primary justification for the incentive program.

However, another justification for solar incentives lies in offsetting the incentives which the Federal tax structure and which other Federal programs now provide to the production of other energy resources and in counterbalancing the effect of Federal and other Government regulatory policies which adversely impact the relative economics of solar energy in the competitive energy marketplace.

An Equivalent Opportunity For Solar Energy

We believe strongly that the many benefits to be derived from accelerating the production and use of solar-thermal energy make it logical to take steps which will give the solar producer-user equivalent treatment to that accorded other energy producers and which will offset the present discriminatory practices which encourage the use of other energy resources. Let us now examine some of these.

Electric energy, fuel oil, gas, coal and most other conventional energy resources are produced and distributed primarily by corporations--indeed, primarily by quite large corporations. In order for corporations to survive and continue to meet and adapt to the requirements of the consumers whom they serve, they must realize an adequate cash flow; to compensate the investors who own them, to repay their creditors, to replace their equipment and other productive capabilities, and, as necessary, to expand their capabilities. The price at which their energy product is marketed--even in moderately competitive markets--tends to be established at levels which will provide the energy producer with adequate cash flow. In the case of regulated energy producers, market prices are regulated at levels which will accomplish this purpose.

The present tax structure provides corporate energy producers with very substantial tax free cash flow. Energy producers receive an investment tax credit--presently 10% of the new investments which they make in productive equipment. They are allowed to depreciate current and past investments and pay no tax upon the cash flow which offsets depreciation charges. Many energy producers also receive depletion allowances, an additional tax free cash flow. If that portion of the corporation's gross receipts which is allowed to flow through to the corporation without taxation were to be taxed, it would be necessary to substantially raise the prices for the energy produced and sold as a means of increasing gross receipts to the level so that, after tax, cash flow would still be adequate.

The Present Tax System Discriminates Against the Individual Solar Producer

The individual homeowner who elects to become not only an energy user but also an energy producer, by investing in facilities to produce solar-thermal energy, receives none of these tax benefits. He must pay taxes on the money used to pay for his solar facilities and to maintain and operate them. He cannot take an investment tax credit for his production facilities, he cannot depreciate them for tax purposes, he receives no depletion allowance.

Clearly, the present tax system discriminates strongly against the individual who elects to produce solar energy for his own use.

Present Regulatory Practices Discriminate Against The Solar Producers, Both Individual And Corporate

Present regulatory practices and policies are intended to protect the consumer and do accomplish this purpose in substantial degree. However, they also have the effect of discriminating against the solar producer-user in the competitive energy market. This discrimination impacts both the individual and corporate producer of solar-thermal energy.

The solar energy produced by the ultimate user, whether an individual or a corporation, can be characterized as "new" or "incremental" energy production. (A term often used for new or incremental production is "marginal" production.) The cost of the "new" energy production by the producer-user must stand alone--it is not "averaged" with "old" energy production.

In principle, the production of "new" solar energy is an alternative to the production of "new" electric energy, natural gas or oil. The effect of escalation and inflation upon the cost of new electric generating facilities and upon the cost of new primary energy resources needed to fuel them results in the cost of "new" or "marginal" electric energy production being considerably greater than the average cost of generation from existing facilities using "old" sources of primary energy. Regulatory procedures average the higher cost of "new" electric energy generation with the lower cost of "old" generation and the price of the electric energy to both new and old users is the same. From one point of view, the "old" user, through higher rates applied to all users, subsidizes the high cost of serving the "new" user.

However, in the marketplace, the "new" solar energy producer must compete not with the high cost of "new" electric energy but with the lower average cost. He is not subsidized by the old users of elec-

tric energy as is the new user of electric energy. The regulatory system discriminates against the solar producer-user by subsidizing new consumption of electric energy while not subsidizing the solar alternative to new electric consumption.

Gas Pricing, An Extreme Case Of Discrimination

The extent to which the present regulations and policies discriminate against the solar producer-user of new energy is particularly pronounced when he must compete with natural gas. Although the wellhead price of "new" natural gas is set, by regulation, at a level higher than the price of "old" gas, even the price of new gas is evidently below "market value" since the price of unregulated intrastate natural gas is even higher. The regulated price of "new" gas is two or three times that of old gas. In addition, much "old" gas is being delivered on old contracts at even lower prices. The gas utilities' retail prices are regulated at levels which reflect their average cost of purchasing a mixture of "new" and "old" gas, with the result that the retail delivered price of gas, even at locations substantially removed from the wellhead and including transportation and distribution costs, as well as the gas utility's profit, is often below the controlled price of new gas at the wellhead. The regulatory system and policies very substantially discriminates against the producer of "new" solar energy when he must compete with natural gas.

Somewhat similar discrimination to the detriment of the producer-user of "new" solar energy applies when he competes with oil, although the extent of this discrimination is much less pronounced. The price of a substantial part of "old" crude oil production is controlled at levels below market prices. This depresses the average cost of crude oil to refiners and this depressed average cost becomes the basis for lower fuel oil prices than those which would apply were oil prices decontrolled. The extent of discrimination is much less.

It is not our purpose to propose complete and immediate decontrol of oil and gas prices or to propose that gas and utility rates be regulated at levels corresponding to the cost of "new" or "marginal" supply. The economic shock could be pronounced. It is not our purpose to propose that corporate tax laws be changed to eliminate investment tax credits and depreciation allowances. We propose that temporary incentives be provided to solar energy producers which will somewhat offset present discrimination.

May 20, 1977

SUMMARY STATEMENT OF THE

AMERICAN HOTEL & MOTEL ASSOCIATION

BEFORE THE

COMMITTEE ON WAYS AND MEANS

ON

PRESIDENT CARTER'S TAX INCENTIVES FOR

BUSINESSES UTILIZING ENERGY SAVING EQUIPMENT

The American Hotel & Motel Association encourages Congress to approve the additional investment tax credit for energy conservation improvements to business facilities.

Energy consumption can be reduced from 30 percent to 50 percent if large investments are made in equipment replacement.

This can be greatly encouraged by the proposed additional investment tax credit.

Many hotels and motels may be forced to close their doors with a great loss of jobs because of the rapid escalating energy cost. The proposed additional investment tax credit can reduce this number.

User fuel tax on gas and oil could adversely increase the cost of electric energy to hotels and motels if the law permits utilities to pass this tax on to its customers.

A viable lodging indsutry is essential to the conducting of all business and commerce nation-wide. Without a place to stay (hotels and motels) nobody could travel, business would soon stop.

May 20, 1977

STATEMENT OF THE

AMERICAN HOTEL & MOTEL ASSOCIATION

BEFORE THE

COMMITTEE ON WAYS AND MEANS

ON

PRESIDENT CARTER'S TAX INCENTIVES FOR

BUSINESSES UTILIZING ENERGY SAVING EQUIPMENT

I am Robert Aulbach, Energy Management Consultant of the American Hotel & Motel Association. The American Hotel & Motel Association is a federation of hotel and motel associations located in the fifty states, the District of Columbia, Puerto Rico and the Virgin Islands, having a membership in excess of 6,500 hotels and motels containing in excess of 850,000 rentable rooms. The American Hotel & Motel Association maintains offices at 888 Seventh Avenue, New York City, and at 777 - 14th Street, N.W., Washington, D.C.

We appreciate this opportunity to appear before the House Ways and Means Committee to express our industry's support for tax credits to businesses utilizing energy saving equipment.

The hotel and motel industry is a $12 billion industry employing approximately one-million workers. We are part of the tourism and travel industry which has annual sales of approximately $70 billion and employs over four-million workers. Tourism and travel ranks as one of the three top industries in 46 of 50 states.

The Administration was correct when it noted in "The National Energy Plan", "Some industries, such as the recreation industry, are particularly dependent on a continuing supply of energy.

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Short-term limitations on energy use are disruptive to these industries. If action is taken now to curb demand, they will continue to flourish. If action is not taken, their very survival may come into question in the future." At the same time, we would be less than candid if we didn't note that conservation must be coupled with production. This may sound contradictory, but it isn't. Wise use of our energy resources comes from conservation but without production long-term growth is endangered. Our industry supports realistic pricing to provide the investment dollars needed for additional drilling.

The very existence of our industry is predicated on energy availability. During the Arab oil embargo, it became clear to us how vulnerable we were to shortages.

As a result of that experience, AH&MA began to intensify its activities to promote "conservation" among its members. For the past two and one half years, the American Hotel & Motel Association has been actively developing and implementing an energy management program for the benefit of its members and the general public.

In the past two years, the American Hotel & Motel Association and its members have spent approximately three hundred thousand dollars ($300,000) in the development of their program.

The purpose and intent of the program is to provide the informational, and educational tools which will enable the individual hotel and motel operators to develop their own long range energy management program by which they can conserve energy.

The program generally consists of the following:

A. Educational

1. Seminars

2. Informational guides

3. Instructive posters

4. Energy management handbook; a large comprehensive energy management handbook has been developed, published and distributed to its members and the general public which may request it. This handbook has been acknowledged as one of the finest that has been developed to date.

5. Energy technical center: a technical center has been opened up in San Antonio, Texas. The purpose of the technical center is to collect and disseminate any and all information which becomes available relative to energy, and the conservation of energy which will assist the hotel-motel operators and the general public in the techniques of energy conservation. The technical center is developing a comprehensive library and is presently in the process of developing a technical supplement to the already published energy management manual.

During the period of the Arab oil embargo, the industry pledged itself to the purposes of energy conservation which was confirmed in a formal pledge to President Ford. This pledge was recently reaffirmed to President Carter during the recent fuel crisis caused by the severe winter.

The hotel-motel industry firmly believes that a National Energy Policy is an absolute necessity to the continuing well being of our nation. A comprehensive energy policy will establish the necessary framework within which it can work in the development of its own energy conservation program.

The lodging industry is essential to the operation of commerce and industry. Without lodging, travel would be impossible, business could not be conducted, inter-city meetings could not be held, and for that matter, the present hearings could not be possible.

Therefore, it is essential that the energy policy deliberations provide due consideration to the idiosyncrasies of the lodging industry (24 hours a day, seven days a week), and the essential nature of its functions.

Hotel-Motel Complexes: there is no such a thing as a typical hotel motel property. Hotels and motels come in all shapes and sizes. They are cities within cities, comprised of various combinations of guest rooms, meeting rooms, restaurants, laundries, entertainment, athletic facilities, commerical offices, etc.

The majority of the hotels and motels throughout the nation are owned and operated by small independents, owning one or two properties. The majority of those hotels and motels carrying the names of prominent national chains are privately owned and operated through franchise agreements. These independent operators need considerable help in their efforts to conserve energy. Our studies indicate that while an effective energy management program can reduce the consumption of energy, the large quantities can be saved through the physical modification, replacement and retrofitting of the now existing inefficient systems. This, of course, requires considerable investment on the part of the individual property owner and can only be done if the return on investment for energy conservation improvements is economically feasible.

Necessity of Additional Investment Tax Credit: energy Consumption can be reduced from 30 percent to 50 percent if large investments are made in equipment replacement. Additional investment tax credit would greatly assist the hotel-motel operator in his efforts to improve the energy systems of his property. In most cases, large investments will be required by the operator

in providing improvements, or replacing of the present inefficient systems. The financing of these improvements must come from the cash flow of the property, and from banking and insurance loan resources.

Although in some cases, the funds may be readily available and the return on investment good, more often than not, the return on investment is not good, and the payback is extremely long (over five years).

In the case of hotel and motel properties whose profitability is very marginal, and properties that are old (25-50 years) the economic benefits of investing in energy conservation improvements may not exist within the present framework of the tax laws. These properties, because they are marginal and/or old, generally are inefficient users of energy and present the greatest opportunities for energy conservation.

The increased cost that the lodging industry faces will undoubtedly cause many of these marginal and old properties to close if they are not provided with an economic solution to their energy problem. The additional investment tax credit could very well be the economic salvation of many of these properties. Hotel operations are very labor intensive providing many jobs to the entire spectrum of the labor market, including many job opportunities to minorities and low-income people.

Further, many of the marginal and older hotel and motel properties are located in the core of our large cities and would only contribute to the already present decay if they were forced to close.

Favor Investment Credit for Energy Conservation Improvements:

The American Hotel and Motel Association strongly urges the approval of the proposed additional investment tax credit for energy

conservation improvements. These improvements should include the investment in any equipment, controls, thermal insulation, enclosures, weatherizing which will substantially contribute to the conservation of energy and will provide an economic return to the property owner within a reasonable time.

These improvements will not only preserve the jobs in existing properties but will also create new jobs in the manufacturing, construction and installation of these improvements.

Co-generation: Co-generation can be beneficial in the operation of the larger hotel-motel properties. The efficiencies that can be accomplished are considerably greater than can be achieved by the present electric generating plants and can be beneficial to the hotel operator, the utility company and the nation in accomplishing energy conservation.

In order for co-generation to be economically feasible, it is essential that the institutional barriers be removed. The benefit of an additional investment tax credit would improve the economics of on-site power generation making this concept feasible in more applications than would otherwise be possible.

Users Fuel Tax: The American Hotel and Motel Association is concerned that the proposed users tax on industry and utilities would result in higher electric power cost which would burden the general public and business served by these utilities who choose not to convert but merely pass on the additional cost to their customers. We, therefore, suggest that the Committee consider safeguards to protect the public from this eventuality.

We will be happy to provide any additional information which the Committee may desire to support this presentation.

Statement of Paul W. Eggers,
Geothermal Kinetics, Inc.,
before the Committee on Ways and Means
House of Representatives

May 20, 1977

I am Paul W. Eggers, President of Geothermal Kinetics, Inc., Phoenix, Arizona. As a former General Counsel of the Treasury Department, I consider it a privilege to testify before this distinguished Committee. I am appearing in support of H.R. 7138, introduced by Mr. Jones and Mr. Ketchum.

A great deal of important work is being done by small independent companies like Geothermal Kinetics, Inc. which is engaged exclusively in the development of geothermal energy. Although only six years old, it has brought together a team of experts who have been pioneers in the field of geothermal exploration. We are hampered, however, by our inability to attract adequate capital to exploit known geothermal resources.

We are unable to attract sufficient capital because (1) commercial bankers are unwilling to take risks on an infant industry which they know little about and which has no track record; (2) there is a time lag of about five years between the drilling of a well and the realization of income; and (3) private investors are reluctant to invest for these reasons and because of the current uncertain tax treatment. In our judgment, H.R. 7138 would provide sufficient incentives to solve the problem of attracting capital in adequate amounts to create a viable geothermal industry.

In addition to providing for the deduction of intangible drilling costs as recommended in the President's National Energy

Plan, H.R. 7138 would provide a deduction against income derived from geothermal production. The tax deduction for intangible drilling costs proposed by the President is badly needed, but it will not be enough to attract the necessary investment to assure strong geothermal development. The additional deduction against income is also essential.

The President's energy program has been criticized to some extent on the grounds that it does not place sufficient emphasis on production. Enactment of H.R. 7138, legislation which has twice been passed by the Senate, would provide positive incentives for exploration and development of geothermal energy resources. Enactment of this legislation is a positive approach to solution of the energy problems.

The geothermal industry is at a stage similar to that of the oil and gas industry thirty to forty years ago. The industry needs the same types of incentives as those which proved to be so successful in spurring the development of oil and gas resources. We are asking only that geothermal, an infant industry, be granted the same incentives and opportunity for growth that were initially provided for oil and gas.

The potential of geothermal energy in this country cannot and will not be developed unless incentives are provided to enable this infant industry to become viable. Exploration and drilling are very expensive operations and require considerable amounts of risk capital. As you know, risk capital will be made available only if there are reasonable prospects of a substantial return on the

investment. In the absence of tax incentives of the type already available to coal, with which geothermal competes, the prospects of significant production at competitive prices are remote.

Moreover, it should be remembered that geothermal resources are available not only in the form of super heated steam but also in the form of steam and hot water with lower temperatures. A temperature of 350° is hot enough to be used for the production of electricity, but as the temperature decreases, the costs rise. Enactment of H.R. 7138 will make it possible to produce electricity from marginal and intermediate geothermal areas which otherwise will remain undeveloped for decades. Only areas like the Geysers will be developed in the absence of tax incentives.

It is now generally recognized that geothermal offers a significant environmentally-sound source of energy in the Western part of the nation and probably the Southwest and East as well. During the past five years improvements in technical and scientific techniques of locating and exploiting geothermal prospects, have made the commercial development of geothermal resources an immediate possibility.

I should like to emphasize that additional research and experimentation will not be necessary for geothermal development as it will for some of the more exotic energy proposals. The technology is known and available. All that is needed to make geothermal energy an immediate, readily available, partial answer to our increasing energy crisis is clarification of the tax laws as would be provided by enactment of H.R. 7138.

Thank you.

* * *

Statement of Domenic J. Falcone, Vice President
Geothermal Resources International, Inc.
4676 Admiralty Way, Marina del Rey, California
Before the Committee on Ways and Means
U.S. House of Representatives
May 20, 1977

Mr. Chairman and Members of the Committee, my name is Domenic J. Falcone and I am a Vice President of Geothermal Resources International. We are a small publicly held company which provides equipment lease financing and is engaged in exploration for and development of geothermal energy.

We urge the Committee to report favorably on that part of H.R. 6831 (the President's energy proposals) as relates to the taxation of geothermal energy. However, we feel that the President's specific proposal for geothermal energy goes only a part of the way toward attaining the stated objective, which is to bring about equality of tax treatment for geothermal resources. Accordingly we recommend that the Committee amend the bill so as to add one or more additional tax incentives along lines I shall mention later.

Our company has held substantial geothermal leased acreage, both productive and non-productive, for a number of years. Our holdings include both public and private lands. We hope to participate in the Federally-sponsored research and development programs; also to become a borrower under ERDA's Geothermal Loan Guarantee Program, all for the purpose of furthering geothermal energy as a contributor toward meeting the country's energy requirements.

Under the name of Dry Creek Exploration, Inc., we were the first company to apply for an ERDA geothermal loan guarantee.

Geothermal energy, of course, will not immediately become a major element in solving the country's over-all energy problems. But I believe that there are sufficient resources available or yet to be discovered, and that the technology is reasonably available, so as to contribute substantially in areas where the resource is to be found. Private and governmental studies both support this view.

Geothermal energy can be utilized not only for generation of electricity. such as is now the case in Italy, New Zealand, and at The Geysers in California. It can be utilized, as shown by actual projects and by studies, for such other purposes as space heating, air conditioning, food processing, sugar refining, and hydroponic farming. These purposes could be accommodated either as an end-use of resources capable of generating electricity, or as the primary use of resources of lesser capability. We are presently investigating some of these alternative uses. They are especially attractive because they do not involve the very long lead-time, in the range of seven to ten years from date of discovery, which attaches to the sale of steam to an electric utility.

While it appears that the non-electricity uses of geothermal resources will have shorter revenue recognition periods, the fact remains that without appropriate tax incentives there is little chance of attracting investment dollars into these new uses of geothermal energy.

In order to make inroads into becoming energy-independent, the Government must not merely foster research and development

but also stimulate private enterprise into applying the existing technology that is being developed. For this purpose the Geothermal Loan Guarantee Program is far from being enough. As a matter of fact, under present administrative interpretations, the Loan Guarantee Program seems to be impracticable.

Furthermore, whatever incentive the Loan Guarantee program does offer is being neutralized or offset by the disincentive to geothermal investment that is embodied in provisions of the present Tax Code. This disincentive consists of two parts: (1) the challenge by the Internal Revenue Service to the immediate tax deductibility of geothermal intangible drilling and development costs; and (2) the IRS challenge to the applicability of the Tax Code's discovery incentive (depletion allowance) to geothermal steam wells, even though current information supports the fact that the availability of the resource in a completed well diminishes over a period of time.

Not only is the tax treatment of steam-related activities unfavorable to the investor, it is not even at a parity as compared with the treatment currently being given to oil and gas and other comparable energy resources.

This situation repels rather than attracts investors to geothermal energy. It discourages companies from seeking guaranteed loans and other forms of credit.

The President has set forth a worthy goal. It is to "bring about equality of treatment among activities which compete for capital". His specific legislative proposal, contained in H.R. 6831, however, deals only with the first part of the disincentive

mentioned above. Reaching parity with oil and gas as to the deductibility of intangible drilling and development costs is long overdue and is sorely needed. It will help toward achieving parity of treatment and attracting new capital. But it alone is not enough.

Incidentally, another way to handle the intangible deduction problem would be to recognize that the geothermal industry as a whole is in its infancy and to treat all exploration and development costs as research and development expenditures under Section 174 of the Tax Code. Such treatment, if the deduction could be made from non-geothermal income, would act as an immediate investment stimulant. If not, then it would be necessary to provide a longer carryforward period than is provided in Section 172 of the Code on account of the long lead-time mentioned earlier.

Achieving a full equality of tax treatment for geothermal energy will require some kind of additional measure. The additional measure might consist of one or a combination of the following tax proposals:

1. Domestic Energy Incentive Credit. Inasmuch as geothermal resources are a domestic source of energy, a Domestic Energy Incentive Credit of 25 percent of the cost of successful exploration and development wells could logically be authorized. Similar investment credits have proven to be very effective tools. The credit could be distributed as a subsidy or as a recapturable credit to be repaid from future revenues from resource sales. The funds would thus become available to

finance the company's future drilling programs.

2. Balance of Payments Credit. Once geothermal production begins, a percentage of gross income should be deductible in the form of a Balance of Payments Credit, reflecting the savings of dollars that otherwise would have to be spent for equivalent quantities of imported oil. Such credit should be available only when the price of geothermal energy is less than the price of equivalent imported oil.

Other kinds of measures are available which would tend to achieve the President's objective of giving parity to geothermal resources. Among them are provisions in H.R. 377 by Congressman Goldwater and H.R. 6147 by Congressman McFall. However in no event should the Committee report H.R. 1040, the so-called Tax Equity Act of 1977, unless it is amended so as to remove from it the further disincentive that it would cause in the case of geothermal resources.

I have recently attended meetings of the Geothermal Resources Council, a private industry organization, and of the Legal and Institutional Subcommittee, a unit of ERDA's Advisory Committee on Geothermal Energy. The remedial tax proposals that I have described were discussed at those meetings and in some instances were viewed as proper to help attract capital into the industry. I must also point out that several of the smaller exploration companies such as ours believe that such measures should be put into effect as soon as possible.

The industry is poised for a major expansion over the next decade. The technology for utilizing the resource, once it is discovered, is making giant strides. However, the area of greatest need -- exploration -- is being impeded by the fact that the income tax legislation as it now stands is either inappropriate or non-existent.

In conclusion, I want to express my personal appreciation for this opportunity to appear and state our views. I urge the Committee to adopt the measures that I have described as a minimum requirement, representing a minimum cost to the Government, to accelerate the development of this resource, which for too long has been the misfit of the natural resources industries.

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Attachment to Statement of Dr. Carel Otte
before the House Committee on Ways and Means

May 20, 1977

Brief History of Geothermal Energy Development

The only major U.S. geothermal energy development is The Geysers field located about 90 miles north of San Francisco in California's Sonoma County. The development began in 1960 with a 12.5 megawatt generating plant. In 1973, it became the largest geothermal development in the world, with a capacity of 400 megawatts. The installed generating capacity now exceeds 500 megawatts, sufficient to supply electrical requirements of a city of 500,000; an additional 400 megawatts is now under construction. The Geysers eventually is expected to achieve a capacity of more than 2,000 megawatts, but it will have required more than 25 years to achieve it.

Other areas which have promise for early development in the near future -- given the needed incentives -- are in North central New Mexico and the Imperial Valley of California, and active exploration is also being carried on in other parts of California and New Mexico and in Nevada, Oregon, Idaho, Utah and Arizona. The geopressured areas of Louisiana and Texas hold promise for the longer range future.

Practical Utilization and Potential Role in National Energy Picture

Geothermal energy undoubtedly has the potential for a fairly wide range of use in coming decades, and even today in some nations it is utilized for space heating and industrial process heat, such as in the New Zealand paper industry. However, the immediate and near-term practical use in the United States is and will almost certainly continue to be primarily for electrical power generation. A pound of steam from the earth is indistinguishable from a pound of steam from a fossil-fuel-charged boiler and has been proven to be as effective in powering conventional electrical generating equipment.

But there are tremendous economic barriers which this industry must overcome: the tremendously high costs of drilling for geothermal deposits in hard rocks, with high temperatures and corrosive fluids; the very large capital investments required over several years before revenues can begin for a geothermal project; the requirement for drilling many replacement wells at each development site to maintain a constant stream of energy; and the present discouraging Federal income tax treatment.

The projected investment for developing resources to support 20,000 megawatts of generating capacity includes the costs of drilling at least 1,200 exploratory wells and 8,000 development wells at a minimum cost of $750,000 per well, or a total of $6.9 billion in 1977 dollars in drilling costs alone. Depreciable investment in hook-up facilities will add another $3 billion, bringing the total investment requirement to about $10 billion. Moreover, a like investment will

be required for replacement production wells and facilities through the approximately 30-year operating life of each development as the resource depletes.

Tax Considerations

It is extremely unlikely that the goal of 20,000 megawatts of geothermally-generated electric power will be achieved unless encouraging tax legislation is enacted and tax incentives thereby clearly established.

At the present time the Federal income tax treatment of geothermal well costs and production is in doubt. The Circuit Court of Appeals in the Reich and companion cases (Reich et al. v. Commissioner, 454 F.2d 1157 (9 Cir. 1972), affirming 52 T.C. 700 (1969)) held that geothermal energy in The Geysers field is an exhaustible natural resource and is entitled to depletion under existing law. In spite of this decision and the clear scientific evidence that geothermal energy is an exhaustible natural resource, the national office of the Internal Revenue Service is disallowing intangible drilling cost treatment and percentage depletion in respect of all geothermal activity and has announced its intention to press its position in the courts.

As a fledgling industry, geothermal energy must compete with the lowest cost alternative energy available to electric power utilities. In the West, where geothermal resources are most prevalent, the alternative is low-cost, strip-mined coal. Loss of percentage depletion and the right to deduct intangible drilling and development costs for geothermal energy would mean that the major portion of the geothermal resources would be non-competitive with coal and other alternative sources of energy which have the benefit of more favorable tax treatment. As a result, the nation's geothermal resources would remain largely undeveloped.

* * *

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STATEMENT OF

COMMUNITY ASSOCIATIONS INSTITUTE

BEFORE THE

COMMITTEE ON WAYS AND MEANS

ON

THE NATIONAL ENERGY ACT

MAY 20, 1977

Mr. Chairman and Members of the Committee:

My name is Arthur H. Schreiber and I am a member of the law firm of Silverstein and Mullens, Washington, D. C. I am here in my capacity as General Counsel to Community Associations Institute of Washington, D. C. I appreciate this opportunity to appear today and present the views of the Institute on the proposed residential energy tax credit provided in the National Energy Act (H.R. 6831).

Community Associations Institute, CAI, is a non-profit membership organization organized and operated for the purpose of education and

Statement of Dr. Carel Otte,
Union Oil Company of California,
before the Committee on Ways and Means
House of Representatives

May 20, 1977

My name is Carel Otte. I have been actively engaged in geothermal work since 1962 and have personally participated in both research and operating activities in most of the major geothermal areas of the country. I have also been active in scientific and geothermal industry association affairs. I am Vice President and Manager of the Geothermal Division of Union Oil Company of California and I am Chairman of the Advisory Committee on Geothermal Energy of the U.S. Energy Research and Development Administration.

I am appearing in support of H.R. 7138, introduced by Mr. Jones and Mr. Ketchum, which would provide for geothermal development the same type of tax treatment as that provided other wasting assets. Steam and hot water from the earth's crust is readily available in many places, primarily in the West, and it has the potential of providing environmentally acceptable, domestic energy in important amounts. The geothermal industry is very pleased that the President has proposed in the National Energy Plan to confirm to geothermal drilling a tax deduction for intangible drilling costs.

While we heartily endorse this proposal and urge its adoption we believe that there should also be allotted a deduction from gross income derived from geothermal properties. This would recognize the clear scientific evidence that geothermal energy is an exhaustible or wasting natural resource and would put it on an equivalent basis with other wasting assets such as, for example, strip-mined coal with which it is in competition.

If geothermal energy is to make the substantial contribution to domestic U.S. energy which it is capable of making within the last quarter of this century, it is imperative that encouraging tax legislation be enacted and that appropriate tax incentives be provided. Without such incentives, the tremendous amounts of capital required for geothermal energy production will simply not be available. At the present time geothermal development is being held back by lack of investment and by high costs which make it non-competitive with other energy sources.

The outlook for geothermal energy production has been studied extensively by various Governmental and non-Governmental groups and the consensus emerging from these studies is that there is the geological opportunity to delineate geothermal resources to support 20,000 megawatts of electrical generating capacity by 1985. Such capacity -- equal to 5% of current national electrical capacity -- represents the equivalent of 250 million barrels per year of low sulphur crude oil. However, resource development to support this capacity is estimated to require investment ranging in excess of $10 billion.

There are tremendous economic barriers which this industry must overcome: the tremendously high costs of drilling for geothermal deposits in hard rocks, with high temperatures and corrosive fluids; the very large capital investments required over several years before revenues can begin for a geothermal project; the requirement for drilling many replacement wells at each development site to maintain a constant stream of energy; and the present discouraging Federal income tax controversy.

It is inconceivable that, given our present energy crisis, this nation should not make every reasonable effort to develop available domestic energy resources, particularly when the costs of doing so are so small. Enacting the legislation we are supporting would result in a loss of Federal revenue estimated at less than $20 million for the first year in which it is fully effective. This amount would rise significantly over the years only if there is substantial increased development of geothermal resources, which would, of course, be the objective of the legislation; and which would result in taxes collected far in excess of the cost of the tax incentive provided. And these are taxes which will not be collected if the desired development does not occur.

We are satisfied that if H.R. 7138 is enacted into law, there will be provided sufficient incentive to attract the necessary capital investment to create a new industry providing significant amounts of sorely needed energy in future years. Without incentives of this type the future development of geothermal energy remains clouded.

I have attached a statement giving a brief background on geothermal energy development.

Thank you.

* * *

research on all aspects of planning, developing and managing community associations throughout the United States. Such community associations include condominium associations and homeowner associations, including associations in planned unit developments. Present membership consists of representatives of more than 1,000 of such associations as well as individuals and firms who fall within the five membership categories of builder-developers; homeowner and community association leaders; community association members; public officials; and association colleagues.

CAI supports the concept of the residential energy tax credit provided in H.R. 6831 but urges that the proposal be amended to eliminate what we believe is an inequitable and unintended result which would effectively preclude the availability of the tax incentive to many thousands of homeowners in this country.

Section 1101 of H.R. 6831 provides for a residential energy credit with respect to qualified energy conservation expenditures and qualified solar energy expenditures. However, both categories of qualified expenditures are limited to expenditures "paid or incurred by the taxpayer during the taxable year with respect to the taxpayer's principal residence." Thus, in order to qualify for the credit, it must be

established that (a) the taxpayer paid or incurred the expenditures, and (b) such expenditures were incurred with respect to his principal residence.

Enactment of such limitations would effectively preclude the availability of the proposed residential energy credit with respect to otherwise qualified energy conservation expenditures and otherwise qualified solar energy expenditures incurred by a condominium association for the benefit of the owners of residential units in the condominium. In view of the nature and magnitude of the expenditures involved, and legal requirements of state law, the condominium association, which is organized and operated to maintain the buildings and other property of the condominium, will incur the expenditure for qualified energy conservation or qualified solar energy expenditures for the building. Such expenditures are made out of funds received by the association from homeowner assessments. Thus, expenditures for insulation and other energy-conserving components (e.g., a replacement burner for a furnace) as well as for solar energy equipment or systems would be made by the association on behalf of the residential unit owners.

CAI submits that provisions of section 1101 of the Bill should be amended to expressly provide that where a condominium association incurs otherwise qualified

energy conservation expenditures and otherwise qualified solar energy expenditures, each member who is an owner of a residential unit in such condominium should be treated as having expended his proportionate share of such expenditures paid or incurred by such association. Each member's proportionate share of such expenses can be determined in accordance with the governing documents of the association so that the proportionate share of such expenditures can be readily ascertained. A condominium association is formed to allow individual unit owners to act together in managing, maintaining and improving common areas of the project. Since the owner of a single family residence would qualify for the credit to the extent that he incurred qualified expenses directly, the result should be no different for a taxpayer whose residence is a unit in a condominium and the qualified expenses are incurred on his behalf by the association.

CAI submits that the failure to do this will effectively preclude the availability of the residential energy credit with respect to qualified energy conservation expenditures and qualified solar energy expenditures made with respect to residential units in condominiums, thereby discriminating against more than one and one quarter <u>million</u> families who reside in condominium units.

We believe that this is an inequitable result and one which clearly is inconsistent with the purpose underlying the residential energy credit.

Moreover, section 1101 of the Bill contains a special rule for cooperative housing corporations under which each tenant-stockholder is treated as having expended his proportionate share of any qualified energy conservation expenditures or qualified solar energy expenditures paid or incurred by the cooperative housing corporation. We see no reason for a distinction between cooperatives and condominiums for this purpose. Accordingly, we respectfully urge that the Committee amend the provision to provide similar treatment for expenditures by condominium associations so as to make the residential energy credit available to the more than one and one quarter million families involved.

In addition, section 1101 of the Bill would limit the credit to qualified energy conservation expenditures incurred with respect to residential units in existence on April 20, 1977. This would deny a credit for qualified energy conservation expenditures incurred in subsequent taxable years with respect to residential units constructed on and after such date. In contrast, the credit for qualified solar energy expenditures would

be available with respect to that portion of the purchase price of a new dwelling unit which is attributable to the materials and equipment and labor costs with respect to solar energy equipment.

CAI submits that limitation of the credit to qualified energy conservation expenditures with respect to residential units in existence will effectively limit the full incentive sought to be provided by the residential energy credit in the taxable years through 1984. Assume, for example, that a condominium project is completed at the end of 1977. In 1982, the condominium association determines that additional insulation in the building is necessary in order to conserve energy and the association incurs expenditures for such insulation. While such expenditures should clearly qualify for the credit, this would not result if section 1101 in its present form was enacted because the units were not in existence on April 20, 1977.

There is no policy reason to deny the credit for qualified energy conservation expenditures incurred in taxable years through 1984 with respect to units constructed after April, 1977 where such expenditures are incurred to conserve energy. There should clearly be no concern that allowance of the credit for qualified

energy conservation expenditures for such units would go to builders rather than homeowners since the definition limits the qualified expenditures to those incurred with respect to the taxpayer's principal residence. Moreover, the possibility that more stringent Federal, state or local requirements for insulation and other energy-conserving requirements may be imposed in the future should not preclude allowance of the credit for qualified conservation energy expenditures with respect to residential units constructed after April 20, 1977 since there is no assurance at the present time that such requirements will in fact be imposed. Moreover, even if they are imposed, there would likely be a delay in the effective date of such requirements, thereby unfairly denying the credit to qualified energy conservation expenditures with respect to residential units constructed after April 20, 1977 but before such effective date.

In summary, CAI recommends that section 1101 of H.R. 6831 be amended to (a) allow the individual owners of dwelling units in a condominium to claim the residential energy credit on their proportionate share of the qualified energy conservation expenditures and qualified solar energy expenditures incurred on their behalf by the condominium association, and (b) extend

the credit to qualified energy conservation expenditures paid or incurred with respect to residential units without regard to whether such units were in existence on April 20, 1977.

Thank you for this opportunity to appear today on behalf of CAI. I will be happy to answer any questions that you might have on the matters that I have presented in my statement.

STATEMENT OF

SHELDON H. CADY, EXECUTIVE VICE PRESIDENT

NATIONAL MINERAL WOOL INSULATION ASSOCIATION, INC.

My name is Sheldon Cady. I am Executive Vice President of the National Mineral Wool Insulation Association (NMWIA) of Summit, New Jersey.

The membership of NMWIA consists of a majority of the manufacturers of mineral fiber insulations for buildings. This includes both rock wool and glass fiber products manufactured as batts, blankets and loose wool.

As an Association NMWIA has been active since 1969 in educating the public, departments of the Federal Government, and state legislatures regarding the measures necessary to achieve the goals contained in the National Energy Plan.

I will concentrate on one tax provision only --- the proposed tax credit for homeowners who spend money on approved conservation measures.

The concept of tax incentives for approved conservation measures is one that we endorse and have endorsed over the past seven years. We specifically support the Residential Energy Credit in Section 1101 of Title II.

There are several important considerations however:

a) Prompt action is of extreme importance and our endorsement hinges on this. I believe it was Mr. Halpern of New York who proposed the first tax credit legislation for insulation of homes in 1969 or 1970. Subsequently several similar bills have been introduced each year. We have experienced a

down-turn in the insulation business each time in the past several years that announcements of tax credit legislative proposals have been made. People stop buying insulation until they learn that legislation has been enacted. Our industry senses that people are waiting again. We urge a joint statement to clarify the situation. If enactment of such legislation cannot be accomplished promptly, the public should be so advised so that their voluntary energy-conserving activities may be resumed.

b) We urge that tax credit legislation be made retroactive for a reasonable period (before April 20, 1977) in order to include those homeowners who have already insulated. Of the 8 million attic reinsulation jobs estimated to have been completed in the last three years, surveys indicate that over 60% have been done by the homeowner. These efforts should be rewarded.

c) The energy-conserving improvements to be covered by tax incentives should be given clear priority in their order of energy-conserving importance. It is recommended that the allowable energy conservation measures covered should be limited to those where objective results can be measured. The three most cost effective

ones are: 1) caulking and weather-stripping to reduce air infiltration; 2) upgrading the thermal performance of windows; 3) the addition of thermal insulation to provide better performance of the envelope and make the home more liveable. These three items alone, if properly accomplished, would cut the energy consumption up to 50% of existing consumption.

d) Government stimulation of the insulation market might prove to be a bonanza for the less than scrupulous persons who could take advantage of energy conservation objectives. Actions being taken to reduce this possibility include: "Recommended Criteria for Retrofit Materials and Products Eligible for Tax Credit" being developed by the National Bureau of Standards; the National Voluntary Laboratory Accreditation Program for the testing of thermal insulation by the Department of Commerce; and voluntary actions being taken by many utilities, some residential insulation contractors, and mass merchants.

e) It must be recognized that during the initial impact of the tax credit there may be some spot shortages of materials as the industry adjusts to the increased demand.

We strongly urge that a minimum of 9 years be allowed to cover our supply of materials alone. This will enable companies to expand, get reasonable write-offs on their expenses, and handle the situation without economic distortion.

In order to assure that tax payers are not exposed to multiple retrofit requirements in the future, standards being developed under this Act must take future energy costs into consideration.

f) This is based on the assumption that manufacturing plants can be assured of an uninterrupted supply of the appropriate energy to insure continued manufacture of energy conserving materials.

For each BTU consumed in producing mineral fiber insulation, approximately 15.2 BTU's are saved each year after installation in an average home. This means that over the 30 year life of a home, energy conserved for heating only will be 450 times greater than the amount used to produce the insulation.

During last winters' extreme cold spell an estimated 40 million pounds of fiber glass building insulation

alone were not available for energy-conservation measures as a result of curtailments.

Energy-conserving materials could again become in short supply if future crises were so severe that fuels needed to manufacture these materials were cut off. Assigning a high priority to energy-conservation material manufacturers would be helpful in insuring the continued manufacture of these materials, if a priority allocation system is deemed necessary.

On behalf of NMWIA, I want to thank you for this opportunity to testify. I will be glad to answer any further questions.

STATEMENT OF

WALTER SHIPE, VICE PRESIDENT
ASBESTOS COVERING & ROOFING CO.

AND

CHAIRMAN, GOVERNMENT RELATIONS COMMITTEE
NATIONAL INSULATION CONTRACTORS ASSOCIATION

BEFORE THE

HOUSE WAYS AND MEANS COMMITTEE

on

THE TAX ASPECTS OF HR 6831

May 20, 1977

My name is Walter Shipe. I am an independent insulation contractor, a small businessman and a member of the National Insulation Contractors Association (N.I.C.A.). The bulk of NICA members' work is conducted in the commercial and industrial sectors of the construction industry - by far the heaviest users of energy resources. Our projects include insulation for ships, office buildings and manufacturing, petrochemical and power-generating plants. A key concept of the National Energy Policy is to achieve enormous savings in fuel and power use through retrofitting of industrial and commercial buildings. We are involved in this effort by insulating to make cooling and heating and industrial process and power systems more energy-efficient.

Accompanying me is Dr. Robert O. Reid, Vice President of Energy and Environmental Analysis, Inc., Arlington, VA. Dr. Reid, an economist, was former chief investigator for energy studies for the Commerce Department,

the Federal Energy Administration, the Environmental Protection Administration and the Energy Research and Development Administration.

We are members of the Insulation Industry Legislative Task Force, organized by NICA. Comprising this Task Force are representatives of the Thermal Insulation Manufacturers Association, the National Mineral Wool Insulation Association and NICA. The Task Force is designed to offer the cooperation of all elements in the commercial, industrial and residential insulation industries with the Congress. We are particularly concerned about the responsibility of your Committee in considering and refining proposals in Title II of the Omnibus Energy Project. Of particular concern is Section 1301, amending the Internal Revenue Code to provide financial incentives for the conservation of energy through retrofitting structures and other measures making them more efficient.

Section 1301 provides for a ten percent (10%) credit for business users' expenditures to conserve energy. This is desirable for a start, but less than sufficient, in our view, in encouraging industry to make the necessary investment to upgrade existing structures in keeping with national energy policy conservation goals.

In the context of the energy crisis today and the near and long-term outlook, the situation is worsening. Energy costs are becoming prohibitive. The rising cost of industrial operations lead to inflationary pressures in terms of higher consumer costs for manufactured goods and services.

We believe financial incentives should, in addition to the Administration-proposed industry credit, include accelerated depreciation. This is imperative to enable decision-makers in industry to determine cost-benefit ratios, cash-

flow factors, and upgrading their plant's energy efficiency. We cite specifically, the justification management must have in order to add energy conserving insulation to existing buildings in this period of soaring energy costs.

One proposal for depreciation treatment of such construction investments has been prepared by the Business Roundtable. It provides for a three-year pay-back on retrofitting which would be good for ten years.

The urgency for passage of such incentives is reflected in the fact that a massive conservation effort could save the equivalent of 3.5 billion barrels of oil[1] through 1990.

In this connection, two timely items merit your attention. The May 12th issue of "Engineering News Record" reports that the Economics Department of McGraw Hill Publications Company finds 26 industries planning a $2 billion increase in plant and equipment outlays, to a $141.6 billion level in 1977. This represents an 18% rise from 1976. The respondent companies indicated, however, that much depends on Congressional action with regard to investment tax credits, writeoffs and uncertainty as to the impact that the Energy Program will have on economic growth.

Secondly, unemployment in the construction industry dipped in April to about 12%, a two-year low. Compared with a national unemployment rate averaging 7% in April, this may not seem impressive; however, there is reason to believe that favorable action on fiscal and monetary policies would spur activity in an industry heavily reliant on hardhat workers in

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1 Federal Energy Administration's Economic Thickness for Industrial Insulation (ETI), Nov. 26, 1976

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two respects:

(1) attainment of conservation goals in the National Energy Plan

(2) continuing business growth on a healthy basis.

In submitting the National Energy Plan, Dr. Schlesinger and his staff note (page 43) that industry accounts for nearly 37% of U.S. energy consumption. The Plan credits American industry with considerable success in energy conservation since the cutoff of oil imports during the 1973-74 winter. However, there remains a large potential for further savings. Some U.S. industries, according to the Plan, "are substantially less fuel-efficient than their West German counterparts."

In recent days, an estimate has been published blaming factories, stores and offices for 40% of energy waste. The same source suggests such businesses offer the greatest prospects for insulation contracts.[2] The will to invest in such improvements depends largely on what Congress will do in permitting faster write-offs on investments and tax policy in general.

In documenting the case for investment credits and accelerated write-off provisions, we are prepared to submit additional data for the Committee record and to answer your questions.

The member organizations of our Task Force cooperate fully with all agencies concerned with energy conservation, environmental matters, the setting of standards and the like. We believe the terms of Section 1301 with respect to the administration by the Treasury and Energy Departments of

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2 U. S. News & World Report News Letter, Friday, May 6, 1977.

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tax treatment provisions will be effective in carrying out the intent of the Congress.

On behalf of the National Insulation Contractors Association, I want to thank you for this opportunity to testify on this important matter. I will be glad to answer questions you may have.

Federal Energy News

Federal Energy Administration
Washington
D.C. 20461

FOR IMMEDIATE RELEASE

NOVEMBER 26, 1976

SAVINGS OF 3.5 BILLION BARRELS OF OIL POSSIBLE FROM INDUSTRIAL INSULATION

Improved insulation design applications in U.S. industrial plants could save 3.5 billion barrels of oil between now and 1990, says a study made for the Federal Energy Administration.

The study estimates further that more than 122 million barrels of oil could have been saved in 1974 if the industrial sector had made optimum use of economic insulation techniques.

These savings are reported in a 191-page manual, "Economic Thickness for Industrial Insulation," made available by FEA today. The manual was prepared for FEA by York Research Corporation of Stamford, Connecticut.

"U.S. industrial plants and utilities account for more than 50 percent of the Nation's energy consumption," said FEA Administrator Frank G. Zarb. "The conservation of energy through the use of optimal economic insulation thickness has obvious benefits for industry, and equally impressive potential benefits for the U.S. We believe that this design manual will serve as a practical working document in assisting industrial managers and plant engineers to plan and install effective insulation systems at the lowest possible cost."

The economic thickness manual, developed specifically for the industrial user, will permit companies without extensive engineering capabilities and computer facilities to easily calculate optimal economic insulation use, FEA said. Economic insulation is defined as that thickness providing "the lowest total cost of lost energy and insulation investment over the project life."

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The manual is expected to be particularly useful to architects and specifying engineers in designing new industrial construction, utilizing least-cost insulation thickness criteria based on minimum life-cycle costs.

Comprised of 8 chapters, the manual discusses in detail such topics including the economics and costs of insulation, cost of energy, economic thickness determination, condensation control, retrofitting insulation, and sample problems. Also included in the manual is a bibliography, tables, illustrations, and appendices.

Two major industry trade associations, the National Insulation Contractors Association, and the Thermal Insulation Manufacturers Association, and a number of their member companies, provided invaluable assistance to FEA and the York Research Corporation in the development of the manual.

Copies of the Economic Thickness for Industrial Insulation Manual are available for purchase from:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Price $2.70
Stock No. 041-018-00115-8

FEA is also producing a 25-minute, 16mm color film on economic thickness for industrial insulation, suitable for use at seminars and workshops for industrial plant managers and other industry officials. Copies of this film will be available for sale, rental and short-term loan. A 3/4" color video-tape cassette version will also be available. The film is expected to be completed by mid-December. Film inquiries should be directed to: Federal Energy Administration, Office of Conservation and Environment, Washington, D.C. 20461.

-FEA-

Media Inquiries: (202) 566-9833
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Media Contact: Jim Merna

STATEMENT PRESENTED BY FRANK GORELL, PRESIDENT
SEASON-ALL INDUSTRIES, INC., INDIANA, PA.

The purpose of my being here is to explain what a thermally improved, custom-fit replacement window is, how it is used and the reasons it must be added by FEA in the list of approved energy conservation measures. Last week, on May 10, I presented testimony to an FEA hearing, where I said substantially what I will say here today.

There are some forty million homes and thousands of public and commercial buildings in our country that are over twenty years old. Most of these homes and buildings have old wood double-hung or steel casement windows that are in terrible condition. Installing a storm window on badly deteriorated windows will help. However, significantly more energy will be saved if these very poor windows are replaced with new thermally improved windows.

On the last page of this paper, we show you four photographs which are self explanatory on how to replace a window.

It is our understanding that the government will have mandatory energy efficiency standards for windows used in new construction by about 1980. Why shouldn't such energy efficient windows be used now to replace worn-out, energy-guzzling windows in old buildings?

To begin to understand the heat loss through windows, it is necessary for you to realize that heat does not always rise.

Heated <u>air</u> tends to rise, but <u>heat itself</u> travels only in one direction . . . toward cold. It travels down through floors. It travels horizontally through walls . . . and doors and windows. And it also travels up, through ceilings.

But it travels faster through windows than through floors or walls . . . or ceilings.

When it is 0^{o} outside and 75^{o} inside, ceilings lose heat at the rate of only 23 Btu's per hour per square foot. This compares to 105 Btu's per hour per square foot lost by windows. Windows waste energy almost five times as fast as ceilings.

Looking at the average two-story house (and more homes and buildings are two or more stories, rather than single story), we find that the average ceiling is 750 square feet and loses 17,250 Btu's per hour. The same house has 200 square feet of windows and loses 21,000 Btu's per hour if the window is in average condition with a U value of 1.13. If the windows are deteriorated with a U value of 1.562, they can lose 29,400 Btu's per hour.

Deteriorated windows in the average two-story house lose 70% more energy than the ceiling. One idea we must emphasize . . . deteriorated single-glazed, non-weatherstripped windows waste more heating and cooling energy than any other part of any building.

As the number of floors in a home or building increases, the opportunity for energy savings with windows increases. In a two-story house, the windows lose 170% as much as the ceiling. In a three-story house, the windows lose 255% as much energy as the ceiling.

A thermalized replacement window can dramatically decrease this energy loss through windows. It can change the U value of a deteriorated window of 1.562 to a new U value of .445 . . . reducing fuel consumption by 61%.

In addition to fuel savings, there are other savings that accrue to the home or building owner. Because custom-fit, thermalized replacement windows are aluminum, they practically eliminate the need for maintenance, such as scraping, painting and reglazing. These savings alone can go a long way toward repaying the investment in fifteen to twenty years. The custom-fit, thermalized replacement window is a measure specifically intended for energy conservation.

FEA's definition of an energy conservation measure is 'one that is likely to reduce energy costs in an amount sufficient to enable a person to recover the total cost of purchasing and installing such modification within its attributable life." The formula that FEA has proposed to evaluate energy conservation measures within that definition uses energy prices expressed in base year dollars. We believe that the effect of future energy cost increases which are attributable to inflation must be considered. During the fifteen years which are projected, there will be inflationary cost increases which can be avoided with the proper energy conservation measures. These savings should be considered in evaluating any particular measure.

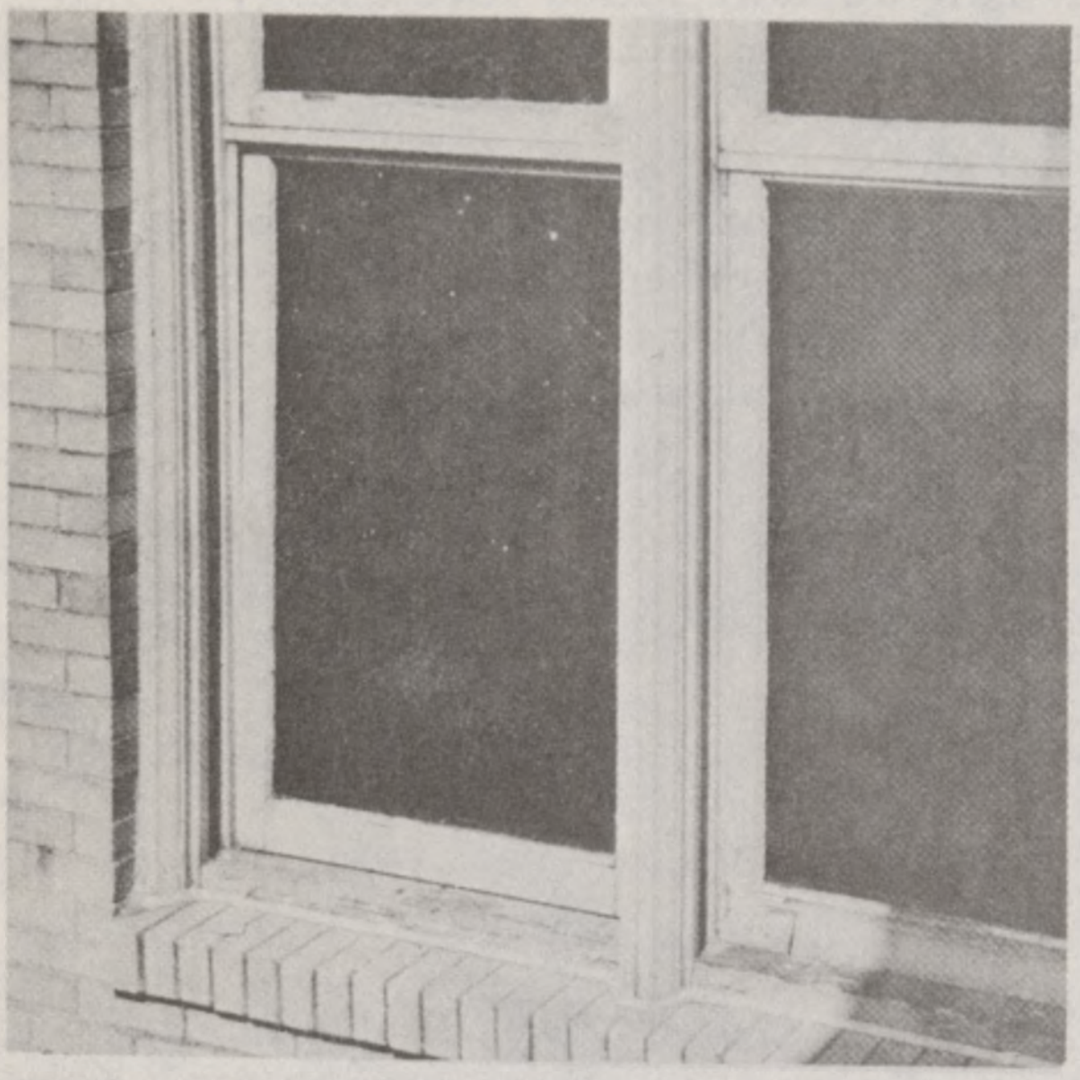
Since FEA used a 10% discount rate to measure the time value of money, we feel that an 8% general rate of inflation would be appropriate. By adjusting each year's energy rates for the projected rate of inflation, you will be able to project what actual savings will be available to recover the measure's cost.

If, indeed, our country's energy shortage is as critical as we believe it to be, it seems to us that the only consideration in the case of windows should be conservation of energy. The reason for this is very obvious. The money

will be expended whether or not the energy guzzlers are replaced. In the one instance, money will be spent to buy new windows which save energy; and in the other instance, the money will be spent on fuel that goes right out the window.

We must look at these savings realistically. Our purpose here is not to provide high grade investment opportunities, but to conserve energy with products which pay for themselves with reduced energy costs over their useful lives. In thermalized, custom-fit replacement windows, we have such a product.

How to Replace a Window



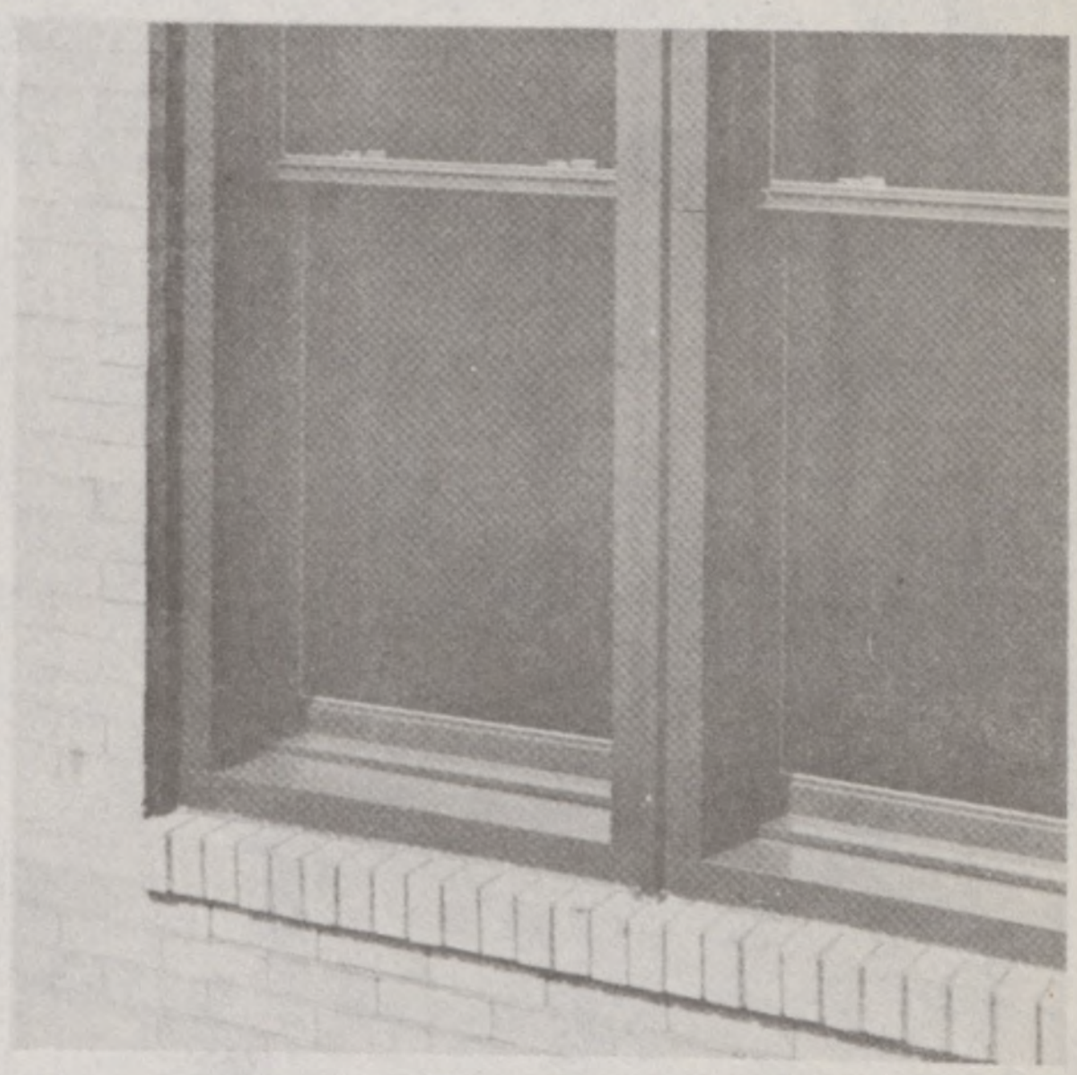
1 Old, worn-out windows are unsightly and waste huge amounts of energy through their single glass and crack leakage.



2 With Season-all's custom-fit windows, replacement involves the simple removal of the old sashes . . .



3 . . . and our complete new window unit is ready to be inserted. After a little caulking and applying of four screws, installation is complete. No interior or exterior structural alteration is necessary.



4 Season-all custom-fit replacement windows begin immediately to produce savings in fuel and maintenance costs, with payback in two to six years depending on geographic location, type of fuel, and window condition.

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