

878

THE ECONOMICS OF THE PRESIDENT'S PROPOSED ENERGY POLICIES

HEARINGS

BEFORE THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

NINETY-FIFTH CONGRESS

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THE ECONOMICS OF THE PRESIDENT'S PROPOSED ENERGY POLICIES

FRIDAY, MAY 20, 1977

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The committee met, pursuant to notice, at 9:45 a.m., in room 6202, Dirksen Senate Office Building, Hon. Hubert H. Humphrey (vice chairman of the committee) presiding.

Present: Senators Humphrey, Bentsen, Javits, and Hatch; and Representatives Moorhead, Long, Heckler, and Rousselot.

Also present: John R. Stark, executive director; Louis C. Krauthoff II, assistant director; Thomas F. Dernburg, William R. Buechner, G. Thomas Cator, William A. Cox, L. Douglas Lee, George R. Tyler, Deborah Norelli, and Katie MacArthur, professional staff members; Mark Borchelt, administrative assistant; and Charles H. Bradford, Stephen J. Entin, George D. Krumbhaar, Jr., and Mark R. Policinski, minority professional staff members.

OPENING STATEMENT OF SENATOR JAVITS

Senator JAVITS. The hearing will come to order.

In the absence of the vice chairman, who will be here very shortly, he has authorized me to open the hearings. It is the beginning of an inquiry into the economic effects on our country of the President's energy program and of the energy emergency which we face. We are very honored to have such a very distinguished panel this morning consisting of Otto Eckstein, who has been connected with us before in a professional capacity, of Data Resources of Lexington, Mass.; Arthur Okun, who has been one of our Council of Economic Advisers and now a senior fellow at Brookings; Lester Thurow, professor of the department of economics at MIT; and Arthur Laffer, a professor in the department of economics at the University of Southern California.

Gentlemen, I must tell you—because I know that Senator Humphrey's view, which I share with my friend and colleague, Representative Bill Moorhead, and other members of the committee, the deep debt we have to distinguished students and scholars and professionals in this field like yourselves who give of your time and enormous capacity to endeavor to guide our country on the right way. However, we may disagree or agree; we may challenge your findings; but the gratitude which we have to you for this kind of advice and guidance, both to us and to the country, is really enormous.

I think you should know that because this particular panel happens to have such great distinction as far as we are concerned.

We would like it, if you could, to confine your statement-in-chief, each of you, to 10 minutes. The full prepared statement, without objection, will be made a part of the record.

Senator JAVITS. Mr. Eckstein, please proceed.

STATEMENT OF OTTO ECKSTEIN, PRESIDENT, DATA RESOURCES, INC., AND PAUL M. WARBURG PROFESSOR OF ECONOMICS, HARVARD UNIVERSITY

Mr. ECKSTEIN. Thank you, Senator Javits. Mainly what I will try to do today is report to you some conclusions we have reached from our statistical analyses of the program and its impact on the economy. Then I will also make a few recommendations how the program might be simplified. It is a little more complex than our Government can, in fact, administer.

The critical question on the energy program is whether there is a problem or not. That is the bridge you must cross. Once you have crossed that bridge, you will wind up with a program that is not drastically dissimilar from the President's.

Now, my own belief is that the CIA studies of the pending shortage or the MIT studies of the pending shortage flew in the face of the economics we teach our students. I do not believe we will run out of energy overnight. I do believe that OPEC will retain the ability to increase prices enormously, and I also believe that the role of the United States in the world cannot continue at its present important place if we do not find some way to reduce our dependence upon foreign oil sources, which can rather arbitrarily be cut off.

I do agree with the President's conclusion that the import levels by 1985 would be 12 to 16 billion barrels a day, which is a disastrous level of imports for the United States.

The impacts of the program can be divided into three parts: the short-run impact on inflation, growth, and unemployment; the long-run impact on our long-range ability to develop, and, of course, finally on the energy economy itself.

In table 1 of my prepared statement, I summarize the fiscal impact of the energy plan as it was recently released in a White House statement.

When we look at those figures in a little bit more lucid fashion than the original release, what we see is this: We see that there are \$135 billion of revenue, assuming the gasoline tax is not triggered. Then depending upon that, the revenues can go as high as \$288 billion between 1978 and 1985. Of that amount, \$50 billion will be spent by the Government in one way or the other, mainly on its own problems, on the building up of a petroleum reserve, on repaying the Treasury for the costs we are creating for ourselves by adding to the inflation, social security, food stamps, and so on: \$2 billion-plus for fixing up the Federal buildings; and a variety of other things listed there.

What strikes me about that approach is that the Federal Government is taking very good care of itself in setting aside the energy moneys for its own purposes. Indeed, I would expect that there will

be a significant, perhaps unintended, contribution to budget balancing. In fact, the money will not be recycled to the public. The Federal Government will keep quite a few billions for meeting, in fact, the general needs of the budget.

Then there is another category of expenditures which are really investment credits to a variety of purposes for old buildings, home insulation, commercial conversion from oil and gas to coal, credits for geothermal and cogeneration, tax rebates.

Finally, there are the tax rebates, which is plain giving back the money left over to the public.

The impact on the shortrun economic performance is minor. There is some extra inflation that is unavoidable. We estimate the extra inflation in table 2 of my prepared statement to be an extra 0.7 percent a year for the next 3 or 4 years, which helps to keep the hardcore inflation rate near 6 percent, which is troublesome to be sure, but there is no way to solve the energy problem without raising the price of energy that filters through the economy. And 0.7 of a percent is about what it comes down to if you gradually move in the rather slow and orderly way of the program toward the world price of oil.

We interpret the impact on spending to be slightly negative. We know there are some direct outlays to meet the energy problem which are partly financed by Government subsidies. There are indirect effects on private spending. They outweigh the direct benefits. These include the impact on the automobile industry where we believe that sales will be reduced by 200,000 to 300,000 units because the automobile industry will be taxed, the price will go up because the gasoline will be more expensive and operating costs more expensive, and because the automobile companies will really be hard pressed to adapt their product to meet the energy requirements that the President's program and the previous Presidents' programs impose upon them.

Also, in the case of business, the extra inflation raises the interest rates and capital costs to a degree. That reduces the outlays for residential construction, for plant and equipment, all across the board. You lose a little bit of spending because of the extra inflation and the higher interest rates.

Our conclusion is that there is no way to solve the energy problem without imposing some burden in terms of extra inflation and lost growth and lost employment on the American economy. The losses are really quite small. A lost growth of 0.2 percent a year, an increased inflation of 0.7 of a percent a year, is an inexorable price that must be paid if we believe the energy problem must be solved.

We can tamper with the program in detail, but that really is unavoidable.

In the longer run there is the question whether the longrun ability to form capital for productive purposes, for expansion, whether that will be seriously impaired. We feel that there is an impact, but it will be very small. We feel that the total outlay for the energy conversion is still a rather modest percentage of the entire economy, that the diversion of capital to this purpose will only cut in very limited ways into capital formation for expansion and growth, especially if we pursue tax policies which in other ways help business to get their capital accumulation job done.

Having said all that, I nonetheless feel that there are ways in which the program could be quite substantially improved. I spell them out a little bit more in my prepared statement. Let me just summarize what I mean by that.

I do believe that the program is designed on the basis of a grossly unrealistic set of beliefs about the ability of Government to manipulate the private sector. The program is much too complex and seeks to involve the Government in the detailed decisions of families and businesses in ways that will be ineffective, undesirable, and expensive.

Let me suggest just a few places out of many where the program could be simplified to great advantage:

First, the small car rebate. The gas-guzzler tax rebate on small cars is going to be far more trouble than it is worth. It has already become clear we will have to enter into negotiations with every foreign country that has an auto industry. Of course, our trade negotiators can successfully negotiate a waiver of this violation of the international rules on trade, but knowing how anxious our President is to get his program, we can be sure that our negotiators will pay a high and unreasonable price for this very minor favor that the other countries will have to grant us one at a time.

The rebate on small cars is of dubious merit anyway. There are plenty of other inducements for car purchasers to switch to smaller cars: Higher prices on gasoline and, most importantly of all, in the pressure we have put on our auto industry to develop really attractive smaller cars. They are required by law to produce mainly smaller cars; and in doing so, they will surely put their best engineering abilities and their best marketing abilities into offering the American people the kind of small car that they should.

Second, I would argue for a much simpler gasoline tax. The standby gasoline tax, to be triggered by observed increases over specified targets, raises fears of enormous gasoline taxes without providing anyone with the incentive to save on gasoline. No single driver can make a difference to the national outcome.

The complexity of the proposal is really rather pointless and has done nothing to make the tax more acceptable. Actually there is a good economic case for a routine increase in the gasoline tax. Even a small tax would be a signal to the public that gasoline will be more expensive, will discourage some driving and will begin to move the gasoline prices to their true economic cost to the country, which is the world price.

The gasoline tax has not been increased in the past 20 years and has fallen sharply in relation to other taxes. If we just raised it as much as the cost of living has gone up since 1956, we could justify a 5-cent increase in the gasoline tax from 4 to 9 cents. The gasoline tax has developed a reputation of regressiveness. Car ownership is lower among the poor, particularly the urban poor. The poor drive less and on the average the poor even have smaller cars.

Further, the total burden on a family has been grossly exaggerated. A typical moderate-income family consumes 700 to 900 gallons a year. A 3-cent tax represents \$21 to \$27 a year. The tax credits and the tax increases we have imposed in recent years and which are elsewhere in this program dwarf this kind of an increase in the gasoline tax.

What I would recommend to the Congress is that the Congress replace the President's uncertain proposal for a big standby gas tax with an immediate tax of 3 cents a gallon, which can be reconsidered in 4 or 5 years if that turns out to be inadequate.

Third, I would urge the Congress to eliminate most of the tax expenditure subsidies in the President's program. These programs are based on a completely unrealistic belief on what the Internal Revenue Service can administer and will represent a major deterioration in the quality of our tax system.

You already have seen in the some investment credit of 1975 that this credit was thrown away. There has been a study published by "Tax Advocates" which shows that money was a windfall to those people who happened to be buying a home in 1975. Nobody can find that any extra building was created out of it, yet it cost hundreds of billions of dollars.

The tax credits now being proposed are very much the same. The tax credits for more exotic purposes such as geothermal and solar investments are an invitation to throw the taxpayers' money away.

Similarly, in the case of the tax credits proposed for individuals, the Internal Revenue Service has no way on earth to check what will be done with that money that is supposedly to be passed out to pay for home insulation. So I would urge you to simply eliminate most of these tax expenditure subsidies.

Fourth, I would urge you to reduce the scope and complexity of the price controls and regulations. The President's program substantially increases the amount of regulation imposed on the economy and much of that increase is based on an illusory view of the ability of Government to actually carry out the regulations in meaningful form. The numbers of people that would be required to administer these regulations would be enormous.

Let me just cite two examples: The new energy program establishes six classes of oil, each with its own price control schedule: Old old oil, old new oil, stripper well oil, new new oil, Alaskan oil, and foreign oil.

The supposition is that there is a practical means to identify and classify every barrel of oil and to track it through the productive and distributive processes. In practice only the crudest approximations can be calculated even from the most elaborate reporting requirement placed on business. Further, any multiple-pricing system automatically produces inefficiencies in resources. The necessity for ever more detailed controls to try to hold the multiple-pricing system together and the increasing compliance costs by the private sector to meet the ever-shifting interpretations of the regulations will prove burdensome and are inconsistent with the President's other goals for reducing regulations.

I would urge the Congress to go through the entire program, to make a thorough study of every aspect of new regulation that is proposed and to see if it is really going to be worth the cost.

Now what should the Congress really do? I would summarize my analysis as follows: First, let the country solve the energy problem. It has taken 3½ years from the time that the OPEC embargo brought home to all of us the reality of our situation. After these 3½ years

we have finally reached the stage where the public accepts the idea that something must be done. If action is not taken soon, the public's interest will again be lost and we will return again to a policy of procrastination.

Our children will not thank us for dragging our feet in coming to grips with the energy problem. It is our task today to begin to redirect our economic development away from the energy-intensive, pollution-intensive pattern of industrial production and consumption. There is no magic alternative to the President's program.

Second, I would urge the Congress strongly to take all hard luck stories with a large grain of salt. The Congress will be inundated with special interest testimony by industries, by regions, even by consumer groups seeking exceptions and excuses for lower costs and higher incomes for themselves.

If the Congress becomes sympathetic to the special pleadings, there will not be a meaningful energy program.

Finally, I would urge the Congress to act promptly. While the energy program is up in the air it creates uncertainty for all energy-related situations. Business cannot plan its investments nor families automobile or home purchases rationally while the outcome of the energy debate is in doubt. I urge you to pass as much of the energy program as you can prior to your summer recess and to act on the rest one way or the other even if you reject it by the end of this calendar year. We have got to get the energy program off the table and begin to carry it out.

Thank you.

Senator HUMPHREY [presiding]. Thank you, Mr. Eckstein.
[The prepared statement of Mr. Eckstein follows:]

PREPARED STATEMENT OF OTTO ECKSTEIN

POTENTIAL IMPLICATIONS OF PRESIDENT CARTER'S ENERGY PROPOSALS

The President's energy proposals are indeed far-reaching, and will be one of the significant determinants of the economy's development over the next 10 years. In my testimony today, I will present the results of some of our studies at Data Resources that seek to measure the economic impact of the program and make a few recommendations.

THE LOGIC OF THE PROGRAM

Is there really an energy problem? That is the principal question that the Congress must settle before it proceeds to consider the details of the proposals. The Administration has advanced the CIA finding of worldwide oil shortages by the 1980's because of low rates of discovery and the potential switch of the Soviet Union from an export to an import position. A recent, widely-reported MIT study¹ projects a worldwide energy shortage principally because of limited discoveries and reluctance by OPEC countries to produce at maximum physical rates.

Economists are uncomfortable with these studies. In the ordinary course of events, higher prices will draw out additional supplies. The gaps between current world oil prices and the costs of various large potential sources such as the Canadian Tar Sands are shrinking rather quickly. While the shortage scenarios leave something to be desired for economics students, I still reach the conclusion that there really is a major national energy problem which requires solution if

¹ Workshop on Alternative Energy Strategies, "Energy: Global Prospects, 1985-2000."

we are to assure the continuing successful industrial development of the United States for our own generation and for our children. I base this judgment on two reasons. First, the chances are that OPEC's ability to raise prices will continue to mount. After three years of high oil prices, there has not been any quick new round of supply discoveries. World energy demand keeps growing and OPEC looks like a pretty solid cartel. It would be betting on blind luck to count on early, massive discoveries, particularly in the United States where exploration has been going on for 100 years.

Second, the OPEC supplies are insecure. The industrial world is becoming increasingly dependent on the OPEC countries, and if the United States does not adopt stronger energy policies, our demand in world oil markets will approach the 16-million-barrels-a-day level that the President's plan indicates. Under these conditions, the potential damage from a future embargo would become immense, much greater than in 1973-74. We have major progress in repairing our relations with the oil-producing countries, and we have reason to be hopeful that there will be progress toward peace in the Middle-East. But we cannot be certain that such progress will be made, nor can we be sure that the OPEC countries will retain their current high political stability over periods as long as 10 or 20 years.

Once the need for a national energy problem is postulated, the nature of the program falls into place rather quickly. There is no way to reduce the volume of U.S. oil imports without confronting households, businesses and governments with substantially higher oil prices. Thus, in one way or another, the price of oil has to be allowed to increase. Were we to rely entirely on the market alone, the incomes of the oil producers would rise very sharply. If such an earnings increase is politically unacceptable, then the increase in oil prices must be partly achieved through a system of excise taxes. That is the heart of the President's program.

The negative economic impact grows mainly out of the higher prices, and there cannot be a meaningful energy program which does not impose these costs on the economy. The Congress can improve the proposals, and I will have some suggestions along those lines in the final section of my testimony, but there is no way to significantly reduce the costs to the economy and still accomplish the energy goals.

IMPACTS OF THE PRESIDENT'S ENERGY PROGRAM

The following analyses were prepared by Dr. Alvin Cook, Jr. the Director of DRI's Energy Service, Virginia Rogers and myself, using various econometric models. These analyses were prepared shortly after the President's program was announced. At that time, we assumed that the government would return to the economy the full amount of the purchasing power that the energy taxes would withdraw. Since the President's announcement, further details have become available on the fiscal intentions of the program. Table 1 shows the revenues to be collected by the program, the direct expenditures of the program, the tax expenditures paid out in the form of investment credits, and the tax rebates designed to restore purchasing power. That information shows that the fiscal plans are a good deal more complex than the initial announcement indicated. The energy revenues will be used to finance a wide variety of expenditures that can be considered to be energy-related but many of which would have to be incurred anyway. The Federal Government is making handsome provision for any energy-induced increases in its own costs, including such obscure effects as the extra escalation costs of social security and food stamp programs; but is showing no comparable tenderness of concern for state and local governments or the private sector. Thus, it is no longer possible to assess the full fiscal impact of the energy program; one must examine the general fiscal policy of the government, a fiscal policy which now pivots on the goal of budget balance by 1981.

Table 1 also shows that the fiscal magnitudes of the program are quite large. Even if the gasoline tax is not triggered, the revenues collected over the eight years, 1978-85 equal \$135 billion, or \$17 billion a year. Various energy-related budget expenditures equal \$50 billion, or an average of \$6 billion a year. The miscellaneous tax expenditures, the investment tax credits, are \$1½ billion a year. Tax rebates, which principally would be energy-motivated reductions in personal income taxes, would equal \$9 billion a year. If the gasoline tax were to be triggered, the magnitudes would become much larger, as Table 1 shows.

TABLE 1.—*Fiscal impact of energy plan, 1975-85*

Revenues:	
Gas guzzler tax.....	\$7.7- \$7.7
Wellhead tax.....	86.6- 86.6
Gasoline tax.....	0 -152.8
Industrial and utility use taxes.....	40.7- 40.7
Total	135.0-287.8
Expenditures:	
Old buildings.....	2.2- 2.2
Crude oil direct payments.....	13.4- 13.4
Small car bonuses.....	7.7- 7.7
Federal buildings.....	2.8- 2.8
Oil and gas price controls.....	.4- .4
Federal fuel bills.....	2.9- 2.9
Petroleum reserve.....	11.0- 11.0
Assistance to poor.....	.4- .4
Federal benefit program escalation.....	11.2- 11.2
Other .....	.4- .4
Less research.....	-2.0- -2.0
Total	50.4- 50.4
Tax expenditures:	
Old buildings.....	3.9- 3.9
Home insulation.....	2.9- 2.9
Commercial industry efficiency.....	2.2- 2.2
Solar .....	.6- .6
Geothermal .....	.2- .2
Cogeneration .....	.7- .7
Total	10.5- 10.5
Tax rebates:	
Crude oil tax.....	73.2- 73.2
Gasoline tax.....	0 -152.8
Total	73.2-226.0
Net effect on budget.....	+ .9

ECONOMIC IMPACTS

The energy program raises three big questions:

- (1) What would it do to short-run economic performance?
- (2) Will it seriously change long-run growth prospects?
- (3) Will it achieve the energy goals?

SHORT-RUN IMPACT

There are 5 principal questions about the short-run economic impact.

Inflation: DRI's analysis shows that the inflation rate, 1976-80, would be raised by 0.7 percent a year. Table 2 summarizes the inflation impact, beginning with the gasoline deflator and all-fuel wholesale price index. The Administration has gone to great lengths to phase in the program to avoid inflationary shocks.

TABLE 2.—IMPACT ON PRICES AND WAGES WITH (ENERGY0426) AND WITHOUT (NOENERGY0426) THE CARTER PROGRAM (4-YEAR AVERAGE RATE, 1976-80)

	Without Car- ter program	With Carter program	Difference
Wholesale price index, fuels.....	9.7	13.6	3.9
Gasoline deflator.....	7.0	12.0	5.0
Wholesale price index.....	6.0	7.1	1.1
GNP deflator.....	5.3	6.0	.7
Consumer Price Index.....	5.2	6.0	.8
Average hourly earnings.....	6.6	7.1	.5

Business Fixed Investment: The energy program will directly boost business spending for energy conservation. It will require industrial plants and utilities to convert from oil and gas to coal both through regulation and the industrial use taxes, and it will add to construction activity through the incentives and requirements for better insulation and energy conservation. The program will also boost investment by the automobile industry in order to accomplish the dramatic change in its product, although the previously established efficiency requirements already would have accomplished the larger part of this goal. DRI is using an estimate of \$3 billion for these effects by 1980.

To be weighed against these extra outlays are the indirect negative effects of the program. In the very near-term, investment will inevitably be held back until the Congress has enacted a version of the program; until that moment is reached, energy-related investments cannot be planned with any sense of security. The solution assumes Congressional action by summer.

In the longer run, investment will be reduced by 'higher' interest rates. The Federal Reserve is unlikely to accommodate the extra inflation with a higher monetary target, and therefore interest rates will be up about 40 basis points. Further, the capital outlays for energy conversion will compete with other investment for company financial resources, crowding out some capacity expansion projects.

DRI's preliminary assessment of the net impact on investment is slightly negative. Construction activity is cut, but equipment purchases are slightly higher.

TABLE 3.—IMPACT OF THE CARTER ENERGY PROPOSALS, ECONOMY UNDER CARTER PROPOSALS (ENERGY0426), CHANGE FROM BASE CASE (NOENERGY0426)

	1978	1979	1980	Average
Percent difference in level:				
Real GNP.....	-0.1	-0.4	-0.7	-0.2
Real consumption.....	-.2	-.4	-.7	-.2
Real business fixed investment.....	-.1	-.7	-.8	-.3
Difference in level:				
Automobile sales (thousands).....	-100	-200	-300	-200
Housing starts (thousands).....	-14	-58	-90	-54
Difference in Rates:				
Unemployment rate.....	0	0.1	0.2	+0.1
Federal funds rate.....	.13	.36	.40	.30

Automobile Sales: The impact of the program on automobile sales is negative. First, higher prices for gasoline raise the operating costs of a car which somewhat reduces the demand for new automobiles. Further, the higher gas prices affect the total mileage driven, reducing the wear and tear on the automobile stock and reducing the replacement demand.

Finally, and most importantly, the efficiency requirement, coupled with the gas-guzzler tax, will affect automobile demand in several ways. Gradually stiffening efficiency requirements may accelerate automobile demand in the near-term if the buying public really has a strong desire for the larger cars. On the other hand, the rational consumer will be aware of the high and rising gasoline costs, and therefore will weigh the benefit of the greater efficiency. The challenge will be for the automobile companies to turn the mandatory product changes into a marketing opportunity, thereby increasing sales by offering a product that is more desirable in dimensions other than size.

Coupling the efficiency standards with the gas-guzzler tax will reduce the price of small cars. This will add to the total volume of unit car sales by making the smallest car even cheaper. Further, the program may strengthen small car sales by domestic manufacturers, slightly increasing their share of this market, if indeed the tax and rebate funds are pooled by manufacturers. Unit sales of large cars, as defined by today's standards, will inevitably decline. Their share of the total automobile market would shrink from this year's 30 percent to 19 percent by 1980.

DRI estimates that the net impact of these considerations is a reduction in sales of about 300,000 units in 1980. This figure is principally based on the effect of the higher gasoline prices on demand, since the efficiency requirement was already an ingredient of the base case solution reflecting inherited policies, and the gas guzzler tax actually may boost unit sales. The dollar volume of the automobile industry will be off by about 5 percent, mainly because of the changed mix of cars.

Other Demands: There are a variety of other effects on final demands, of course. Higher energy prices will affect airlines and hotels. Compared to the embargo of 1974, the magnitudes are much smaller, of course, since energy prices are already quite high and there is no disruption element.

Housing activity will be shifted in composition. The various incentives to encourage home insulation will lead to a large volume of alteration work. On the other hand, stiffer building codes will raise construction costs and higher energy prices will raise the cost of household operation. The increase of interest rates created by the extra inflation will also chip away at housing starts, bringing the average reduction to 54,000 units.

TOTAL SHORT-RUN EFFECTS

The net impact of these estimates is to lower real GNP in 1980 by 0.7 percent, a small figure and one probably within the margin of error in the analysis. The Administration concluded that there was no net impact on total real activity. The difference between DRI and the Administration analysis lies principally in our assessment of the indirect negative effects on business fixed investment. Since all of these calculations are comparisons with a hypothetical baseline, the sign of the small net effect on real activity will never be empirically observable. All in all, the inflation impact of the President's energy program is two-thirds of a point a year, the impact on real activity is a growth reduction of a fifth of a percentage point a year.

LONG-RUN IMPLICATIONS FOR ECONOMIC GROWTH

The economic impact on the economy has to be seen both in a long- and short-run perspective where the short-run costs incurred in switching the economy toward a less energy-intensive path are offset by the long-run benefits of less energy consumption and reduced dependence on imported oil.

The President's program is based on the belief that the economy was headed for a severe crisis later on, when desperate energy shortages or embargoes might seriously disrupt the economy. Various analyses have persuaded the government that the domestic oil and gas markets were headed for early trouble, and that even the world oil economy would have entered a period of imbalance in the 1980s that would have greatly strengthened the hand of OPEC. Thus, whatever calculations may be performed about the pros and cons of the impact of the program on such traditional macro dimensions as GNP growth, unemployment, inflation, profits or interest rates, the overriding assumption is that the normal pattern of development would have been lost on some future day of reckoning.

The direct impact of lesser energy consumption on the growth of potential GNP cannot be calculated precisely, but realistic upper limits can be derived. Since the energy change is introduced gradually, disruption effects are small and the economy's technical coefficients must be considered flexible. Capital and labor will be substituted for energy, slightly reducing the productivity trends of these two factors. Since energy represents about 5 percent of all inputs in the productive process, a 1.5 percent curtailment of its use can directly reduce the potential trend by little more than 0.1 percent. Indirect effects, such as the negative impact of inflation on capital formation, can bring the total loss of potential growth to 0.1 to 0.3 percent.

ENERGY EFFECTS OF THE CARTER PROGRAM

The President's national energy plan will go a long way toward achieving the energy goals. The annual growth of United States energy demand will be reduced from 3.5 to 2.7 percent annually from 1976 through 1985, and will be approximately 2 percent thereafter.

TABLE 4.—PERCENT CHANGES IN DEMAND, CARTER PROGRAM

	1976-80	1980-85	1985-90
Coal.....	9.0	4.6	3.8
Natural gas.....	-3.9	1.7	-.6
Petroleum.....	3.8	-.8	-.2
Nuclear.....	13.6	17.0	12.4
Hydroelectric.....	5.2	1.8	1.0
Total.....	3.6	2.1	2.2
Electricity.....	6.2	5.5	4.9

According to simulations of DRI's Energy Policy Model, total consumption will be approximately 93 quads (quadrillion BTU's) in 1985 (see Table 5). Consumption of petroleum will be approximately 39 quads or 19 million barrels per day. With an expected domestic production of 11 to 12 million barrels, imports of oil will be reduced to 7 to 8 million barrels per day, near the President's goals for imports.

TABLE 5.—ENERGY DEMAND, CARTER PROGRAM
[Quadrillion Btus]

	1976	1980	1985	1990
Coal.....	13.61	19.23	24.14	29.05
Natural gas.....	19.63	17.27	18.76	18.25
Petroleum.....	34.71	40.45	38.84	39.30
Nuclear.....	2.03	3.38	7.41	13.29
Hydroelectric.....	3.03	3.71	4.00	4.25
Total.....	73.02	84.05	93.15	104.14
Electricity.....	6.29	8.01	10.46	13.27

The program achieves a substantial shift in energy demand. Consumption of coal in 1985 is approximately 24 quads or 1.1 billion tons. Coal's share of energy demand increases from 19 percent in 1976 to 26 percent in 1985 while the petroleum and natural gas share decrease from 48 percent and 28 percent respectively to 42 percent and 20 percent respectively. Nuclear power provides 8 percent of the total in 1985, a sharp rise from its 3 percent share in 1976.

(Quadrillion BTUs)

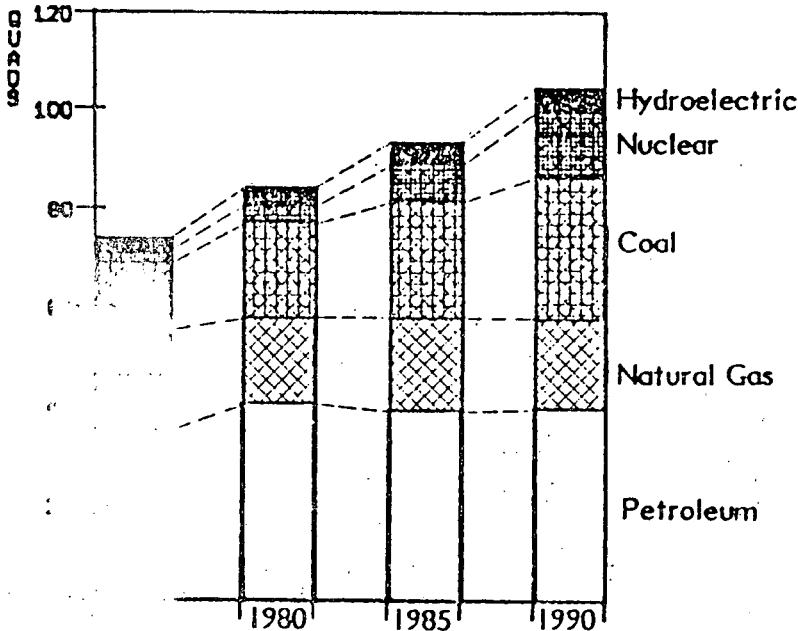


CHART 1.—Changing composition of energy usage.

The principal questions on the attainability of these shifts are on the supply side. Can coal production reach the needed level? Can enough nuclear plants be completed? Can the slide in domestic oil and gas production be halted? Higher prices and improved regulatory procedures are the main policy tools on which hope for better supplies rest.

Conservation: Additional nonprice conservation programs proposed by the President should achieve approximately 2.5 quads of savings in 1985. Insulating

old and new buildings heated with fuel oil reduces heating oil demand by approximately 800 trillion BTUs and insulating natural gas heated homes reduces heating demand by 300 trillion BTUs in 1985. Efficient electric appliances reduce residential electricity demand by 50 trillion BTUs in 1990. Cogeneration and other conservation measures will save approximately 1 quad of heating and 1.4 quads of process energy by 1990. Solar heating of 5 million homes in 1990 will save approximately 300 trillion BTUs of electricity.

Higher Prices: Most of the savings in energy demand are achieved by higher prices. Taxes, OPEC, general inflation, government price policies and strong demands for the newly-favored sources will produce sharply higher prices, as Table 6 shows. The policy measures include wellhead taxes on crude oil, a gasoline tax, the decontrol of gasoline, permission to let oil discovered after April 20, 1977 rise to the world price, industrial use taxes on petroleum and natural gas, and an increase in the interstate natural gas price from \$1.42 per thousand cubic feet (mcf) to \$1.75 per mcf. Oil prices decelerate after 1980 as the pressure from world markets is eased by lesser U.S. demands and the decontrol process has gone through its major phase. Electricity prices are aided by the switch to coal.

TABLE 6.—ANNUAL PERCENT CHANGES IN ENERGY PRICES

	1976-80	1980-85	1985-90
Oil:			
Average domestic crude.....	12.9	6.9	7.1
Residual fuel.....	16.1	7.9	6.4
Distillate fuel.....	10.5	6.2	6.5
Gasoline.....	12.0	9.1	5.7
Natural gas:			
Interstate contract.....	13.2	13.4	8.4
Average residential.....	8.4	10.1	7.0
Average industrial.....	24.4	10.8	8.1
Contract coal price.....	7.1	5.8	4.9
Average residential electricity.....	6.9	4.4	4.1

SOME SUGGESTED IMPROVEMENTS IN THE PROGRAM

As I indicated, the general design of the President's program is a near inevitability once a decision is made that U.S. dependence on imports must be limited. Nonetheless, the program can be improved in a variety of ways. In particular, the program is designed on the basis of a grossly unrealistic set of beliefs about the capability of government to manipulate the private sector. The program is much too complex and seeks to involve government in the detailed decisions of families and businesses in ways that will be ineffective, undesirable, and expensive. Let me suggest just a few places where the program could be simplified to great advantage.

(1) **The Small Car Rebate:** The gas guzzler tax rebate on small cars is going to be far more trouble than it is worth. It has become clear that we will have to enter into negotiations with every foreign country that has an automobile industry. Of course, our trade negotiators can successfully negotiate such waivers for this particular form of trade discrimination. But knowing just how anxious our President is to obtain this waiver, the price that our negotiators will have to pay for this minor favor will far outweigh any possible benefits to ourselves.

The small car rebate is of dubious merit in any event. There will be plenty of inducement for car purchasers to buy smaller cars in the high prices and taxes on the large cars, in the higher prices of gasoline, and in the greatly enhanced products that U.S. manufacturers will have to offer in order to meet the efficiency standards.

(2) **A Simple Gasoline Tax:** The standby gasoline tax, to be triggered by observed increases in gasoline consumption above specified targets, raises the fears of enormous gasoline taxes without really providing anyone with the incentive to save on gasoline. No single driver can make a difference to the national result. Nor has the complexity and uncertainty of the proposed done much for its political popularity so far.

Actually, there is a good economic case for a routine increase in the gasoline tax. Even a small tax would be a signal to the public that gasoline will become more expensive, will discourage some driving, and will begin to move U.S. gasoline prices toward their true economic cost to the society, namely the world oil price.

The gasoline tax has not been increased in twenty years, and it has fallen sharply as other taxes have risen automatically. An increase of 5 cents would do no more than restore the tax to its 1956 level.

The gasoline tax has developed an exaggerated reputation of regressiveness. It is not a tax on the poor any more than most other taxes. Car ownership is lower among the poor, particularly the urban poor. Mileage driven is less because the poor cannot afford the more casual recreation driving. The total amount of the gasoline tax that would be paid by a family are quite moderate. For example, gasoline consumption for a moderate income family with one automobile is between 700 and 900 gallons a year, or 14 to 18 gallons a week. A 3 cent gasoline tax would cost such a family between \$21 and \$27 a year. Compared to other tax changes, including increased Social Security taxes, various new personal income tax credits, and the tax rebates proposed under the energy program, these sums are not worthy of the political attention and the cries of injustice which they are evoking. I therefore recommend that the Congress replace the President's proposal for large but uncertain standby gasoline taxes with an immediate tax of 3 cents a gallon to be reconsidered in a few years when the entire energy program will be up for review.

(3) Eliminate the Tax Expenditure Subsidies: The program includes 6 different investment tax credits, as summarized in Table 1. There is no way to administer these tax credits effectively. The Internal Revenue Service cannot audit the tax credit claims for such items as home insulation. On the business side, the tax credits for the more exotic purposes such geothermal and solar energy investments are an invitation to throw away the taxpayers money. The government cannot make a serious attempt to determine whether the outlays that business will claim have any potential merit. The whole history of highly specialized tax incentives is one of waste of taxpayers money. This was seen clearly in the home purchase tax credit of 1975, which simply proved to be a windfall to the families that happened to be purchasing a home in that year.²

(4) Reduce the Scope and Complexity of Price Controls and Regulations: The President's program substantially increases the amount of regulation imposed on the economy, and much of that increase is based on an illusory view of the ability of government to actually carry out such regulations in meaningful form.

Let me cite just two examples. The new energy program establishes 6 classes of oil, each with its own price control schedule: old old oil, old new oil, stripper well oil, new new oil, Alaskan oil, and foreign oil. The supposition is that there is a practical means to identify and classify every barrel of oil and to track it through the productive and distributive process. In practice, only the crudest approximations can be calculated even from the most elaborate reporting requirements placed on business. Further, any multiple pricing system for a commodity produces inefficient resource use. The necessity for ever more detailed controls to try to hold the multiple pricing system together and the increasing compliance costs by the private sector to meet the ever shifting interpretations of the regulations will prove burdensome, and are inconsistent with the President's desire to reduce regulation. I would urge the Congress to make a thorough study of the multiple pricing system that is being proposed and to insist on a simpler scheme.

WHAT SHOULD CONGRESS DO?

In closing, let me urge you to urge the Congress to apply the following principles in acting on the President's energy proposals:

(1) Let the country solve the energy problem: It has taken 3½ years from the time that the OPEC embargo brought home the harsh reality of our energy situation for the country to reach the point where it is willing to take the energy problem seriously. If action is not taken soon, the public's interest in the problem will fade once more and we will return to a policy of procrastination. Our children will not thank us for dragging our feet in coming to grips with the energy problem. It is the task of the present generation to begin to redirect our economic development away from the energy-intensive, pollution-intensive pattern of industrial production and consumption. There is no magic alternative to the President's proposals.

(2) Take hard luck stories with a grain of salt: The Congress will be inundated with special interest testimony seeking exceptions and excuses, for lower costs

² See the study by Allen Manvel in "Tax Notes," Volume 5, Issue 19, published by Tax Analysts and Advocates, Washington, D.C.

and higher incomes for many segments of our society. If the Congress becomes sympathetic to the special pleading, there will not be a meaningful energy program.

(3) Act promptly: While the energy program is up in the air, it creates uncertainty for energy-related decisions. Business cannot plan its investments nor families their automobile or house purchases rationally while the outcome of the energy debate is in doubt. I urge you to pass as much of the energy program as possible prior to your summer recess, and to act, in one way or another, on every aspect of the energy program during this calendar year.

Senator HUMPHREY. Mr. Laffer, if you will proceed right along, we can come back for questions later.

**STATEMENT OF ARTHUR B. LAFFER, PROFESSOR OF ECONOMICS,
UNIVERSITY OF SOUTHERN CALIFORNIA**

Mr. LAFFER. Thank you very much, Mr. Vice Chairman. It is a great pleasure to be here again.

I, too, share the concerns of the committee, the President, and the country with regard to the energy problem. I have to admit however that I feel that the administration's proposal is literally the wrong policy at the wrong time.

In simplified form, the President's proposal envisions an enormous increase in taxes and revenues to be matched by rebates, tax incentives, and other Government outlays.

Now economists argue almost everywhere that the increase in taxes matched by an increase in rebates or tax incentives will leave the GNP unaffected. Effectively, the destimulative aspects of the increase in Government taxes will be exactly offset by an increase in the rebates which will provide stimulation.

From my perspective this is far from true. In fact, an increase in taxes matched by an increase in rebates will literally reduce output. Let me for the moment run an experiment.

Let's imagine we increase taxes today in the United States by something over a trillion dollars. We then take all the proceeds from those taxes and put them back into the economy in the form of rebates and tax incentives. Imagine we raise these taxes right up to the point where everyone who works and produces receives literally nothing, and all nonworkers and nonproducers receive literally everything. It is hard for me to imagine the GNP will be unchanged. In fact, I would expect GNP to fall to zero.

What is missing in this demand oriented type of analysis is aggregate supply. What economists have focused on almost exclusively is aggregate demand. GNP in the economy is the meshing of both aggregate supply and aggregate demand. When you take into account the substitution effects or the supply incentive effects of fiscal policy what you find happening is as you increase taxes matched by increases in rebates, output falls. The larger the program, the larger the fall in output.

This program proposes an enormous increase in taxes and an enormous increase in rebates and as such will lead to an enormous fall in output and employment. Just to look at the size of the program, I have seen estimates as high as \$100 billion per year. When you compare \$100 billion in taxes per year with the 6-year total of spending for the Vietnam war, you get over \$100 billion per year versus about \$90 billion over 6 years. This is an enormous increase in taxes and rebates which will reduce output very substantially.

Another portion of the program I think is misdirected is that the President's tax policy in this program as in his other programs presumes the incidence of a tax to be the same as the burden of a tax. By raising tax rates on upper income groups, somehow it is believed that you lower the burden of the tax on lower and middle income groups.

That is not necessarily true at all. In fact, as often as not, when you raise tax rates on the wealthy and the upper income groups, you can literally increase the burden of the tax on lower income groups.

Let me give you an example. Let's imagine we are in New York City and New York City decided to tax the wealthy and upper income groups more. In fact, what they decided to put in was a 100-percent tax on all incomes in excess of \$100,000 per year. How much revenue would they raise from such a tax?

Clearly it would be a very, very small amount of revenue they would raise. The New Yorkers who had incomes in excess of \$100,000 would leave or report their incomes differently or something. The revenue would be very, very low.

Given the total amount of spending in New York City, and given that it has to be financed, this means that the people with incomes of less than \$100,000 will have to pay the full burden of this tax. In my opinion, if New York City were to reduce the tax rates in the upper income groups, they would collect more revenue from that tax and thus lower the burden on lower and middle income people.

Well, I think this is the case today in the United States, that by increasing the incidence of this tax on upper income groups, you are literally going to increase the burden of the tax on lower and middle income groups.

There is one other effect of the President's program I would like to discuss for a moment. That is the effect on the cartel. From the way I see it, old old oil and new old oil will have a tax that will be the differential between the controlled price and the world price. One of the major effects which dissolve a cartel in the world economy is that the suppliers find the marginal profits from producing one more barrel of oil exceptionally high. So, therefore, if the OPEC countries were to raise the price of oil in the world economy, this would be an inducement to domestic suppliers to increase their domestic supply and therefore bring down the effects of the control of the cartel.

What we have done here in this program, if I read it correctly, is that if OPEC prices do rise, all that happens in the United States is that the tax on old old oil and new old oil will rise. There is nothing happening with natural gas. We have effectively forced American producers to become part and parcel of the OPEC cartel. In this way I cannot see how that would do anything other than damage our country.

As a final point—if you read the Wall Street Journal's editorial this morning—you can see at least some people's estimates of the supply elasticity coming from different prices in energy.

As I look at the total proposal and read all the objectives of the President's proposal, I find that every one of those objectives of the President's proposal would be better served by an immediate decontrol of energy in the United States with a standby authority for excess profits taxes just to make sure that the distributive aspects of decontrol did not allow for massive windfall gains.

Thank you very much.

[The prepared statement of Mr. Laffer follows:]

PREPARED STATEMENT OF ARTHUR B. LAFFER

Mr. Chairman, it is again an honor to be invited to appear before this committee. I, too, share the concerns expressed by the administration, Congress, and the American people about the problems surrounding energy. The problem is serious, and is increasing in severity. The present time, in my opinion, is the correct time to deal with the problem.

The origins of the current crisis result from both natural and manmade sources. The severity of the current crisis, in my opinion, has primarily come about as a result of poorly conceived policies with predictably bad consequences. As often as not, explicit actions taken to rectify perceived problems exacerbate the problem itself, or cause other problems. I believe the National Energy Plan proposed by the Administration is just such a proposed action. Without exaggeration, the Administration's energy package is the wrong policy at the wrong time.

In a highly simplified form, the National Energy Plan will raise enormous revenues through new and expanded taxes. These receipts will then be put back into the economy in the form of rebates, tax incentives, and transfer payments. A number of economists argue that the destimulative aspects of the higher taxes are offset by the stimulative aspects of the rebates and transfers. They conclude that output or GNP will not be much affected. This is clearly the logic put forth by the Administration.

In my opinion, the above view makes no sense whatsoever. If output resulted solely from aggregate demand, one could construe some logic out of the position. Output, however, results from both aggregate demand and aggregate supply. The above analysis totally ignores aggregate supply and, as such, is completely off the mark. An increase in tax receipts matched by an equal increase in rebates and transfer payments will unambiguously reduce output and output growth. The bigger the tax increase cum rebate, the greater will be the fall in both output and employment.

To see this point clearly, imagine an increase in U.S. taxes of over \$1 trillion, matched by an equal rebate right up to the point where workers and producers receive nothing for their work effort, and nonworkers and nonproducers receive everything. Output will fall to zero. While the example is extreme in most instances, the point is clear. Taxes matched by spending reduce output. The Administration's energy package, if put into effect, would raise taxes by an enormous amount annually, and would rebate the proceeds. It would result in an enormous loss in incomes in the country and an enormous loss in employment. Surely at this stage in our history this is not what is needed.

Therefore, if the National Energy Plan as proposed were to become law, it would retard the level of output and economic growth. While its effect would be to reduce net imports of both oil and automobiles, the package would simultaneously increase net imports, or reduce net exports, of other products.

The program would add substantially to red tape, filing, and information requirements on energy-related firms, while adding little to their domestic production incentives. The major effects of the program will be to discourage energy consumption and production in general.

It is hard to imagine just what groups will benefit from the program. The substantial taxes on gasoline, automobiles, energy production and energy consumption will swamp any benefits conceivable from the rebates. Regionally, Texas, California, and other energy producing areas, as well as car producing centers such as Michigan, Ohio, etc., will be the most damaged.

The rebate aspect of the package has recently shown itself to be an unviable political option as the weak support in the House and, later, the lack of support in the Senate demonstrated.

Here are four key economic aspects of President Carter's proposals :

TAXES

The proposals include a number of significant increases in taxes :

(i) On gasoline alone, standby authority is requested to start taxing an additional 5 cents per gallon as of January 15, 1978, and rising to 50 cents per gallon by 1985.

(ii) Automobiles deemed energy-inefficient by their gas mileage will, starting with the 1978 model line, be taxed up to a maximum of \$449. This tax will be increased through the 1985 model line, where the maximum tax will be \$2,488.

(iii) Domestically produced crude oil will continue indefinitely to be subjected to price ceilings. In addition, three yearly tax increases will be imposed on well-head production until the ceiling price plus tax equals the world price, currently \$13.50 per barrel. In the case of old oil, the three-stage tax increase would amount to \$8.25 per barrel.

(iv) The ceiling price on natural gas sold in interstate markets would be raised to \$1.75 per 1000 cubic feet from the current \$1.45 price. However, intra-state natural gas, which previously was uncontrolled, will now be subject to the price ceiling.

(v) Industrial companies will be taxed at increasing rates on their usage of natural gas. This tax would, under present conditions, start in 1979 at 30 cents per 1000 cubic feet, and rise to \$1.10 by 1985. The utility tax on the use of natural gas would commence in 1983, until by 1988 it equalized the energy cost between natural gas and distillate oil. Industrial users of petroleum would be taxed at 90 cents per barrel in 1979, and this would rise to \$3.00 per barrel by 1985. Utilities that used petroleum would have a flat tax of \$1.50 per barrel, beginning in 1983.

(vi) Aviation fuel taxes would be raised 4 cents per gallon, and the rebate of 2 cents per gallon on motorboat fuel would be removed. Efficiency targets on appliances would be made mandatory. The U.S. stockpile of oil would be increased 500 million barrels to 1 billion barrels. Detailed accounting requirements on the energy companies would be imposed and antitrust would be more actively pursued.

However one figures it, the program adds up to a massive increase in overall taxes. Estimates of the ultimate revenue from these tax increases range well over \$100 billion per year. When one compares these numbers with the total cost of the Viet Nam war, over a six-year period of, say, \$100 billion, one obtains the proper perspective of the proposal's magnitude. As such, the discrepancy between market values and the amounts workers and producers receive would increase dramatically. If ever enacted, this would constitute an enormous increase in the wedge and would lead to sharply curtailed production in the market place. Growth rates would be greatly reduced.

While many of us intuitively think of production distortions in terms of factories, machines, or capital equipment, the effect on individual worker's incentives to work could easily be quite consequential. At an additional tax of 50 cents per gallon, a family that drives 20,000 miles per year in a car that gets 20 miles per gallon, would have an effective reduction in its income of \$500. This figure does not even consider the higher price of the car or the plethora of other taxes and their effect on prices. There is a precise equivalence between product taxes and factor taxes. As such, President Carter's program is equivalent to increased income taxes across a broad range of factors from workers, land, on to capital investment itself.

To illustrate the correspondence between product taxes and factor taxes, imagine a person who earns \$10,000 gross per year. If he pays a flat 50 percent income tax rate on his earnings, he will be left with \$5,000 to spend. If, on the other hand, there is a 50 percent tax on the full sales price of all products, he'll be able to spend \$10,000, but the prices of everything will be doubled. In both instances, his aftertax real income is the same. While the exact associations become far more complicated where we include many products and a multitude of factors, the correspondence principle here remains valid.

TRANSFER PAYMENTS

The Administration's program also includes a substantial increase in either explicit or implicit spending:

(i) All gasoline taxes and crude oil production taxes will be rebated through the tax system (as credits), and to nontaxpayers. These rebates, in part, will be biased toward homeheating oil users.

(ii) Automobiles attaining a specified degree of fuel efficiency will be eligible for rebates up to \$473 maximum for 1978 model cars, and increasing over time to \$493 for 1985 model cars.

(iii) Firms purchasing equipment to generate electricity would receive a 10 percent tax credit on the purchase price.

(iv) Homeowners would receive a tax credit not to exceed \$2,000 for investment in solar equipment. Businesses would receive a 10 percent tax credit on solar equipment.

Virtually all of the revenues from the increased taxes would go toward increased government spending, thus mitigating any chances of offsetting tax reductions or reduced national debt. This part of the Carter program merely consummates the additions to the overall tax wedge. Whereas tax increases in one area, resulting in tax reductions elsewhere, may lead to expanded output, tax increases matched by transfer spending increases will only reduce output and output growth. Overall, the fundamental form of taxation is government spending irrespective of financing technique used.

TARIFF AND TRADE

In his proposal to tax the purchase price of low-gas efficiency cars and give rebates to high-gas efficiency cars, there was an explicit exclusion of non-American and non-Canadian made cars. The actual treatment of these foreign cars is to be determined by direct negotiation. This differential treatment of foreign versus domestic made cars is equivalent to a tariff on foreign made automobiles. Imports of automobiles will be retarded.

The tax increase and rebate aspects of the energy program will also have two effects that will impact on international trade. First, the tax increases will thwart domestic consumption of energy relative to domestic production. Energy imports should fall. Second, the general increases in taxes and transfers will restrict the overall domestic supply of output. Such a supply shift will tend to increase total imports relative to exports. Therefore, the U.S. trade balance will be adversely impacted by the program.

With a deteriorating trade balance combined with reduced net imports of both energy and automobiles, there should be an increase in the net imports, or a reduction in the net exports of other products. These changes should be more than sufficient to offset any improvements in the energy and automobile accounts.

TAX INCIDENCE AND TOTAL REVENUE

While the precise incidence of the President's heightened tax and spending programs are not known, it is clear they do increase the progressivity of the federal government's impact on the economy. The increased taxes on big cars, the numerous business taxes, the specific limitations on tax credits, the overall bias against energy usage (assumed by most economists as a "luxury" good), and the egalitarian tendency of the rebates, unambiguously raises the incidence of the tax structure on upper income groups relative to middle and lower income groups. All groups, nonetheless, will experience an increased incidence, albeit greater for upper income groups. Whatever one's perception of the fairness or equity value of such a move, such a redistribution of the tax incidence will lower output even further.

Often it is the case that the incidence of a tax is very different from the burden of a tax. Raising tax rates on upper income and wealthy people may actually have the effect of lowering the after-tax incomes of the poor and working class people. Given the level of spending in New York City, if the City were to tax all incomes over \$100,000 per year at a 100 percent tax rate, it is clear that they would get next to nothing in revenues. Those people with incomes in excess of \$100,000 per year would either move, or find ways to not report the excess. Given the need to finance the spending, taxes, either explicit or implicit, on lower incomes, would have to rise. Therefore, by lowering tax rates on upper income groups, the burden of the tax on lower income groups may actually be reduced. I believe we are well within this range at present. Any increase in the progressive incidence of taxation actually places a heavier burden on the poor and low-income people.

It is not only conceivable but quite possible, that the entire program will, when combined with existing taxes and spending programs, lead to reduced overall revenue and markedly higher spending. Deficits will most likely be increased as a result of the overall program. When one thinks that reductions in output lead to a reduction in other tax receipts, increased spending on such programs as unemployment compensation, Social Security, etc., it is hard to imagine anything other than expanded federal deficits. The increased burden on our State and local governments could be substantial.

OTHER CONSIDERATIONS

As a final analytic point on the overall effects of President Carter's energy package, it would tend to strengthen the OPEC oil cartel. A major influence leading to the historical dissolution of cartels has been the market responses to abnormal pricing structures. If a cartel sets its price too high not only will consumption tend to fall, but also producers will invariably face supply prices that are highly profitable on the margin. These production "incentives" entice suppliers to either violate the cartel quantity restrictions or induce new producers to enter production.

The recent energy proposal virtually eliminates the producers' incentives to break down the cartel. As the formulae go, increases in the world price of oil will be matched one for one by increases in the tax on oil production. Thus, in the event of a price increase in world markets, U.S. producers of oil will not receive any higher prices. There will not be any added incentives to produce. This avenue of offset to any OPEC oil price increase will be closed by explicit government policy.

As a final point, I would add that virtually every objective of the Administration's proposal would be better served by the immediate decontrol of energy with a standby excess profits tax authority over a two-year horizon.

Senator HUMPHREY. Mr. Thurow will be our next witness.

**STATEMENT OF LESTER C. THUROW, PROFESSOR OF ECONOMICS
AND MANAGEMENT, MASSACHUSETTS INSTITUTE OF TECH-
NOLOGY**

MR. THUROW. Senator, your staff asked me if I would comment on a slightly different set of topics.

If the President's program were to go through as announced, what would be the distributional aspects of the program? Whose income would go down and by how much?

If you analyze the direct household consumption of energy in 1976, it indicates that direct energy consumption is highly regressive. As a proportion of before-tax incomes, energy consumption falls dramatically as incomes rise; and you can see that in table 1 of my prepared statement.

The poorest 10 percent of all households, any household with an income less than approximately \$3,000 per year, spend 20.2 percent of their budget on home energy consumption and almost 10 percent of their budget on gasoline. As a consequence, almost 30 percent of their entire budget goes to paying for energy.

In contrast, if you look at the richest 10 percent of all households, which are households which have an income above \$30,000 per year, this group spends only 2 percent of their income on home energy consumption and only 2.2 percent on gasoline and oil for a total energy consumption of a little over 4 percent of their income. As a result, any increase in the price of energy will cause a reduction in real living standards that is seven times as large for the poorest decile as it is for the richest decile. A 50-percent increase in the price of energy would, for example, lower real living standards 14.9 percent for the poorest decile and only 2.1 percent for the richest decile.

The average American household spends 3.8 percent of its income on home energy consumption and 3.6 percent of its income on gasoline consumption, for total energy consumption of 7.4 percent. Thus, a 50-percent increase in the price of energy would reduce its real living standard by 3.7 percent.

The data in table 2 of my prepared statement show the same breakdown by region of the country. Home energy consumption varies from 4.5 percent of household income in the Northeast to 2.3 percent of household income in the West. Gasoline consumption varies from 4.0 percent of household income in the South to 3.3 percent of household incomes in the Northeast.

Overall, direct household energy consumption ranges from 8.9 percent in the Northeast to 6.0 percent in the West. Somewhat surprisingly because the South consumes a lot of gasoline, uses air-conditioning extensively, and has a lower average income level than the rest of the country, the South is not a low energy region. Relative to its income, it consumes more energy than both the and North Central regions of the country. As a result, a 50-percent increase in the price of energy would cut real living standards of living by 4.5 percent in the Northeast, 3.5 percent in the North Central, 4.0 percent in the South and 3.0 percent in the West.

According to the estimates of "Data Research", the President's energy proposals, shown in table 3 of my prepared statement, would raise gasoline prices by 57 percent from 1976 to 1980. Such an increase would cut the real standard of living of the poorest decile by 5.5 percent, the real standard of living of the richest decile by 1.3 percent, and the real standard of living of the average American by 2.1 percent.

The effects that flow through home energy consumption will depend upon what fuel is being used. From 1976 to 1980, electricity is scheduled to rise by 31 percent—7 percent per year—residential natural gas by 36 percent—8 percent per year—and home heating oil by 49 percent—10.5 percent per year.

What will happen to the individual consumer will depend upon what he uses to heat his home with and what his public utility uses to generate electricity. If we assume that this averages to a 40-percent price hike for home energy, then the poorest decile will find its real standard of living cut by 8.1 percent, the richest by 0.8 percent, and the average American will find his real standard of living cut by 1.5 percent.

Given a 57-percent increase in gasoline prices and a 40-percent increase in home energy prices, the overall cuts in standards of living will range from 13.6 percent for the poorest decile to 2.1 percent for the richest decile, with an average cut of 3.6 percent.

In addition to direct purchases of energy, households also purchase energy indirectly in everything that they buy. Based on updated 1967 input-output data, table 4 of my prepared statement indicates the total energy requirements that are necessary to deliver one dollar's worth of product in a few selected areas.

Since consumption falls as a percentage of income as incomes rise, and since an increase in the price of energy is equivalent to a proportional tax on consumption, the indirect price effects are also more severe on low-income individuals. An industrial energy price hike of 80 percent lowers average real incomes by 2.5 percent, the income of the poorest 10 percent by 4.3 percent, and the income of the richest 10 percent by 1 percent.

If this average indirect real income reduction of 2.5 percent is combined with the average direct real income cut of 3.6 percent, then the

average household will find its real income cut by 6.1 percent overall. The poorest 10 percent finds their real incomes reduced 17.9 percent and the richest 10 percent finds their real incomes reduced 3.1 percent.

Since the growth of real standards of living is determined by the rate of growth of productivity, real family incomes could be expected to grow about 3 percent per year in the next 4 years. As a result, about half of the expected growth in real incomes over the next 4 years will be offset by higher energy prices for a family with an average income that derives none of its income from the energy industry.

Since higher energy prices are merely a transfer of income as far as the economy as a whole is concerned, the real income of the average family—including families that receive income from the energy industry—would not be affected. This is only true to the extent that the higher prices are not paid to foreigners.

Given a 3-percent growth in real incomes, a household in the richest decile with no energy sources of income offsets its losses in 1 year. In contrast, a household in the poorest decile requires almost 6 years of normal income growth to regain 1976 real standards of living. Upper income families are also much more likely to own energy resources and thus to counterbalance consumption price increases with energy income increases.

NEEDED—A RECYCLING OF ENERGY PRICE INCREASES

The energy area is a classic test case of whether we can combine the efficiencies of market price incentives while maintaining some degree of equity in the division of sacrifices. To lower demands for energy efficiently, consumers need to be faced with the full costs of energy. Yet a policy which proposes to alleviate the energy problem by cutting the real incomes of the poorest 10 percent of the population by 18 percent and the richest 10 percent by 3 percent would hardly seem an equitable sharing of sacrifices.

If we are looking at a family that gets no income from energy-related industries, the average American family will devote 2 years out of every 4 to offsetting the price of energy, the richest percent will devote 1 year out of 4 to offset the growth, and the poorest percent will have to spend the next 6 years recouping their position from the President's energy proposals.

If you look at these cuts, it seems to me they indicate that the whole question of recycling revenue is not a trivial one that can be ignored. If you are talking about cutting real incomes at the bottom by 18 percent and real incomes at the top by 3 percent, there is a Government responsibility to have some kind of safety net at the bottom.

There are a variety of techniques for doing that. Some people have suggested reconstituting food stamps as necessity stamps and allowing households to buy energy with them. Other people have called for vanishing energy tax credits and others call for the lifeline concept where you buy energy at some low cost and energy above that level is at full cost.

Each of these proposals has merits and demerits, but the vanishing energy tax credit would seem to be the most efficient method for income recycling. The lifeline concept should probably be ruled out

on the grounds that any income supplement should be embedded in the Government's budget rather than hidden in a below-market price subsidy in the private economy.

Given the difficulties and time lags in welfare reform, an augmented "necessity stamp" would probably be too time consuming to implement. The only real problem with a tax credit is getting the credit to those families whose incomes are so low that they do not bother to file an income tax form. I suspect, however, that if a little publicity was given to the fact that a tax rebate check was there waiting for most low-income families, these families would quickly learn to file an income tax form.

If a vanishing energy tax credit were adopted, at what level should it be set and where should it vanish? Basically this is a question to which there are no economic answers. It depends upon your judgment as to what extent low-income households should be asked to sacrifice. One possibility would be to design a credit so that no income class is asked to make a sacrifice larger than that made by the average American family. This would mean that the credit would vanish at the median income and be set to keep any family's real income reductions from exceeding 6.1 percent.

Thank you.

Senator HUMPHREY. Wow! [Laughter.]

That is tremendous testimony. It will take a day or so for me to read that over again.

Thank you, Mr. Thurow.

[The prepared statement of Mr. Thurow follows:]

PREPARED STATEMENT OF LESTER C. THUROW
DISTRIBUTIONAL IMPACTS OF CARTER ENERGY PROPOSALS

Analysis of direct household consumption of energy for 1976 indicates that direct energy consumption is highly regressive. As a proportion of before-tax incomes, energy consumption falls dramatically as incomes rise. (See Table 1.) The poorest 10 percent of all households (a household with an income less than approximately \$3,000 per year) spend 20.2 percent of their budget on home energy consumption and 9.6 percent of their budget on gasoline. As a consequence, almost 30 percent of their budget goes to paying for energy. In contrast, the richest 10 percent of all households (a household with an income above approximately \$30,000 per year) spend only 2.0 percent of their income on home energy consumption and 2.2 percent of their income on gasoline, for total energy consumption of 4.2 percent of their income.

TABLE 1.—DIRECT 1976 HOUSEHOLD ENERGY CONSUMPTION AS A PERCENTAGE OF BEFORE-TAX INCOME

Decile	Home energy consumption	Gasoline consumption	Total
1st.....	20.2	9.6	29.8
2d.....	10.4	5.8	16.2
3d.....	7.4	5.6	13.0
4th.....	5.6	5.2	10.8
5th.....	4.7	4.8	9.5
6th.....	3.9	4.5	8.4
7th.....	3.9	3.8	7.7
8th.....	3.3	3.7	7.0
9th.....	3.0	3.1	6.1
10th.....	2.0	2.2	4.2
Total.....	3.8	3.6	7.4

TABLE 2.—DIRECT HOUSEHOLD ENERGY CONSUMPTION BY REGION—1976

(In percent)

Region	Home energy consumption	Gasoline consumption	Total
Northeast.....	4.5	3.3	8.9
North central.....	3.3	3.7	7.0
South.....	3.9	4.0	7.9
West.....	2.3	3.7	6.0

Note: Estimated from national income and product account totals for 1976 and household data from "Consumer Expenditure Survey Series: Diary Survey, 1973," USDL report 448-2.

As a result, any increase in the price of energy will cause a reduction in real living standards that is 7 times as large for the poorest decile as it is for the richest decile. A 50 percent increase in the price of energy would, for example, lower real living standards 14.9 percent for the poorest decile and only 2.1 percent for the richest decile.

The average American household spends 3.8 percent of its income on home energy consumption and 3.6 percent of its income on gasoline consumption, for total energy consumption of 7.4 percent. Thus, a 50 percent increase in the price of energy would reduce its real living standard by 3.7 percent.

The data in Table 2 shows the same breakdown by region of the country. Home energy consumption varies from 4.5 percent of household income in the Northeast to 2.3 percent of household income in the West. Gasoline consumption varies from 4.0 percent of household income in the South to 3.3 percent of household income in the Northeast. Overall, direct household energy consumption ranges from 8.9 percent in the Northeast to 6.0 percent in the West. Because the South consumes a lot of gasoline, uses air conditioning extensively, and has a lower average income level than the rest of the country, the South is not a low energy using region. Relative to its income, it consumes more energy than both the West and Northcentral regions of the country. As a result, a 50 percent increase in the price of energy would cut real standards of living by 4.5 percent in the Northeast, 3.5 percent in the Northcentral, 4.0 percent in the South, and 3.0 percent in the West.

According to the estimates of Data Resources, the President's energy proposals (see Table 3) would raise gasoline prices by 57 percent from 1976 to 1980. Such an increase would cut the real standard of living of the poorest decile by 5.5 percent, the real standard of living of the richest decile by 1.3 percent, and the real standard of living of the average American by 2.1 percent.

TABLE 3.—ANNUAL PERCENT CHANGES IN ENERGY PRICES—DRI ESTIMATES

	1976-80	1980-85	1985-90
Oil:			
Average domestic crude.....	12.9	6.9	7.1
Residual fuel.....	16.1	7.9	6.4
Distillate fuel.....	10.5	6.2	6.5
Gasoline.....	12.0	9.1	5.7
Natural gas:			
Interstate contract.....	13.2	13.4	8.4
Average residential.....	8.4	10.1	7.0
Average industrial.....	24.4	10.8	8.1
Contract coal price.....	7.1	5.8	4.9
Average residential electricity.....	6.9	4.4	4.1

Source: "The Data Resources Review," May 1977, p. 1.10.

The effects that flow through home energy consumption will depend upon what fuel is being used. From 1976 to 1980, electricity is scheduled to rise by 31 percent (7 percent per year), residential natural gas by 36 percent (8 percent per year), and home heating oil by 49 percent (10.5 percent per year). What will happen to the individual consumer will depend upon what he uses to heat his home with and what his public utility uses to generate electricity. If we assume that this averages out to a 40 percent price hike for home energy, then the poorest decile will find its real standard of living cut by 8.1 percent, the richest decile will find its real standard of living cut by 0.8 percent, and the average American will find his real standard of living cut by 1.5 percent.

Given a 57 percent increase in gasoline prices and a 40 percent increase in home energy prices, the overall cuts in standards of living will range from 13.6 percent for the poorest decile to 2.1 percent for the richest decile, with an average cut of 3.6 percent.

Based on the average regional consumption of energy, a 57 percent increase in gasoline prices and a 40 percent increase in home energy prices results in a 3.7 percent cut in real incomes in the Northeast, a 3.4 percent cut in the North-central, a 3.9 percent cut in the South, and a 3.0 percent cut in the West.

In addition to direct purchases of energy, households also purchase energy indirectly in everything that they buy. Based on updated 1967 input-output data, Table 4 indicates the total energy requirements that are necessary to deliver one dollar's worth of product in a few selected areas. Each \$1 worth of food, for example, contains 2.52 cents worth of energy, while each \$1 worth of footwear contains 1.46 cents worth of energy. If industrial energy prices rise 82 percent, and the average product embodies 3.0 cents worth of energy per dollar of final demand, real standards of living would fall by 2.5 percent through this indirect effect.

Since consumption falls as a percentage of income as incomes rise, and since an increase in the price of energy is equivalent to a proportional tax on consumption, the indirect price effects are also more severe on low income individuals. An industrial energy price hike that lowers average real incomes by 2.5 percent would lower the income of the poorest 10 percent by 4.3 percent and the income of the richest 10 percent by 1.0 percent.

TABLE 4.—Total energy requirement (direct and indirect) per dollar of delivery to final demand

New construction.....	3.15
Food and kindred products.....	2.52
Apparel.....	1.83
Household furniture.....	1.88
Plastics and synthetic materials.....	6.91
Footwear and leather products.....	1.46
Household appliances.....	2.28
Motor vehicles and equipment.....	2.26
Hotels, personal, and repair services except autos.....	2.16
Amusements.....	1.18
Medical, educational services, and nonprofits.....	1.65
Federal Government.....	3.41
State and local government.....	5.97

Source: Survey of Current Business, February 1974, pp. 50-55; 1967 input-output data updated to 1976 prices.

If this average indirect real income reduction of 2.5 percent is combined with the average direct real income cut of 3.6 percent, then the average household will find its real income cut by 6.1 percent overall. The poorest 10 percent finds their real incomes reduced 17.9 percent and the richest 10 percent finds their real incomes reduced 3.1 percent.

Since the growth of real standards of living is determined by the rate of growth of productivity, real family incomes could be expected to grow about 3 percent per year in the next 4 years. As a result, about half of the expected growth in real incomes over the next 4 years will be offset by higher energy prices for a family with an average income that derives none of its income from the energy industry. Since higher energy prices are merely a transfer of income as far as the economy as a whole is concerned, the real income of the average family (including families that receive income from the energy industry) would not be affected. (This is only true to the extent that the higher prices are not paid to foreigners.)

Given a 3 percent growth in real incomes, a household in the richest decile with no energy sources of income offsets its losses in one year. In contrast, a household in the poorest decile requires almost 6 years of normal income growth to return to 1976 real standards of living. Upper income families are also much more likely to own energy resources and thus to counter balance consumption price increases with energy income increases.

NEEDED: A RECYCLING OF ENERGY PRICE INCREASES

The energy area is a classic test case of whether we can combine the efficiencies of market price incentives while maintaining some degree of equity in the division of sacrifices. To lower demands for energy efficiently, consumers need to be faced with the full-costs of energy. Yet a policy which proposes to alleviate the energy problem by cutting the real incomes of the poorest 10 percent of the population by 18 percent while cutting the real incomes of the richest 10 percent of the population by 3 percent would hardly seem an equitable sharing of sacrifices. To reduce demands while fairly sharing sacrifices, some portion of the revenue generated by the price hikes needs to be recycled to the lowest income groups. There are a variety of techniques for carrying out such a recycling.

One possibility would be to reconstitute food stamps as "necessity stamps" and allow them to be used to purchase food, energy, and perhaps housing. Some part of the extra energy revenues would be diverted to the new necessity stamps and benefit levels could be raised accordingly.

Another possibility would be to introduce a "vanishing energy tax credit" into the income tax. This credit would be set so as to offset the real income effects for the lowest income groups and then gradually fall to zero at whatever income level was desired. Those in the income classes between the full offset and the zero point would find part of their real income cuts offset by a tax credit.

Yet a third option is the "lifeline" concept often talked about in the case of electricity. Every family would be issued some minimum allotment of energy coupons that would entitle them to buy enough energy to survive at some fixed below-market price. Any energy consumption above this minimum would be priced at market or above market rates to discourage consumption.

Each of these three proposals has merits and demerits, but the vanishing energy tax credit would seem to be the most efficient method for income recycling. The lifeline concept should probably be ruled out on the grounds that any income supplement should be embedded in the government's budget rather than hidden in a below-market price subsidy in the private economy. Given the difficulties and time lags in welfare reform, an augmented "necessity stamp" would probably be too time consuming to implement. The only real problem with a tax credit is getting the credit to those families whose incomes are so low that they do not bother to file an income tax form. I suspect, however, that if a little publicity was given to the fact that a tax rebate check was there waiting for most low income families, these families would quickly learn to file an income tax form.

Any recycling of energy revenues has two additional economic effects that must be considered. Some of the revenue that is returned to low income families will be spent on energy, and thus the energy cut-backs will not be as large as anticipated. To offset this effect energy price increases would have to be slightly higher than had otherwise been programmed. Secondly, to the extent that energy revenue is recycled, producer incentives are reduced. This objection is partially met in the Carter energy proposals by allowing marginal (new) sources of energy to be sold at market prices while holding old sources of energy below market prices. In the short-run extra production incentives are also not as important as they are in the long-run. Given the very sharp increases in the prices of old energy, producers have had a very sharp increase in their incentives to produce energy. This is clearly seen in the profits of energy companies. As a result, in the short-run increases in the supplies of energy are more dominated by inevitable time lags in bringing production on-line rather than in any lack of incentives. Extra production incentives above those now being offered would probably have very little impact on the pace of new energy production. Thus, recycling could probably occur with very little impact on production incentives for a number of years.

If a vanishing energy tax credit were adopted, at what level should it be set and where should it vanish? Basically this is a question to which there are no economic answers. It depends upon your judgment as to what extent low income households should be asked to sacrifice. One possibility would be to design a credit so that no income class is asked to make a sacrifice larger than that made by the average American family. This would mean that the credit would vanish at the median income and be set to keep any family's real income reductions from exceeding 6.1 percent.

Senator HUMPHREY. Mr. Okun, we welcome you. Thank you for coming to us this morning. Please proceed.

**STATEMENT OF ARTHUR M. OKUN, SENIOR FELLOW, THE
BROOKINGS INSTITUTION**

Mr. OKUN. Thank you, Senator.

I have spoken out on many occasions on the issue of inflation and energy taxes, and I have been informed by your staff of your interest in my views on this issue. I appreciate that. I will devote the main part of my oral statement to that particular problem and to my particular proposal for dealing with it.

I would like to say at the outset that I think the President deserves our appreciation for facing up to the energy problem and for offering a program that would ultimately curtail oil imports and thereby provide good insurance against a major energy disaster in the 1980's such as might well stem if we don't act from enormous disruptive further increases in oil prices.

As I look at the program, I think it avoids serious side effects in two major areas by achieving reasonable fiscal neutrality, enough so that you need not be concerned about that, and basically by achieving distributional equity through the per capita tax credit that would be applied. That is an extremely progressive tax reduction which would go a long part of the way to offset the regressivity of energy taxes. It is also important in looking at the distribution to recognize that the high energy consumers are the ones who have the most to lose from major OPEC price increases; and if this program buys them good insurance, they will receive more benefit thereby.

I do feel the program has one major correctable deficiency; namely, that it doesn't pay enough attention to energy supplies rather emphasizing energy conservation with no parallel stress on production. I would be happy to get into any of these issues in the questioning, but I do want to turn to my concern about the inflation aspect of the program.

The conservation side of the program is mainly an effort to raise the relative price of energy. It doesn't lower other prices and, therefore, exerts an inflationary effect on the economy. The main technique of recycling price-raising energy taxes involved cutting income taxes that would restore real purchasing power, but would not neutralize the inflation impact. Such energy tax inflation is genuine inflation. It is not an optical illusion. It reduces the value of any dollar saved in the past or pledged in the future.

Beyond the initial rise in the Consumer Price Index, such energy taxes will exert further inflationary effects by raising wages and other costs that are linked to the cost of living. Estimates of the full inflation impacts are extremely precarious, and the administration economists, using about a half of 1 percent a year and Mr. Eckstein's seventenths of 1 percent a year, tell me it is close enough that that is the right ballpark.

I regard inflation as the most serious adverse consequence of the program. Inflation is the most important economic problem today in the minds of a majority of this Nation. That comes up again and again. The political process in our democracy has been and will continue to be responsive to that judgment of the majority. It has been responsive in a terribly inefficient way, tolerating an extremely high

level of unemployment, a huge waste of potential production, and a vast loss of real income in recent years because of the fear of inflation.

We have shied away from proven policies to create jobs and induce investment and consumption for fear of added inflation. Most recently, the proposed \$50 tax rebate was a casualty of our inflation worries, even though systematic statistical analyses suggested that it would add no more than a temporary 0.1 or 0.2 percentage points to the inflation rate.

It is fair to predict that our current recovery in output and employment will be halted at some date in the future when the makers of fiscal and monetary policy see inflationary hazards that lead them to apply the brakes. An extra half-point or so of inflation from energy will make that day come sooner and at a higher unemployment rate. In short, the idea that the Nation will simply tolerate a little more inflation and maintain an unaltered growth seems extreme to me. For one thing that would require the Federal Reserve to finance a higher path of nominal GNP with no higher interest rates. That is not a good forecast of monetary policy and I submit that that would not be a good monetary policy.

My own realistic guess is that the loss of output might be crudely about \$50 billion over the next 8 years. I believe there is another and perhaps even more significant multiplier effect of energy tax inflation. Surely the willingness of the President and the Congress to accept an added half-point of inflation per year would weaken the credibility of the Federal Government in seeking restraint from private price and wage decisionmakers and in maintaining anti-inflationary discipline in other critical Government decisions, including the minimum wage, international trade policies, farm price supports, and curbs on hospital costs.

None of these is an argument against energy taxes. Indeed, doing nothing could be far more inflationary if it triggers large OPEC price increases. But they do make a strong case for recycling the revenues from energy taxes in an inflation-neutralizing manner. The inflation can be avoided.

I believe that Federal financing of cuts in State and local sales taxes would be the best inflation-neutralizing method. Reductions in sales taxes would hold down the cost of living—offsetting the rise caused by higher energy taxes—and thus restore the purchasing power of the American people by maintaining the value of their dollars rather than by giving them more dollars of reduced value.

Instead of enacting a per capita credit on income taxes—and other payments—amounting to \$50, for example, the Congress would establish a Federal grant fund that would pay any Governor or mayor the full annual revenue cost up to \$50, or whatever the ceiling is, per capita of any newly enacted reduction in sales taxes in his jurisdiction. A narrowing of the tax base—for example, elimination of food—as well as a cut in the tax rate would qualify for grant funds.

The State would be committed for only a year at a time, and it would continue to earn Federal payments so long as sales taxes remained below their levels of some base date like June 1, 1977. As the size of the Federal fund increased with the phasing in of energy taxes, the per capita ceiling would be raised, permitting Federal financing of further reductions in the rates of sales taxes.

Obviously, sales taxes would continue to differ among States and cities. But they would be lower than they are today in every jurisdiction that accepted the extremely attractive Federal offer.

In addition to its principal anti-inflationary benefit, which is the real benefit of it, the sales tax proposal has two other significant advantages. First, it avoids the inequity of "double indemnity" for people who now have effective cost-of-living protection on their incomes, a large group that includes social security beneficiaries and Federal retirees as well as workers and executives with COLA provisions. Those people would automatically be indemnified for extra energy taxes, since those taxes would raise the cost of living and, hence, trigger, automatically, increases in their money incomes.

The per capita income tax credit would indemnify them a second time for the inflation costs while, by the same token, given inadequate protection to those people who have no cost-of-living protection on their incomes and who would be paying higher prices for products made by people with cost-of-living escalators. It is striking that the administration estimates show a cumulative Federal budgetary cost to 1985 of \$11.5 billion—even assuming no triggering of the gasoline taxes—for Uncle Sam's share of those redundant "double indemnity" payments. By eliminating the initial impact on the cost of living, the sales tax reduction strategy would avoid the added expense, leaving the money for a greater sales tax reduction, and would eliminate the inequity.

I think it is also significant that the sales tax reductions would be more readily identifiable as genuine additional tax cuts over the long run. People are and have good reason to be skeptical whether the per capita income tax credit would actually result in lower income taxes than would otherwise be the case over the years. The fact is that Congress will need to make some reductions in income taxes between now and 1985, regardless of its decisions on energy taxes. There will be no way to tell in 1985 whether other income tax cuts had been less generous than otherwise, as a result of the cut made by the per capita credit.

On the other hand, the sales tax reduction would not be mingled with other Federal tax actions, and would reduce the tax liabilities of the American taxpayer in a more clearly definable and measurable way.

Since I first espoused this plan 3 years ago, I have heard a variety of criticisms, as well as bouquets of gratifying support. Let me briefly review some of the complications and drawbacks.

First and most obviously, five States with a combined population of less than 5 million—2 percent of all Americans, although 10 percent of all the States—do not have general sales taxes. It would be reasonable and equitable to allow them to earn the full grant entitlement by cutting other taxes that have some inflationary effects, such as specific excises, payroll taxes on employers, or residential property taxes.

Second, the program would require any Governor receiving funds for sales tax reductions to make a "good faith" pledge not to hike other price-raising taxes that year. Obviously, any State that enacted a host of new—or higher—specific excises when it cut its general sales tax should not qualify for the incentive grant funds. This is a complication, but a manageable one. Obviously no pledge would in any way constrain increases in direct taxes.

Third, there is a general concern about complexity, compared with the per capita income tax credit. I submit that the latter is not nearly so simple as it appears, if one wishes to insure that all Americans receive it once and no more than once. Compared to other features of the energy program like the insulation tax credit, I would insist that my plan is downright elegant.

Fourth, some people have noted that the grant payments would be classified as budget outlays while the per capita income tax credit would be a subtraction from revenues. Hence the Federal budget would look bigger under my proposal, but this is sheer cosmetics. The Federal Government would not be genuinely using any more resources or transferring any more income in one case than in the other.

Fifth, some Congressmen are concerned that the American people will blame them for higher energy taxes, but credit the Governors for their reduced sales taxes. I fully respect the instinct of self-preservation among the Members of Congress, but I have confidence in their ability to remind their constituents of the true source of the sales tax cuts.

Senator HUMPHREY. We have a limitation now on the number of newsletters we can send out. [Laughter.]

Mr. OKUN. Perhaps a special exemption is in order for this one.

I have heard that an opposite political concern is felt by a few Governors, who see the opportunity to earn the bounty as a burden rather than a blessing. Apparently some are also concerned about a loss of flexibility to raise sales taxes in the years ahead. I might say this is a flexibility this country could live without.

All in all, I believe the incentive plan for sales tax reduction is manageable and equitable as well as effectively anti-inflationary. I might not, in conclusion, that there are alternative inflation-neutralizing options for recycling energy tax revenues. They could be used to obviate the need for higher payroll taxes on employers for financing social security. The evidence is compelling that such tax increases are passed on to consumers in higher prices.

Alternatively, they could be used to launch a major employment subsidy for private firms hiring unemployed workers.

Third, they could be used to subsidize—and thus lower the prices of—particular basic consumption items like mass transit fares or even raw food products. In my opinion, these options are less desirable than the incentive fund for sales tax reduction, but I want to make a “hard sell” for inflation neutrality rather than for my plan.

When you examine the administration’s specific tax-recycling proposal, please ask yourselves: Is this extra inflation necessary?

Thank you.

Senator HUMPHREY. Thank you very much, Mr. Okun.

[The prepared statement of Mr. Okun follows:]

PREPARED STATEMENT OF ARTHUR M. OKUN

The President deserves our appreciation and congratulations for facing up to the energy problem and for offering a program that would ultimately curtail oil imports, and thereby provide good insurance against a major energy disaster in the 1980’s. While I shall criticize elements of that program in this statement, I want to emphasize my basic endorsement and support of it. Indeed, the response of the Congress and the public to that program will be a major test of our maturity as a nation. If we keep kidding ourselves that the energy shortage is the con-

trivance of villainous businessmen, if we keep promising to do something about it next year, if we keep hunting for a perfect and painless remedy, we will be inviting enormous, disruptive further increases in oil prices by OPEC in the 1980's.

A well-designed energy program should curtail our dependence on oil imports and simultaneously minimize the economic and social costs to the nation. The program deserves high grades for avoiding serious side effects in two major areas by achieving fiscal neutrality and distributional equity.

FISCAL NEUTRALITY

The administration's program would exert no significant fiscal drag or fiscal push. I believe that accomplishment is important for two reasons, one political and one economic. Politically, it should refute any suspicions that energy taxes will serve as back-door financing for other government programs. Economically, it forecloses the threat of any disruption that might stem from a sustained substantial net effect on aggregate demand.

The administration's program is sufficiently neutral to eliminate any and all worries on that score, although it is far from perfect or precise. Obviously, a zero effect on the budget deficit from any program is unobtainable, in part because revenue gains and losses from taxes and credits cannot be estimated with complete accuracy. Moreover, even if a zero deficit effect could be insured, that would not guarantee against any net effect on aggregate demand. For example, changes in controls on the price of oil and gas may affect total private spending, while other provisions may stimulate investment in energy-economizing or may influence outlays for replacing automobiles. My advice to you is to relax about such minor issues. Each year in the future, Congress will be taking many actions that will influence the economy, in light of current information on employment, production, and inflation. It will be able to offset any small undesired effects that stem from the energy program, just as it will have to offset other undesirable developments. If the program altered the deficit in any fiscal year more than, say, \$3 billion—plus or minus, I could see the desirability of special monitoring. But surely the safe tolerance range is at least that wide.

DISTRIBUTION

The administration's program avoids any significant adverse effects on income distribution. The energy taxes will be somewhat regressive, but they will be offset in part by extremely progressive tax cuts. Here again, the effort to obtain the best would be the enemy of the good. Some distributional effects on particular types of households are inevitable. The large family with a station wagon, a big house in the country, and a long commute without public transportation will lose some real income, but far less than if, through our passivity, foreign oil merchants get the power to double oil prices.

THE SUPPLY SIDE

A major—but correctable—deficiency of the administration's program is its lack of attention to energy supplies. It emphasizes energy conservation—holding down the demand side of energy—with no parallel stress on production—expanding the supply side. Even to a nonexpert on energy production and technology, the omissions from the program are glaring: the stimulus to coal operates by increasing coal demand with no special measures to help expand supply; there is no promotion of shale development; there is no strategy to expedite, rationalize, and remove uncertainties about the inevitable decisions involving energy-environment tradeoffs; there is no set of incentives or sanctions to ensure that the capital budgets of large energy producers are focused on investment in U.S. energy sources rather than being dissipated into conglomerate mergers or new ventures in OPEC nations; the price incentives to oil and gas producers are controlled indefinitely. Indeed, I can see only two direct incentives to energy production and development—an exemption from the minimum tax for independent drillers and one for geothermal producers; these amount to \$128 million in 1985 out of a total program that could potentially exceed \$46 billion at that time.

INFLATION

My second criticism of the administration's program is that it is needlessly inflationary. I have expressed my views on the issue of inflation and energy

taxes on previous occasions. I have been informed by your staff of your interest in my views on this issue; I appreciate that, and I shall devote the rest of my statement to the inflation problem.

The conservation side of the program is mainly an effort to raise the relative price of energy. Because it raises energy prices without lowering other prices, it exerts a net inflationary effect on the economy. The main technique of "recycling" price-raising energy taxes involves cutting income taxes. That would restore real purchasing power but, by all evidence, would not neutralize the inflation impact. The average American would be given enough added take-home pay to pay the higher energy prices, but his overall cost of living would be higher. Such energy-tax inflation is genuine inflation—not an optical illusion. It reduces the value of any dollar saved in the past or pledged for the future.

Not only will it initially raise the consumer price index, but it will exert further inflationary effects by raising wages and other costs that are linked to the cost-of-living. Estimates of the full inflation impacts are extremely precarious, and the administration economists who had to produce such figures seem to have done a fine job, although I suspect that their estimates lean to the optimistic side. Assuming full enactment of the administration program and the triggering of the gasoline tax, their estimates suggest an addition to inflation of about one-half of one percent per year between 1977 and 1985.

I would regard that as a significant adverse consequence of the program. Inflation is the most important economic problem facing the country today in the minds of 50 percent of all respondents to a poll reported in the New York Times on May 15. (Unemployment was named as public enemy number one by 34 percent.) The political process in our democracy has been and will continue to be responsive to that judgment of the majority. It has been responsive in a terribly inefficient way, tolerating an extremely high level of unemployment, a huge waste of potential production, and a vast loss of real income in recent years because of the fear of inflation. We have shied away from proven policies to create jobs and induce investment and consumption for fear of added inflation. Most recently, the proposed \$50 tax rebate was a casualty of our inflation worries, even though systematic statistical analyses suggested that it would add no more than temporary 0.1 to 0.2 percentage points to the inflation rate.

It is fair to predict that our current recovery in output and employment will be halted at some date in the future when the makers of fiscal and monetary policy see inflationary hazards that lead them to apply the brakes. An extra half point of inflation from energy will make that day come sooner and at a higher unemployment rate. In short, the judgment that the nation will simply tolerate a little more inflation and maintain an unaltered growth path seems extreme to me. For one thing, it would require the Federal Reserve to finance a higher path of GNP in current dollars with no higher interest rates. That is not a good forecast of monetary policy, nor would that be a good monetary policy, in my judgment.

At the other extreme would be the assumption that nominal GNP would be no higher than otherwise; I would estimate that over an eight year period, that strategy would cost well over \$100 billion of real output and real income, measured in today's prices. A realistic assumption must lie somewhere between these two extremes; my guess of the probable cost in real output might be pegged crudely at \$50 billion.

I also believe there is another and perhaps even more significant multiplier effect of energy-tax inflation. Surely, the willingness of the President and the Congress to accept an added half point of inflation per year would weaken the credibility of the federal government in seeking restraint from private price and wage decision-makers and in maintaining anti-inflationary discipline in other critical government decisions; including the minimum wage, international trade policies, farm price supports, and curbs on hospital costs.

None of these is an argument against energy taxes. Indeed, doing nothing could be far more inflationary if it triggers large OPEC price increases. But they do make a strong case for recycling the revenues from energy taxes in an inflation-neutralizing manner.

INCENTIVE FUND FOR SALES TAX REDUCTION:

I believe that federal financing of cuts in state and local sales taxes would be the best inflation-neutralizing method. Reductions in sales taxes would hold down the cost-of-living (offsetting the rise caused by higher energy taxes) and

thus restore the purchasing power of the American people by maintaining the value of their dollars, rather than by giving them more dollars of reduced value.

Instead of enacting a per capita credit on income taxes (and other payments) amounting to \$50 (for example), the Congress would establish a federal grant fund that would pay any governor (or mayor) the full annual revenue cost up to \$50 per capita of any newly enacted reduction in sales taxes in his jurisdiction. A narrowing of the tax base (for example, elimination of food) as well as a cut in the tax rate would qualify for grant funds.

The state would be committed for only a year at a time, and it would continue to earn federal payments so long as sales taxes remained below their levels of some base date like June 1, 1977. As the size of the federal fund increased with the phasing-in of energy taxes, the per-capita ceiling would be raised, permitting federal financing of further reductions in the rates of sales taxes. Obviously, sales taxes would continue to differ among states (and cities). But they would be lower than they are today in every jurisdiction that accepted the extremely attractive federal offer.

In addition to its principal anti-inflationary benefit, the sales tax proposal has two other significant advantages. First, it avoids the inequity of "double-indemnity" for people who now have effective cost-of-living protection on their incomes, a large group that includes social security beneficiaries and federal retirees as well as workers and executives with COLA provisions. Those people would automatically be indemnified for extra energy taxes, since those taxes would raise the cost-of-living and hence trigger increases in their money incomes. The per capita income tax credit would identify them a second time for the inflation costs, while, by the same token, giving inadequate protection to those people who have no cost-of-living protection on their incomes and who would be paying higher prices for products made by people with cost-of-living escalators. It is striking that the administration estimates a cumulative federal budgetary cost to 1985 of \$11.5 billion (even assuming no triggering of the gasoline taxes) for Uncle Sam's share of those redundant "double-indemnity" payments. By eliminating the initial impact on the cost-of-living, the sales tax reduction strategy would avoid both the added expense and the inequity.

Second, the sales tax reductions would be more readily identifiable as genuine additional tax cuts over the long run. People have good reason to doubt whether the per capita income tax credit would actually result in lower incomes taxes than would otherwise be the case over the years. The fact is that Congress will need to make some reductions in income taxes between now and 1985, regardless of its decisions on energy taxes. There will be no way to tell in 1985 whether other income tax cuts had been less generous than otherwise, as a result of the cut made by the per capita credit. On the other hand, the sales tax reduction would not be mingled with other federal tax actions, and would reduce the tax liabilities of the American taxpayer in a clearly definable and measurable way.

Since I first espoused this plan three years ago, I have heard a variety of criticisms (as well as bouquets of gratifying support). Let me briefly review some of the complications and drawbacks that have been called to my attention.

First and most obviously, five states with a combined population of less than 5 million (2 percent of all Americans) do not have general sales taxes. It would be reasonable and equitable to allow them to earn the full grant entitlement by cutting other taxes that have some inflationary effects—such as specific excises, payroll taxes on employers, or residential property taxes.

Second, the program would require any governor (or mayor) receiving funds for sales tax reductions to make a "good faith" pledge not to hike other price-raising taxes that year. Obviously, any state that enacted a host of new (or higher) specific excises when it cut its general sales tax should not qualify for the incentive grant funds. This is a complication but a manageable one. Obviously, no pledge would in any way constrain increases in direct taxes.

Third, there is a general concern about complexity, compared with the per capita income tax credit. I submit that the latter is not nearly so simple as it appears, if one wishes to ensure that all Americans receive it once and no more than once. Compared to other features of the energy program like the insulation tax credit, I would insist that my plan is downright elegant.

Fourth, some people have noted that the grant payments would be classified as budget outlays while the per capita income tax credit would be a subtraction from revenues. Hence the federal budget would look bigger under my proposal. But this is sheer cosmetics. The federal government would not be genuinely using any more resources, or transferring any more income in one case than in the other.

Fifth, some congressmen are concerned that the American people will blame them for higher energy taxes but credit the governors for their reduced sales taxes. I fully respect the instinct of self-preservation among the members of Congress, but I have confidence in their ability to remind their constituents of the true source of the sales tax cuts.

Sixth, I have heard that an opposite political concern is felt by a few governors, who see the opportunity to earn the bounty as a burden rather than a blessing. Apparently, some are also concerned about a loss of flexibility to raise sales taxes in the years ahead.

All in all, I believe the incentive plan for sales-tax reduction is manageable and equitable as well as effectively anti-inflationary. I might note in conclusion that there are alternative inflation-neutralizing options for recycling energy tax revenues. They could be used to obviate the need for higher payroll taxes on employers for financing social security. (The evidence is compelling that such tax increases are passed on to consumers in higher prices.) Alternatively, they could be used to launch a major employment subsidy for private firms hiring unemployed workers. Third, they could be used to subsidize (and thus lower the prices of) particular basic consumption items like mass transit fares or even raw food products. In my opinion, these options are less desirable than the incentive fund for sales-tax reduction. But I want to make a "hard-sell" for inflation-neutrality rather than for my plan. When you examine the administration's specific tax-recycling proposal, please ask yourselves: Is this extra inflation necessary?

Senator HUMPHREY. Well, we have had a variety of points of view here, which indicates only what I have said privately a moment ago to Senator Javits. The President's energy program, under any circumstances, is exceeding complex. It is going to require a good deal of time in order to unravel and to make it acceptable to the public and to the Congress.

I want to say, however, that the leadership in the Senate has placed the energy program as the highest priority. Mr. Eckstein, you emphasized the importance of prompt action. It will have high priority, other things being set aside, except where the most pressing needs are there to accommodate the energy program.

Much of the energy program can be enacted rather rapidly. I think we ought to note that at this point. A good deal of the conservation features, a goodly number of them, have been passed once before in either the House or the Senate, regrettably to either vetoes or the failure of the two Houses to get together. The program was never made into policy. It is the tax features, of course, that are the most complicated and will take time.

We will maintain a 10-minute rule on the members today in questioning of our witnesses.

I wanted to use my time just to make an observation or so. The material that we have examined prior to this hearing through our staff and through member participation—that is, the macroeconomic models—indicate that the program will have no measurable impact on jobs and upon income levels.

Now, that has been, I might say—that observation, I think, is subject to review after your testimony, Mr. Thurow, and yours, Mr. Laffer. You will want to direct your attention to it.

I am concerned, however, that the models may not capture some of the real-world difficulties posed by such a far-reaching plan as the one President Carter has given us. Let's be clear about it. This proposal, vital as it may be for our future—and I think it is vital—aims to achieve extensive structural change in our economy; not just economic but structural, change over a period of less than one decade. It will substantially raise the prices of energy-intensive goods and services; and

encourage consumers to shift their demands toward other items, at least if the price has that impact and I think it does.

It will create new energy-conserving industries and revive old coal-processing industries. I don't think it has taken into account whether or not you can get all the coal miners that you really want. This is a question that has been glossed over rather quickly, and somewhere along the hearings will have to take a look as to whether or not the coal mining operations on which this program depends in large measure are really feasible.

Is it possible that the econometric models underestimate the difficulty of turning would-be automakers into coal miners, and would-be steelworkers into insulation technicians? There is going to be an impact on the industrial or economic structure.

If transition problems may be greater than has been recognized, then we have to ask what kinds of countermeasures can prevent such problems from undermining progress toward full employment, growth in our economy, and relative prosperity?

I am concerned that the appraisals of the energy plan show a significant unwelcome effect on the inflation rate. I have just been given a note that says the Consumer Price Index is up 0.8 of 1 percent in April, to set a 9.9-percent—almost 10-percent—annual rate for the last 3 months, the latest 3 months. Food was up 1.5 percent in April. These are the hard facts with which we still have to deal.

Now, by most accounts, the energy program would add one-half to 1 percentage point per year to our already high inflation rate. I think there is a difference here. It is in that ballpark figure anyway, although the administration economists estimate this effect somewhat lower. Energy price increases already accounted for 0.8 of a percentage point of the 6.4-percent rise in the Consumer Price Index for the year ending in March.

One-half percentage point of the 6.4-percent rise is in wholesale prices. If the new program's effect is added to this preexisting rate of energy price increase, energy prices could account for roughly one-half to 2 percentage points in the overall inflation rate in the next few years. This fact makes it vital to devise a method of energy tax rebates or income transfers that will offset as much as possible the cost-push impact by reducing other components of the cost structure.

Another worry that comes to mind about the forecast concerns the role assumed for monetary policy. Do the optimistic assessments of the energy program's effect on jobs assume that the money supply will be eased or accommodate higher energy price levels instead of tightening them up to combat them?

Is this assumption realistic in light of the past behavior in the Federal Reserve? I think that is something we have to address ourselves to.

What will be the effect on jobs and incomes if money is tightened in response to higher prices rather than loose end?

You know, I noticed in the paper this morning that the stock market reacted to what it thought was some tightening of the credit. There is a lot of hocus-pocus going on all the time in this monetary business.

Now, these are just a few of the questions that we need to look at, plus what we have heard.

At this point I would like to insert into the hearing record an analysis prepared by the Joint Economic Committee staff of the estimated cost to energy users of the various price and tax increases proposed in the Carter program. Copies are available at the press table.

[The staff analysis follows:]

PROJECTED TAXES AND REVENUES UNDER PRESIDENT CARTER'S ENERGY PACKAGE:
A JOINT ECONOMIC COMMITTEE STAFF ANALYSIS

SUMMARY

This study quantifies the major revenue producing and price increasing measures contained or implicit in the National Energy Act. In summary, we find that President Carter's energy package contains a number of price increases and taxes which have destabilizing economic potential if not compensated for or rebated in a timely and non-disruptive fashion. These measures give greatest cause for concern because they involve substantial income transfers.

A. Higher prices paid by consumers which are not to be rebated

Natural gas reregulation.—Interstate users will pay more than they would under current regulatory procedures. In the aggregate, interstate gas will cost \$4.6 billion more in 1985. Intrastate users, however, will benefit from ceiling prices, saving up to \$10 billion in 1985.

Gasoline decontrol.—This measure is not, contrary to popular opinion, free. It will cost between \$3.8 and \$4.0 billion yearly.

New, new crude.—Creation of this third crude tier will raise producer revenues by \$0.4 to \$0.6 billion in 1980 and \$2.3 to \$4.5 billion in 1985.

Natural gas liquids.—These important hydrocarbons which supply a major share of the nation's propane and LP gas will apparently be decontrolled. This will cost farmers, and residential and industrial users between \$1.2 and \$1.8 billion in 1980 and \$2.1 to \$4.6 billion in 1985.

B. Taxes, of which at least some portion will be rebated

Crude oil equalization tax.—This measure generates revenues in proportion to the world crude price. Faster rates of OPEC escalation result in higher revenues. Taxes start in 1978 at \$5.1 billion and rise to \$22.6 billion in 1985 if OPEC restrains increases to 7 percent yearly. If OPEC escalates prices at 10 percent annually, the 1985 total Treasury revenues will be \$39.6 billion. Revenues theoretically are to be fully rebated.

Oil and natural gas consumption taxes.—These levies start in 1979, generating \$5.6 billion. By 1985, we predict \$28.1 billion in revenues will result, assuming all utility consumption taxes are completely sheltered by presently planned projects.

Gasoline tax.—Whether or not targets are met is a matter of relative small differences between target and actual demand. While there is a chance no tax will be triggered, and equal chance exists that each year's levy will be imposed, costing over \$35 billion in 1985. Our own estimate is that the tax will be triggered in 1982 costing \$5.6 billion and increase through 1985, when \$21.5 billion will be raised.

The guzzler tax.—The IRS must estimate tax income and payouts at the start of each year. Taxes and rebates are then fixed in advance. Miscalculation carries the penalties of Treasury paying out or taking in too much money.

All measures could cost fuel users almost \$100 billion in higher 1985 prices and (presumably rebated) taxes. Figure IX-1 of the National Energy Plan gives an indication of the benefits to be expected relative to the costs of higher prices and enormous amounts of tax revenue to be reshuffled. The chief benefits are:

A doubling of industrial sector coal consumption from what it would otherwise be.

A three mbd¹ relative oil saving in the industrial sector as a result of coal conversions.

A 1.6 mbd¹ oil saving in other sectors.

¹ Million barrels per day.

While agreeing that these are desirable goals, we question the cost-benefit ratio. It should be possible to achieve these goals without heavy taxation through a combination of mandatory standards and industrial investment tax credits similar to, but perhaps stronger, than those proposed.

We also have serious reservations regarding increased direct coal consumption in the industrial sector. Under the plan's industrial consumption tax, a maximum real dollar tax of \$3/bbl would provide the most important conversion incentive. We believe that most industrial oil users would rather pay the extra 7 cents per gallon for oil than convert to coal.

Table A summarizes the revenue flows estimated herein.

TABLE A.—IMPACT OF MAJOR REVENUES AND PRICING MEASURES
IN THE NATIONAL ENERGY ACT

[In billions of dollars]

Measure	1978 impact	1985 impact
Price increases (not rebated):		
Natural gas (net).....	1.3	(5.4)
Gasoline decontrol.....	4.0	3.8
3rd tier crude.....	0.4- 0.6	2.2- 4.5
Natural gas liquids decontrol.....		2.1- 4.6
Subtotal.....	5.7- 5.9	2.8- 7.5
Taxes:		
Crude oil equalization.....	5.1	22.6-39.6
Oil and natural gas consumption tax.....		28.1
Standby gasoline tax.....		21.5
Subtotal.....	5.1	72.2-89.2
Total.....	10.8-11.0	75.0-96.7

THE ADMINISTRATION'S ENERGY BILL—ECONOMIC EFFECTS OF PRICING AND TAXATION
PROVISIONS

There are a number of tax and pricing measures contained or implicit in the National Energy Act. Each of the more significant in terms of raising prices and/or revenues is discussed in this paper, and revenue flows are estimated.

(1) *Natural gas*

The proposed legislation amends the Natural Gas Act to revise the regulation of natural gas. Coupled with proposed energy reorganization legislation, it would set a new gas ceiling price and would permit the Secretary of Energy to set exceptional prices for high-cost gas. As defined in section 402, paragraph 18, this ceiling will be at a Btu equivalent price related to the average refiner's acquisition price of oil.

The January 1977 refiner acquisition cost figure was \$9.20/bbl, which translates into \$1.60 per thousand cubic feet Mcf for gas. No doubt this will be higher by early 1978 and probably will run at least \$10.20, which is the equivalent of roughly \$1.75/Mcf.

New gas is relatively strictly defined as gas produced from a well drilled after April 20, 1977, 2½ miles from the nearest well or 1000 feet deeper. Interstate gas also falls under this definition and is subject to the ceiling price as well.

With these parameters shaping the new regulatory framework, variables delineated and quantified below will effect prices of over the 1978 to 1985 time period.

Intrastate gas.—At present, about 8 tcf (trillion cubic feet) are sold in the producing states. This gas if often under contract, but intrastate contracts usually contain pricing clauses which would permit rapid price increases if markets become tight. New and renegotiated intrastate contract prices are now about \$1.80/Mcf. Escalation above \$1.80 will eventually result from reductions in localized over supplies bulkvanized within state lines. We believe that virtually no new increase in intrastate gas prices will be realized under the Carter proposal, sparing intrastate consumers a potential escalation to the \$3/Mcf area, which can be expected to occur under the present system of regulation. Freezing in the status quo for the near term will ultimately save intrastate

consumers \$10 billion per year in comparison to continuation of current regulatory practice or deregulation of some sort. Table 2 contains yearly estimates of intrastate consumers' savings, derived from capping average intrastate prices.

Expiring interstate contracts.—The proposal permits gas from expiring contracts between pipelines and producers to be continued in interstate commerce at prices up to \$1.42/Mcf plus inflation adjustment subject to approval by the Secretary of Energy. Under FPC Opinion 770A, present procedure continues expiring contracts at 52¢/Mcf. Thus, this gas would be eligible for a rate 90¢ per Mcf higher than present practice. If this 90¢ differential continues over the time period in question, increased user costs will be incurred each year based on the amount of this gas flowing.

Appendix A of Opinion 699H contains data on volumes of gas in contracts scheduled to roll over in the 1974-1981 period. We have estimated that 250 billion cubic feet would roll over annually from 1982 to 1985, which is consistent with other estimates. These data are displayed in Table 1 together with cumulative totals flowing under rolled-over contracts, assuming a 7% annual decline rate for the old gas.

TABLE 1.—ROLLOVER OF OLD INTERSTATE GAS, VOLUMES FLOWING, AND USER COST INCREASE

(In billion cubic feet; dollar amounts in billions)

Year	1st rolled over in current year	Cumulative flowing gas	User cost included
1974.....	381	-----	-----
1975.....	175	529	-----
1976.....	120	612	-----
1977.....	285	854	-----
1978.....	282	1,077	\$1.0
1979.....	347	1,348	1.2
1980.....	383	1,637	1.5
1981.....	261	1,783	1.6
1982.....	250	1,910	1.7
1983.....	250	2,025	1.8
1984.....	250	2,130	1.9
1985.....	250	2,230	2.0

New gas.—We estimate, for the purpose of this exercise, that 1 tcf per year of "new gas" would flow into interstate markets under Option 770A rates. This gas is assumed to be available at Option 770A (\$1.42) rates, and no additional output could be expected at prices up to the proposed ceiling of \$1.75/Mcf. Higher costs are based on this difference of (\$1.75-\$1.42) \$0.33/Mcf.

Combining increased costs from expiring contracts rolled over at higher prices, and higher new gas prices, Table 2 shows (1) the amount of higher prices paid by interstate consumers, (2) the large savings realized by intrastate consumers from the ceiling price, and (3) net benefits to the nation as a whole.

TABLE 2.—YEARLY COST OF CARTER NATURAL GAS PROPOSAL RELATIVE TO CURRENT REGULATORY STATUS QUO

(In billions of dollars)

Year	Cost to interstate consumers	Interstate consumer saving	Net national cost
1978.....	1.3	-----	1.3
1979.....	1.9	(1.0)	.9
1980.....	2.5	(3.0)	(.5)
1981.....	2.9	(5.0)	(2.1)
1982.....	3.4	(7.0)	(3.6)
1983.....	3.8	(9.0)	(5.2)
1984.....	4.2	(10.0)	(5.8)
1985.....	4.6	(10.0)	(5.4)

In conclusion, it is safe to say that intrastate users are the chief beneficiaries of the Plan's natural gas provisions.

(2) Oil pricing and taxes

Several stages of taxation are proposed for crude oil. (a) A 1978 interim tax of \$3.50/bbl. will be imposed on lower tier or "old" crude oil. This will generate 1978 revenues of $(\$3.50 \times 4 \text{ mbd} \times 365)$ \$5.1 billion, raising oil fuel prices by about 2½ cents per gallon. (b) In 1979, a second tax will be imposed raising lower-tier crude to upper-tier levels, which should be at \$5.80 by this time, so the 1979 tax increase will be $(\$13 - \$3.50 - \$5.80)$ about \$3.70. In 1979, there should be about 3 mbd of old oil output, so the new tax will raise $\$3.70 \times 3 \text{ mbd} \times 365 = \4.1 billion. The first interim tax will generate $\$3.50 \times 3 \text{ mbd} \times 365 = \3.8 billion, and 1979 lower tier taxes will raise a total of \$7.9 billion, (c) A permanent tax will be levied on all oil in 1980 bringing it up to the OPEC level. In 1980, all controlled U.S. oil will be at \$13.80. The landed cost of imported oil (which is now about \$14.40) will be \$19.15 if world prices rise by 10%/year, or \$17.70 if the rate of increase is 7%/year. 1980 upper tier taxes would be $(\$19.15 - \$13.80) \times 365 \times 6.2 \text{ mbd} = \12.1 billion if world oil rises at 10% and $(\$17.70 - \$13.80) \times 365 \times 6.2 \text{ mbd} = \8.8 billion if the rate of increase is 7%. Similarly, lower tier oil tax revenues would be $(\$19.15 - \$6.20) \times 2.5 \text{ mbd} \times 365 = \11.8 billion or $(\$17.70 - \$6.20) \times 2.5 \text{ mbd} \times 365 = \10.5 billion.

Tables 3 and 4 show tax revenue estimates from the 1980 crude equalization taxes which fully equalize upper and lower tier prices with imports. Note that in reality two different taxes, or more properly tax rates, are required, one for lower tier and one for upper tier. Tables 3 and 4 demonstrate the mechanics of these calculations and also show the volumes of crude assumed subject to taxation. A 6% inflation adjustment factor has been used for U.S. controlled output.

Note that tax revenues vary substantially with OPEC pricing strategies. More rapid OPEC escalation means higher Treasury revenues and this becomes especially noticeable in the early-mid 1980's. Some type of compensatory fiscal policy must be devised in order to offset the fiscal impacts of OPEC pricing decisions.

TABLE 3.—LOWER-TIER TAXES AND REVENUES

Year	Price (per barrel)	Volume (million barrels per day)	Assuming 7 percent yearly OPEC increases			Assuming 10 percent yearly OPEC increases		
			OPEC prices (per barrel)	U.S. crude tax (per barrel)	Tax revenues (billions)	OPEC prices (per barrel)	U.S. crude tax (per barrel)	Tax revenues (billions)
1980.....	\$6.20	2.5	\$17.70	\$11.50	\$10.5	\$19.15	\$12.95	\$11.8
1981.....	6.55	2.0	18.95	12.40	9.1	21.10	14.55	10.6
1982.....	7.00	1.5	20.25	13.25	7.3	23.20	16.20	8.9
1983.....	7.40	1.5	21.70	14.30	7.8	25.50	18.50	9.9
1984.....	7.85	1.0	23.20	15.35	5.6	28.00	20.15	7.4
1985.....	8.30	1.0	24.85	16.55	6.4	30.80	22.50	8.2

TABLE 4.—UPPER-TIER TAXES AND REVENUES

Year	Price (per barrel)	Volume (million barrels per day)	Assuming 7 percent yearly OPEC increases			Assuming 10 percent yearly OPEC increases		
			OPEC prices (per barrel)	U.S. crude tax (per barrel)	Tax revenues (billions)	OPEC prices (per barrel)	U.S. crude tax (per barrel)	Tax revenues (billions)
1980.....	\$13.80	6.2	\$17.70	\$3.90	\$8.8	\$19.15	\$5.35	\$12.1
1981.....	14.65	6.6	18.95	4.30	10.4	21.10	6.45	15.5
1982.....	15.55	7.6	20.25	4.70	12.0	23.20	7.65	19.5
1983.....	16.45	7.0	21.70	5.25	13.4	25.50	9.05	23.1
1984.....	17.40	7.5	23.20	5.80	14.8	28.00	10.60	27.1
1985.....	18.50	7.5	24.85	6.35	16.2	30.80	12.30	31.4

TABLE 5.—TOTAL CRUDE OIL TAX REVENUES

[In billions of dollars]

Year	Assuming OPEC prices rise	
	At 7 percent	At 10 percent
1978.....	5.1	5.1
1979.....	7.9	7.9
1980.....	19.3	23.9
1981.....	19.5	26.1
1982.....	19.3	28.4
1983.....	21.2	33.0
1984.....	20.4	34.5
1985.....	22.6	39.6

(3) Oil and natural gas consumption taxes on business

Sec. 1501 of the bill contains a table spelling out the oil consumption tax per million Btu's for each year. It starts at 90¢ per bbl in 1979 and converges on \$3 in 1985. Btu equivalent taxes are levied on business uses of natural gas.

Utility oil and gas fuel use is also taxed, but this will be phased in in 1983. It would appear that the initial tax will be 50¢ Mcf on gas. It would rise to 75¢ in 1986 and \$1 in 1988. Utility use of oil would be taxed at \$1.50/bbl starting in 1983, and the tax would remain at that level.

Estimating the revenue effects of these taxes is perhaps the hardest of all the Carter proposals because little hard data exists on oil consumption by type of user and there is no way to estimate how industrial and utility fuel users will react to these taxes. Let us establish what we can regarding consumption patterns:

Residual fuel.—1.4 mbd is presently used by utilities. The remainder, another 1.4 mbd is assumed to be used in fully taxable uses by large industrial users.

Middle distillate.—With 1976 consumption at 3.1 mbd, 1.5 mbd is assumed to be consumed in taxable uses.

Jet fuel.—About 1 mbd of aviation jet fuel is consumed and presumably taxable.

Gasoline.—At least 1 mbd of motor gasoline must be used in taxable uses and defined in Sec. 4991 (c).

Natural gas.—About 5 tcf of gas is sold directly by producers to end users. Let us assume that 4 tcf of this is taxable and 1 tcf is sold directly to utilities. Half of the 2.4 tcf in commercial sales is taxable. Of the 6.8 tcf of industrial sales, 1 tcf goes to utilities and 4 tcf are taxable uses by larger users.

Now, taxes will be levied on at least 4.9 mbd of oil fuels usage under these assumptions, and about 11.4 tcf of gas, under present consumption patterns. Moreover, as Figure IX-1 (reproduced below) of the White House factbook entitled the *National Energy Plan* prints out, oil consumption will not change radically between now and 1985. Exactly how this will impact on tax revenues, which can be sheltered by investing in coal conversion and other facilities not using oil or gas is hard to estimate. Table 6 provides estimates of the potential taxes which industrial or commercial fuel users must try to shelter themselves from.

An important point may be observed by examining Table IX-1, namely that the intended result of the program is not so much to reduce firms use of oil and gas (with the exception gas-fired electric utilities) but to maintain the status quo situation and eliminate growth in industrial oil and gas usage. Since taxable use of oil and gas will remain roughly the same as it is today, it is clear that tax liability will exist. It is not clear, however, that firms will generate enough tax offsets to avoid paying this tax. For this reason, Table 6 delineates the magnitude of tax that firms will try to circumvent by investing in conversion to other fuels.

FIGURE IX-1
FUEL BALANCES BY SECTOR
[Millions of barrels of oil equivalent per day]

	1976	1985 without plan	1985 with plan	1985 plan plus additional conservation
Demand.....	37.0	48.3	46.4	45.2
Residential and commercial:				
Oil.....	3.5	3.2	2.7	
Natural gas.....	3.9	3.8	4.1	
Electricity.....	6.3	9.1	8.4	
Coal.....	.1	(1.0)	(1.0)	
Total.....	13.8	16.1	15.2	
Industry:				
Oil.....	3.2	7.0	4.0	
Natural gas.....	4.4	4.5	4.5	
Electricity.....	4.2	7.2	7.1	
Coal.....	1.9	2.7	5.0	
Total.....	13.7	21.4	20.6	
Transportation:				
Oil.....	9.2	10.6	10.2	
Natural gas.....	.3	.2	.3	
Total.....	9.5	10.8	10.5	
Electricity:				
Oil.....	1.6	2.0	1.3	
Natural gas.....	1.5	.9	.5	
Coal.....	4.9	8.2	8.3	
Nuclear.....	1.0	3.6	3.8	
Other.....	1.5	1.6	1.6	
Total.....	10.5	16.3	15.5	

TABLE 6.—INDUSTRIAL OIL AND GAS CONSUMPTION TAX GROSS REVENUES

	Oil tax ¹ (per barrel)	Oil tax revenues (billions)	Gas tax (per million cubic feet)	Gas tax revenues ² (billions)	Total (billions)
1979.....	\$1.00	\$1.8	\$0.34	\$3.8	\$5.6
1980.....	2.08	3.7	.83	9.5	13.2
1981.....	2.21	3.9	.95	10.8	14.7
1982.....	2.68	4.8	1.14	13.0	17.8
1983.....	3.27	5.8	1.28	14.6	20.4
1984.....	3.90	7.0	1.43	16.5	23.5
1985.....	4.61	8.2	1.75	19.9	28.1

¹ Derived from the table in sec. 1501, with 6 percent per year inflation adjustment.

² Estimated from table in sec. 1501, with 6 percent per year inflation adjustment.

As far as electric utility consumption taxes are concerned, we believe that all taxes, which would total in the \$20 billion range in 1983-85, will be completely sheltered by the utilities' ongoing investment program. Because investments made between 1977 and 1983 may be credited against the tax, other than those already planned between now and 1983, little extra investment need be made in order to shelter this tax liability fully.

(5) Gasoline decontrol

Implicit in the National Energy Plan is the abandonment of price controls on refined products. Gasoline would be the product most noticeably effected.

FEA has permitted allocation of costs away from other (uncontrolled) refined products and to gasoline, thus moving ceiling prices toward world levels. Even if FEA permits gasoline prices to rise to world levels by late 1977, decontrol will still permit U.S. prices to rise again in order to converge on the landed cost of imports. Once landed, imported gasoline costs 3½ cents per gallon more than at a foreign refinery gate, because of transport costs (about 2¢ per gallon), and the 1½ cent per gallon import levy. So if prices are raised to world levels by

next Fall, when decontrol is scheduled, extra costs of \$4.0 billion (7.4 mbd \times 42 \times 3 $\frac{1}{2}$ \times 365) can be estimated for the following year simply because of the transaction costs involved in the marginal barrels' import.

If prices are not up to world levels at the time of decontrol, this increment will be higher. However, the crude oil equalization tax, when fully phased in, will recoup any refiner excess profits by taxing away the differential (and potential profits) between U.S.-produced gasoline (refined from lower cost, partially price controlled crude) and foreign-refined gasoline (refined from 100% OPEC priced crude). In any case, gasoline decontrol will cost \$3.8 to \$4.0 billion annually during each year between 1978 and 1985 even if prices are already at world levels.

Under EPCA Congress has 15 legislative days to override any Executive Branch product decontrol effort, as well as any proposed changes in crude oil pricing creating a new tier of crude oil (by majority vote of either House).

(6) Creation of so-called "new, new crude"

The President has proposed, and has authority under EPCA, to create an additional tier of oil, referred to here as new oil, in contrast to upper tier oil, which now sells at \$11.28/bbl. The price of such new oil would float free at the landed cost of imported crude (now estimated at \$14.40/bbl) and would track this price for three years. After 3 years this price would be recontrolled and allowed to rise only for inflation adjustment.

Currently, virtually no oil eligible for this incentive price is in production. How much oil would be eligible for the higher price over the time frame to 1985 is hard to estimate. It is safe to say, however, that a rapid growing share of the nation's crude will be produced from "new" wells and eligible for the incentive price. While no near-term effects can be estimated, a substantial price impact will be seen in the mid-1980s, as new production comes on stream in significant quantities.

We have made some preliminary estimates, which are perhaps overly pessimistic, of what new oil production might be during future years. These forecasts embody the assumption that all Alaskan oil will be classified as upper tier rather than new oil. Table 7 contains these best guess forecasts as well as estimates of the extra revenues earned by producers under the logic that this oil would be produced at upper tier prices just as well as at new prices.

TABLE 7.—PRODUCER REVENUES DUE TO HIGHER "NEW" OIL PRICES

	New oil volume (million barrels per day)	Upper tier price (per barrel)	Import price/ 7 percent OPEC increase (per barrel)	Difference, col. 3 minus col. 2 (per barrel)	Producer revenues (per barrel)	Import price/ 10 percent OPEC increase (per barrel)	Difference, col. 6 minus col. 2 (per barrel)	Producer revenue (billions)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1980.....	0.3	\$13.80	\$17.70	\$3.90	\$0.4	\$19.15	\$5.35	\$0.6
1981.....	4	14.65	18.95	4.30	6	21.10	6.45	9
1982.....	5	15.55	20.25	4.70	9	23.20	7.65	1.4
1983.....	5	16.45	21.70	5.25	1.0	25.50	9.05	1.7
1984.....	1.0	17.40	23.20	5.80	2.0	28.00	10.60	3.9
1985.....	1.0	18.50	24.85	6.35	2.3	30.80	12.30	4.5

(7) Gasoline tax

A standby gasoline tax is provided for in the event that gasoline consumption exceeds target levels delineated in Sec. 1221 (reproduced below in Table 7). A 5¢/gallon tax would be imposed for each year that the target was missed by 1% and 5¢ of the cumulative tax in effect would be removed for each year gasoline consumption was under target by 1%.

Some students of gasoline consumption patterns believe that gasoline demand will fall below the targets in Table 7 without taxation because of the phase-in of EPCA-mandated auto fuel efficiency standards. Opinion is divided on this matter. Whether or not the target is met is often a matter of relatively small differentials between projections and targets as Table 8 shows for 1978-1981. If the Verlager estimates are correct, as they appear to be, and taxes are imposed in 1982, 1983, 1984, and 1985, tax revenues of \$5.6, \$11.2, \$16.4, and \$21.5 billion, will be realized during these years respectively.

(8) *Gas-guzzler tax*

An elaborate schedule of taxes to be imposed on inefficient autos and rebates for efficient ones is proposed. This is designed to be a zero sum game, with no net tax revenues collected. The bill would authorize the IRS to formulate a graduated rebate schedule such that all revenues are paid out to purchasers of efficient autos. The rebate schedule is fixed in advance. We can envision situations in which IRS miscalculations in establishing this schedule and either takes in or pays out too much money during the year for which it is fixed.

TABLE 8.—GASOLINE CONSUMPTION ESTIMATES AND TARGET LEVELS
[Million barrels per day]

Year	Estimate ¹	Target
1979.....	7,398	7,400
1980.....	7,439	7,450
1981.....	7,416	7,400
1982.....	7,341	7,200
1983.....	7,247	7,000
1984.....	7,145	6,800
1985.....	7,046	6,600

¹ Internal Council of Economic Advisers memo from Phil Verleger to Charles Schultze, Apr. 8, 1977.

² Source: National Energy Act, sec. 1221.

(9) *A role for natural gas liquids (NGL)*

NGL is presently price controlled under EPCA, at relatively low prices. Output is now at 1.6 mbd, and NGL is a primary source of propane, butane and natural gasoline. When EPCA expires in 1979, this important fuel will escalate to the OPEC equivalent price. We estimate that current NGL prices average \$8.50/bbl. Table 9 shows the effects of their convergence on world prices, based on Btu equivalency with crude oil of 4 million Btu's per bbl.

TABLE 9.—EFFECT OF NGL DECONTROL
[Dollars amounts per barrel, except billions]

	Estimated control price with 6 percent inflation	Btu equivalent import price at 7 percent OPEC increase	Difference		Btu equivalent import price at 10 percent OPEC increase	Difference	
			Amount	Total added cost (billions)		Amount	Total added cost (billions)
1980.....	\$10.10	\$12.20	\$2.10	\$1.2	\$13.20	\$3.10	\$1.8
1981.....	10.70	13.10	2.40	1.4	14.50	3.80	2.2
1982.....	10.35	14.00	2.65	1.5	16.00	4.65	2.7
1983.....	12.05	15.00	2.95	1.7	17.60	5.55	3.2
1984.....	12.75	16.00	3.25	1.9	19.35	6.60	3.9
1985.....	13.50	17.15	3.65	2.1	21.30	7.80	4.6

Note: Constant production at 1.6 mbd is assumed.

Senator HUMPHREY. Gentlemen, you may want to give us your observation on these figures. The staff estimates those levels would reach costs of \$40 billion by 1980 and could reach \$100 billion in 1985. About 65 percent of these costs under the Carter program would be rebated to the payers through the tax and income support systems. About 15 percent go to pay for increases in strategic oil reserves, higher Federal energy bills, conservation measures in the Federal buildings, and the like. The remainder would accrue to energy procurers in the form of higher gas and oil prices.

First of all, you have the increase of about \$40 billion of the overall costs by 1980; it could reach \$100 billion by 1985. I am always a little suspicious of predictions that far in advance. About 65 percent of those costs under the Carter plan would be rebated through some form of tax rebate or income transfer; 15 percent would go to pay for the

increase in strategic oil, higher Federal energy bills, conservation measures, et cetera. The remainder would be with the producers.

The Joint Economic Committee staff analysis estimates cost increases resulting from the administration's energy program that are substantially higher than the Treasury projections. We will have the Secretary of the Treasury here this morning. We will inquire of him about these differences.

There are several reasons for the differences between the administration and the staff analysis of the Joint Economic Committee. The staff attempted to estimate the cost of gasoline decontrol. Natural gas liquids will be controlled when the old Energy Act expires in late 1979. A major cost difference stems from the staff's estimate of crude oil equalization tax, which is based on assumed OPEC price increases of an average of 7 percent per year and also at an average of 10 percent per year.¹

What we are really boiling down to are two basic questions. I don't think anybody denies that it is a costly program. The question is, How much? And secondly, What do you do about the tax system in the program?

Mr. Okun has come up with a novel idea that is not so novel for him; namely, using the energy taxes to go back to the State and local governments as a way—an anti-inflationary way—of reducing sales taxes and other taxes, the problem being can you be assured the States won't raise other taxes when they get that kind of tax relief.

You pointed that out yourself. I think the second issue that is raised here very significantly and which continues is whether or not this energy program's impact upon the range, the economic range, of the public is equitable. Mr. Thurow, you addressed yourself to that.

I was really somewhat taken by the figures, and I will come back in the questioning period to it. It is quite obvious from your figures that the—before the income transfers take place at least—there is a substantially heavier, significantly heavier burden upon middle income and low income than upon upper income. As I understand it, you did not take into consideration the rebate provisions?

Mr. THUROW. That's right. It just looks at what the increase in the price of energy does and not at what the tax rebate would do to offset.

Senator HUMPHREY. I think there is another question as to whether or not rebates are the best way to handle the question of increased costs. I have always had a lot of doubt about the so-called rebate program. It seems to me what you really do is hire a lot of bookkeepers, a lot of computers, and a lot of folks get money they ought not to get. Some folks don't get what they ought to have. It is all screwed up.

Most of my experience with rebates is not that encouraging. There has been a proposal made, and I want you to think about this in my moments here, that the moneys that would be—the taxes that would come on gas-guzzlers, for example—instead of being used for rebates on small cars, that that be put into a mass transit fund, that it be a part—like a new trust fund, so to speak—that would be used for States and localities to encourage other forms of transportation: Bridge construction, improved mass transit systems, improving our railroad beds, et cetera.

This is one that is being taken very seriously. I noticed the Secretary

¹ See table 5 of the staff analysis, p. 39.

of Transportation, Mr. Brock, has given some indication of his interest in this. This has been presented already to the President by the joint leadership of the House and the Senate. It is our view that it is the current view which obviously we can change, that the so-called rebate on small cars plus the standby gas tax authority doesn't have much chance to fly. It is sort of like trying to take—like a lead balloon. You may have some different views on that.

I don't want to take any more time. I want to thank the members of the panel. We will come back to you in our questioning.

We have a number of our colleagues here. Senator Javits.

Senator JAVITS. Thank you, Mr. Vice Chairman.

Gentlemen, first, we are extremely grateful. I have rarely heard more illuminating testimony on a very complex subject. Second, you emphasized the grave crisis in which we stand, which relates to inflation and directly to the international trade balances and the international monetary system. Handling this energy situation wrong in my judgment could produce a depression in this country in 1979-80, and I think you are proving this point. Therefore, I think it is critically important that we heed and pay attention to what you say.

Third, it impresses me as I listen to you and as I listen to the President that what we are installing in the United States if we follow the President is the European system of the huge national sales tax. We may call it fancy names, but that is what it is.

We are placing an enormous impost on the direct consumption of an item which is critical to the conduct of our daily lives, and obviously, as Mr. Thurow has pointed out, its impact is the heaviest upon those who can least afford it, completely turning over the theory upon which American taxation has been built since we passed the income tax amendment.

Hence, the portentous character of the remedy. Therefore, my own view is that we have enough of a crisis with energy and all its implications. We don't need a crisis, too, in the tax and social policy of our country. Yet that is what we are trying to undertake.

I would, therefore, like to ask you this question: In view of all of the effects which you have described, wouldn't it be better in your judgment, those now at the table, to handle this matter directly on the basis of some form of allocation or rationing, if you will?

Let's stop kidding. We are in a terrible crisis. When we are in a crisis, we want to be fair. That is one thing people resent more than anything else, is unfairness. You have all described how lots of dollars are going to stick to the side of the funnel if we do it the tax way.

The conceivable tax way to me is to reduce income taxes. That goes back then to people on the basis of capacity to pay if they pay income taxes. If not, give them fuel stamps as a way of compensating. And, last, as Mr. Okun pointed out—he sees it as clearly as any of us—if you want production, as we did after World War II in housing, you have to give an economic incentive to make production. That is not being a supercapitalist. That is just being realistic. We know that incentives produce. Whereas the words of the law may sound fairer, to wit, Government action does not produce.

I would like to ask you gentlemen in turn whether or not under these circumstances which you have described we are not better off with more orthodox remedies, including the remedy of allocation and rationing if we have to, rather than undertaking this highly complex system of

trying to ration by price; and, second, the failure in the program to recognize the necessary incentive in our society to produce which you have generally described.

Could we start with you, Mr. Thurow.

Mr. THURROW. Senator, I don't think you can meet the two objectives you just outlined. If you want incentives for production, you let the price go up. If you want to have the consumer not paying a higher price, who pays for the higher price the producer gets? I don't think you can put those two principles together.

If you think of allocation schemes, it makes sense to consider differences between a short-run crisis and a long-run crisis. If the oil crisis were a 6-month crisis or a 1-year crisis—and we just have to tide ourselves over that gap—then I think an allocation scheme might be a reasonable way to go.

If you say the name of the game is the fact that the price of energy is going to be significantly higher for the indefinite future, then I don't think you can imagine running an efficient allocation scheme decade after decade. I guess I would come down hard on the side that you really have no choice if you think of a long-run policy, but to let the price go to market levels and then find what is the fair way to keep that impact from hurting people at the bottom of the economic totem pole.

Senator JAVITS. Thank you.

Mr. LAFFER. I would agree with Professor Thurow. I don't think an allocation scheme would work just as I don't think the administration's tax scheme would work here. I think the tax scheme as presently proposed by the administration would lead to an enormous loss in output, which would hurt the poor very much as well as the rich. It would hurt everyone.

I think the allocation schemes basically are not workable and the only scheme I know of that is workable in any long-run sense is to allow market prices to prevail and use the income tax structure for offsetting equity problems that you might perceive existing.

There will be a short-run problem when you decontrol energy immediately with regard to profits in the energy industry. A short-term standby authority for something like an excess profits tax would be perfectly acceptable. But, frankly, I think everyone would be far worse off if we don't allow decontrol to come and quite soon.

Senator JAVITS. Mr. Eckstein.

Mr. ECKSTEIN. Senator, we were unable to use gas rationing in the middle of the OPEC embargo. The situation had changed since World War II. We had such a tremendously diverse driving needs around the country that even when there was a shortage, we couldn't do it.

Now, there is a proper place for allocation and for very direct approaches to conservation. I think the Government control on the design of automobiles which we have, in fact, adopted is valid and is going to be a major factor in reducing the consumption of oil. I think we should implement quickly the legislation passed last year which gives the Government all sorts of considerable power to affect the design of buildings.

I think we are correct in focusing on pressing industry and utilities to convert from oil and gas to coal. So there are a few strategic places where the approach works. But the general allocation or general gas rationing, I think you do have to save for that rainy day somewhere

in the 1980's where we are in another confrontation with the outside world, with our suppliers. We have to have some way to protect ourselves.

Today there is no shortage. Today there is just the threat of shortage. We have to have the authority and the backup to act in that circumstance.

Senator JAVITS. Thank you.

Mr. Okun.

Mr. OKUN. I will make it unanimous. Senator, I think, as you suggested, the tax proposal and the price increasing proposals are complex. I would be confident that any rationing plan emerged as infinitely more complex. I doubt very much that anyone could really achieve fairness.

I am not sure we agree on exactly what "fairness" is. With a rationing scheme, the problem to an individual who is getting less than perhaps he regards as fair is much more serious than it is with a price scheme. In the case of a price scheme, he pays a little income and he loses something, but he gets what he needs.

In the case of a rationing scheme, he is confronted with doing without in what could be a very serious way or else breaking a law. I think the latter temptation is terribly strong.

If one talks about some ideas that economists have had of—so-called white market rationing plans, transferable tickets, they are really not very different from price methods. It is just introducing two types of currency. I don't think they would be worse. Maybe they would have a greater appearance of fairness.

There is some cost in having an extra currency floating around in the form of tickets in addition to dollars.

Senator JAVITS. Mr. Vice Chairman, I thank the witnesses very much. As is usual, I find when you ask a provocative question, you get the best answers. I am persuaded—I think you are absolutely right. We should lay the rationing question aside. We should deal now with the price and tax mechanism.

I think in those respects there are grave deficiencies. I think the remedies that have been suggested are admirably opposite to our situation.

Thank you.

Senator HUMPHREY. Thank you.

For the new Members that have come in, we are adhering to the 10-minute rule.

Congressman MOORHEAD.

Representative MOORHEAD. Thank you. Mr. Vice Chairman.

First, a technical question, Mr. Eckstein.

On table 1 of your prepared statement, where you have tax rebates on the crude oil tax, that includes the rebate through the income tax mechanism?

Mr. ECKSTEIN. Yes. It isn't indicated yet by the Government how, but I assume that would be mainly income tax rebates.

Representative MOORHEAD. Your proposal is to change some of these either tax revenues or tax expenditures and replace them with a 3-cent-per-gallon gasoline tax; is that correct?

Mr. ECKSTEIN. I would abandon the standby gas tax and have a real 3-cent tax. I would throw out much of the collection of investment credits which I think will be money thrown out. I would not let the Federal Government keep as much of that energy money to solve its own problems and, instead, put that back into the rebates where it belongs in personal income tax reduction.

Representative MOORHEAD. But the—

Mr. ECKSTEIN. Or subsidies to the poor.

Representative MOORHEAD. But your final bottom line figure of \$73.2 billion would remain roughly the same?

Mr. ECKSTEIN. It would grow.

Representative MOORHEAD. Would the—

Mr. ECKSTEIN. It would actually become larger. We would be able to move some of the money from the Federal Government's own budget and the investment credits into rebates to families, by which I mean changes in the income tax law which reduce the burden, particularly in the lowest brackets.

Representative MOORHEAD. Mr. THURLOW, you would offset that by this vanishing energy tax credit? That would be the way that you would see that the money gets back into the—

Mr. THURLOW. Yes. I think that is important. Although it is quite true that a per capita credit is progressive, a per capita credit is not progressive enough. If you turn to table 1 of my prepared statement, and look at the first decile of people, we are talking in that group about households, not families.

Households include single individuals. A very large fraction in the poorest 10 percent are, in fact, single individuals. On a per capita basis, they are going to get \$50. But the tax increase they are going to face is going to be a lot larger than \$50. They are going to have a very substantial reduction in net income.

When you get up around the middle of the population, it is true the average family has three or four people. They are going to get \$150 to \$200. At the bottom of the economic pyramid, it is not true you are dealing with large families. You are dealing with lots of single individuals who are only going to get \$50. They are going to find the tax increase on their budget is very much larger than that.

I think you need something that is more progressive at the bottom than just simply an investment tax credit.

Representative MOORHEAD. Mr. Okun's primary theory is the grants to States and localities to reduce their taxes—Mr. Okun, you also suggest the possibility, at least, of the use of social security payroll tax mechanism as a way of recycling the collection of moneys. It would seem to me that in this technique, because the social security tax is one of our more regressive taxes, with people in lower brackets paying more social security payroll taxes than they do income taxes, that we could actually use the money to reduce on both the employer and the employee level the amount of payment that is needed; and you say, "The evidence is compelling that such tax increases are passed on to consumers in higher prices."

I realize you don't say the converse of that. It would seem to me that there might be some evidence that the converse would also be true, so that the use of the payroll tax mechanism would do two things:

One, be anti-inflationary; and, two, not recession-producing because it would put money into the hands of those who need it the most.

Mr. OKUN. Yes. I think there are quite different objectives achieved by cutting the employee share of the payroll tax and the employer's share. The evidence is that in the long run both of these hold down the real wages of the employee. They work in different ways.

The employee share essentially sticks on the employee just as an income tax; and cutting the employee's share is like cutting the income tax except for a somewhat different distributional burden. You might prefer limiting it to people who earn wages and salaries—labor income—or you might not. You might prefer the distribution—but there you are really asking which way do you like the distributional impact better?

On the employer's share, I think there has been a lot of confusion about that in the last 2 weeks relating to the President's social security plan. I think we have very clear evidence that within a year or so, after initially falling on the employer, the tax is shifted forward in the form of higher prices to the consumer. So it really comes down to being an excise tax, a kind of national sales tax, if you will.

I think we are kidding ourselves if we think that we are raising the employer's portion of the payroll tax, that that is just a way of taking some extra social security financing from the rich. It is applying it to the consumer.

The point of cutting the employer's payroll tax is precisely to exert the same kind of anti-inflation effect as cutting the sales tax.

Representative MOORHEAD. I was suggesting a cut on both sides of the equation, both the employer and the employee, so that the employer has less incentive to raise his prices, therefore presumably that shows the rate of price increases due to inflation.

Conversely, the employee having his payroll tax reduced has more real income to spend.

Mr. OKUN. I am suggesting that that is sort of a half a sales tax reduction and about—and, in effect, the employer's share being the sales tax reduction that is anti-inflationary, the other half being a progressive reduction in the tax liabilities of workers, which would not have any significant offsetting effect on the price level, although it would restore real income.

That is a program which I would think would cut the inflation impact of the present program about in half. That is fairly significant in my view.

Representative MOORHEAD. That would be significant in your view?

Let me hear Mr. Eckstein on that question.

Mr. ECKSTEIN. If I understand correctly, I think it is really a very interesting idea. Let me see if I interpret it correctly.

Representative MOORHEAD. Might I say, doctor, that whether you went to the 3-cent gasoline tax or the other, I think it would be almost simpler with the 3-cent gasoline tax. We are talking about the recycling of the money for the moment.

Mr. ECKSTEIN. If you look at the tax system as a whole, we are raising a variety of indirect taxes—in this case energy taxes—and I think it would make excellent sense to retain the purchasing power of the public by rebating it into the Social Security Fund, thereby making it possible to keep the social security taxes lower.

From the point of view of equity, I would think that one would wish to emphasize the employee portion rather than the employer portion. In any event, I think from an inflation point of view of encouraging work—because social security taxes are getting pretty heavy—it would make sense in the long run to use these revenues for that purpose.

Representative MOORHEAD. Then the next point would be maybe a year or so hence, particularly—let's say—under the administration's program a gasoline tax was phased in automatically, or under your proposal if you decided that you could increase the 3-cent gasoline tax, we could then think of these revenues as being diverted to bolstering the Social Security Trust Fund, which particularly on the disability side is in serious difficulty.

I don't think we are ready for that move right now, but can you see that in the future, if gasoline taxes were increased either under the administration route or under your route?

Mr. ECKSTEIN. It doesn't solve every problem. I am sure it wouldn't satisfy Professor Thurow because you are not restoring the purchasing power of the people outside of the labor force. I believe it would be a very, very useful component of the program.

Now, the disability fund, I do believe they have to fix that program. I don't believe that program should be bailed out by just having Congress give them unlimited financing. That program is in bad administrative repair and they have got to bring their costs under control before you give them more money.

Representative MOORHEAD. Thank you very much.

Senator HUMPHREY. Senator Hatch.

Senator HATCH. Thank you, Mr. Vice Chairman.

I tend to agree with Senator Javits that if this problem isn't solved promptly this time, we are going to have a major recession or depression in late 1979 and possibly 1980.

I have an opening statement I would like to read into the record at this time.

OPENING STATEMENT OF SENATOR HATCH

Senator HATCH. Mr. Vice Chairman, the energy proposals which President Carter has placed before the Congress are about two kinds of power. First, there is the power to run our factories, homes, and automobiles. This is the power of most practical and immediate concern to the public.

Second, there is the power of the Federal Government to run our lives. This is the power which appears to be of most interest to the President and his energy czars, princes, barons, and courtiers.

The energy crisis is a case in which the experts are in disagreement. Government officials claim that we are literally running out of oil and gas, and that drastic tax increases are needed to restrict the use of oil and gas to make it last longer.

Experts outside of Government disagree. They say that there is a great deal of oil and gas left. We may have to drill a little deeper, and work out some new techniques, and pay a little more, but the fuel is there.

Therefore, at this point, we cannot be sure whether this energy program is necessary, or simply a power grab by the Federal Govern-

ment. Before we adopt this program, with all its burdens, we had better find out what the truth is.

What are the burdens of this program?

First, reduced consumption of energy will reduce our economic growth. It will reduce future wage increases and future employment.

Second, it will increase inflation, pushing people into higher tax brackets. This tax increase will not be rebated.

The Chamber of Commerce of the United States has estimated these costs at \$55 per worker this year, rising to \$1,000 in 1984, and climbing further thereafter, even with the rebates. This program is too expensive. This expense is being hidden from the public.

I am deeply disturbed by another aspect of this whole debate. No one, it seems, has bothered to take the public's reaction to the program into account. Economists seem to think that the Government can tax away as much of a person's paycheck as it likes, and there will be no damage to the economy as long as Government sticks the money back in somehow—in this case, with a uniform rebate to everybody.

I don't believe it. I don't believe we can tax away \$80 billion or more each year without damaging the economy. Take this approach to its logical conclusion. Why not tax away 100 percent of everybody's paycheck and then give an equal rebate to everybody out of the proceeds?

Why not? Because no one would have any incentive to work. From each according to his ability, to each according to his needs. We have heard that before. It is a perfect prescription for mass starvation.

I think it is obvious that when we tax something, we get less of it. This energy program produces taxes equal to 4 percent of GNP. It reduces the value of everyone's income. It reduces the value of a paycheck; it reduces the value of interest; it reduces the value of profit.

What will be the result? The result will be less labor, less saving, and less investment. That means less growth, lower incomes, more inflation, fewer jobs. It means less revenue for social security. It means less revenue for defense and less revenue for social programs.

These disincentives to the supply of labor, savings, and investment are simply not cured by a rebate. The rebate is given out whether or not anyone works, saves, or invests. It is automatic. There is no requirement that it be earned.

The President's program in plain language is this:

First, there shall be a tax which lowers the value of work, thrift, and capital investment relative to leisure and spending for immediate enjoyment.

Second, there shall be a sort of miniature version of a guaranteed annual income, making life easier on extended unemployment, or in early retirement, or on vacation. This is a sure fire prescription for economic stagnation.

The President could have avoided this problem. He could have used the tax proceeds to reduce tax rates. This would have kept paychecks, interest, and profits worth getting. We could still have a social security increase for retirees, and a welfare adjustment for the poor. But no. Having given up on one rebate this year, the President is determined to try another.

The international repercussions of this program are also disturbing. The President is planning a discriminatory rebate on cars and

light trucks at the expense of foreign producers. We may end up in a trade war with Europe and Japan. Even if we avoid a trade war, thousands of U.S. jobs are at risk.

Suppose we reduce oil imports by \$8 billion per year, and imports of small cars by \$2 billion. Are we planning to run a \$10 billion trade surplus?

President Carter wants our trade account to balance to help the world economic recovery. Remember the London summit. Besides, this \$10 billion swing toward surplus will be offset automatically by our floating exchange rates. Where will the adjustment show up?

Will our agricultural exports fall by \$10 billion? Will our imports of steel, textiles, shoes, and televisions rise by \$10 billion? Or will there be a combination of the two? The farmers and the workers in these industries will face loss of income, and unemployment.

This program is too expensive and too damaging to the economy. It is poorly, even disastrously designed. It shortchanges supply. It attacks productive work by giving rebates instead of tax rate reduction. It overtaxes gasoline. It overtaxes cars. It risks a trade war. It lowers wages and employment.

Why is this being proposed?

When we hear the disagreements among the experts, and reports that we have 1,000 years of natural gas left in the United States, and enormous potential in solar power, we have to question the nature of this crisis.

Is it a real crisis? Is it just an excuse for raising taxes and extending Government's power?

Is it simply that the Government is afraid of voter reaction to decontrol of new gas and oil? Does the Government think it can hide from the voters the fact that this energy program increases inflation, lowers wage increases, costs jobs, and is far more expensive than decontrol?

We don't know the answer to these questions. We should find out before we leap into a tax program of this size.

I really believe it is so simple to have decontrol and have the market system work that I cannot understand why people aren't doing this. That concludes my oral statement.

To continue, Mr. Laffer, you have mentioned that the energy program continues controls on discoveries of oil and gas. I have a number of questions.

Will we get more supply with decontrol of oil and gas or are we down to the last barrel? How much job creation will we lose by relying too much on conservation?

Mr. LAFFER. With regard to the supplies of natural oil and gas, I am not really an expert on the supply curves. I have seen a lot of experts—

Senator HATCH. A lot of differing points of view?

Mr. LAFFER. Yes; in fact, there is an editorial in the Wall Street Journal this morning. Again your 1,000 years.

Senator HATCH. I don't believe a 1,000 years.

Mr. LAFFER. I don't believe a 1,000 years either. In fact, I would go along with Keynes' statement here that in the long run, in that long run, I will be dead. There are a lot of differing opinions on what the supply is.

What we do know is the short-run supply elasticities are far less elastic than the long-run supply elasticity. Really to look at the effects over a long horizon of decontrol, it is very hard to tell what the amounts forthcoming would be.

We do know they would be a lot larger than we would estimate in the short run. I think your statement is just excellent with regard to the work incentives in the United States.

Too often macroeconomic analyses focus exclusively on aggregate demand. Within that context, a tax rebate will be effectively offsetting. There is some logic to it if in fact we have only aggregate demand in the analysis.

If we reinsert aggregate supply, however, nothing could be further from the truth. If you look at it, an increase in taxes matched by an increase in rebates will cause disincentives. We call these the substitution effects of fiscal policy.

These substitution effects will unambiguously reduce output. I don't see how we can make the American economy better off by reducing output and employment. There will be a direct effect from this program, I feel, of reducing output and employment in the United States.

Senator HATCH. I think the President has done us a great service in emphasizing conservation and helping people to become aware that it is a real problem; that the energy shortage is not just a conspiracy among the shortage big oil and gas companies, but that we really have a problem in our society today, and I think it can be compounded if we have another embargo or any number of other situations.

My time is just about up. I would like to ask another question.

You say that the energy program will make our balance of payments worse. If we import less oil and fewer cars, where will the offsetting losses take place?

Will we lose our international exports, or will we see a flood of imports in steel, textiles, shoes, and televisions? What effect will the floating exchange rates have on this type of approach?

Mr. LAFFER. Let me go at this question directly. I don't know what will happen to the balance of payments. The balance of trade, however, will be made worse by the President's energy proposals.

Imagine for a moment that you restrict the supply of output of a country. The country can adjust in one of two ways. It can either reduce its aggregate demand for goods and services, or it can import goods net.

If you look at what happened to the balance of trade of Guatemala after the earthquakes there and the destruction of supply, you had a huge increase in net imports in Guatemala. This energy program is also a restriction of aggregate supply.

Part of the adjustment to it will result in lower demand, and part will result in sharper increases in net imports. What you will find happening here is that the net imports of energy and the net imports of automobiles will be lowered.

However, the net imports of all other products will be increased or their net exports reduced. What you will find happening is a flood of imports or sharp reductions in net exports for products other than energy and automobiles. Thus, given our triggering mechanisms with antidumping and all sorts of protection for domestic industries, this

could lead to a rash of complaints to the President for special provisions of tariffs and quotas, and lead to a sharply reduced stance toward free trade.

Senator HATCH. My time is up. I would like to say I think there are a lot of other problems that aren't really addressed. Those concern where are we going to get the money, the engineers, the mining equipment, the interagency cooperation in Government.

One agency is saying we are going to set it up; another says the heck you are. Sometimes we refuse to take those problems into consideration in our econometric models and other economic statements.

Mr. Vice Chairman, if I may, I would like to submit for the record two papers, both of which were prepared by Mr. Jack Carlson, vice president and chief economist of the Chamber of Commerce of the United States. The first, a statement on behalf of the chamber; and second, a paper entitled "Evaluation of Administration's Energy Plan." Thank you.

Senator HUMPHREY. Without objection, so ordered.

[The papers referred to follow:]

STATEMENT ON THE ECONOMIC IMPACT OF THE ADMINISTRATION'S ENERGY PLAN FOR SUBMISSION TO THE JOINT ECONOMIC COMMITTEE OF THE CONGRESS FOR THE CHAMBER OF COMMERCE OF THE UNITED STATES, MAY 20, 1977

(By Jack Carlson¹)

I appreciate the opportunity, on behalf of the Chamber of Commerce of the United States and its more than 67,000 members, to share my assessment of the Administration's Energy Plan. Having served as Assistant Secretary of Interior for Energy and Minerals, Assistant Director of the U.S. Bureau of the Budget and Office of Management and Budget and with the Council of Economic Advisers, I have been concerned with energy and economic policy for more than a decade.

SUPPORT ADMINISTRATION'S OBJECTIVES

The National Chamber supports the President's objective of reduced dependency on high cost and interruptible sources of oil supply from abroad. However, the Congress can improve upon the Plan and achieve the objectives more quickly, with less taxes and government regulations, and with less adverse effect on the economy. This can be done most effectively by adding encouragement for production and reducing needless taxes and regulations.

The Administration proposes to reduce dependence on foreign oil by primary emphasis on conservation, through taxes, prices, and regulations. The additional taxes can potentially total \$616 billion from 1978 through 1988 or nearly \$10,000 for each American family. (See Table 1.)

TABLE 1.—ADMINISTRATION'S PROPOSED ENERGY TAX INCREASES
(Billions of 1977 dollars)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-88 total
Crude oil.....	5	9	12	12	12	12	12	12	12	12	12	122
Industrial.....		3	4	4	5	5	6	6	6	5	4	48
Utility.....						2	2	2	2	2	2	12
Gasoline.....		5	10	15	20	25	30	35	40	45	50	275
Auto efficiency.....	1	1	1	1	1	1	2	2	2	2	2	16
Total, direct taxes.....	6	18	27	32	38	45	52	57	62	66	70	473
Additional Federal taxes from inflation caused by energy taxes (e.g., Federal personal income tax receipts increase 1.4 percent for each 1 percent of inflation).....	2	5	9	13	16	19	18	16	15	15	15	143
Total, direct and indirect taxes.....	8	23	36	45	54	64	70	73	77	81	85	616

Source: Based upon "The National Energy Plan" and "National Energy Act."

¹ Vice president and chief economist, Chamber of Commerce of the United States.

If the gasoline and automobile taxes are eliminated, the tax could total \$242 billion from 1978 through 1988, or about \$4,000 for each family. Increases in Federal taxes occur, first, because of the new energy taxes and, second, because of increased Federal tax receipts generated by higher levels of inflation inherent in the Energy Plan. (See Table 2.)

TABLE 2.—ADMINISTRATION'S PROPOSED ENERGY TAX INCREASES (EXCLUDING GASOLINE AND AUTOMOBILE TAXES)

[Billions of 1977 dollars]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-88 total
Crude oil	5	9	12	12	12	12	12	12	12	12	12	122
Industrial		3	4	4	5	5	6	6	6	5	4	48
Utility						2	2	2	2	2	2	12
Total, direct taxes	5	12	16	16	17	19	20	20	20	19	18	182
Additional Federal taxes from inflation caused by energy taxes (e.g. Federal personal income tax receipts increase 1.4 percent for each 1 percent of inflation).....	0	4	5	7	8	9	8	6	5	4	4	60
Total direct and indirect taxes..	5	16	21	23	25	28	28	26	25	23	22	242

Source: Based upon "The National Energy Plan" and "National Energy Act."

Because of higher taxes on oil and natural gas, coal and uranium prices will increase and cause coal and uranium consumers to conserve, and producers to increase supplies. This reaction is not properly analyzed by the Administration and the Plan merely forecasts coal production equivalent to previous commitments for coal-fired electric power stations and no improvement in coal caused by conservation.

The Energy Plan would cause a price rollback for 13 percent of intrastate natural gas producers and a slower increase in crude oil prices. Existing policy allows the composite of new and old crude oil to increase by 10 percent, of which 5 percent could be real increases in domestic crude oil prices. The Energy Plan eliminates this adjustment except for inflation. (See Table 3.)

TABLE 3.—CHANGES IN FUNDS FLOWING TO PRODUCERS CAUSED BY ADMINISTRATION'S PROPOSED TAX INCREASES

[Billions of 1977 dollars]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-88 total
Coal and uranium producers.....	2	3	4	5	6	8	11	13	14	15	15	81
Oil and gas producers.....	-2	-4	-6	-7	-7	-7	-7	-7	-7	-7	-7	-68
Total, producer receipts.....	-2	-2	-3	-3	-2	-1	1	4	6	7	8	13

Source: Based upon "The National Energy Plan" and "National Energy Act."

Although detailed plans for distribution of the increased energy taxes are not yet available, it is clear most will be earmarked for low income individuals. (See Table 4.)

TABLE 4.—DISTRIBUTION OF TAXES AND RECEIPTS

[Billions of 1977 dollars]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-88 total	Percent distrib- ution
Individuals (per capita rebates, autos, home insulation, etc.).....	4	12	18	20	23	27	31	33	35	36	37	276	57
State and local governments.....	1	3	4	5	6	7	8	9	10	11	12	76	15
Business.....	1	3	5	7	9	11	13	15	17	19	21	121	25
Total, tax rebates.....	6	18	27	32	38	45	52	57	62	66	70	473	97
Producers of coal, uranium and other.....		2	3	4	5	6	8	11	13	14	15	81	17
Producers of oil and natural gas.....	-2	-4	-6	-7	-7	-7	-7	-7	-7	-7	-7	-68	-14
Total, producers receipts.....	-2	-2	-3	-3	-2	-1	1	4	6	7	8	13	3
Total, tax rebates and producers receipts.....	4	16	24	29	36	44	53	61	68	73	78	486	100

Source: Based upon "The National Energy Plan" and "National Energy Act."

The rapid increase in Federal taxes and spending will undermine the President's objective of limiting the growth of government to growth of output and income of the U.S. Although the President committed the Administration to hold government taxing and spending to 21 percent of GNP, his Energy Plan will cause both taxes and spending to exceed 25 percent of GNP, the largest increase in Federal taxing and spending in the peace-time history of the United States. (See Table 5.)

TABLE 5.—ADMINISTRATION'S ENERGY PLAN AND INCREASE IN TAXES FASTER THAN THE GROWTH OF THE ECONOMY

[Percent of gross national product]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Administration's objective—Federal taxes as a percentage of gross national product.....	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Additional Federal taxes in the energy plan as a percentage of gross national product..	.5	1.9	2.4	3.1	3.4	4.0	4.0	3.8	3.7	3.9	4.1
Resulting Federal taxes as a percentage of gross national product.....	21.5	22.9	23.4	24.1	24.4	25.0	25.0	24.8	24.7	24.9	25.1

Source: Based upon "The National Energy Plan" and "National Energy Act."

For the average worker this could mean a loss in income of \$770 during 1980, \$1,540 during 1985, and a total of \$12,900 for 1978 through 1988. This occurs because of higher direct energy taxes, energy plan induced Federal tax receipts and a slower growing economy. It may be of little consolation that some of the tax payments will trickle down to workers. (See Table 6 and Chart 1.)

TABLE 6.—LOSS IN SPENDABLE INCOME (DISPOSABLE INCOME) PER AVERAGE WORKER FROM FULL IMPLEMENTATION OF ADMINISTRATION'S ENERGY TAX PLAN

[1977 dollars]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-88 total
New higher taxes.....	68	195	285	310	390	470	510	550	560	630	690	4,658
Additional taxes from energy plan—generated inflation..	22	55	95	160	160	160	170	160	150	130	110	1,372
Lower income because of slower growing economy..	30	170	390	420	680	800	830	850	880	900	930	6,880
Total loss in spendable income per worker...	120	420	770	890	1,230	1,430	1,510	1,560	1,590	1,660	1,730	12,910
Loss as a percent of real disposable income per worker.....	1	3	6	7	9	10	11	11	10	9	9	.....

Source: Based upon "The National Energy Plan" and "National Energy Act."

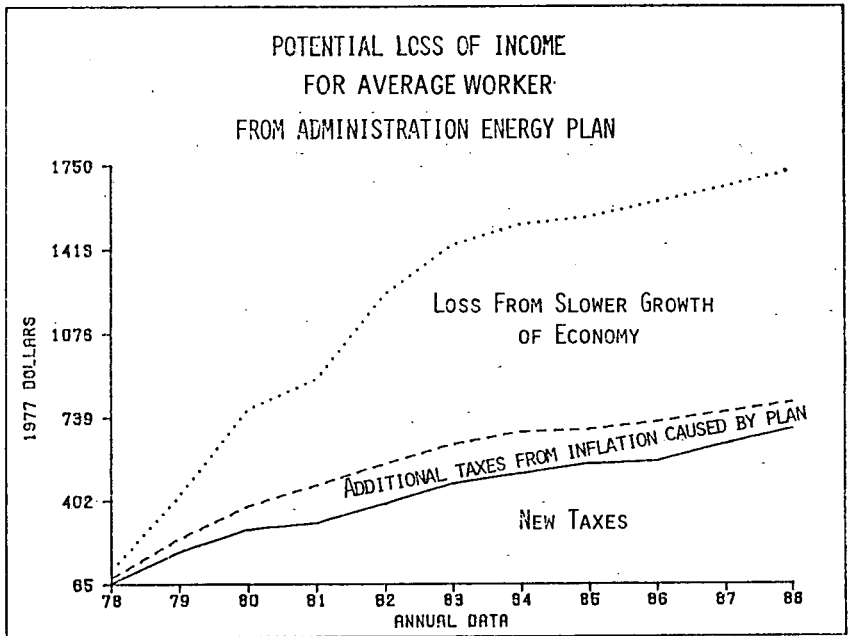


CHART 1

The Administration's Energy Tax Plan will cause some prices to increase and others to decrease. The changes can be shown each year and cumulative. (See Table 7.)

TABLE 7.—REAL PRICE CHANGES PROPOSED IN THE ADMINISTRATION'S ENERGY PLAN

[in percent]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Demand:											
Crude oil: ¹											
Annual.....	15	11	6	-5	-5	-5	-5	-5	-5	-5	-5
Total.....	15	30	45	40	35	30	25	20	15	10	5
Industrial oil:											
Annual.....	0	9	2	2	2	2	2	2	0	0	0
Total.....	0	9	11	13	15	17	19	21	21	21	21
Industrial natural gas:											
Annual.....	0	20	5	5	5	5	5	5	0	0	0
Total.....	0	20	25	30	35	40	45	50	50	50	50
Utility oil and gas:											
Annual.....	0	0	0	0	0	11	0	0	0	0	0
Total.....	0	0	0	0	0	11	11	11	11	11	11
Motor gasoline:											
Annual.....	8	8	7	7	6	6	6	5	5	5	8
Total.....	8	17	25	33	42	50	58	67	75	83	83
Coal: ¹											
Annual.....	5	5	10	10	5	-5	-5	-5	-5	-5	-5
Total.....	5	10	20	30	35	30	25	20	15	10	5
Supply:											
Crude oil: ¹											
Annual.....	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
Total.....	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55
Natural gas: ²											
Annual.....	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
Total.....	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55
Coal: ¹											
Annual.....	5	5	10	10	5	-5	-5	-5	-5	-5	-5
Total.....	5	10	20	30	35	30	25	20	15	10	5

¹ Reflects the fact that the administration's energy plan would disallow 10 percent increase in crude oil prices now allowed under existing law; 5 percentage points of the adjustment was assumed for inflation and 5 percent for real price increases.

² Reflects the fact that the Federal Power Commission would not be allowed to set rates according to traditional cost of production techniques under the administration's energy plan.

Source: Based upon "The National Energy Plan" and "National Energy Act."

Consumers and producers are more or less sensitive to changes in prices. For example, consumers reduce consumption of gasoline by only 1% for each 10% increase in price within 12 months of such an increase. However, with more time for adjustment, such as time to purchase a more fuel-efficient car or to set up a carpool, a 10% increase in price can mean a 2% decrease in gasoline consumed. (See Table 8.)

TABLE 8.—IMPACT OF A 1-PERCENT CHANGE IN PRICE ON THE QUANTITY CONSERVED OR PRODUCED IN PERCENT

[Demand and supply elasticities]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Demand elasticities:											
Crude oil ¹	-0.20	-0.20	-0.24	-0.27	-0.30	-0.33	-0.37	-0.40	-0.41	-0.42	-0.43
Industrial oil and Gas ¹	-20	-20	-20	-24	-28	-32	-36	-40	-41	-42	-43
Utility oil and gas ¹						-15	-20	-25	-30	-35	-40
Gasoline ²	-10	-10	-11	-12	-14	-16	-18	-20	-22	-24	-26
Coal ¹⁵	-20	-22	-24	-26	-28	-30	-32	-34	-36	-38	-40
Natural gas.....	-20	-22	-24	-26	-28	-30	-32	-34	-36	-38	-40
Supply elasticities:											
Crude oil ³.....	.10	.12	.14	.16	.18	.20	.22	.24	.26	.28	.30
Natural gas ³⁴.....	.10	.12	.14	.16	.18	.20	.22	.24	.26	.28	.30
Coal ³⁵.....	.30	.33	.36	.39	.42	.45	.48	.51	.54	.57	.60

¹ Calculated from: Federal Energy Administration, "1977 National Energy Outlook (Draft: Jan. 15, 1977)", app. D, tables D-3, D-4, D-5.

² Calculated from: Dale W. Jorgenson, ed., "Econometric Studies of U.S. Energy Policy", data resources series, vol. 1, 1976, ch. 4.

³ Calculated from various FEA publications.

⁴ Assume current proved reserves of natural gas. If new reserves are discovered and developed, elasticity could be as high as 3.5 in 1985.

⁵ Assumes environmental laws will not impede production.

Forecast of energy consumption and production can be made assuming continuation of existing policies. (See Table 9.)

TABLE 9.—CONSUMPTION OF ENERGY BY TYPE

[Millions of barrels of crude oil equivalents]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Crude oil	19.0	19.8	20.6	21.1	21.6	22.2	22.7	23.3	23.6	24.1	24.6
Coal	8.0	8.4	8.7	9.1	9.4	9.8	10.2	10.5	10.8	11.2	11.5
Natural gas	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.4	9.2	9.1	9.0
Uranium	1.5	2.0	2.5	3.2	3.9	4.7	5.5	6.2	6.7	7.4	8.1
Total, in million barrels per day	39.0	40.0	42.0	43.0	45.0	46.0	48.0	50.0	51.0	52.0	53.0
Total in quadrillion Btu's	79	81	84	86	90	93	95	100	102	104	107
ADDENDUM											
Industrial oil and natural gas	8.4	8.8	9.2	9.6	9.9	10.3	10.7	11.0	11.3	11.6	12.0
Utility oil and gas	4.0	3.9	3.8	3.7	3.6	3.4	3.3	3.2	3.1	3.0	2.8
Gasoline	6.7	6.8	6.9	6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0

Source: Based upon data from Federal Energy Administration, U.S. Bureau of Mines, and "The National Energy Plan."

When the sensitivity of each price change is applied to the quantity of energy consumed for each purpose or produced from each source, increases or decreases in fuel usage or supplies can be made. For example, a 10¢ per gallon gasoline tax increase is equal to a 16% increase in the about 60¢ per gallon price of regular gasoline. Applied to 6.7 million barrels of crude oil per day forecast to be used for producing gasoline in 1979 and based on the sensitivity of motor gasoline consumers to such a price increase, the resulting reduction in consumption could be about 100,000 barrels of crude oil per day (16% × 6.7 MBPD × 0.1% = 107,200 MBPD).

The Administration should expect to improve energy conservation and production by 1.8 million barrels of oil per day (MBPD) by 1980, 3.6 MBPD by 1985, and suffer deterioration to about 1.9 MBPD by 1988. (See Table 10). The decline occurs because existing policy would have allowed crude oil prices to reach market prices by 1990.

However, this should cause imports to decline from about 12 MBPD to only 8.7 MBPD by 1985. Even this 3.6 MBPD reduction in imports will nearly disappear by 1988 when compared to the expected results of existing energy policy. (See Table 11.)

TABLE 10.—GAINS AND LOSSES IN CONSERVATION (DEMAND) AND PRODUCTION (SUPPLY) FROM ADMINISTRATION'S ENERGY TAXES

[Millions of barrels of crude oil per day]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Direct conservation:											
Crude oil tax	0.3	0.5	0.8	0.9	0.7	0.7	0.6	0.5	0.4	0.3	0.1
Industrial oil and natural gas tax	0	.2	.3	.4	.7	.9	1.2	1.5	1.6	1.6	1.7
Utility oil and natural gas tax	0	0	0	0	0	.1	.1	.1	.1	.1	.1
Gasoline tax .....	.1	.2	.2	.3	.4	.6	.7	.9	1.1	1.3	1.4
Total, gains .....	.4	.9	1.3	1.6	1.8	2.3	2.6	3.0	3.2	3.3	3.3
Losses from lower natural gas prices:											
Conservation	-.1	-.2	-.2	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.4
Production	-.1	-.1	-.2	-.3	-.4	-.6	-.9	-.9	-1.1	-1.3	-1.5
Net direct gain in conservation .....	.2	.6	.9	1.1	1.2	1.5	1.4	1.8	1.8	1.7	1.4
Indirect energy improvements from higher coal and uranium prices:											
Conservation .....	.1	.2	.4	.7	.9	.9	.8	.7	.6	.4	.2
Production .....	.1	.3	.5	1.2	1.4	1.3	1.2	1.1	.9	.6	.3
Total, indirect .....	.2	.5	.9	1.9	2.3	2.2	2.0	1.8	1.5	1.0	.5
Total, direct and indirect .....	.4	1.1	1.8	3.0	3.5	3.7	3.6	3.6	3.5	2.7	1.9

Source: Based upon data from Federal Energy Administration, U.S. Bureau of Mines, and "The National Energy Plan."

TABLE 11.—ENERGY IMPROVEMENT FROM ADMINISTRATION'S PLAN

(Millions of barrels of crude oil per day equivalent)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Demand.....	39.0	40.0	42.0	43.0	45.0	46.0	48.0	49.0	51.0	52.0	53.0
Administration's energy plan:											
Direct reduction from admin- istration taxes.....	-.4	-.9	-1.3	-1.6	-1.8	-2.3	-2.6	-3.0	-3.2	-3.3	-3.3
Indirect reduction from higher coal and uranium prices.....	-.1	-.2	-.4	-.7	-.9	-.9	-.8	-.7	-.6	-.4	-.2
Offsetting increase in demand for natural gas from lower prices.....	+1.1	+1.2	+1.2	+1.2	+1.2	+1.2	+1.3	+1.3	+1.3	+1.3	+1.4
Demand and supply with admin- istration's plan.....	38.5	38.8	40.1	39.7	41.1	41.7	43.7	44.5	46.6	48.0	49.9
Supply adjustments with admin- istration's plan:											
Increase in Coal Production.....	-.1	-.3	-.5	-1.2	-1.4	-1.3	-1.2	-1.1	-.9	-.6	-.3
Decrease in domestic natural gas production.....	.1	.1	.2	.3	.4	.6	.8	.9	1.1	1.3	1.5
Decrease in domestic crude oil production.....	.1	.1	.2	.3	.5	.7	.9	1.1	1.3	1.6	1.9
Decrease in Imports.....	.4	1.0	2.0	3.0	4.0	4.5	4.0	3.5	2.0	1.5	1.0
ADDENDUM											
Supply before plan:											
Domestic.....	31.0	31.4	32.8	33.1	34.4	35.0	36.4	37.0	38.5	38.7	39.0
Foreign.....	7.9	8.5	9.3	9.6	10.2	10.8	11.4	12.0	12.5	12.8	13.5
Total.....	38.9	39.9	42.1	42.7	44.6	45.8	47.8	49.0	51.0	51.5	52.5
Supply with plan:											
Domestic.....	30.9	31.2	32.9	32.9	34.7	35.2	36.4	36.7	37.0	37.0	37.6
Foreign.....	7.6	7.6	7.2	6.8	6.4	6.7	7.8	8.7	10.5	11.8	13.0
Total.....	38.5	38.8	40.1	39.7	41.1	41.9	44.2	45.4	47.5	48.8	50.6
Net supply changes with plan:											
Domestic.....	-.1	-.2	-.1	-.2	+3	+2	-0	-.3	-1.5	-1.7	-1.4
Foreign.....	-.3	-.9	-1.9	-2.8	-3.8	-3.9	-3.6	-3.3	-2.0	-1.0	-.5
Total.....	-.4	-1.1	-2.0	-3.0	-3.5	-3.7	-3.6	-3.6	-3.5	-2.7	-1.9

Source: Based on data from Federal Energy Administration, U.S. Bureau of Mines, and "The National Energy Plan."

The Administration failed to provide significant incentive for increasing the production of natural gas or crude oil. The anemic incentive of classifying new crude oil and natural gas at a high supply price if found beyond 2½ miles and 1,000 feet from existing wells and completion levels would have applied to only about 5% of new oil and gas discovered and produced during the last 4 years.

If an incentive were provided oil producers by allowing both natural gas and crude oil to float to market prices or a plow-back of energy excise taxes for strictly investment purposes, then about 2.5 MBPD energy improvement could be made. This improvement is comparable to that provided by the entire Administration's Energy Tax Plan. (See Table 12.)

TABLE 12.—ADDITIONAL CONSERVATION AND PRODUCTION FROM PROPOSALS NOT NOW PART OF THE ENERGY PLAN

(Millions of barrels of oil per day)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Increase newly contracted price for natural gas to market price—\$2.50 instead of only \$.75 proposed in energy plan:											
Additional conservation.....	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.1
Additional production (if market prices prevail or plow-back for investment is allowed).....	.3	.4	.4	.5	.5	.6	.6	.7	.7	.8	.8
Allow market prices to prevail or plow-back crude oil taxes for investment.....	.2	.7	1.3	1.4	1.4	1.3	1.2	1.1	.9	.7	.4
Total.....	1.1	1.8	2.4	2.7	2.7	2.8	2.7	2.8	2.6	2.5	2.3

Source: Based upon data from Federal Energy Administration, U.S. Bureau of Mines and "The National Energy Plan."

Clearly incentives for production would improve the U.S. energy situation and lower the growth of energy usage. (See Table 13.)

TABLE 13.—CONSUMPTION RATES FOR ENERGY PLAN WITH PRODUCTION STIMULUS

	Growth to—	
	1985	1988
Consumption without energy plan.....	3.3	3.1
Consumption with energy plan.....	2.4	2.8
Consumption with energy plan and production stimulus.....	1.2	2.4

If production of oil and gas is not encouraged, then Americans will suffer more than they need to suffer. By 1982, the Administration's Energy Plan will cause:

- 2.1% lower GNP or \$46 billion dollars of lost output and income
- 4% loss of disposable income or \$1,000 per family
- 1.4 million fewer jobs
- 2.7% higher price levels
- 4% lower investment or more than \$10 billion of fewer tools for workers
- 3.4% lower industrial production, 10% lower automobile sales and 5% lower housing starts. (See Table 14.)

TABLE 14.—IMPACT OF THE ADMINISTRATION'S TOTAL ENERGY TAX PLAN ON THE U.S. ECONOMY
(Change in levels of economic activity)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Real GNP (percent).....	-0.2	-0.4	-1.3	-1.9	-2.1	-2.3	-2.5	-2.5	-2.3	-2.1	-2.0
Billions of 1977 dollars.....	-4	-8	-26	-40	-46	-53	-60	-63	-60	-57	-53
Real per capita disposable income (percent).....	-0.4	-1.5	-2.7	-3.5	-4.0	-4.4	-4.7	-4.9	-4.8	-4.7	-4.6
Real personal income: Billions of 1977 dollars.....	-32	-15	-33	-47	-55	-64	-70	-75	-77	-79	-81
Average loss per family in 1977 dollars.....	-57	-263	-586	-632	-998	-1,146	-1,263	-1,346	-1,380	-1,420	-1,450
Savings.....	-0.2	-0.6	-1.0	-1.1	-1.2	-1.3	-1.5	-1.7	-1.7	-1.6	-1.5
Employment (percent).....	0	-0.2	-0.6	-1.1	-1.4	-1.5	-1.7	-1.7	-1.7	-1.7	-1.7
Thousands of jobs.....	-20	-150	-620	-1,100	-1,350	-1,530	-1,650	-1,730	-1,650	-1,600	-1,650
Unemployment (percent).....	0	0.1	0.4	0.7	0.9	1.1	1.2	1.2	1.2	1.2	1.2
Thousands of jobs lost.....	30	100	420	730	910	1,060	1,160	1,240	1,200	1,150	1,100
Consumer prices (percent).....	0.4	1.0	1.7	2.3	2.7	3.0	2.7	2.4	2.2	2.1	2.0
GNP deflator (percent).....	0.3	0.8	1.3	1.9	2.4	2.5	2.4	2.0	1.9	1.8	1.7
Real business fixed investment (percent).....	-0.2	-0.8	-1.9	-3.0	-4.0	-4.5	-4.5	-4.0	-4.0	-3.8	-3.5
Billions of 1977 dollars.....	-1	-2	-4	-7	-10	-11	-12	-12	-12	-12	-12
Capacity utilization (percent).....	-0.3	-1.1	-2.3	-3.1	-3.4	-3.7	-3.9	-4.0	-4.1	-4.2	-4.3
Industrial production (percent).....	-0.3	-1.2	-2.4	-3.1	-3.4	-3.6	-3.9	-4.0	-4.1	-4.0	-4.0
Auto sales (percent).....	-2	-7	-10	-10	-10	-11	-11	-12	-12	-13	-13
Thousands of cars.....	-200	-700	-1,100	-1,200	-1,200	-1,300	-1,400	-1,400	-1,400	-1,500	-1,500
Housing starts (percent).....	-2	-5	-7	-6	-5	-4	-3	-2	-1	0	0
Thousands of units.....	40	100	140	120	100	80	60	40	20	0	0
Exports (percent).....	-0.2	-0.6	-1.2	-1.6	-1.7	-1.6	-1.5	-1.4	-1.2	-1.2	-1.0
Billions of 1977 dollars.....	-0.4	-1.0	-2.4	-3.4	-3.8	-3.8	-3.7	-3.7	-3.6	-3.5	-3.1
Imports (percent).....	-1.0	-2.1	-3.4	-4.4	-6.1	-7.7	-9.3	-11.0	-12.7	-14.0	-15.0
Billions of 1977 dollars.....	-1.8	-4.0	-6.8	-9.3	-12.7	-18.1	-23.1	-28.8	-35.1	-40.7	-46.0
Net exports in 1977 dollars.....	1.6	3.0	4.4	5.9	8.9	14.3	19.4	25.1	31.5	37.2	42.9

Source: National Chamber Forecasting Center Models and Computations, Federal Energy Administration and U.S. Bureau of Mines data, "The National Energy Plan," DRI and Chase Econometrics modeling and data.

If the gasoline and auto taxes are not enacted and only the Crude Oil, Industrial and Utility taxes are imposed on the economy, then the adverse impacts on the economy would be much less. (See Charts 2 to 7.)

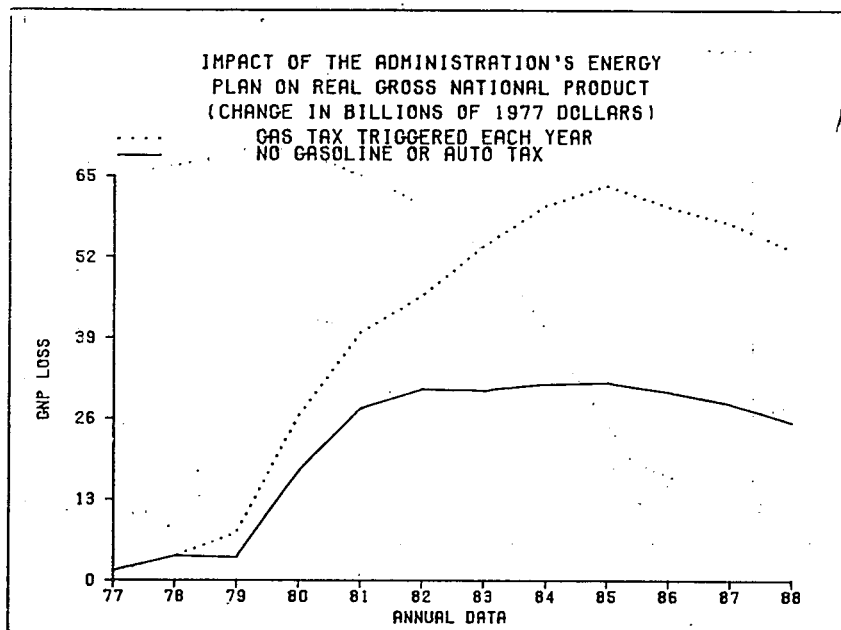


CHART 2

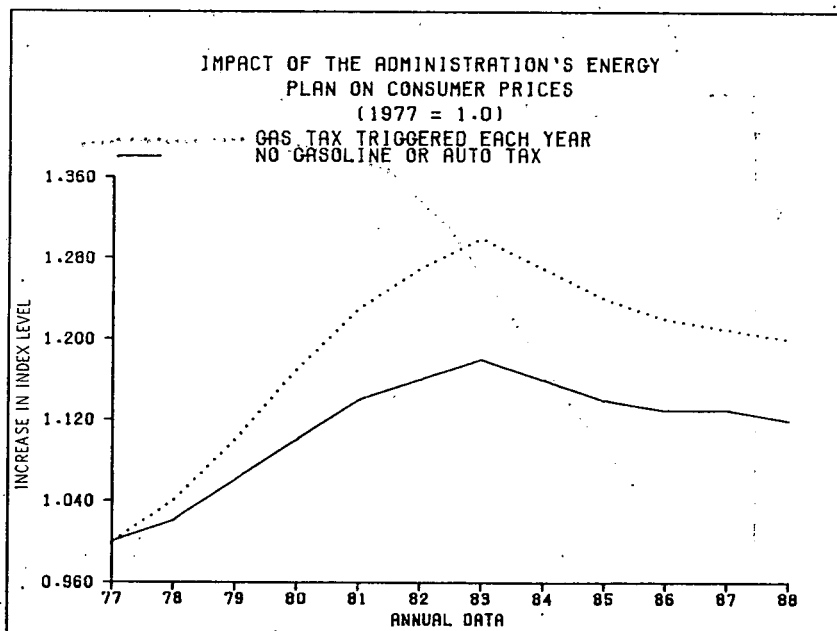


CHART 3

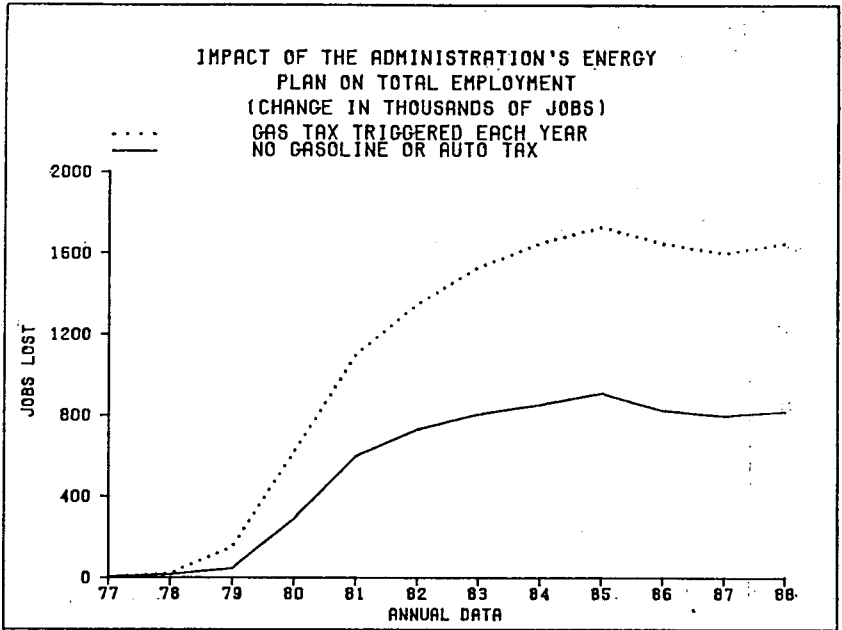


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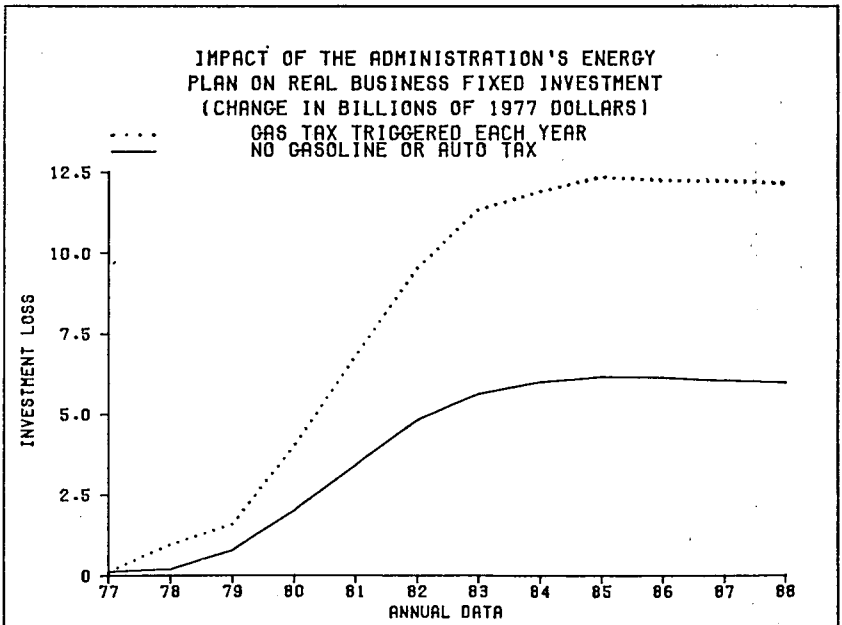


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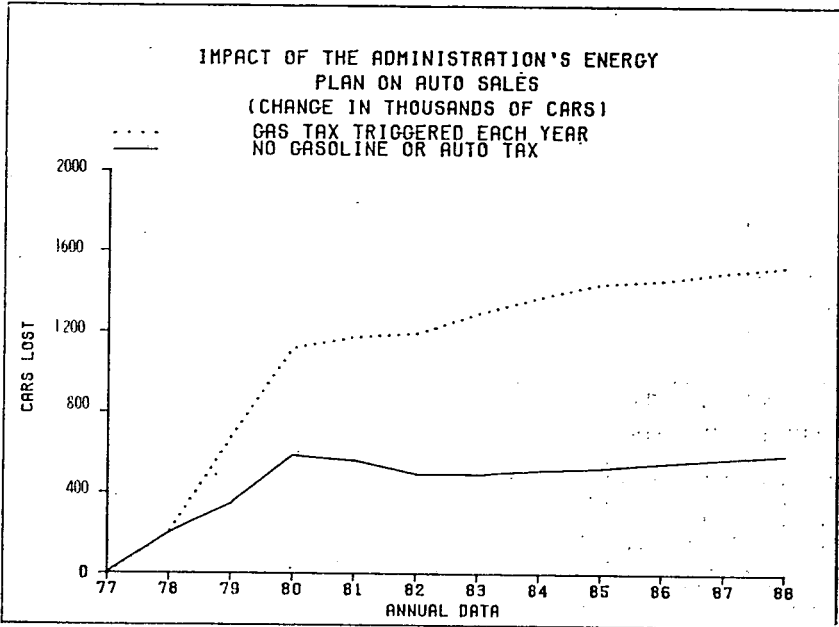


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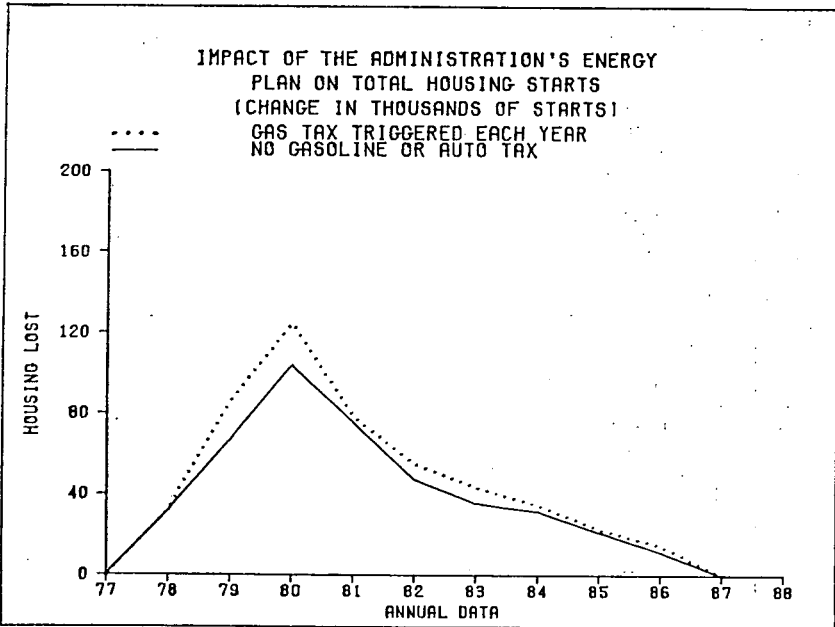


CHART 7

If the same level of energy improvement (See Table 10) is achieved through a balanced program encouraging both conservation and production (See Table 12), American consumers, workers and businessmen need not suffer (See Table 15). Also taxes need not grow and increase the size and role of government in our lives. Freedom of choice by consumers, workers and producers could be maintained.

TABLE 15.—COMPARISON OF ADMINISTRATION'S ENERGY PLAN AND BALANCED PLAN ENCOURAGING BOTH CONSERVATION AND PRODUCTION

	Change in levels			
	1982		1985	
	Administration plan, primary conservation	Balanced plan for both conservation and production	Administration plan, primary conservation	Balanced plan for both conservation and production
Gross national product.....	-2.1	+0.4	-2.5	+0.8
Employment.....	-1.4	+4	-1.7	+1.0
Number of employees.....	(-1,350)	(+385)	(-1,730)	(+1,000)
Consumer Price Index.....	+2.7	+7	+2.4	+1.1
Business fixed investment.....	-4.0	+7.7	-4.0	+11.8
Industrial production.....	-3.4	+1.3	-4.0	+2.3
New cars.....	+10.0	-1.0	-12.0	0
Housing starts.....	-5.0	-3.0	-2.0	0

Source: National Chamber Forecasting Center Models and Computations, Federal Energy Administration and U.S. Bureau of Mines data, "The National Energy Plan", DRI and Chase Econometrics modelling and data.

Although the major provisions of the Administration's Energy Program are tax and price oriented, there are several non-tax and non-price provisions. The programs may increase conservation by as much as 0.7 MBPD by 1985:

0.3 MBPD for insulating old and new buildings heated with fuel oil;

0.1 MBPD for insulating old homes heated by natural gas;

0.3 MBPD for cogeneration of heating and process energy;

a little for solar heating in homes (more after 1990).

Unfortunately the Administration's Energy Plan does not propose to place its own management responsibilities in tune with the energy crisis. Federally owned or controlled resources were not considered in order to achieve the objectives. This occurred in spite of the fact that:

Half of the nation's fossil fuel endowment is held by the Federal government, but in 1976 it produced less than 10% of the nation's output;

75% of the on-land Federal domain is now withdrawn from or seriously restricted to energy and mineral leasing and even more restrictions are being considered by the Congress particularly in Alaska;

No more than 4% of the Federal off-shore holdings on the continental shelf has ever been developed for oil and gas and nearly all of that is off the producing states of Louisiana and Texas.

In the case of particular fuels:

40% of the total U.S. coal reserves are under Federal lands; more than 70% of the low-sulfur, low-cost coal reserves of the West is under government land, of which 25% in turn is under restriction not to be used for energy purposes and use of the remainder suffers from a half-decade moratorium on Federal coal leasing;

72% of oil shale is on Federal lands and 85% of tar sands;

15% of developed and discovered oil reserves and resources and perhaps a third of undiscovered oil resources are on Federal lands;

20% of discovered reserves and resources and perhaps 43% of undiscovered gas resources are on Federal lands.

A situation where less than 10% of domestic production is generated from half the nation's fossil fuel endowment which is located on Federal lands is clear evidence that the Government itself is not facing up to the energy crisis. The Administration is proposing that the rest of the nation suffer much more than would need be the case if the Government would include its own resources to overcome the energy crisis, "the moral equivalent to war".

EVALUATION OF ADMINISTRATION'S ENERGY PLAN

(By Jack Carlson¹)

The Carter Administration's proposed energy plan is aimed at reducing U.S. dependence on foreign oil and lowering the growth of energy consumption. The Administration proposes to do so by heavily emphasizing conservation, through taxes, prices, and regulations.

The additional taxes can potentially total \$616 billion from 1978 through 1988 or nearly \$10,000 for each American family. (See Table 1.)

¹ Vice president and chief economist, Chamber of Commerce of the United States.

TABLE 1. ADMINISTRATION'S PROPOSED ENERGY TAX INCREASES

[Billions of 1977 dollars]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-88 total
Crude oil.....	5	9	12	12	12	12	12	12	12	12	12	122
Industrial.....		3	4	4	5	5	6	6	6	5	4	48
Utility.....						2	2	2	2	2	2	12
Gasoline.....		5	10	15	20	25	30	35	40	45	50	275
Auto efficiency.....	1	1	1	1	1	1	2	2	2	2	2	16
Total, direct taxes.....	6	18	27	32	38	45	52	57	62	66	70	473
Additional Federal taxes from inflation caused by energy taxes (e.g., Federal personal income tax receipts increase 1.4 percent for each 1 percent of inflation).....	2	5	9	13	16	19	18	16	15	15	15	143
Total, direct and indirect taxes.....	8	23	36	45	54	64	70	73	77	81	85	616

Source: Based upon "The National Energy Plan" and "National Energy Act."

If the gasoline and automobile taxes are eliminated, the tax could total \$242 billion from 1978 through 1988, or about \$4,000 for each family. Increases in Federal taxes occur first, because of the new energy taxes and, second, because of increased Federal tax receipts generated by higher levels of inflation inherent in the Energy Plan. (See Table 2.)

TABLE 2.—ADMINISTRATION'S PROPOSED ENERGY TAX INCREASES (EXCLUDING GASOLINE AND AUTOMOBILE TAXES)

[Billions of 1977 dollars]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-88 total
Crude oil.....	5	9	12	12	12	12	12	12	12	12	12	122
Industrial.....		3	4	4	5	5	6	6	6	5	4	48
Utility.....						2	2	2	2	2	2	12
Total, direct taxes.....	5	12	16	16	17	19	20	20	20	19	18	182
Additional Federal taxes from inflation caused by energy taxes (e.g., Federal personal income tax receipts increase 1.4 percent for each 1 percent of inflation).....	0	4	5	7	8	9	8	6	5	4	4	60
Total, direct and indirect taxes.....	5	16	21	23	25	28	28	26	25	23	22	242

Source: Based upon "The National Energy Plan" and "National Energy Act."

Because of higher taxes on oil and natural gas, coal and uranium prices will increase and cause coal and uranium consumers and producers to conserve and increase supply. This reaction is not properly analyzed by the Administration and the Plan merely forecast production equivalent to previous commitments for coal-fired electric power stations and no improvement in coal caused conservation.

The Energy Plan would cause a price rollback for 13% of intrastate natural gas producers and a slower increase in crude oil prices. Existing policy allows the composite of new and old crude oil to increase by 10%, of which 5% could be real increases in domestic crude oil prices. The Energy Plan eliminates adjustments except for inflation. (See Table 3.)

TABLE 3.—CHANGES IN FUNDS FLOWING TO PRODUCERS CAUSED BY ADMINISTRATION'S PROPOSED TAX INCREASES.

[Billions of 1977 dollars]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-88 total
Coal and uranium producers.....	2	3	4	5	6	8	11	13	14	14	15	81
Oil and gas producers.....	-2	-4	-6	-7	-7	-7	-7	-7	-7	-7	-7	-68
Total producer receipts.....	-2	-2	-3	-3	-2	-1	1	4	6	7	8	13

Source: Based upon "The National Energy Plan" and "National Energy Act."

Although detailed distribution of the increased energy taxes is not yet available, it is clear most will be earmarked for low income individuals. (See Table 4.)

TABLE 4.—DISTRIBUTION OF TAXES AND RECEIPTS
(Billions of 1977 dollars)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-88 total	Percent distribution
Individuals (per capita rebates, autos, home insulation, etc.).....	4	12	18	20	23	27	31	33	35	36	37	276	57
State and local government.....	1	3	4	5	6	7	8	9	10	11	12	76	15
Business.....	1	3	5	7	9	11	13	15	17	19	21	121	25
Total, tax rebates.....	6	18	27	32	38	45	52	57	62	66	70	473	97
Producers of coal, uranium and other.....		2	3	4	5	6	8	11	13	14	15	81	17
Producers of oil and natural gas.....	-2	-4	-6	-7	-7	-7	-7	-7	-7	-7	-7	-68	-14
Total, producers receipts.....	-2	-2	-3	-3	-2	-1	1	4	6	7	8	13	3
Total, tax rebates and producers receipts..	4	16	24	29	36	44	53	61	68	73	78	486	100

Source: Based upon "The National Energy Plan" and "National Energy Act."

The rapid increase in Federal taxes and spending will undermine the President's objective of limiting the growth of government to growth of output and income of the U.S. Although the President committed the Administration to hold government taxing and spending to 21% of GNP, his Energy Plan will cause both taxes and spending to exceed 25% of GNP, the largest increase in Federal taxing and spending in the peace-time history of the United States. (See Table 5.)

TABLE 5.—ADMINISTRATION'S ENERGY PLAN AND INCREASE IN TAXES FASTER THAN THE GROWTH OF THE ECONOMY

	[Percent of gross national product]											
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	
Administration's objective—Federal taxes as a percentage of gross national product.....	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Additional Federal taxes in the energy plan as a percentage of gross national product.....	.5	1.9	2.4	3.1	3.4	4.0	4.0	3.8	3.7	3.9	4.1	
Resulting Federal taxes as a percentage of gross national product.....	21.5	22.9	23.4	24.1	24.4	25.0	25.0	24.8	24.7	24.9	25.1	

Source: Based upon "The National Energy Plan" and "National Energy Act."

For the average worker this could mean a loss in income of \$770 during 1980, \$1,540 during 1985, or a total of \$12,900 for 1978 through 1988. This occurs because of higher direct energy taxes, energy plan induced Federal tax receipts and a slower growing economy. There is little consolation that some of the tax payments will trickle back to workers. (See Table 6.)

TABLE 6.—LOSS IN SPENDABLE INCOME (DISPOSABLE INCOME) PER AVERAGE WORKER FROM FULL IMPLEMENTATION OF ADMINISTRATION'S ENERGY TAX PLAN

	[1977 dollars]											
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-88 total
New higher taxes.....	68	195	285	310	390	470	510	550	560	630	690	4,658
Additional taxes from energy plan—generated inflation.....	22	55	95	160	160	160	170	160	150	130	110	1,372
Lower income because of slower growing economy.....	30	170	390	420	680	800	830	850	880	900	930	6,880
Total loss in spendable income per worker.....	120	420	770	890	1,230	1,430	1,510	1,560	1,590	1,660	1,730	12,910
Loss as a percent of real disposable income per worker.....	1	3	6	7	9	10	11	11	10	9	9	

Source: Based upon "The National Energy Plan" and "National Energy Act."

The Administration's Energy Tax Plan will cause some prices to increase and others to decrease. The changes can be shown each year and cumulative. (See Table 7.)

TABLE 7.—REAL PRICE CHANGES PROPOSED IN THE ADMINISTRATION'S ENERGY PLAN

	[Percent]											
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	
Demand:												
Crude oil: ¹												
Annual.....	15	11	6	-5	-5	-5	-5	-5	-5	-5	-5	-5
Total.....	15	30	45	40	35	30	25	20	15	10	5	5
Industrial oil:												
Annual.....	0	9	2	2	2	2	2	2	0	0	0	0
Total.....	0	9	11	13	15	7	19	21	21	21	21	21
Industrial natural gas:												
Annual.....	0	20	5	5	5	5	5	5	0	0	0	0
Total.....	0	20	25	30	35	40	45	50	50	50	50	50
Utility oil and gas:												
Annual.....	0	0	0	0	0	11	0	0	0	0	0	0
Total.....	0	0	0	0	0	11	11	11	11	11	11	11
Motor gasoline:												
Annual.....	8	8	7	7	6	6	6	5	5	5	5	0
Total.....	8	17	25	33	42	50	58	67	75	83	83	83
Coal: ¹												
Annual.....	5	5	10	10	5	-5	-5	-5	-5	-5	-5	-5
Total.....	5	10	20	30	35	30	25	20	15	10	5	5
Supply:												
Crude oil: ¹												
Annual.....	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
Total.....	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-55
Natural gas: ²												
Annual.....	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
Total.....	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-55
Coal: ¹												
Annual.....	5	5	10	10	5	-5	-5	-5	-5	-5	-5	-5
Total.....	5	10	20	30	35	30	25	20	15	10	5	5

¹ Reflects the fact that the administration's energy plan would disallow 10 percent increase in crude oil prices now allowed under existing law; 5 percentage points of the adjustment was assumed for inflation and 5 percent for real price increases.

² Reflects the fact that the Federal Power Commission would not be allowed to set rates according to traditional cost of production techniques under the administration's energy plan.

Source: Based upon "The National Energy Plan" and "National Energy Act."

Consumers and producers are more or less sensitive to changes in prices. For example, consumers reduce consumption of motor gasoline by only 1% for each 10% increase in price within 12 months of such an increase. However, with more time for adjustment, such as time to purchase a more fuel-efficient car or car-pool, a 10% increase in price can mean a 2% decrease in gasoline consumed; such as in 1985. (See Table 8.)

TABLE 8.—IMPACT OF A 10-PERCENT CHANGE IN PRICE ON THE QUANTITY CONSERVED OR PRODUCED IN PERCENT

	[Demand and supply elasticities]											
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	
Demand elasticities:												
Crude oil ¹	-2.0	-2.0	-2.4	-2.7	-3.0	-3.3	-3.7	-4.0	-4.1	-4.2	-4.3	
Industrial oil and gas ¹	-2.0	-2.0	-2.0	-2.4	-2.8	-3.2	-3.6	-4.0	-4.1	-4.2	-4.3	
Utility oil and gas ¹	-2.0	-2.0	-2.4	-2.6	-2.8	-3.0	-3.2	-3.4	-3.6	-3.8	-4.0	
Motor gasoline ²	-1.0	-1.0	-1.1	-1.2	-1.4	-1.6	-1.8	-2.0	-2.2	-2.4	-2.6	
Coal ^{1,3}	-2.0	-2.2	-2.4	-2.6	-2.8	-3.0	-3.2	-3.4	-3.6	-3.8	-4.0	
Natural gas.....	-2.0	-2.2	-2.4	-2.6	-2.8	-3.0	-3.2	-3.4	-3.6	-3.8	-4.0	
Supply elasticities:												
Crude oil ³	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	
Natural gas ^{3,4}	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	
Coal ^{3,5}	3.0	3.3	3.6	3.9	4.2	4.5	4.8	5.1	5.4	5.7	6.0	

¹ Calculated from: Federal Energy Administration, "1977 National Energy Outlook (Draft: January 15, 1977)," app. D, tables D-3, D-4, D-5.

² Calculated from: Dale W. Jorgenson, ed., "Econometric Studies of U.S. Energy Policy," data resources series, vol. 1, 1976, ch. 4.

³ Calculated from various FEA publications.

⁴ Assume current proved reserves of natural gas. If new reserves are discovered and developed, elasticity could be as high as 3.5 in 1985.

⁵ Assumes environmental laws will not impede production.

Forecast of energy consumption and production can be made assuming existing policies. (See Table 9.)

TABLE 9.—CONSUMPTION OF ENERGY BY TYPE
[Millions of barrels of crude oil equivalents]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Crude oil	19.0	19.8	20.6	21.1	21.6	22.2	22.7	23.3	23.6	24.1	24.6
Coal	8.0	8.4	8.7	9.1	9.4	9.8	10.2	10.5	10.8	11.2	11.5
Natural gas	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.4	9.2	9.1	9.0
Uranium	1.5	2.0	2.5	3.2	3.9	4.7	5.5	6.2	6.7	7.4	8.1
Total in million barrels per day	39.0	40.0	42.0	43.0	45.0	46.0	48.0	50.0	51.0	52.0	53.0
Total, in quadrillion Btu's	79	81	84	86	90	93	95	100	102	104	107
ADDENDUM											
Industrial oil and natural gas	8.4	8.8	9.2	9.6	9.9	10.3	10.7	11.0	11.3	11.6	12.0
Utility oil and gas	19.0	19.8	20.6	21.1	21.6	22.0	22.7	23.3	23.6	24.1	24.6
Gasoline	6.7	6.8	6.9	6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0

Source: Based upon data from Federal Energy Administration, U.S. Bureau of Mines, and "The National Energy Plan."

When the sensitivity of each price change is applied to the quantity of energy consumed for each purpose or produced from each source, increases or decreases in fuel usage or supplies can be made. For example, a 10¢ a gallon gasoline tax increase is equivalent to 16% increase in the about 60¢ a gallon price of regular gasoline. Applied to 6.7 million barrels of crude oil per day forecast to be used for producing gasoline in 1979 and based on the sensitivity of motor gasoline consumers to such a price increase, the resulting reduction in consumption should be about 100,000 barrels of crude oil per day ($16\% \times 6.7 \text{ MBPD} \times 0.1\% = 107,200 \text{ MBPD}$).

The Administration should expect to improve energy conservation and production by 1.8 million barrels of oil per day (MBPD) by 1980, 3.6 MBPD by 1985, and suffer deterioration to about 1.9 MBPD by 1988. (See Table 10.) The decline occurs because existing policy would have allowed crude oil prices to reach market prices by 1990.

However, this should only cause imports to decline from about 12 MBPD to only 8.7 MBPD by 1985. Even this 3.6 MBPD reduction in imports will nearly disappear by 1988 when compared to the expected results of existing energy policy. (See Table 11.)

TABLE 10.—GAINS AND LOSSES IN CONSERVATION (DEMAND) AND PRODUCTION (SUPPLY) FROM
ADMINISTRATION'S ENERGY TAXES

[Millions of barrels of crude oil per day]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Direct conservation:											
Crude oil tax	0.3	0.5	0.8	0.9	0.7	0.7	0.6	0.5	0.4	0.3	0.1
Industrial oil and natural gas tax	0	.2	.3	.4	.7	.9	1.2	1.5	1.6	1.6	1.7
Utility oil and natural gas tax	0	0	0	0	0	.1	1	.1	.1	.1	.1
Gasoline tax .....	.1	.2	.2	.3	.4	.6	.7	.9	1.1	1.3	1.4
Total, gains .....	.4	.9	1.3	1.6	1.8	2.3	2.6	3.0	3.2	3.3	3.3
Losses from lower natural gas prices:											
Conservation	-.1	-.2	-.2	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.4
Production	-.1	-.1	-.2	-.3	-.4	-.6	-.9	-.9	-1.1	-1.3	-1.5
Net direct gain in conservation .....	.2	.6	.9	1.1	1.2	1.5	1.6	1.8	1.8	1.7	1.4
Indirect energy improvements from higher coal and uranium prices:											
Conservation .....	.1	.2	.4	.7	.9	.9	.8	.7	.6	.4	.2
Production .....	.1	.3	.5	1.2	1.4	1.3	1.2	1.1	.9	.6	.3
Total, indirect .....	.2	.5	.9	1.9	2.3	2.2	2.0	1.8	1.5	1.0	.5
Total, direct and indirect .....	.4	1.1	1.8	3.0	3.5	3.7	3.6	3.6	3.5	2.7	1.9

Source: Based upon data from Federal Energy Administration, U.S. Bureau of Mines, and "The National Energy Plan."

TABLE 11.—ENERGY IMPROVEMENT FROM ADMINISTRATION'S PLAN
[Millions of barrels of crude oil per day equivalent]

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Demand.....	39.0	40.0	42.0	43.0	45.0	46.0	48.0	49.0	51.0	52.0	53.0
Administration's energy plan:											
Direct reduction from administration taxes.....	-.4	-.9	-1.3	-1.6	-1.8	-2.3	-2.6	-3.0	-3.2	-3.3	-3.3
Indirect reduction from higher coal and uranium prices.....	-.1	-.2	-.4	-.7	-.9	-.9	-.8	-.7	-.6	-.4	-.2
Offsetting increase in demand for natural gas from lower prices.....	+1.1	+1.2	+1.2	+1.2	+1.2	+1.2	+1.3	+1.3	+1.3	+1.3	+1.4
Demand and supply with administration's plan.....	38.5	38.8	40.1	39.7	41.1	41.7	43.7	44.5	46.6	48.0	49.9
Supply adjustments with administration's plan:											
Increase in coal production.....	-.1	-.3	-.5	-1.2	-1.4	-1.3	-1.2	-1.1	-.9	-.6	-.3
Decrease in domestic natural gas production.....	.1	.1	.2	.3	.4	.6	.8	.9	1.1	1.3	1.5
Decrease in domestic crude oil production.....	.1	.1	.2	.3	.5	.7	.9	1.1	1.3	1.6	1.9
Decrease in imports.....	.4	1.0	2.0	3.0	4.0	4.5	4.0	3.5	2.0	1.5	1.0

ADDENDUM

Supply before plan:											
Domestic.....	31.0	31.4	32.8	33.1	34.4	35.0	36.4	37.0	38.5	38.7	39.0
Foreign.....	7.9	8.5	9.3	9.6	10.2	10.8	11.4	12.0	12.5	12.8	13.5
Total.....	38.9	39.9	42.1	42.7	44.6	45.6	47.8	49.0	51.0	51.5	52.5
Supply with plan:											
Domestic.....	30.9	31.2	32.9	32.9	34.7	35.2	36.4	36.7	37.0	37.0	37.6
Foreign.....	7.6	7.6	7.2	6.8	6.4	6.7	7.8	8.7	10.5	11.8	13.0
Total.....	38.5	38.8	40.1	39.7	41.1	41.9	44.2	45.4	47.5	48.8	50.6
Net supply changes with plan:											
Domestic.....	-.1	-.2	-.1	-.2	+1.3	+1.2	0	-.3	-1.5	-1.7	-1.4
Foreign.....	-.3	-.9	-1.9	-2.8	-3.8	-3.9	-3.6	-3.3	-2.0	-1.0	-.5
Total.....	-.4	-1.1	-1.8	-3.0	-3.5	-3.7	-3.6	-3.6	-3.5	-2.7	-1.9

Source: Based on data from Federal Energy Administration, U.S. Bureau of Mines, and "The National Energy Plan."

The Administration failed to provide significant incentive for increasing the production of natural gas or crude oil. The anemic incentive of classifying new crude oil and natural gas at a high supply price if found beyond 2½ miles and 1,000 feet from existing wells and completion levels would have applied to only about 5% of new oil and gas discovered and produced during the last 4 years.

If an incentive were provided oil producers by allowing both natural gas and crude oil to float to market prices or a plow-back of energy excise taxes for strictly investment purposes, then about 2.5 MBPD energy improvement could be made. This is a comparable improvement as provided by the entire Administration's Energy Tax Plan. (See Table 12.)

TABLE 12.—ADDITIONAL CONSERVATION AND PRODUCTION FROM PROPOSALS NOT NOW PART OF THE ENERGY PLAN

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Increase newly contracted price for natural gas to market price—\$2.50 instead of only \$1.75 proposed in energy plan:											
Additional conservation.....	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.1
Additional production (if market prices prevail or plowback for investment is allowed).....	.3	.4	.4	.5	.5	.6	.6	.7	.7	.8	.8
Allow market prices to prevail or plowback crude oil taxes for investment.....	.2	.7	1.3	1.4	1.4	1.3	1.2	1.1	.9	.7	.4
Total.....	1.1	1.8	2.4	2.7	2.7	2.8	2.7	2.8	2.6	2.5	2.3

If production of oil and gas is not encouraged, then Americans will suffer more than they need to suffer. By 1982, the Administration's Energy Plan will cause:

- 2.1% lower GNP or \$46 billion dollars of lost output and income
- 4% loss of disposable income or \$1,000 per family
- 1.4 million fewer jobs
- 2.7% higher price levels
- 4% lower investment or more than \$10 billion of fewer tools for workers
- 3.4% lower industrial production, 10% lower automobile sales and 5% lower housing starts. (See Table 13.)

TABLE 13.—IMPACT OF THE ADMINISTRATION'S TOTAL ENERGY TAX PLAN ON THE U.S. ECONOMY

	[Change in levels of economic activity]											
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	
Real gross national product (percent).....	-0.2	-0.4	-1.3	-1.9	-2.1	-2.3	-2.5	-2.5	-2.3	-2.1	-2.0	
Billions of 1977 dollars.....	-4	-8	-26	-40	-46	-53	-60	-63	-60	-57	-53	
Real per capita disposable income (percent).....	-0.4	-1.5	-2.7	-3.5	-4.0	-4.4	-4.7	-4.9	-4.8	-4.7	-4.6	
Real personal income: Billions of 1977 dollars.....	-32	-15	-33	-47	-55	-64	-70	-75	-77	-79	-81	
Average loss per family in 1977 dollars.....	-57	-263	-586	-632	-998	-1,146	-1,263	-1,346	-1,380	-1,420	-1,450	
Savings (percent).....	-0.2	-0.6	-1.0	-1.1	-1.2	-1.3	-1.5	-1.7	-1.7	-1.6	-1.5	
Employment (percent).....	0	-0.2	-0.6	-1.1	-1.4	-1.5	1.7	1.7	1.7	1.7	-1.7	
Thousands of jobs.....	-20	-150	-620	-1,100	-1,350	-1,530	-1,650	-1,730	-1,650	-1,600	-1,650	
Unemployment (percent).....	0	0.1	0.4	0.7	0.9	1.1	1.2	1.2	1.2	1.2	1.2	
Thousands of jobs lost.....	30	100	420	730	910	1,060	1,160	1,240	1,200	1,150	1,100	
Consumer prices (percent).....	0.4	1.0	1.7	2.3	2.7	3.0	2.7	2.4	2.2	2.1	2.0	
GNP deflator (percent).....	0.3	0.8	1.3	1.9	2.4	2.5	2.4	2.0	1.9	1.8	1.7	
Real business fixed investment (percent).....	-0.2	-0.8	-1.9	-3.0	-4.0	-4.5	-4.5	-4.0	-4.0	3.8	-3.5	
Billions of 1977 dollars.....	-1	-2	-4	-7	-10	-11	-12	-12	-12	-12	-12	
Capacity utilization (percent).....	-0.3	-1.1	-2.3	-3.1	-3.4	-3.7	-3.9	-4.0	-4.1	-4.2	-4.3	
Industrial production (percent).....	-0.3	-1.2	-2.4	-3.1	-3.4	-3.6	-3.9	-4.0	-4.1	-4.0	-4.0	
Auto sales (percent).....	-2	-7	-10	-10	-10	-11	-11	-12	-12	-13	-13	
Thousands of cars.....	-200	-700	-1,100	-1,200	-1,200	-1,300	-1,400	-1,400	-1,400	-1,500	-1,500	
Housing starts (percent).....	-2	-5	-7	-6	-5	-4	-3	-2	-1	0	0	
Thousands of units.....	40	100	140	120	100	80	60	40	20	0	0	
Exports (percent).....	-0.2	-0.6	-1.2	-1.6	-1.7	-1.6	-1.5	-1.4	-1.2	-1.2	-1.0	
Billions of 1977 dollars.....	-0.4	-1.0	-2.4	-3.4	-3.8	-3.8	-3.7	-3.7	-3.6	-3.5	-3.1	
Imports (percent).....	-1.0	-2.1	-3.4	-4.4	-6.1	-7.7	-9.3	-11.0	-12.7	-14.0	-15.0	
Billions of 1977 dollars.....	-1.8	-4.0	-6.8	-9.3	-12.7	-18.1	-23.1	-28.8	-35.1	-40.7	-46.0	
Net exports in 1977 dollars.....	1.6	3.0	4.4	5.9	8.9	14.3	19.4	25.1	31.5	37.2	42.9	

Source: National Chamber Forecasting Center Models and Computations, Federal Energy Administration and U.S. Bureau of Mines data, "The National Energy Plan," DRI and Chase Econometrics, modelling and data.

These adverse effects could be greatly reduced by a balanced program encouraging both conservation and production of oil and natural gas. (See Table 12.) Also taxes need not grow and increase the size and role of government in our lives. Freedom of choice by consumers, workers and producers could be maintained.

Although the major provisions of the Administration's Energy Program are tax and price oriented, there are several non-tax and non-price provisions. The programs may increase conservation by as much as 0.7 MBPD by 1985; 0.3 MBPD for insulating old and new buildings heated with fuel oil; 0.1 MBPD

for insulating old homes heated by natural gas; 0.3 MBPD for cogeneration of heating and process energy; and a little for solar heating in homes (more after 1990).

Unfortunately, the Administration's Energy Plan does not propose to place its own management responsibilities in tune with the energy crisis. Federally owned or controlled resources were not considered in order to achieve the objectives. This occurred in spite of the fact that:

Half of the nation's fossil fuel endowment is held by the Federal government, but in 1976 it produced less than 10 percent of the nation's output; 75 percent of the on-land Federal domain is now withdrawn from or seriously restricted to energy and mineral leasing and even more restrictions are being considered by the Congress particularly in Alaska; no more than 4 percent of the Federal offshore holdings on the continental shelf has ever been developed for oil and gas and nearly all of that is off the producing states of Louisiana and Texas.

In the case of particular fuels, 40 percent of the total U.S. coal reserves are under Federal lands; more than 70 percent of the low-sulfur, low-cost coal reserves of the West is under government land, of which 25 percent in turn is under restriction not to be used for energy purposes and use of the remainder suffers from a half-decade moratorium on Federal coal leasing; 72 percent of oil shale is on Federal lands and 85 percent of tar sands; 15 percent of developed and discovered oil reserves and resources and perhaps a third of undiscovered oil resources are on Federal lands; 20 percent of discovered reserves and resources and perhaps 43 percent of undiscovered gas resources are on Federal lands.

A situation where less than 10 percent of domestic production is generated from half the nation's fossil fuel endowment which is located on Federal lands is clear evidence that the Government itself is not facing up to the energy crisis. The Administration is proposing that the rest of the nation suffer much more than would need be the case if the Government would include its own resources to overcome the energy crisis, "the moral equivalent to war".

Senator HUMPHREY. Senator Bentsen, thank you for your patience here.

Senator BENTSEN. Thank you, Mr. Vice Chairman. As I look at this panel, I am reminded of a quote of the vice chairman's that I rarely give him credit for. Someone asked him if he had time to read a lot of books. He said, no, but he talked to the authors. That is what we are doing here.

I am very impressed with the caliber of this panel and the provocative statements, and very learned statements they made. They certainly help me in my thinking through some of these things.

I am pleased by the fact that they don't reflect this hard rhetoric that I have heard about the President's program in so many instances, but they have come up with things that they think are alternatives.

I am tired of reading editorials that tell you why something won't work and won't give you answers as to what they think will work.

One of you made the statement about the conflicting interest groups. That will be a major problem for us in the Congress. The problems of how it affects different regions of the country.

I heard one of the witnesses state that we might be surprised that the South would be more affected because of its use of energy. That is no surprise to me because I was born and reared down in south Texas.

For many years, they talked about southerners and how they talked slow and thought slow. I think there was some truth in it. I think part of it was because of the climate that we were subjected to.

When I started out practicing law, Mr. Vice Chairman, I started on the second floor of a southwest corner of a two-story building in

south Texas with no air-conditioning. If somebody came in wearing a coat, we knew it was a salesman from out of town.

I wore a short-sleeved shirt as I tried to think through a contract in talking to a client, if I reached across and hit that paper, I blurred all the ink because of the sweat on my arm.

Sure, air-conditioning for us is as important as heat is to the North.

I am concerned about the effect on some regions of the country. I am trying to figure out how we can get equity; 95 percent of the electricity we generate in Texas is generated through the use of natural gas.

We know we have to make changes. How do we make these changes without severe economic dislocation, without severely increasing the utility rates to home owners and closing some of our factory gates?

Mr. Laffer commented briefly on the effect. I wish you would amplify on that.

Mr. LAFFER. When we were looking at the President's program from the standpoint of regions of the country, it seems there will be certain regions far more impacted than other regions, if only on the supply side. Coming from southern California, I would expect the regions of Texas, California, Louisiana, to be heavily impacted by the direct price controls on the supply of energy.

If you look at the area where I was born in Ohio, Michigan, these areas which are major auto-producing areas, I, too, think they will be heavily impacted by this. I would like to say I think all the regions of the country will be impacted, almost entirely in a negative fashion.

People do use cars in New York. They spend their time working in all sorts of other areas to be able to buy cars, buy energy. By taxing energy, you lower the marginal incomes of all sorts of people all throughout the country. But there will be very major regional impacts, I think, basically in the energy-producing areas, and the automobile-producing areas will be the most severely hit.

Senator BENTSEN. One of the things that isn't realized, in Texas we pay \$2 an Mcf for gas, while other parts of the country pay 52 cents. As we have been paying more, right there on top of the wells to take care of the homeowner, to take care of the factory and that sort of thing, then, we know these conversions are necessary; but we have to have the time to adjust to bringing these things on.

I noticed one of the other points that was made was that when we talk about conversion to coal, we are talking about a tax incentive out there for conversion of an existing production facility.

What about growth? Has that been written into it? I don't see that. I don't see the provision in there to take care of those things in the way of increased productive capacity.

I am concerned about a situation where today, perhaps, we are using 83 percent of our manufacturing capacity in this country. I am concerned about a repetition of some of the things we saw in 1974 where you can get a shortage in a particular industry, and, then, it begins to leapfrog.

Would someone like to comment on that?

Mr. Okun.

Mr. OKUN. I think I referred to the fact that it seemed incomplete to me to put so much emphasis on measures to raise the demand for coal without having a correlative program to insure that supply would be forthcoming.

I think in this case, the administration relies too much on price and price alone to do the job. There are many considerations affecting supply which go beyond price. I think what has to be viewed as a serious lack of responsiveness by energy producers to tripling and quadrupling of their price on new output has to be attributed to other barriers to production like the difficulties of energy and environmental tradeoffs.

We have to make those tradeoffs. We have to set the boundaries somewhere. I think it is important we do it in a rational way and recognize that on both sides. We can do it in a more expeditious, more rational way.

I suspect that that will be a major barrier to the expansion of coal production to meet this expansion of demand that is going to be mandated by the program. We have to do something about that.

Senator BENTSEN. We made the point that this is heavy conservation—the emphasis is there in this proposal and not balanced, off on encouraging production of these sources of energy.

You referred to that. Do you have any specifics on that?

Mr. OKUN. Well, I certainly would have welcomed home kind of program to basically expedite the energy environmental decisions that have to be made. My lawyer friends tell me there are ways of preventing the 3- and 5-year hangups in the courts if the laws are very clear in providing for ex-post remedies. In that event, the courts would be much less likely to grant injunctions. I am not suggesting that we sacrifice the environmental objective. I think that is a terribly important objective, too.

The rationalities with which we handle that leaves a lot to be desired, and I think that could be improved.

I would have preferred the program to have some certain date when there was full decontrol of the prices of energy products. I wouldn't want to see that come overnight. I think that would be a guarantee of the depression that Senator Javits and Senator Hatch spoke about as their concern over the future.

If we do nothing else but to say there are no controls over the price of energy products today, I suspect we would be taxing the American consumer something like \$30 billion, that would have disastrous effects on the economy over the next year or two.

Nonetheless, there is a case for wanting the Federal Government to get out of the control business over a reasonable horizon and making it clear to producers that 3, 5, or 7 years out, they will be able to get the world price, not that that world price is a sanctified price.

One has to recall that it is not a market price today, it is an OPEC price. Nonetheless, I think it would be wise to have an end to Federal controls.

I think there are a number of things which really come under the heading of sanctions rather than incentives. It is lamentable that so much of the profitability associated with domestic energy seems today to be financing mergers by large energy producers into nonenergy areas when it ought to be going into their capital budgets for more domestic exploration and development.

I am appalled at the size of the direct investment figures by our oil companies in the Middle East. They seem to go up regardless of the fact that they are operating on very low margins of profitability there

with respect to oil. One hears about new ventures outside the oil business.

I think it is important to have both incentives and sanctions to guarantee that the capital budget stay in the United States and out of OPEC hands.

Senator BENTSEN. Mr. Vice Chairman, I know we have a vote. I appreciate very much the responses.

Senator HUMPHREY. Congressman Long.

Representative LONG. No questions, Mr. Vice Chairman.

Senator HUMPHREY. You are sure you don't have questions?

Representative LONG. No.

Senator HUMPHREY. Congressman Roussetot.

Representative ROUSSELOT. Thank you very much.

Senator HUMPHREY. Would you two gentlemen hold the fort until we get back here?

Representative ROUSSELOT. I don't know if we can do that without the Senator present. [Laughter.]

Senator HUMPHREY. Oh, very good. I have noticed those late sessions in the House.

Representative ROUSSELOT. Only on the Hatch Act. [Laughter.]

Gentlemen, we do appreciate your appearance here. I wish that we really didn't have the time constraints of 10 minutes, because I would really like to question each of you several times on items that you have triggered in our thoughts.

We do appreciate your contribution and your assessment of this energy program that is before Congress.

Mr. Laffer, I was especially interested in that part of your prepared statement where you say that the administration's energy package, if put into effect, would raise taxes by an enormous amount annually and would rebate the proceeds.

Then, the last part of the statement:

It would result in an enormous loss in incomes in the country and an enormous loss in employment.

Now, since we have been so concerned about employment here, and increasing employment, could you define why you think that would occur a little better? We are always concerned about employment here, but you say an enormous loss of employment.

Why do you say that?

Mr. LAFFER. The reason I say an enormous loss of employment is because I feel this program is an enormous program. If you put the 1985 proposed tax schedules on top of the current economic situation, you come up with very large revenue estimates. I don't know what they would be.

I guess you can get something on the gas tax alone if the standby authority were put into effect of something like \$50 to \$60 billion a year. The tax on old, old oil at \$8.25 a barrel would yield a lot of revenue there; again if you took all the taxes on wellhead production, you get estimates of \$25 billion.

The automobile tax, if put into effect fully, would raise somewhere in the neighborhood of \$7 to \$7½ billion. We then have use taxes which tax the use of petroleum or the use of natural gas by industries and by utilities. These firms would be taxed very heavily.

You, then, have things like the tax on aviation fuel and the elimination of the rebate on motorboat fuel and a lot of others. We could estimate the effects under the current situation of the current economy to be a very large increase in revenues and a very large increase in rebates.

The effect of an increase in taxes matched by an increase in rebates and tax incentives and transfer payments is literally to reduce output. If I can use Senator Hatch's example, imagine for a moment we increase taxes in the United States by a little more than a trillion dollars and we took all the proceeds from that tax and gave them back in rebates on a per capita basis right up to the point where everyone who works receives literally nothing and people who don't work receive literally everything.

Do you really believe for a moment that output wouldn't fall? It would fall literally to zero if there were no incentives to work. If your marginal aftertax yield for work were zero, you would find work being reduced substantially. These are the supply side effects of fiscal policy or what we refer to as the substitution effects.

From the way I see this program, it is very, very large and will, as such, reduce the incentives to work very substantially in the United States. It will cause a distortion or wedge between wages paid by firms and wages received by the factors of production.

An increase in this wedge of this order of magnitude, I believe, will reduce output substantially and reduce the growth rate of the country substantially, in fact, by an enormous amount if it were put in.

Representative ROUSSELOT. If what you say is true, that it would so substantially—you say an enormous loss of employment—why do you suppose the administration which is conscious of that problem would not have taken that into account?

Mr. LAFFER. If I read the administration's position correctly—and I think I have—they have focused exclusively on the aggregate demand effects of this policy. Their argument is that the destimulative aspects of higher taxes will be offset by the stimulative aspects of higher transfer payments, that the income effects net out, which is true if it were only aggregate demand we were focusing on.

Representative ROUSSELOT. They are claiming as a part of that transfer, revenues will go to providing incentives for production.

Mr. LAFFER. Very little of the outlays that they put in provide direct incentives on the margin to work effort as far as I can tell.

In reading their program, much of it is totally unrelated to work effort and is in the form of the rebates in the form of the transfer payments, and in the form of the tax incentives.

Representative ROUSSELOT. Would the other members wish to comment on that? Is he way off base?

Explain why?

Mr. ECKSTEIN. We have analyzed this program in some detail.

Representative ROUSSELOT. Can you speak or address the issue that he has stated? That it will be a disincentive for production and the transfer will do nothing to really solve the problem and it will create this enormous unemployment?

Why will it not increase unemployment as he said?

Mr. ECKSTEIN. Virtually any tax will reduce the supply of labor. Virtually any fiscal restraint will reduce the demand for labor.

Now, the question is——

Representative ROUSSELOT. It will reduce demand for labor then?

Mr. ECKSTEIN. Of course.

Representative ROUSSELOT. His concern in that respect is a good concern?

Mr. ECKSTEIN. In my oral testimony, I estimate an increase in the rate of unemployment of two-tenths of a point. The point is this: The energy program in terms——

Representative ROUSSELOT. I cannot understand. If this administration is concerned about employment, why haven't they taken that into account?

Mr. ECKSTEIN. Because they are also concerned in the survival of the country as a leader in the world.

Representative ROUSSELOT. We are going to shrink overnight if you don't put this into effect?

Mr. ECKSTEIN. No.

Representative ROUSSELOT. You said "survival."

Mr. ECKSTEIN. That is why I said in my oral testimony that the bridge we must cross on the energy program is whether you believe there is a problem. There is a debate whether there is a problem.

If there is a problem, there is no costless solution. The problem is not upon us this week. This week the energy is available very readily. The question is, will the energy be available in the 1980's?

The administration feels we will run out of energy. I am dubious of that proposition as an economist.

Representative ROUSSELOT. Oh, you are?

Mr. ECKSTEIN. We do know we are very vulnerable, that our exposure to the cutoff of foreign oil, that our exposure to enormous increases——

Representative ROUSSELOT. You are dubious to the proposition that we are going to run out as quick as they say?

Mr. ECKSTEIN. I think every economist has difficulty with the proposition that we run out because it overlooks the price limit. We will not run out. We will pay a lot of money.

Representative ROUSSELOT. The urgency, though it is there, is not quite as great?

Mr. ECKSTEIN. The urgency relates to embargoes. We have lost 3½ years since the embargo, really, because of a series of political stalemates on the subject and inability to educate the public that there is a problem to really do what has to be done, which is to raise the price of oil.

Representative ROUSSELOT. Mr. Okun, do you want to comment on the employment situation?

Mr. OKUN. I would simply add this. Mr. Laffer's concern is basically that the wedge between what people contribute to production and what they take home is widened by these taxes.

Representative ROUSSELOT. Do you think that is true?

Mr. OKUN. It is widened to a degree. He is saying, if you went all the way, everybody stays home and nobody works. That is right; but——

Representative ROUSSELOT. So that could be a concern?

Mr. OKUN. That would be a concern. You have to look at that in degree. When you look at degree, the degree frankly is trivial. It puts the real wage after taxes that we earn back where it was 6 months earlier.

It says, instead of reaching a new high level of real wages after taxes, that we might otherwise hit in the first quarter of 1980, we won't hit it until the third quarter of 1980.

I really cannot get very excited about that, Congressman.

Mr. THURLOW. I essentially agree with Mr. Okun. The real question is, what is the elasticity in the supply of labor. The indications are that it is low.

It is certainly true if you have a 100-percent tax, nobody works. That is not an issue.

Representative ROUSSELOT. The issue is whether we increase the taxes?

Mr. THURLOW. This obviously is a breaking point.

Representative ROUSSELOT. He is saying—

Mr. THURLOW. I come a little bit more on Art Laffer's side than Mr. Okun's.

Representative ROUSSELOT. You do?

Mr. THURLOW. I do. I think the cut in real income is going to be somewhat higher than the estimates that have been made. I think the standard estimate is seven-tenths of 1 percent. I think that is probably right if you technically look at the implicit price deflator of the GNP account.

If you go off and look at the most recent household data that hasn't yet been imbedded in those indexes, the percent going to energy is higher than those indexes indicate. The average family is going to have a cut of about 1½ percent rather than seven-tenths of a percent.

That is still a long ways away from 100 percent tax reducing their income to zero. I think there is some effect on that side. It is not anywhere near as large as this word "enormous" might imply.

Representative ROUSSELOT. The word "enormous" kind of triggered our thoughts.

Mr. Eckstein, you say that the Congress—do you want to start asking questions, Congressman Long?

Representative LONG. Go ahead.

Representative ROUSSELOT. Mr. Eckstein, in your prepared statement you say that Congress should take energy hard luck stories with a grain of salt.

Yesterday, the American Bankers Association testified before the House Ways and Means Committee that over 90 percent of all commercial bread ovens in the United States are direct fired gas ovens for which there is no substitute. That is their statement. They don't think they can put coal in it to make it go.

The industrial end users' tax might be considered then to be an unjustified financial hardship on the consumers that buy this bread.

Do you want to comment on that?

Mr. ECKSTEIN. We did bake bread before the discovery of natural gas.

Representative ROUSSELOT. Yes, with wood and all those things. We might go back to wood. Some people would want to do that.

Mr. ECKSTEIN. There is a genuine problem there in the administration of the program. The proposed program creates tremendous latitude for interpretation by an army of regulators. It is obvious that it makes no sense to prohibit all industrial use of natural gas.

The administration doesn't want that. I believe they only aim at the top 2,000 installations. Even so, we don't know how they will interpret that. You will not get a rational economic answer if you say all natural gas must be used in homes and none in industry.

It is a nonsensical——

Representative ROUSSELOT. We have to come down to who makes the decision? Which set of reactors makes the decision as to who gets what?

Mr. ECKSTEIN. That is correct. One benefit of the program——

Representative ROUSSELOT. So would you put the economists in charge?

Mr. ECKSTEIN. One benefit of the program is that industrial use will be taxed rather than prohibited except for these very large industrial plants.

Representative ROUSSELOT. So we pass that heavy tax on to the bread buyer?

Mr. ECKSTEIN. That is the likely outcome.

Representative ROUSSELOT. That is a good one.

Well, I have a lot of other questions. I understand——

Representative LONG. The Secretary of the Treasury is here.

Representative ROUSSELOT. I certainly don't want to hold up the Secretary of the Treasury.

Representative LONG. Gentlemen, speaking on behalf of Senator Humphrey and Congressman Bolling, the chairman of the full committee, we are very appreciative for the substantial contribution you have made.

We thank you for taking the time to prepare your testimony and for appearing here to present it.

Thank you, very much.

Secretary Blumenthal, we welcome you to the committee.

STATEMENT OF HON. W. MICHAEL BLUMENTHAL, SECRETARY OF THE TREASURY

Secretary BLUMENTHAL. Thank you very much.

Representative LONG. Secretary Blumenthal, we are pleased that you can be with us this morning. Senator Humphrey, who is presiding today, has gone up with Senator Bentsen and Senator Javits to vote. They will be back shortly.

We know you are on a busy schedule as most of us around here seem to find ourselves. Why don't we go ahead with the beginning of your presentation? I am sure Senator Humphrey will be back in a very short time.

Secretary BLUMENTHAL. Thank you very much, Congressman Long, and members of the committee.

I am pleased to have the opportunity to appear before you. We have a prepared statement which I would, with your permission, like to submit for the record in its entirety.

Representative LONG. It will be made a part of the record at the end of your oral statement.

Secretary BLUMENTHAL. I will dispense with its reading and just make some general comments upon which to base further discussion as you might wish.

In the first instance, of course, the point needs to be emphasized that the President's energy program seeks to emphasize conservation and substitution: Conservation of the use of energy as such and substitution of the more abundant resources of energy in this country for the increasingly scarcer ones; second, that the technique, the principal mechanism used to accomplish this in the legislation is the use of the tax system by using, on the one hand, a series of tax penalties to bring about this conservation substitution, together with some tax incentives.

Third, the basic principle used is to seek as much as possible to have this system be neutral in its impact on the macroeconomic profile of the economy. In other words, to recycle the funds back into the economy to assure that there is minimum or no impact on the rate of inflation, on GNP, and on various other macroeconomic indicators.

I would want to say by way of footnote in that regard, Mr. Chairman, that in a program as large as this one, as ambitious and as far reaching, it doesn't matter what computer you read; it doesn't matter what model you employ, really. What we are talking about are estimates. We are all hungry for numbers. We are all hungry for precision. We are working just as hard as anyone to get the greatest amount of precision; but we must not fool ourselves. We are talking about a very, very broad program, and the precise impact in each of the areas, whether it's on particular industries or in macroeconomic terms, naturally is subject to some imprecision.

Therefore, I think it's worthwhile remembering that this program is not going to be administered in isolation. It is part and parcel of the overall economic policy of the administration. It is clear that as we go from 1977 through 1985 and we find that there are certain unexpected results, as I am sure there will be—and I haven't met anyone yet who I felt has been intelligent enough to be able to predict precisely all of the effects through 1985—as we find some unexpected ones, no doubt we will want to reconsider how we can adjust the rest of the economic policy to compensate for them.

For example, we already have an anti-inflation program. Some people welcome it, because it tends to stay away from controls. Other people criticize it because they feel it is not strong enough, that we should go for controls, that we should go for coercion of some kind, or at least standby controls.

As far as we can tell the inflation impacts of this program are minimal, relatively small. If we find that they are larger than we anticipated, clearly there are ways of making sure that we work even harder on the problem of inflation. I am not suggesting that we then institute controls, but I am suggesting that the work that we are doing together with labor and management, in looking at the various sources of inflation can be pursued intensively; the impact of various trade policies on inflation can be worked on more intensively.

In other words, we can see to some extent where there are unexpected results of this program that require further action.

The second major point that I would like to make, Mr. Chairman, is that we are trying as much as possible—and I think this program in its entirety has a very good chance of succeeding in that regard, of not using this program as a means of changing income distribution.

It is intended to be neutral in that regard as well. While we are using the tax system, we are not seeking to, through the back door, if you will, by use of that tax system—

Senator HUMPHREY. Good morning, Mr. Secretary.

Secretary BLUMENTHAL. Good morning, Mr. Vice Chairman. I have only begun.

We are not attempting to change the income distribution. We think that is a function of more fundamental tax reform on which we have begun to work intensively. So we are going to try not to mix those things together.

I think this program succeeds in that regard. If anything the tax changes, both penalties and incentives that are part of this program, would make income distribution slightly more progressive. It would, as far as we can tell, benefit low-income people somewhat more than others. The reason for that, of course, is the rebate from the oil equalization tax, recycle via the tax credit on individual income taxes, not only to taxpayers but also to welfare recipients, social security recipients, and others in those categories. Those who tend to benefit from it frequently drive less than others do because they are retired or because they are in some other way not likely to have to drive to work and so forth.

Second, because the tax that is imposed on business and on utilities, the oil and gas consumption tax, under this program is being recycled in the first instance only in part back to industry and to utilities as they begin to convert, and a part of it is used to give encouragement to homeowners and to others to insulate their homes and do other things.

That would have a somewhat progressive effect in terms of income distribution.

But the basic goal is not to affect the macroeconomic indicators, and that applies to income distribution basically as well.

Simply the goal is to have no impact on real output, prices, employment, and so forth. In looking at the econometric studies that have been done, we conclude that that, too, seems to be the case based on what the models tell us. But I reiterate that in a program of this size, the precision of the numbers that come out of the econometric models obviously needs to be seen in perspective and no one can tell with absolute certainty and precision what the impact is going to be. We just simply have to face that this is one of the uncertainties of this program as we get into it.

We think that based on whatever numbers we have been able to look at, or that the models tell us, that there is only a minor impact on investment. We think it will probably lead to a minor net increase in investment in the economy, perhaps to some minor net reduction in total consumption for a period of time; but this is going to be spread out over a number of years, 1978 through 1985. Because it is spread out and the total amount is not large, we think it is not going to be significant.

One of the problems with these models is that whichever one you use, they are essentially based on past relationships. None of us know with certainty what changes in life styles mean for changing those relationships in the future, and to what extent therefore, regardless of

how good the model-maker, or the computer model is, that we are using, to what extent it will be somewhat inaccurate in that regard. I can only reiterate the point I made at the beginning, Mr. Chairman, that it's important to recognize the degree of imprecision there has to be in this, and the fact that it's not going to be administered in isolation, this program, as part of the administration's overall economic policy; and that we have enough time as we go along, when we see unexpected results, to make the necessary adjustments to compensate for effects that we had not anticipated or that the computer did not warn us about.

As for the impact on prices, we can have any number of witnesses. They will tell you any number of different things about what the impact on prices is. I am impressed by the fact that the consensus of all those who have been studying this is fairly close. No one has said there will be no impact on prices. We certainly feel, based on the studies that we have done, there will be a small impact, that it will result in some pressure on the CPI.

On the other hand, we think it will be relatively modest, three- to four-tenths of 1 percent. Again, it depends upon the assumptions that you make.

If you assume that full increase in the wellhead tax will be passed along and not partially absorbed by the companies, you get a result that is a little different than if you assume that world conditions and competitive pressures will involve some absorption in the profit margins by the companies. It depends partly on the assumption that you make with regard to OPEC prices and how that is going to affect the overall price level in the United States.

So it is difficult to calculate it precisely, but we do believe, based upon what we have been able to determine, that it will be small. We did want to make sure of this: There will be no windfall to the producers. The inventories of existing oil in this country are not going to be up-valued in a way which allows unwarranted windfalls. That is something that we clearly think would be very undesirable. That is something we don't think the American people would accept.

On the other hand, we did want to provide plenty of incentive for production. Those who say this program does not emphasize production are wrong in my judgment.

They are wrong because in fact when you look at the prices and at the margins for new oil, for truly new oil that is available to the companies, to the producers in this country, it is very high. Remember only a few years ago they were getting \$3 a barrel and they will be getting closer to \$14 now under this program. When you look at the margins and you compare the margins that are available to them as compared to any other major producing country, they will have a higher margin on new oil than almost any other place in the world.

I would think that the incentive to go out and find new sources, new supplies, clearly is there.

The impact on the balance of trade: It can't help but have a favorable impact on the balance of trade.

Senator HUMPHREY. What was that?

Secretary BLUMENTHAL. I asked the rhetorical question, Mr. Vice Chairman, What will be the probable impact on the balance of trade?

I answered myself by saying, It will most certainly have a favorable impact on the balance of trade, considering that we are to reduce the importation of oil from what we think would otherwise be 12 million or 14 million barrels a day down to about 6 million.

Now, again you can quarrel whether it's going to be 6 million, whether it's going to be 7 million; depending on what computer you read, you are going to come up with a different answer. Clearly, if the program has any impact at all, it's going to result in a reduction in consumption and, therefore, in a reduction of imports of oil from abroad. We have seen a swing over the last 2 years in the balance of trade to where this year we may have a deficit in excess of \$20 billion in trade.

The first quarter we had a deficit of over \$20 billion, the excess of what we have to pay for what we get.

The first quarter, the deficit was \$6.9 billion, I believe, which is the same as it was in the whole second half of the preceding year; and clearly when we look at the components of that deficit, we see that the swing toward the deficit from last year to this year is accounted for in very large measure by the additional oil supplies. That demonstrates how important this is in the total of our balance-of-trade picture.

So as we reduce down to 6 million barrels or so, if we achieve that 6 to 7 million barrels a day, we clearly would have a very positive impact on our balance of trade.

If you take out oil, or if you impute the price of oil as it existed in 1970, or before, we actually have a very favorable balance of trade at the moment. So that again this is another way of making the point that to the extent to which this program is in fact successful in reducing the importation of foreign oil into the United States, it will have a direct impact, favorable impact, upon the balance of trade.

What will be its impact upon the rest of the world? I think that question was answered rather clearly at the economic summit that President Carter attended a couple of weeks ago. All of the participants there recognized that a national energy policy of this kind by the United States, relieving pressure on world supplies as it does, showing the way hopefully for other countries to go some distance and do likewise, clearly will have a beneficial impact on them. That is why they welcomed it.

It should, particularly for the developing countries, provide some relief for the staggering bills that they have to pay for their oil, where the flexibility they have is much less than we have. In terms of the overall international economic environment, which is such an important element for us, for our—not only our economic well-being—but also our political relationships with all of these countries, this program if implemented and successful, clearly will have a very beneficial impact.

Mr. Vice Chairman, I could go on at some length. I think that provides some basis for discussion, and I would be happy to try to answer any questions that you or your colleagues might wish to put to me. Thank you.

Senator HUMPHREY. Thank you.

[The prepared statement of Secretary Blumenthal follows:]

PREPARED STATEMENT OF HON. W. MICHAEL BLUMENTHAL

Mr. Chairman and members of this distinguished committee: It is my privilege this morning to appear before you to discuss the President's National Energy Plan. This program is one of the most important undertakings of our time, involving as it does major adjustments in fundamental aspects of our economic system: the rate at which our society consumes energy and in the sources from which we extract energy. It is entirely fitting, therefore, that this program be subject to the most careful scrutiny of the Congress.

The plan has as its objective conservation and substitution—conservation of increasingly scarce resources through a reduction in the rate of growth in energy consumption, and substitution by conversion from energy sources which are limited and variable in supply to those which are domestically more abundant.

The principal mechanism for achieving these objectives is the use of the tax system, through a combination of tax penalties and tax incentives. The plan has been designed so that, for the economy as a whole, the revenues collected under the proposed tax penalties will be recycled to finance related elements of the energy conservation program.

I would like to review with the Committee the major tax elements in the plan, the function each tax is intended to perform, the orders of magnitude of the expected tax receipts, and the procedures through which the receipts will be recycled to the economy.

Crude oil and gas equalization tax and credits

One of the principles of our energy policy is a rational pricing policy for scarce energy sources to reflect world prices. This is necessary to assure that our scarce natural resources reflect the price which represents their true cost. The crude oil equalization tax is intended to bring the domestic refiner price of crude oil up to the world market price over a 3-year period without providing an unjustified windfall to producers of existing oil wells.

Under the crude oil equalization tax, domestic crude oil will be subject to an excise tax equal to the difference between the current controlled price and the world market price. The tax will be brought into effect in three stages, beginning in 1978. The full tax will be in effect by 1980.

This tax assures that all consumers of petroleum pay prices that reflect the true marginal cost of foreign imports. These prices should provide incentives both to reduce consumption and, where possible, to switch to alternative fuels. This tax also assures that consumers of relatively inexpensive oil will not gain an undue advantage over consumers.

Both from the standpoint of fairness and to assure that the tax will not have an effect on the economy, the net revenues derived from this tax will be recycled to users of oil. First, a refund of the tax is made to sellers of residential heating oil. But for this to be available the rebate must be flowed through to home heating oil customers. The balance of the revenues, less administrative costs and tax benefits derived from business deduction of the tax, are to be returned to virtually all consumers on a per capita basis. All income taxpayers, including those receiving the earned income tax credit, would receive the per capita credit. The same per capita amount would be made available to those not paying tax but receiving social security payments, to those receiving SSI payments, railroad retirement payments and those on the AFDC program.

The gross crude oil equalization tax collections are estimated to amount to about \$2.8 billion in 1978, rising quite rapidly to \$11.9 billion in 1980 and then rising to \$12.3 billion by 1985. Out of these gross tax receipts there will be paid tax refunds to jobbers to compensate them for the cost of residential heating oil exemptions. These are expected to amount to \$48 million in 1978, rising to \$966 million in 1981 and then staying at about the level thereafter. The remainder of the receipts are either estimated as reductions in income tax receipts or paid out on a per capita basis to income taxpayers and to those on social security, AFDC or similar programs. The estimated amount going to income taxpayers in 1978 is \$1.9 billion, rising to \$7.5 billion in 1985. The amount going to those on social security, AFDC or similar programs on this same per capita basis is estimated at about \$500 million in 1978, rising to \$1.9 billion in 1985.

Residential and business conservation

To provide a further stimulus to energy conservation, we have also proposed a series of residential conservation and business energy tax credits. These credits will provide individuals and businesses the incentives they need to make necessary efficiency improvements in their homes, factories, and business establishments.

The residential energy credit consists of the energy conservation credit—that is, the credit for insulation—and the solar energy equipment credit. The energy conservation credit provides a credit against income tax to the individual taxpayer of 25 percent of the first \$800 of expenditures of this type plus 15 percent of the next \$1,400 of these expenditures (up to a maximum cumulative credit per taxpayer of \$410). The expenditures for energy-saving equipment are those for wall and ceiling insulation, storm windows, clock thermostats and energy-saving furnace modifications. Expenditures for caulking and weather stripping qualify only if made in connection with other energy-saving expenditures. This incentive will go a long way towards achieving the President's goal of making as many as possible of the nation's homes thermally efficient.

In addition, we propose a significant incentive be provided for homeowners to tap our only nondepletable resource—the sun. We will provide in 1978, for example, a solar energy equipment credit of 40 percent, on the first \$1,000 of solar equipment expenditures and 25 percent on additional expenditures (up to a maximum credit of \$2,000). This covers both solar hot water and solar space heating installations. After 2 years, lower levels of the credit will apply through 1984. This kind of credit will enable many Americans to look beyond fossil fuels as the primary way of heating their homes and will enable them to employ the new solar heating technologies that are emerging.

We have proposed a similar program of tax credits which expand the present investment tax credit provisions for business investment in certain energy-saving equipment such as insulation, double glazed windows, energy control systems and efficient heat exchangers. These investments will be eligible for an additional 10-percent business energy property credit on top of the regular investment credit.

Solar heating equipment for commercial and industrial application and cogeneration property also would be eligible for this additional 10-percent credit. Cogeneration is the process by which waste heat generated in the process of making electricity is recycled and used in an industrial application, or vice versa. Cogeneration used to be fairly common, but today only 5 percent of total electrical generation capacity has this capability. This is an area where a tax incentive can make a significant contribution towards helping the nation conserve our energy supplies.

We estimate the cost of these credits to be \$754 million in 1978 and to be \$616 million in 1985. Most of this—\$666 million in 1978 and \$517 million in 1985—is attributable to thermal efficiency. Cogeneration accounts for most of the remainder—\$52 million in 1978. (The program has expired by 1985.)

Transportation taxes

The two primary proposals designed to encourage improved fuel use in transportation are the automobile fuel inefficiency tax and rebate and the standby gasoline tax and per capita credit.

The automobile fuel inefficiency tax (commonly referred to as the "gas guzzler tax") and rebate mechanism will supplement existing law and regulation in this area, which already provide standards of fuel economy in the years ahead and civil penalties on the automobile companies if they are not complied with. The tax and rebate should result in a higher average fuel efficiency of new cars than that achievable under the EPCA standards alone. We believe the existing mechanism alone will not achieve the level of conservation we have established as a national goal.

The fuel efficiency tax and rebate is geared to a specific fuel efficiency standard already promulgated for new cars each year. For the 1978 model year, for example, the target level of automobile fuel efficiency is 18 miles per gallon. Cars just achieving that standard would pay no tax and would not be eligible for a rebate. Cars surpassing that standard would be eligible for a rebate based on their gasoline efficiency as determined by EPA testing. In 1978 cars with an average efficiency of 25 mpg, for example, would get a rebate which is five times the amount that cars achieving only 20 mpg would be eligible for. Conversely,

cars not achieving the target efficiency would pay a tax of up to \$450, depending on how far below the standard they rank. The standard is increased gradually so that for the 1985 model the standard is 27.5 miles per gallon.

No net effect is expected on the budget surplus or deficit from the gas guzzler tax and rebate because the taxes collected on inefficient automobiles will be returned as rebates for efficient vehicles. The program is structured this way to help and encourage the automobile industry to convert from gas guzzlers to efficient small cars. The intent is to provide an incentive to purchase fuel efficient automobiles, not to collect tax revenues. The rebate mechanism will also minimize the inflationary impact of the program by reducing the net cost of fuel efficient vehicles to balance off the increases in cost of the fuel inefficient cars. The gas guzzler tax is expected to bring in receipts of \$500 million in 1978, increasing to \$1.9 billion by 1985. This, however, will be offset by expenditures of like amounts to cover the rebates in these same years.

Rebates will be made to foreign manufacturers only under the terms of executive agreements designed to take into account the impact of the U.S. tax and rebate program on the automobile industry of the particular country in question.

The standby gasoline tax in no event will go into effect before 1979 and in no year can amount to more than a 5-cent increase. It is keyed to a series of targets as to consumption of gasoline which allow for continued increases through 1980 to a level of 7.45 million barrels a day. The present level is between 6.7 and 7.0 million barrels a day. After 1980 the targets assume that the energy program generally will result in economies in the use of gasoline and, thus, in subsequent years the consumption targets will gradually decrease to a level of 6.5 million barrels a day by 1987.

In 1979 or any subsequent year, the tax would go into effect if gasoline consumption in the preceding year exceeded the target by at least 1 percent. The amount of the tax would equal 5 cents for each percent that gasoline consumption exceeded the target in the preceding year. The tax could be reduced by 5 cents a year based on the formula in the legislation. The tax could not increase or decrease more than 5 cents per year and it could never exceed 50 cents.

In 1979, the standby gasoline tax, if imposed, would bring in revenues of \$4.1 billion. This would be rebated in its entirety either to income taxpayers or those on the various social security and related programs. By 1985, if every increase possible were provided, this could amount to \$39.8 billion in that year; but again it would all be rebated to income taxpayers or those covered under social security or similar programs.

Two other lesser elements of the program concerned with transportation are the repeal of excise tax on buses and an increase in fuel excises paid by general aviation and motorboats.

The repeal of the 10-percent excise tax on buses is a step forward in promoting the use of this efficient mode of transportation. The higher excises on general aviation (increased by 4 cents per gallon) and motorboats (repeal of a 2 cents per gallon rebate) should achieve reductions in the use of fuel by these relatively inefficient and often nonessential modes of transportation. These higher excises will only apply to noncommercial uses of aircraft and motorboats; commercial fishermen and airlines will be exempt from the increased tax.

Since the automobile efficiency taxes and the standby gasoline taxes are designed to collect no net revenue, the budgetary impact of these transportation programs is quite small. The net impact of these latter two taxes is a gain of \$32 million in fiscal 1978, and the impact in 1985 is estimated to be a gain of \$71 million.

Oil and gas consumption tax

The oil and gas consumption tax is designed to encourage industrial and utility users of oil and gas to convert to coal and other desirable fuels. Oil and gas consumption taxes would be imposed beginning in 1979 for industrial use and in 1983 for utility use of oil and gas. The tax on nonutility use is phased in gradually through 1985. The oil and gas consumption tax is intended to be a permanent tax.

These taxes would be rebated, however, to the extent that oil and gas users in the same year convert their plants to fuels other than oil or gas. This rebate will take the form of a dollar-for-dollar offset of conversion expenditures against the

taxpayer's oil and gas consumption tax liability. We expect a large percentage (over 50 percent in some years) of the taxes to be rebated because of the combined effect of both the higher price which users will have to pay for fuel, and the reduced price to them of conversion.

In order not to penalize small oil and gas users for whom it is not economically feasible to convert their boilers, we have provided a small business exemption. The exemption from tax is for the first 500 billion BTUs a year. For an average user, this amounts to about \$1.5 million in fuel costs per year. This provision will insure that many businesses that have no real opportunity to convert from oil and gas will be exempt from the oil and gas consumption taxes. We have also provided an exemption from these taxes for refineries, aircraft, railroads, ships, farming and use of oil or gas in the production of fertilizer.

The expected net cost of these programs after all rebates is estimated at \$1.4 billion in 1978 and about \$11.9 billion in 1985.

Energy development incentives

Finally, we propose to provide two incentives to insure the future supply of oil, gas and geothermal resources. In regard to oil and gas intangible drilling expenses, we propose limiting the application of the minimum tax to those individuals sheltering other income through oil and gas losses. We would exempt from the minimum tax the many independent oil and gas drillers whose investments generate oil and gas income. Our amendment accomplishes this by restricting the minimum tax to intangible drilling expenses which exceed a taxpayer's oil and gas income.

In addition, we propose to provide an incentive that will aid in the development of our largely untapped geothermal resources. This is a relatively new industry, and because of this we believe that providing the industry with the opportunity to expense its intangible drilling costs will provide a needed stimulus to development. These expanded costs will be subject to the minimum tax to the extent that they exceed income from geothermal operations.

The revenue cost of these two initiatives is \$24 million in 1978 and \$128 million by 1985.

There has been criticism that the President's program has stressed energy conservation at the expense of development. This is not based on a close analysis of the program. Not only are there the two supply incentives just discussed, but we have what in the free enterprise system should be viewed as the most important incentive of all: a free price. Newly found oil is free to reach the world price, something like \$14 a barrel. One remembers that crude oil sold for \$3 a barrel only a few years back. This should be a great incentive. It is true that already existing discoveries will not get such a price. We see no reason for allowing windfall profits in this area.

It should be clear from this description of the major tax and revenue recycling components of the program that every effort has been made to minimize the impact of the program on the nation's output and prices, as well as on the Federal Budget. It is estimated that, over the period out to 1985, additional Budget outlays associated with the National Energy Plan would aggregate some \$50 billion, while revenues raised by new energy-related taxes (net of credits and certain rebates) would sum to about \$51 billion.

Thus, the net dollar impact on Federal finances, at a first approximation, would be less than \$1 billion. Even the flows on each side of the Budget of some \$50 billion, cumulated over the period to 1985, are small relative to an economy as large as ours.

In the near term there would be a measurable budgetary impact. In FY 1978, the increase in outlays under the program would exceed the increase in revenues, thereby adding about \$1½ billion to the Budget deficit. However, this is a relatively small addition, particularly so in light of the national benefits that will accrue from a prompt start on our conservation objectives. Nor will it detract from achieving our goal of a balanced budget by FY 1981.

As for the impact on real output, the efforts to preserve consumers' real incomes by recycling taxes should result in little effect on consumer spending. Perhaps the gasoline tax, if triggered, might result in a reduction in consumer spending for autos not compensated by increased spending on other goods and services, but there are expenditure offsets, such as the response to the incentives offered consumers to insulate and otherwise improve the thermal efficiency of their homes. Moreover, the incentives to business to invest in new equipment that utilizes more abundant energy sources, and utilizes it more efficiently, will be a net stimulus to investment. Our overall assessment, with which a number of

other analysts concur, is that real GNP in total will differ little from the path it would otherwise have followed in the absence of the energy program. Accordingly, we see little overall effect of the program on the course of unemployment.

Prices, however, will undoubtedly be somewhat higher. There is no reason to assume that other prices will fall just because petroleum prices rise. And rise they must if we are to remove the present subsidy under which domestic users are encouraged to use petroleum products because the domestic price is constrained below the world price. By raising U.S. prices to the world level—in stages—we will be encouraging conservation measures.

The effect of the program on the course of prices is apparently a matter of greater debate among economists than is the effect of the program on economic activity in real terms. Some of the differences between our estimates and those of other observers is the result of differing assumptions as to the extent to which certain of the taxes will be passed through to consumers, and as to the likelihood that the standby gasoline tax will be triggered.

When the assumptions are reconciled, some differences in estimate remain, but are for the most part relatively small. Our view is that as a result of the program, the incremental rise in prices will likely be some .3 to .4 percent for the next two years, principally as the crude oil equalization tax brings domestic oil prices to the world price level. After that, the rise in prices would be much smaller, on the order of .1 to .3 percent. If the standby gasoline tax were to be triggered, beginning in 1979, that would add .2 to .3 percent to the price increment.

Let me note that some degree of uncertainty must apply to these estimates, as they do to any economic forecast extending out four to eight years. We are dealing here with the prospect—the necessity—of a major change in life styles, which even in the absence of changes in real incomes could result in significant shifts in propensities to spend and to invest. It is impossible to forecast whether such shifts will occur, or if they should, which direction they might take. Finally, there can be distributive effects difficult to factor into estimates of future behavior; for example, whether financial constraints such as debt/equity ratios will permit some companies to make full use of the various investment incentives available in the plan. Therefore, the estimates cited earlier convey, perhaps a pseudoprecision to which I do not subscribe. But what is clear is that the design of the plan is such as to result in relatively small changes in the basic economy.

There is less doubt that the plans will have significant and favorable effect on our balance of trade. It will be needed. For example, our total oil import bill this year may reach \$43 billion, contrasting sharply with oil imports in 1970 of less than \$3 billion, and contributing greatly to the deficit of over \$20 billion expected in our whole international trade account.

Price increases alone do not account for the entire rise in our oil bill since 1973, for we have become increasingly dependent on oil imports for our energy. And historic projections suggest that we could be importing as much as 12–16 million barrels per day by 1985, with an oil bill as high as \$75 billion in 1977 dollars. This would represent up to 30 percent of world demand for OPEC oil.

Under these circumstances, substantial upward market pressure would be placed on OPEC price levels, leading to additional strains on the world economy, in turn requiring new rounds of worldwide economic adjustments. Some countries that have already been particularly hard hit by the oil price rises to date, such as the non-oil developing countries and the smaller industrial countries, would face very serious economic and financial difficulties.

These countries have faced especially difficult economic problems over the last several years. Most of these difficulties have stemmed from the major oil price increases of 1973 and 1974, and the subsequent recession and inflation in developed nations. More recent oil price increases have only served to exacerbate the situation.

Over the long-term, the most effective way to moderate such upward market pressure on prices is to reduce world demand for oil, and encourage use of alternate energy sources. If successful, our energy plan would reduce U.S. 1985 oil imports from 12 million b/d to 6 million b/d, thus potentially reducing our demand for OPEC oil by 6 million b/d or roughly 50 percent. To put this in perspective, such a reduction in U.S. oil imports would be over two-thirds of the projected 1985 total oil demand by Japan, a country completely dependent on imports for its crude oil supply, and would amount to 50 percent of projected 1985 oil demand by the non-oil developing countries. Thus, considerable upward market pressure on world oil prices could be diffused by an effective U.S. energy program.

In addition, leadership initiative by the United States will lead to further reductions in the demand for oil by spurring similar conservation efforts on the part of our oil-consuming colleagues in the International Energy Agency. Through our energy program, we will be able to make our energy intentions clear and enhance international cooperative efforts.

In summing up, Mr. Chairman, let me emphasize that the President's energy plan is vital for our nation's future well-being and security, as well as for the restoration of equilibrium in the world economy. The problem is inescapable. The supply of convenient, easily accessible energy sources is finite, and the pace at which energy demands are rising brings the day of reckoning uncomfortably close. We have few options on how to deal with the problem, and no option on time. We must begin to address the issues now.

Senator HUMPHREY. We will maintain the 10-minute rule so that we can have some rotations.

First of all, I hope, Secretary Blumenthal, that you or members of your staff will have an opportunity to review the brilliant testimony that we had this morning from our witnesses and the substantial scholarly attributes that came to us with their well-prepared papers. I think it would be very helpful for those in the administration that are forwarding the administration's energy program to see what has been said here today, and study that documentation.

Secondly, I am going to ask the staff to make available to you and to Mr. Schlesinger, to Mr. Schultze, and to all others that may have some input at the administration level, the staff study of the Joint Economic Committee on the President's energy proposals, because there are substantial differences of view on overall costs and what will happen to the price structure and to GNP and employment, et cetera.

At this stage I don't think anybody has any definitive answers. As you have indicated, most of this is guessing on the basis of previous experience.

Mr. Thurow came to us today with a superb document, made this statement which I think merits your consideration: he was speaking about what happens in terms of the different family incomes and individual incomes with the increased prices. He mentions about the direct purchases of energy and the industry energy price hike and so on; and he comes around to say that the cut in real income, the average direct real income cut of 3.6 percent, and the average household will find its real income cut by 6.1 percent—that is, the four-member household; the poorest 10 percent finds their real income reduction 17.9 percent; the richest 10 percent find their real income reduced 3.1 percent.

To make a complicated set of statistics is somewhat simpler, he said, when you get down to the poor income levels, that even with the rebate program, that it is still not equitable. There still has to be—if you are looking for equity—there has to be some additional help.

I just mention that to you. You may want to comment upon it.

Now, I have a few questions here that I will give to you. You will comment as you see fit.

Will 100 percent of the revenues collected by the crude oil equalization tax and the gasoline tax be rebated? And will anyone receive rebates besides taxpayers and transfer recipients?

That is question No. 1.

Secretary BLUMENTHAL. May I comment first, Mr. Vice Chairman, very briefly on the previous part?

Senator HUMPHREY. Yes.

Secretary BLUMENTHAL. We will, of course, study with great in-

terest the testimony that you received. I am particularly interested to study the numbers that you have cited that Mr. Thurow presented to you.

I said earlier, I think before you came, that there has been some variation in the analysis, which is understandable. Much depends upon what assumptions you crank into your computer. I have been impressed by the fact that the variations have not been all that great. This is a very great departure from our calculations.

Senator HUMPHREY. That is correct. That is why I call it to your attention.

Secretary BLUMENTHAL. I am surprised by this. That is why I would like to make the comment I am about to make. To the extent we can look at the way in which the program will work, and the things the numbers tell us, it should if anything benefit the low-income groups and welfare recipients and social security recipients. Because of the earned income credit and because of the fact it is rebatable and it goes to—it tends to have a greater beneficial impact—for people at the low end of the scale rather than at the upper end of the scale.

We are preparing some data for a table. I was asked to do this for the House Ways and Means Committee. I will be happy to make it available for the record. They are typical families—a man, a woman, two children, at various income levels with different assumptions about how much they drive and what their different life style is and what we estimate the impact to be on these families.

Senator HUMPHREY. We would be happy to have that.

[The following table was subsequently supplied for the record:]

ESTIMATED IMPACT OF ENERGY TAXES AND CREDITS ON INDIVIDUALS
[Dollar amounts in millions]

Adjusted gross-income class (thousands)	1977 law income tax ¹	Direct and indirect energy taxes on individuals ²		Per capita energy credits ³		Net change in tax	
		Amount	Percentage distribution	Amount	Percentage distribution	Amount	Percent of 1977 law income tax
CALENDAR YEAR 1978⁴							
Less than \$5.....	\$217	\$227	11.7	-\$948	34.5	-\$721	-332.3
\$5 to \$10.....	10,438	348	17.9	-665	24.2	-317	-3.0
\$10 to \$15.....	22,840	428	21.9	-467	17.0	-39	-.2
\$15 to \$20.....	28,994	367	18.8	-291	10.6	76	.3
\$20 to \$30.....	41,692	357	18.4	-252	9.2	105	.3
\$30 to \$50.....	28,077	138	7.1	-89	2.3	49	.2
\$50 to \$100.....	20,901	58	3.0	-29	1.1	29	.1
\$100 or more.....	17,225	21	1.1	-6	.2	15	.1
Total.....	170,386	1,944	100.0	-2,745	100.0	-801	-.5
Less than \$15.....	33,495	1,003	51.6	-2,081	75.8	-1,078	-3.2
\$15 to \$30.....	70,687	924	37.2	-543	19.8	181	.3
\$30 or more.....	66,203	219	11.3	-125	4.5	94	.1
CALENDAR YEAR 1979⁴							
Less than \$5.....	243	755	11.9	-1,926	31.8	-1,171	-481.9
\$5 to \$10.....	11,691	1,042	16.4	-1,415	23.4	-373	-3.2
\$10 to \$15.....	25,581	1,329	20.9	-1,072	17.7	257	1.0
\$15 to \$20.....	32,473	1,168	18.4	-712	11.8	456	1.4
\$20 to \$30.....	46,695	1,188	18.7	-623	10.3	565	1.2
\$30 to \$50.....	31,446	514	8.1	-219	3.6	295	1.9
\$50 to \$100.....	23,409	250	3.9	-71	1.2	179	.8
\$100 or more.....	19,292	102	1.6	-13	.2	89	.5
Total.....	190,832	6,348	100.0	-6,050	100.0	298	.2
Less than \$15.....	37,514	3,127	49.3	-4,413	72.9	-1,286	-3.4
\$15 to \$30.....	79,169	2,355	37.1	-1,336	22.1	1,019	1.3
\$30 or more.....	74,147	865	13.6	-303	5.0	562	.8

ESTIMATED IMPACT OF ENERGY TAXES AND CREDITS ON INDIVIDUALS—Continued

(Dollar amounts in millions)

Adjusted gross income class (thousands)	1977 law income tax ¹	Direct and indirect energy taxes on individuals ²		Per capita energy credits ³		Net change in tax	
		Amount	Percentage distribution	Amount	Percentage distribution	Amount	Percent of 1977 law income tax
CALENDAR YEAR 1980⁴							
Less than \$5.....	272	1,302	11.9	-2,913	29.8	-1,611	-592.3
\$5 to \$10.....	13,094	1,768	16.2	-2,226	22.8	-458	-3.5
\$10 to \$15.....	28,651	2,271	20.8	-1,785	18.3	486	1.7
\$15 to \$20.....	36,370	2,001	18.3	-1,238	12.7	763	2.1
\$20 to \$30.....	52,296	2,047	18.8	-1,081	11.1	966	1.8
\$30 to \$50.....	35,220	898	8.2	-378	3.9	520	1.5
\$50 to \$100.....	26,218	443	4.1	-120	1.2	323	1.2
\$100 or more.....	21,607	181	1.7	-23	.2	158	.7
Total.....	213,732	10,913	100.0	-9,766	100.0	1,147	.5
Less than \$15.....	42,016	5,341	48.9	-6,923	70.9	-1,582	-3.8
\$15 to \$30.....	88,669	4,048	37.1	-2,319	23.8	1,729	1.9
\$30 or more.....	83,045	1,522	13.9	-520	5.3	1,002	1.2
CALENDAR YEAR 1985⁵							
Less than \$5.....	479	2,280	12.1	-3,066	31.0	-786	-164.1
\$5 to \$10.....	23,076	2,872	15.2	-2,288	23.1	584	2.5
\$10 to \$15.....	50,493	3,807	20.1	-1,772	17.9	2,035	4.0
\$15 to \$20.....	64,095	3,414	18.1	-1,204	12.2	2,210	3.4
\$20 to \$30.....	92,167	3,586	19.0	-1,054	10.7	2,532	2.7
\$30 to \$50.....	62,070	1,675	8.9	-369	3.7	1,306	2.1
\$50 to \$100.....	46,205	884	4.7	-118	1.2	766	1.7
\$100 or more.....	38,079	374	2.0	-23	.2	351	.9
Total.....	376,669	18,893	100.0	-9,894	100.0	8,999	2.3
Less than \$15.....	74,047	8,960	47.4	-7,126	72.0	1,834	2.5
\$15 to \$30.....	156,265	7,000	37.1	-2,259	22.8	4,741	3.0
\$30 or more.....	146,354	2,934	15.5	-510	5.2	2,424	1.7

¹ Includes tax changes resulting from Public Law 75-30. Current year tax liability calculated assuming a 12-percent annual growth rate.

² Energy taxes distributed to all individuals according to estimated personal consumption and gasoline expenditures.

³ Per capita energy credits: Rebates and payments to nontaxpayers under the crude oil equalization tax. At 1978 levels of income this rebate would equal \$15.

⁴ Per capita energy credits: Rebates and payments to nontaxpayers under the crude oil equalization tax. At 1979 levels of income this rebate would equal \$30.

⁵ Per capita energy credits: Rebates and payments to nontaxpayers under the crude oil equalization tax. At 1980 levels of income this rebate would equal \$45.

⁶ Per capita energy credits: Rebates and payments to nontaxpayers under the crude oil equalization tax. At 1985 levels of income this rebate would equal \$45.

Note: Figures may not add to totals due to rounding. Distributions are based on those obtained for 1976.

Source: Office of the Secretary of the Treasury, Office of Tax Analysis.

Secretary BLUMENTHAL. I think this table will be useful in comparing the percentage numbers that you have indicated Mr. Thurow presented to see how he gets to his reduction of 17.9 percent for the poorest, 3.1 percent for the richest. That would be very regressive. That is not our intention.

Senator HUMPHREY. You also must keep in mind what we call the single-income household. Many of these are very poor, with income levels below \$5,000, \$6,000.

I just refer you to it. We don't need to press the point now, but Mr. Thurow of MIT gave us, I thought, one of the better statistical analyses of the program that has been presented. I don't draw any value judgment of it right or wrong. I think it needs to be looked at.

My question was, will the 100 percent of the revenues collected by the crude oil equalization tax and gasoline tax be rebated, and will anyone receive rebates besides taxpayers and transfer recipients?

Secretary BLUMENTHAL. The answer is yes. It will be recycled 100 percent. It will go to heating oil users first on a dollar-for-dollar basis; and then—less administrative costs associated with the program—it will go back on a per-capita basis.

To be precise, here is what the briefing says. The net receipts of the Treasury from this tax, after allowing for lost income tax revenue resulting from the absorption of approximately one-third of the tax by the oil-producing and refining sector, will be rebated in three ways.

One, that portion attributable to the production and sale of home-heating oil will be refunded to purchasers through the agency of dealers delivering the fuel; two, a per-capita credit, one for each tax exemption; and three, an equivalent per-capita payment to non-tax return filers on the Federal assistance program.

With the exception of administrative costs, which are not mentioned in here, and of course the absorption of the tax benefits for the producers, it will be fully rebated to the public.

Senator HUMPHREY. A more basic question. The Joint Economic Committee staff study projects 1985 crude oil equalization revenues at between \$23 billion and \$40 billion. That in itself shows that we are guessing here.

Assuming that this tax absorbs the price difference between controlled domestic crude and imports, which are projected to rise in price between 7 and 10 percent yearly, you state in your testimony—and it's been stated by the other representatives of the administration—that the 1985 tax collections will run about \$12.3 billion. What rate of OPEC price increase was assumed in your calculation?

Now, I point out that the Joint Economic Committee staff study set the tax take will be anywhere between \$23 to \$40 billion. It is a wide variance. Even if you take \$23 billion as compared to your \$12.3 billion, what rate of OPEC price increase did you have in mind?

Secretary BLUMENTHAL. I believe I am correct in this, Mr. Vice Chairman, that we had assumed the present price level. We have not assumed any increase in prices because these are obviously difficult to predict. We hope there won't be any, but we certainly don't want to make assumptions in our calculations.

Senator HUMPHREY. Do you think that is very realistic, truly? With these people having that club in their hands and with other world prices going up of industrial goods, everything that the OPEC countries buy has gone up. They have here a nonrenewable resource. I am not talking about whether they are going to increase the price 15 percent or even 10 percent; but isn't it possible from the past that you are going to see, 5, 7, or 8 percent increases in price?

Secretary BLUMENTHAL. It is possible. I certainly am not suggesting that the assumption was that there would be no price increase; but for purposes of this calculation, a calculation that was made to say assuming present prices, what would we collect, and what would we rebate?

We tried to stay away from imputing a certain price increase for reasons that I am sure will be clearly—

Senator HUMPHREY. My followup question is, If OPEC prices rise much more rapidly than you would expect, and if the fact is related to OPEC prices—and it is—doesn't this give OPEC a

substantial and unpredictable influence over U.S. fiscal policy that may be hard to offset in a timely fashion?

Secretary BLUMENTHAL. There is a provision in the suggested legislation, Mr. Vice Chairman, as I understand it, which in effect fixes the price at the 1977 level plus inflation. There is a possibility for the administration under this legislation therefore to—not to go up further in the third tier, the freed price, depending upon—not to follow internally as to what will happen with regard to OPEC pricing. Whether or not we would avail ourselves of that possibility, I don't know; but clearly if the price rises would be of a certain kind, we might. I would want to say in conclusion that the impact on the U.S. economy—that OPEC has on us, exists today. That program doesn't change it.

As a matter of fact, that program reduces it over time because it gives us less of a dependence on imports.

So we don't really think that we increase the leverage that they have over us at all by this. We do think we reduce it because we are less dependent upon them; and secondly, because the legislation permits us not to go ahead and keep increasing prices if they would, we feel that we could insulate ourselves from whatever they might be doing.

Senator HUMPHREY. My followup question—and I think my time will be exhausted here—the administration's bill would permit crude oil tax to be uncoupled from the world oil prices if the latter rise too fast. You indicated that?

Secretary BLUMENTHAL. Yes.

Senator HUMPHREY. If this were done, however, then the unpopular entitlement program would have to be resurrected to preserve fair competition among refiners, some of whom would otherwise have to pay high prices for imported crude oil imports, while others receive U.S. oil under price controls.

Is this administration ready to resurrect the entitlements program if the OPEC countries raise the price too rapidly?

Secretary BLUMENTHAL. You are right, we are anxious to get rid of the entitlements program. We think under this program it would. You are further correct, if we did uncouple, we would get back into that situation.

But under certain circumstances, we might not have an alternative in uncoupling. I think that is perhaps one of the prices we would then to have pay. The goal here is that, hopefully, the price movement by OPEC would be sufficiently small or moderate that giving the producers the 1977 price plus inflation would allow us not to have to uncouple.

Senator HUMPHREY. I know that the matter of incentives has been brought up. Is my time about up?

Senator HATCH. Go ahead, Senator.

Senator HUMPHREY. I want to get for the record, and see if I have the incentive program somewhat in mind, in proper order here. In addition to the exemption from the minimum tax for independent drillers and geothermal producers, the administration's bill includes decoupling of new oil; is that correct?

Secretary BLUMENTHAL. Correct.

Senator HUMPHREY. It provides much high prices for new interstate natural gas; that is interstate?

Secretary BLUMENTHAL. Correct.

Senator HUMPHREY. Which has nearly tripled in price under FPC controls last summer. It permits incentive prices for high-cost oil and gas recovery. In the coal market—and there is a great emphasis on coal—the plans concentrate on expanding demand rather than supply; because this appears to be the primary constraint on coal output.

Coal prices are not controlled, is that correct?

Secretary BLUMENTHAL. That is correct.

Senator HUMPHREY. For the new oil, that is wells drilled after April 1977, that oil sells at the world price and can have an escalator in it for at least 3 years; is that correct?

Secretary BLUMENTHAL. It sells at the 1977 world price plus escalation.

Senator HUMPHREY. This would seem to be to me quite a few good incentives unless you are a hog.

Secretary BLUMENTHAL. I agree with you, Mr. Vice Chairman. I think you could—

Senator HUMPHREY. I didn't mean to be abrupt. I was trying to figure out which species or organic substance would best characterize it. I mean \$14 a barrel in a controlled market. You see the OPEC—what has gone wrong here in all of this business about incentives, there is no competitive market. It's not a competitive market at all. It would be exactly like if we had a total monopoly on food to set wheat at \$40 a bushel; you either pay it or starve.

The problem is, we can't do that because today, as I read this morning, the world food supplies are very abundant this year. So we don't have that kind of control; but all this business of somehow or other we have a market price competition here is just plain nonsense.

There is no market price competition. There's a few people getting together and deciding what you are going to pay. We sit over here, with our resources, in our territory, for our country, for our people, for our national security, and we say, well, we will let a few fellows over there in Saudi Arabia—they are friendly, and I am glad they are; in Iran, and they are friendly, and I am glad they are. We say you tell us what the price will be, we will pay it, and see that all our boys get the same rake-off, and also we will let you decide what the Federal budget is going to be; because that is really what they are doing.

We get down here talking about the cost of welfare programs, and what the poor cost the country, and what the unemployed cost the country, and so forth; really what is going on here, as witness any program we have—and I know we don't have much choice, but I have a right to complain—is merely that somebody has never met, that has no citizenship in this country, that has enough control at least in an oligopolistic sense, almost monopolistic, to be able to say this is what you will pay. If they decide tomorrow morning we are going to pay \$25 a barrel for oil, we will pay \$25 a barrel for oil.

There is no competition. You know it, I know it.

Somehow, some way or other we have to face up to that fact. I don't know whether the program before us really faces that fact. I don't think the American people have been told that they could pay \$50 a barrel for oil or \$30 a barrel for oil. Why not?

Somebody over there has the spigot; and then you are going to say that oil we take out of our ground, that belongs to the American peo-

ple over here, that we shall do the same even though we may be more efficient producers and more efficient distributors?

Just a little thought as we end my 10 minutes.

Senator JAVITS.

Senator JAVITS. Thank you, Mr. Vice Chairman.

Mr. Secretary, there are a number of points in this program of the President's which have caused me and others like me to raise very serious questions. One is this \$14 price.

Isn't it a fact this \$14 price for so-called new oil comes from oil which is found in areas not particularly exploited today, and this is a very limited opportunity in terms of new exploration; in short, isn't it secondary, tertiary recovery, the use of digging deeper in existing fields and so on and offshore, and so forth, which is likely to produce much more than this new oil which comes from fields not yet exploited?

Secretary BLUMENTHAL. I am not sure, Senator.

Senator JAVITS. Well, what does the administration say about it? It's their case?

Secretary BLUMENTHAL. Yes. The position of the administration is that this price for new oil, defined as we have it, which is 2½ miles from an existing well, provides a lot of incentive for a considerable amount of additional production; and that that is a fair definition, and a generous price to bring out a lot of additional production.

Senator JAVITS. So that's the factual argument, really?

Secretary BLUMENTHAL. Yes.

Senator JAVITS. We will have to decide which side the facts fall on; is that true?

Secretary BLUMENTHAL. Right.

Senator JAVITS. Now, the other thing that is such a big challenge is this gasoline price increase. What the President has suggested is that we have a collective guilt. We use too much gasoline collectively; we have to pay 5 cents a gallon. If we don't use it collectively, we don't. What is the premium on the individual then? What does he care if *x* million other automobile users determine the situation and he's not—he's not even a drop in the bucket?

Why should he have any particular interest in saving?

In sort, isn't Mr. Eckstein right when he recommended this morning just make a tax for whatever you really need in the way of revenues? Three cents a gallon is what he suggested instead of this highly complex formula which leaves everybody up in the air and doesn't reward anybody in any individual sense, even as a voter. Sure, 80 or 90 million voters in the country elect local officials. You see something, even if your vote for the President falls in some kind of big ocean.

Here you see absolutely nothing. Isn't that a grave defect in the plan?

Secretary BLUMENTHAL. I don't see it, Senator. I think if a person is very considerate and careful in his or her consumption of gas and uses less, and if nevertheless the tax is imposed because the country as a whole has been more liberal or profligate in its use of gas, then that individual or taxpayer's family will share in the rebates and, therefore, on balance, benefit by having not used very much gas and not having paid the higher price, but will still be getting a fair share of the rebate.

Second, I think that the chances of meeting a national goal are

quite good. Our estimates indicate that the chances this tax will not be imposed are at least 50-50. It is again a matter of perception as to whether or not you want to challenge all of the people in this way, to say, Here is something we can work together on. We have met challenges before as a people; the President felt that this was a challenge which the people would meet again.

But even if we failed, the person who does better through the rebate mechanism will on balance stand to gain. So it is, I think, a commendable and interesting way of doing it. I think it could be quite an effective one; the hope, of course, being that the tax will never be imposed.

Senator JAVITS. Also isn't it a fact that you kiss off rather lightly our problems with foreign manufacturers who supply us now with, say, roughly 20 percent of the American market? When you say in your prepared statement, "Rebates will be made to foreign manufacturers only under the terms of executive agreements, agreements designed to take into account the impact of the U.S. tax and rebate program on the automobile industry of a particular country in question."

You, in fact, are allegedly representing a breach of our obligation under GATT. Isn't that a long-drawn-out process? What are we going to do in the meantime with people who want to buy foreign cars. Are they just going to pay through the nose?

Secretary BLUMENTHAL. No. I think this particular reference to the foreign problem is certainly not intended, Senator, to kiss it off lightly. It clearly is a very serious and very complex and difficult matter on which some difficult international negotiations will have to be conducted.

We face a problem. I think we ought to recognize the problem clearly, and it is this: We have embarked on a major national energy policy. The American people, everyone has said we need one. Now we have a proposal for one. That policy does mean, in one way or the other, as quickly as we can, the adaptation of the U.S. automobile industry to the production of smaller, more fuel-efficient cars that the American public will want to buy. That will take time.

I don't believe that it is reasonable for us to say that while this process is going on by whatever technique we use, we will simply allow foreign producers—particularly by paying subsidies to them over and beyond anything that ever was dreamed of when the GATT commitments were negotiated—to take what could be a substantially larger share of the U.S. market, penalizing American workers as we are implementing a national program which is for the benefit of everybody, including the foreigners.

I think if we are fair and equitable, if we say to them that we will protect you as our foreign supplier so that you are not discriminated against with any deleterious results, but nevertheless you must understand our situation and be fair to us and allow us to implement our program in a way which does not allow you to take unfair advantage of it, that is a negotiable proposition.

I was so cautious in what I said here, because I really felt. I didn't want to make it harder for our trade negotiator, Ambassador Strauss, to be successful in negotiating on a flexible basis a reasonable arrangement that has that kind of goal as its result.

Senator JAVITS. Mr. Secretary, isn't it a very much more direct way to simply limit the kind of cars that can be made because of the national crisis, and that would include foreign cars as a nontariff barrier to trade, if you will, where we are on much stronger ground?

Secretary BLUMENTHAL. I think, Senator, if we did that, we would be taking a very serious step domestically and an even worse step internationally. Domestically we would, in fact, be mandating what kind of cars Americans shall buy.

We would simply be saying, "Thou shalt not produce a car of a certain kind." Now perhaps the Congress wants to do it that way. Perhaps the American people are ready for that. I doubt it.

There are all kinds of different circumstances under which a larger car or a less fuel-efficient car is needed and may even be justifiable.

I personally welcome the approach that we are using, which is to say that there would be a minimum of this kind of coercion and that we would use the free market, the price mechanism, in order to influence people, plus using whatever moral suasion we can to fortify it, but not to pass laws that say "Thou shalt stop."

If we did, the impact on jobs in the American economy and on the automobile industry would be serious. Internationally, if we said, "OK, now we have a law that you can't come in here unless you have a certain type car," I can't imagine that the Congress would pass a law which would leave the doors open wide to the foreign cars while domestic producers are converting.

We would have to elect a nontariff barrier of some kind. That nontariff barrier would open us up to charges of unfair trade practices and problems in the GATT that would be at least as serious as the kind of negotiation Ambassador Strauss may have to. I may say we have had these before, but we frequently have been on the other side.

I remember the last time I served in the Government. We had what was called the "chicken war." In the "chicken war," the issue was exactly the same, except the sides were reversed and the total amount involved was smaller. They had done something to impair and nullify a decision we had made. We kept saying, "You have to do something about that."

They said, "No, we can't." We retaliated. The result was that everybody was worse off. We didn't sell more chickens over there. We had to pay more for cognac and trucks. Everybody was worse off.

Here we have a similar situation. But here we are saying we will make a deal with you. We are doing something for all of our national interests. We want to make a fair deal with you. We don't want you to take advantage of us.

I think we are on very solid ground on this, Senator. It is a defensible position in the GATT.

Senator JAVITS. I must say to you, I don't think it will work. I think you are going to get some complicated matters with foreign negotiations that it undoubtedly won't work.

My time is up. I just want to close by saying as follows: One, I thank the President for his initiative. We will get an energy plan. It won't be the administration's. It may not be ours either, but we have to do a lot better than we are doing.

Thank you.

Senator HUMPHREY. Senator Bentsen.

Senator BENTSEN. Thank you very much, Mr. Vice Chairman.

Mr. Secretary, I appreciate your appearance before us. After some of the response and hard rhetoric we have heard to the President's program, I admire all the more his courage in bringing a comprehensive energy program out. What kind of monetary response do you anticipate to the higher prices that result in some of the higher energy costs? What plans do you expect in trying to moderate that impact with a monetary response? What do you expect to happen to the supply of money?

Secretary BLUMENTHAL. We have not gone into the detailed analysis, the impact on monetary policy. What we have attempted to do is to stimulate the probable impact of the sum total of this policy—to estimate the inflationary impact, for example.

Our figures show that there will be an inflationary impact but that it will be a relatively moderate one. We have come up with 0.3 to 0.4 of a percent, under certain assumptions. Others have indicated a somewhat higher impact, but if that is correct, clearly both fiscal and monetary policy will have to reflect prudent economic management, as we do now when we have inflationary pressures to take into account.

We have not particularly looked at monetary policy since it is the responsibility the Federal Reserve has in any case.

Senator BENTSEN. Mr. Secretary, there are some incentives in this for further production, but it seems to me it is heavily weighted toward conservation. I applaud the efforts of conservation, but I would encourage some further incentives being put in there to try to increase the production side of this.

Do you have any thoughts on that?

Secretary BLUMENTHAL. Well, we feel that, of all the criticisms that are being leveled against this program—and there are certainly many, as one would expect—the one that there are not enough incentives for additional production of energy is one that is perhaps least justified.

There is an important price incentive for new oil. The program produces one of the highest production incentives available to producers anywhere in the world. Unfortunately, I didn't bring those tables with me, but I could submit them for the record, Senator.

Senator BENTSEN. I wish you would.

[The following tables were subsequently supplied for the record:]

REPRESENTATIVE PER BARREL MARGINS FOR U.S. COMPANIES LIFTING FOREIGN OIL

Country	1st quarter Government sales price	Government take	Production cost	Company margin
Saudi Arabia.....	\$12.09	\$11.74	\$3.27	\$0.24
Nigeria.....	14.29	13.45	1.07	.36
Indonesia.....	13.44	11.46	.56	1.44
Iran.....	12.81	12.43	.16	.22
Cabinda.....	13.06	NA	.54	NA
Abu Dhabi.....	12.50	11.56	.31	.25
Canada.....	9.75	5.21	.90	.64
North Sea.....	14.20	7.20	5.00	2.00
Gabon.....	13.00	6.77	4.25	1.43
Equador (4th quarter, 1976).....	11.46	10.40	.60	.65

REPRESENTATIVE PER BARREL MARGINS FOR U.S. COMPANIES LIFTING NEWLY DISCOVERED DOMESTIC OIL ¹

	Amount
Assumed new oil price.....	\$13.50
Estimated margin.....	2.40-4.40

¹ A higher actual new oil price would increase companies' per barrel margins.

Note: Estimated margins vary with operating costs and capital expenses.

Secretary BLUMENTHAL. It compares the incentive in the United States to North Sea oil or oil produced anywhere else. It shows the margin is substantially higher under this program here than it is anywhere else.

Second, there is substantial production incentive for new gas. There are additional incentives for gas supplied in interstate commerce. There is the amendment we are suggesting for intangible drilling costs for independents. There are special pricing incentives for the production of shale oil, cogeneration, geothermal, solar energy. When you put it all together, we really have fairly substantial incentives.

I think frequently when people have criticized us for not enough incentives having been built in for additional production, what they mean is that we should have just decontrolled everything.

Senator BENTSEN. Mr. Okun was testifying earlier this morning that he felt there should be more attention to the production side than there was, but I think what we are talking about is a phased decontrol that has to be thought about, finally getting back to the market system.

Secretary BLUMENTHAL. Haven't we gone a considerable way toward that?

Senator BENTSEN. You have moved in that direction. The question comes to mind, for example, when you get into the definitions, much of it is new oil. What I heard is some of the earlier texts, some of the backup papers, as to what constituted new oil, in fact, negated any new oil.

Secretary BLUMENTHAL. That is a point that Senator Javits made a little earlier. I had to demur somewhat because it is not my field of specialty. I am told by my colleagues that the definition of "new oil" is adequate and fair and would bring forth substantial additional production.

I have also heard a great deal of criticism about that. I would expect the Congress to look at that very seriously.

Senator BENTSEN. I don't know the last version of the definition, but the first version is that according to the figures we have in the Texas Railroad Commission, it would have negated about 90 percent of what they classified as "new oil" under these provisions.

Mr. Secretary, we have a problem of always trying to be fair on these things. Everybody looks on fairness from his own particular perspective. I understand that. But the point was made in previous testimony that one of the States that would bear more hardship than others would be a State like Texas or California; and we have been paying a higher price for gas than most States have. But we have over 95 percent of our electric generation from natural gas.

We know that is a wasteful way to use natural gas and that we are going to have to change, but we are looking for sufficient period of time to make those kinds of adjustments without drastic economic

dislocation. I frankly believe that we can accomplish the objectives that have to be accomplished with a modest lifestyle change by all of our people without excessive sacrifices by any particular region or any particular segment of people.

Secretary BLUMENTHAL. I certainly agree with you, Senator. I said at the outset it is a very ambitious, far-reaching program. I would be less than honest if I said we had been able to fully study and gage to our satisfaction the impact of all of the details of this program on all parts of the country and all separate industries. This kind of analysis that is now going forward will help us to do that.

The goal that we had in mind was to do just that, to have some sacrifices, some change in lifestyle, to have it be gradual, to have it be modest, not to have a great impact, to have it as neutral as possible in terms of GNP and prices and income distribution, and to have the burden evenly distributed, if anything, to make the system a little more progressive, to benefit the poorer people more than the richer ones.

I think, as I have testified, that the two elements that have not been sufficiently looked at, and I think the work that is now going on will perhaps rectify that, are the differential impacts on a particular region, and, second, the differential impact on certain particular industries. We tried to do that, but we have to bear in mind that this was a program that had been put together at considerable speed because the urgency is great; and we knew it would be looked at carefully anyway.

I think those two elements need to be looked at more carefully. I certainly would welcome that kind of analysis.

Senator BENTSEN. I would say, Mr. Secretary, in spite of controversy over it, that I agree with the approach that the better way to accomplish these objectives is by the tax incentive rather than a direct subsidy coming out of a government bureau with all the politics getting involved in that.

I would rather see that carried out than to have it competed over. I think it is much more effective and results in a lower cost to the consumer.

Thank you very much, Mr. Vice Chairman.

Senator HUMPHREY. Senator Hatch.

Senator HATCH. Mr. Blumenthal, as I view the energy program, I think there are some real problems with it. You say there are incentives. I don't see many incentives, at least from a free market standpoint, or from a competitive market standpoint. I think this is one of the things that is really going to hurt this program through the years.

For instance, there is emphasis on coal. We talk as though we are going to have 1.2 billion tons of coal by 1985. Now the industry at present usage rates is projecting production by 1985, according to the Coal Operators Association, of another 400 million tons of coal on top of the approximately 600 million tons we produce right now. That is going to mean that we are going to need to be able to maintain increases in output.

Is there anything being done by the administration to insure this? We see this Energy Department being developed and it involves

ERDA, the FPC, and the Federal Energy Administration. However, it does not involve all of the various environmental offices. Is there anything being done to speed up or get more reasonable approaches from an environmental standpoint in order to be able to meet these necessary requisites as far as coal and other energy materials are concerned?

Secretary BLUMENTHAL. I think the program indirectly and clearly should have a pretty powerful inducement for substantial increases in coal production because there are so many important penalties on the one hand and incentives on the other for industry to shift over.

Senator HATCH. Excuse me. How can industry shift over when we have all of the environmental delays, up to 10, 12, or 14 years before you can open a nuclear plant, a coal-fired plant, et cetera?

Secretary BLUMENTHAL. I was going to comment on that.

I was going to make one other preliminary point. That is there is money in this program—perhaps not enough, I don't know—for substantial additional R. & D. directed toward the mining industry. This is a subject I know a little bit about because in my previous job I worked in a company that directed itself toward that. There is a great deal that needs to be done there. I was happy to see that that is included.

There is a provision in the bill which requires, I guess, the use of scrubbers. Obviously that is just a beginning of the recognition that there is an environmental problem. I think personally that we have not done enough, in this administration or in any previous administration, of bringing together and making internally consistent a variety of policies and of estimating properly the interaction and the cost of these.

There clearly is a tradeoff in terms of environment and environmental policy.

Senator HATCH. Can we get anything done?

Secretary BLUMENTHAL. There is some disagreement as to how far you would get with present standards. Some people, particularly those with a special interest—

Senator HATCH. I think everyone agrees we are not going very fast.

Secretary BLUMENTHAL. I think if we are really going to triple the use of coal for industrial uses, we are going to have to take another look at the environmental standards and what the cost of those are, at putting more money into R. & D. to meet standards of clean air, at seeing where the marginal additions that we are mandating may perhaps not be worth the cost, may be impeding us too much, or where we can compensate for them in other ways.

What I am saying is clearly this does bear looking at. I think it must be looked at, but I don't believe that it is an insurmountable problem.

Senator HATCH. Let me say this: There are those of us who believe there are environmentalists who desire a balance between the environment and development, but who also believe that many agencies or especially the administrative departments of Government are overwhelmed by environmental restraints.

I will cite in particular the Council on Environmental Quality and the Environmental Protection Agency. And we showed last week, in

the strip mining bill, that a 26-year-old Presidential assistant came over and influenced the doctoring of a report upon which that whole business is based.

I have no great desire to help the coal companies. I do have a desire to have equality and have forthrightness and dedication and decency in the approaches to developing energy.

Let me make an illustration. Since I think it is important for you to understand as well as anybody else—and I am sure you understand better than I do—let me for illustrative purposes give you this.

California right now would be, if it were an independent country, the seventh largest economic entity in the world because of its great production capacity. California is going to lose the ability to deliver natural gas from major fields, and will have to dip down into the small user wells by 1980. They will have to have the Oxnard gasfield, which has been completely stifled by environmental extremists on the California west coast. If they don't have the Oxnard field in the next year and a half—and that is stretching it—by 1980, they will have to bring up the natural gas and other supplies from the North Slope of Alaska, Malaysia, et cetera. If they cannot do that, and if they don't have access, as well as the right to burn coal, which is presently being denied, they are going to have a loss of 700,000 to 1 million jobs by 1980.

Couple that with the effects of not developing the rivers in the Pacific Northwest. These rivers must be harnessed to bring fresh water to flush out salt water through the San Francisco Delta, and to provide water for the San Joaquin Valley, which is crucial to the production of food for this country. California is the source of 60 percent of all vegetables and somewhere in the neighborhood of 40 percent of many other foodstuffs for the whole United States, and they can't get water because of the environmental extremists again. We are going to have an impact all over this country, not just California.

We had a situation in Utah where we had, I believe, a delay for 14 years in the development of the plateau which would have benefited Utah and California by generating electricity and collecting water. This project could have been in operation by now and would have been beneficial to your program.

However, development of the plateau has been totally stifled by environmental extremists, some of whom are sincere and dedicated, and I acknowledge that, but many of whom are not. They are aided and abetted by a number of environmental extremists in authority in the United States of America; in other words, right here in our Government.

I think it is about time we stopped that, if you want this program to work. I think you do. I think you know the problem. I appreciate much of what you have said today. I want you to know that.

I think it is true. I think something has to be considered by this administration. I think we have to quit bending over slavishly to the environmental extremists in this society. I find that that is what we seem to be doing.

Secretary BLUMENTHAL. May I make just one comment, Senator. The Economic Policy Group, which I chair and which is the Cabinet group that looks at major economic policy recommendations to the

President, either agrees on them, sends them forward, or explains to him what the differences are so that he can resolve them, has begun to look at the economic impact on all major questions of this kind so that we can say to the President if we go for this, our judgment is it will cost so much, or add so much to inflation, or keep production down to such an extent.

That is not a universally popular approach, I might add. There are people who say we shouldn't do that. We are doing that. That is going to be a beginning. There are clearly extremists. There are extremists everywhere. There are also a lot of very dedicated people who feel very strongly about it as we all do.

We have to find a balance. I will do my utmost to see it stays in balance.

Senator HATCH. That I appreciate. I don't think it is the President's fault. I think he is surrounded by a number of environmental extremists that are dominating this country right now and hurting this country. We are going to have to solve these problems or this country isn't going to have energy in 1980, 1981, or 1982.

We will have a major recession or depression. I suggest that some of the people who know about the need for industry, and know what we have to do, get involved and make some of the changes and help us to move forward without ripping off the environment.

My contention is that in the end some of these same environmental extremists who will ruin our energy projects will be the first to scream when their car can't get gas.

One other question: Why was mass transit ignored in the administration's environmental program?

Secretary BLUMENTHAL. I think it is a question of how much you can do all at once and what method you use to deal with these different, all interrelated, very serious problems. We made a judgment—and it is a judgment which we hold—that we did not want to get into the difficult problem, within the context of this energy program, which is complicated enough as it is, of earmarking funds for particular purposes, because when you go down that road, there is no end to it.

My experience over the last several months appearing before the Congress is that many Members of Congress have very valid interests in earmarking certain funds for very valid concerns. You start with mass transit. Others are concerned with welfare mothers, others with the environment, others with training.

I am sure the Senator can add a few good suggestions we ought to earmark for. The decision, therefore, was made to give it back to the people and use other means, tax reform, other normal appropriations, to consider on the merits the individual programs to meet the major American needs. I think that is probably a safe way to go.

Senator HATCH. If I might state one more thing—my time is up—that is that I don't think it would have been too difficult—and that is, of course, not criticism levied at you. I have deep respect for you—I don't think it would have been too difficult to have one little paragraph that said we would like to develop mass transit forms that would help us conserve energy as part of the conservation measures. In particular, I don't think there is any better form of mass transit today from a

cost-benefit standpoint than the bus systems of America and making buses available throughout America so we can transport people in groups rather than individually in cars.

One last thing, and that is that I am really concerned because I see a lot of technical little tax approaches to solving energy conservation problems, but I don't see any energy supply approaches in here. Maybe there are, maybe I am missing them. Having worked in the field of energy, I don't see very many.

It seems so logical to me that if we deregulate energy, have an open market, have a competitive system where we have the incentives to go out and find it, and have an excess profits tax if there is excess profiteering to this, we can develop new alternative forms of energy. We can do it very simply rather than with a complex program, and do it from a private enterprise standpoint, which has always worked in America in the free enterprise system that we have, rather than through the Government.

I am going to encourage you to take some of those systems back and consider deregulation over a gradual period of time. I realize we can't do it immediately or in an emergency way. After a phaseout, I think we can. After all, that is the only way that it would work.

Thank you so much.

Senator HUMPHREY. Congressman Rousselot.

Representative ROUSSELOT. Mr. Secretary, we appreciate your being here today. We know you are spread thin on a lot of projects these days. I am sure that—by the way, as a member of the Banking Committee in the House, we appreciate the comments you sent up on the new proposed Consumer Cooperative Bank, the whole new banking system that my colleagues in the House were advocating. I know your economic unit is working.

I was interested in today's Wall Street Journal comment about the thesis of the editorialist—which I am sure you saw—that probably, on the basis of information that they have, that the country has perhaps as much as a thousand years of natural gas supply. So let's assume they are only half right.

On the basis of what they said, the President's energy advisers know this. They said you were briefed by specialists of the American Gas Association and experts from ERDA. So let's assume that they were half right, that there is only 500 years of natural gas supply available on the basis of consumption and some allowance for increase in that consumption.

Did you take this into account? Is the Wall Street Journal really way off today?

Secretary BLUMENTHAL. I think you are touching on a basic issue, sir. If you assume that there is no shortage of energy—

Representative ROUSSELOT. I don't think any of us assume there is no shortage of energy. I am speaking now directly to an important piece of this puzzle. That is natural gas.

Secretary BLUMENTHAL. The specific answer to your question is, yes, we are aware of the viewpoints of some people who feel that there is plenty of natural gas and, therefore, we shouldn't get so excited about it.

Representative ROUSSELOT. They claim it was the American Gas Association and experts from ERDA. Is their assessment correct?

Secretary BLUMENTHAL. I think the American Gas Association is the correct source. I don't know about the experts—or which experts from ERDA. That, I am afraid, I would have to check into.

Representative ROUSSELOT. Could you respond to us on that? This is a rather devastating editorial if they are right.

Secretary BLUMENTHAL. I think the basic judgment is that we begin with oil, where there is a real shortage and where we have—or we have to assume there is a real shortage because we do not know what the rate of recovery will be, and it is not going to be large enough to accommodate forever the growing consumption. So we start with that.

Second, the availability of natural gas also is much more limited than you indicate here and getting it to market—

Representative ROUSSELOT. No, the Wall Street Journal indicates—

Secretary BLUMENTHAL. You indicate here by quoting the Wall Street Journal, and that the ability to exploit it, get it to market, and above all to use it up rather than to use what is more abundant, I think there is a general view which perhaps is not refuted—at least officially not refuted by this editorial—that we have other sources of energy such as coal that are even more abundant, and that we ought to emphasize those while we economize, that that is the right approach.

We assume that the availability of natural gas that can be readily gotten at and utilized for the various uses, we do want to use it for home use, would be available in ample quantity for industrial use is much less than was indicated here and, therefore, we should go to a more abundant source of energy supply.

Representative ROUSSELOT. In that respect, relating to the use of natural gas and the industrial end users, Mr. Eckstein said before us that we should take the energy hardluck stories in these proposals of the President with a grain of salt.

Yesterday the American Bankers Association testified before the House Ways and Means Committee. They said that over 90 percent of all commercial bread ovens in the United States are direct-fuel gas ovens for which there is no substitute. Now wouldn't the industrial end users—how are we going to decide which ones are crucial or not?

I would have to assume that if these facts presented by the American Bankers Association are correct, we wouldn't want to cut the supply out for bakers. I guess we assume bread is still necessary.

How would you make the determinations as to which industrial users would be limited, taxed heavily? How do we propose to do that?

Secretary BLUMENTHAL. Well, as I remember the detailed provisions, there is an outright prohibition against the use of natural gas for industrial purposes after 1990.

Representative ROUSSELOT. Right.

Secretary BLUMENTHAL. There is, however, flexibility in providing exemptions in a limited number of instances.

Representative ROUSSELOT. Who is going to make those decisions?

Secretary BLUMENTHAL. They will be made by the Department of Energy.

Representative ROUSSELOT. I see.

Secretary BLUMENTHAL. In those very limited instances where it is indeed shown that there is no practical way of substituting.

Senator HUMPHREY. Isn't that prohibition only on electrical utilities, not other industrial users?

Representative ROUSSELOT. No. It's all.

Senator HUMPHREY. Is it across the board?

Secretary BLUMENTHAL. I think it's across the board, Senator; I wouldn't swear to it.

Representative ROUSSELOT. Anyway, you can see why that would create some concern.

Secretary BLUMENTHAL. Sure.

Representative ROUSSELOT. Mr. Laffer was here as one of the four economists. The other three did not totally agree with this statement. He made it this way after analyzing the President's program. He said it would result in an enormous loss of income in the country and an enormous loss of employment; that is, the total program.

The others did not agree it would be an enormous loss, but they said there would be a loss. Since we spend so much time here in Congress, and you do, too, being concerned about the employment problem, how do we decide who is going to be unemployed and who isn't?

Secretary BLUMENTHAL. Again you are getting at one of the hearts of the problem we face as we embark upon what is a major departure for our country to respond to a major challenge.

Let me say at the outset that I clearly believe that that witness is wrong. There is not going to be a major loss of jobs or a major reduction in real income. None of the models—and I indicated my concern about the—

Representative ROUSSELOT. About the viability of these models?

On the Budget Committee, we have a tremendous problem with many of these same models.

Secretary BLUMENTHAL. Obviously I am not trying to say models are useless. They are very important. We have to understand what they mean. None of them indicate that to be the case. You have substantial stimulative effects that offset some of the retarding elements. There are some elements in some industries in this country which are going to be booming as a result of this. We will have a lot of additional employment. You have got to bring that into account.

You have—if this program went through in this way—you have money going out to certain groups in a society that is over and above what the increased prices in energy will be costing.

Representative ROUSSELOT. As you know, many of the people in the labor unions feel a lot of this is going to transfer jobs overseas where they are more efficient. In the production of automobiles, for instance, as it relates to mileage factors. They said that both in the House and here.

Secretary BLUMENTHAL. Let me make this point, Mr. Roussetot. I was very impressed by the fact that during the energy crises of 1973 and 1974, when there was a panic or near panic in industry, prices going up, people feeling maybe we won't get the energy to run our factories, we—that is, American industry, of which I was a part—

began to really put on the pressure to get more efficient use of energy into our factories.

We found, somewhat to our embarrassment—and that is general throughout industry—that it had been a very neglected area. We were able to make savings, substantial savings, which we have retained. Most of the consumers who started saving gas because they didn't want to line up at the pumps went back to rather lavish consumption as soon as they could.

Industry has retained some of the savings. That leads me to the conclusion as you change over through different methods of providing energy for your factory, as you make those changes—incidentally, with dollar-for-dollar subsidies by the Government—that you can increase productivity and efficiency in that area substantially.

That also will benefit and increase the competitiveness of American industry. I am not that pessimistic.

Representative ROUSSELOT. I guess that is Mr. Laffer's point. He said the models do not take into account the disincentives because there is heavy taxation in the program and that you redistribute the income not to those who are inclined to produce—you do in some cases, I know—but, you do not redistribute that to people who are inclined to have the incentive to produce on the production side, and that, therefore, it becomes a disincentive totally; and that is what will create the unemployment.

Secretary BLUMENTHAL. I have some trouble with that statement.

Representative ROUSSELOT. If he's right—and as the chairman has suggested—that you will review all of their statements, because they all did express some concern about the problem of employment.

Thank you, Mr. Vice Chairman.

Senator HUMPHREY. Thank you. I know you have to run along. I want to just add a couple of questions for your thought.

Chairman Schultze of the CEA said his analysis on the energy package assumed that monetary policy would not be tightened in response to the extra inflation, whatever it is, caused by the program.

In other words, I think he felt that there would be some kind of an accommodating monetary policy. I am suspicious every time my friend Arthur Burns sees a little more inflation—and I know he has every right to be worried about it—it isn't an accommodating monetary policy; it is a tightening monetary policy.

Was this all taken into consideration? I know you said it's the Federal Reserve Board. I don't buy that. The Federal Reserve Board is not a private bank. I never felt it was. My friend, Mr. Burns, whom I love and admire, knows my feelings about it. They would like to run it like it's a private bank. They would like to think they are private bankers.

It is a Government instrumentality set up by an act of Congress. As Paul Douglas used to say, "Every member of the Federal Reserve Board should look in the mirror every morning and say, 'I am a creature of Congress.' That should make them a little unhappy to start the day out."

Secretary BLUMENTHAL. Senator, I find that we use terms which mean different things to different people. "Accommodating" is one of those words.

Senator HUMPHREY. Yes.

Secretary BLUMENTHAL. I don't want to put words into Mr. Burn's mouth, but if he were here he might well say, well, I am accommodating, but I am accommodating in an uninflationary way. I am not accommodating to inflation. What is accommodating to Mr. Schultze or to me possibly may not be accommodating to Mr. Burns.

I think the assumption Mr. Schultze was making is that there will not be an undue tightening of monetary policy such as to bring about a recession in this country which therefore would have been caused by the extra inflationary impetus of this program.

Now, the fact that the Federal Reserve is unlikely to accommodate to a higher rate of inflation is probably a pretty good bet. It is one which different people can have different views about. I don't find it all that disturbing. I think monetary policy should take inflation into account.

Senator HUMPHREY. What is the rate of inflation in the Federal Republic of Germany?

Secretary BLUMENTHAL. It has now risen to like 3 or 4 percent.

Senator HUMPHREY. What percentage—

Secretary BLUMENTHAL. I am sorry. My colleague here corrected me. About 4 percent.

Senator HUMPHREY. This morning the annual rate in the United States was running at 9.9 percent, with the new CPI index out, the last 3 months. What percentage of the fuel that the Federal Republic of Germany consumes is imported?

Secretary BLUMENTHAL. Oh, a very high percentage. I don't know the percent.

Senator HUMPHREY. As compared to us would you say double, triple?

Secretary BLUMENTHAL. I would say 80 to 90 percent is imported.

Senator HUMPHREY. Do you consider German industry competitive with ours?

Secretary BLUMENTHAL. Highly competitive.

Senator HUMPHREY. Do you consider German workers with the benefits that they get and the social security system Germany has for its unemployed, for its elderly, comparable to ours, or as good, or better?

Secretary BLUMENTHAL. Well, they are comparable to ours in terms of efficiency.

Senator HUMPHREY. I am speaking now of the costs, of the wages, the pensions, the health insurance, the benefits that a worker gets in Germany. Would you say it is comparable to ours?

Secretary BLUMENTHAL. I would say so.

Senator HUMPHREY. Why don't we go to Germany and find out how they do it?

I am serious. We groan and grunt around here and whine and belly-ache. The fact is, they have a surplus in trade, haven't they? A trade surplus?

Secretary BLUMENTHAL. Yes.

Senator HUMPHREY. They are running a trade surplus right now?

Secretary BLUMENTHAL. Yes.

Senator HUMPHREY. The fact is, their Deutsche mark is pretty good currency; isn't it?

Secretary BLUMENTHAL. Certainly is.

Senator HUMPHREY. Fact is, they have a rate of inflation half ours?

Secretary BLUMENTHAL. Yes.

Senator HUMPHREY. Fact is, they import very substantial proportion of their fuel, 75 percent, possibly?

Secretary BLUMENTHAL. Right.

Senator HUMPHREY. And pay high prices for it?

Secretary BLUMENTHAL. Right.

Senator HUMPHREY. How can they do it and still have a good standard of living? Their older people are taken care of much better than ours. I had an appointments secretary from Munich. What her parents get in terms of social benefits as compared to what grandpa and grandma in this country get—they are living like kings and queens.

This is Germany, that was knocked out in World War II. What is the trouble around here? Here we have something where we are all worried about it, and I am worried about it, and I know there is reason to be worried about it.

Isn't it a simple fact we are wasteful? That we have never tried to apply ourselves? Doesn't the German economy produce an identical item? Let's take this piece right here, if they produced it, don't they use less fuel and energy than we do?

Secretary BLUMENTHAL. They do.

Senator HUMPHREY. They produce a good car?

Secretary BLUMENTHAL. They do.

Senator HUMPHREY. I hear the American workers are worried they will lose jobs to Germans because they are producing a more efficient engine. Why can't that technology be transferred over here? There is something that happens when it comes across the water? Does it get salt in the mix or something? What is this nonsense?

You know, I feel that there is a time to really call the shots as they are. The simple fact is that the Federal Republic of Germany is a highly capitalistic system. It doesn't have big oil wells. It has to import its oil. It has stronger trade unions than we have. My goodness, if American industry had to put up with the trade union policy they put up in Germany the chamber of commerce would be down picketing everyone of these rooms.

They have workers on their boards. They help decide the company policy. George Meany won't even touch that with a 10-foot pole. He's a real conservative in terms of union policy compared to what the Social Democrats are in Germany.

Here are the Germans, running us out of business in terms of competition. They sell a good product. Not only that, you buy one of their cars, it works; not only that, but you buy one of their appliances, it works. It's good.

Now, don't you think maybe somehow or other we just ought to start reexamining what is going on around here?

You know what I have come to the conclusion of? Nobody wants to have anything happen to them—that's all. My dad told me once in my life, "Son, if you want to live a little better, work harder. You have to make some choices. You can't have everything." We want everything and we don't want to work too hard, and we feel it would be kind of nice to coast along.

There is an energy crisis. There is no way anybody is going to get out of it without getting hurt. When I stop and think of the way that we waste electrical energy in this country, electrical energy. No one really cares about turning off the lights. I remember when Lyndon Johnson was turning them off in the White House, he got ridiculed. That is true. It was a laughable matter. He was going to set a little pattern for the country. He got one of Thomas Edison's old light bulbs out and hung it on the Southwest Gate, turned the lights off, and everybody laughed at him.

I know electrical energy is cheaper than other forms. My concern is—and I am trying to get down to basics—I want to know why our ally is so much better about those things than we are at a lower rate of unemployment, a lower rate of inflation. They have to pay a higher price for energy by far than any manufacturer in the United States, because we blend in domestic oil at lower prices with what we import. We got unlimited supplies of coal. They don't have. They have surface mining, to be sure, somewhat; but they have had surface mining in which they repaired the surface for years. They haven't been belly-aching about it like they are doing down in the Senate now, whether they can afford to do it or not.

The environmentalists in Germany demanded that that be repaired a long, long time ago.

Mr. Blumenthal, I think somehow or other we just, as Americans, have to take a good hard look at ourselves and not all the details of these programs. I really hate to say what I am saying. I don't like to have it said that another country can do better.

But when they can produce a car in Japan and that gets more mileage than we can produce in the United States, there is one answer. Go over and get their engine then. Bring it over and put it in our car or tell our technicians to produce a better car, better energy.

That is a fact. You can't get a Honda. The simple fact is you have to wait in line to get a Honda. I have a young person working for me who has been trying to buy a Honda for 60 days. A long delivery. Why?

It gets good mileage. This person wants an economical car. The Germans produce those small cars and they produce compact cars, medium-sized cars. If I am not mistaken, they have a lot, as I said earlier here, Ford money, General Motors money. I don't know about Chrysler, but I know about GM and Ford. Maybe the President better tell us to buckle up a little bit here.

Senator Percy and I organized the group called the Alliance To Save Energy. You mentioned your company that you worked for previously—J. C. Penney & Co. cut their energy costs 25 percent by just a little or no extra effort; they didn't lose any customers. They didn't close up any stores—they just cut their energy costs—nobody got pneumonia.

There are some companies that can cut their energy costs as much as 50 and 60 percent if they wanted to. One of the largest wasters of energy is the Exxon building in New York. The construction. We have let architects design buildings, if you have enough coal, oil, and gas, you can keep them warm. I let somebody do that to me in.

Minnesota in the house we have there. We wanted a cathedral ceiling. Let me tell you something: We have been paying the Lord ever since. [Laughter.]

Well, I thought we would end this up on a happy note.

Might I suggest I was very disturbed the energy program didn't have much on solar energy. That's a nonpollutant, an ever-remaining source; and I am here to tell you that as the price of commercial fuels goes up, solar energy becomes economical. We ought to be emphasizing solar energy.

I have a bill in that requires, for example, that all Federal buildings have solar energy. One of the problems with solar energy is mass production, for example, of the type of batteries and photocells that we need. I would hope when you get back to that economic triad of yours that you might just simply say that they have been heating water in Japan for 50 years with solar energy. They have been heating it in Israel and all around the world.

If we can do water heating and home heating with solar energy, it is today an economically feasible project. If it isn't, that is the way to have some fast writeoffs, real tax credits. There is one thing for sure: The Sun doesn't go on strike and it doesn't raise the price and not only that, it isn't controlled by OPEC.

We have a man in the White House that talks to God as good as anybody else. I think he can keep the Sun going: I think we ought to use more of it.

Thank you very much.

Secretary BLUMENTHAL. Thank you, Senator. [Applause.]

Senator HUMPHREY. The committee is recessed.

[Whereupon, at 1:11 p.m., the committee recessed, to reconvene at 9:30 a.m., Wednesday, May 25, 1977.]

THE ECONOMICS OF THE PRESIDENT'S PROPOSED ENERGY POLICIES

WEDNESDAY, MAY 25, 1977

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The committee met, pursuant to recess, at 9:36 a.m., in room 1114, Dirksen Senate Office Building, Hon. Edward M. Kennedy (member of the committee) presiding.

Present: Representatives Bolling and Long; and Senators Kennedy and Javits.

Also present: John R. Stark, executive director; Louis C. Krauthoff II, assistant director; Richard F. Kaufman, general counsel; William R. Buechner, William A. Cox, Kent H. Hughes, George R. Tyler, and Katie MacArthur, professional staff members; Mark Borchelt, administrative assistant; and Charles H. Bradford, Stephen J. Entin, George D. Krumbhaar, Jr., M. Catherine Miller, and Mark R. Policinski, minority professional staff members.

OPENING STATEMENT OF SENATOR KENNEDY

Senator KENNEDY. The committee will come to order.

It is with a great deal of pleasure that I welcome you to the third hearing by the Joint Economic Committee on the economic consequences of the national energy plan. This committee serves a unique function in the Congress. Freed from the responsibility of considering and reporting on legislation, this committee has an obligation to assist and cooperate with those House and Senate committees which do have such responsibilities. It is our task to look at the broader economic issues and to explore consequences of legislation across lines of committee jurisdiction.

Today's hearings are the third in a series. Last Friday, Senator Humphrey chaired a hearing examining the macroeconomic effects of the President's proposal. On May 13, I held a hearing of the Energy Subcommittee on the application of the plan to New England, a region with a unique and instructive history of high energy prices and rapid movements toward conservation.

Today's hearing builds on what we have learned so far. Today we will be asking some precise questions which go to the heart of the President's plan. We are concerned about a number of issues; first, is the plan economically feasible and realistic; second, is it equitable and fair?

For example, last Friday Secretary Blumenthal revealed that the proposed crude oil equalization tax receipts did not take into account

potential increases in the world price of oil. We must ask again today: Is that a reasonable assumption? The potential significance of OPEC increases is substantial, to say the least. The Treasury Department has estimated crude oil tax receipts in 1985 at \$12 billion, while our staff indicates that receipts could be as high as \$40 billion, assuming a 10-percent-per-year increase in world prices.

The President has indicated that the United States could "uncouple" the crude oil tax from the world price if the latter rises too fast. But we are given no indication of what circumstances would trigger such action. We would hope for some guidance on this question today.

Our meeting in New England uncovered significant problems of conversion from oil and gas to coal, since then skepticism about reaching the President's conversion goals have arisen in other forums including, most recently, the report of the Congressional Budget Office. One of today's witnesses, Mr. Hans Landsberg, wrote recently that, "For the coal industry to raise output by an annual average of 60 million tons to meet the administration's goals * * * is highly unlikely, if not outright impossible." He considers it a "major flaw" that the plan fails to address itself to the transportation, manpower, and environmental obstacles of producing the coal, quite apart from whether the incentives and disincentives will create the demand. Again, we hope to learn more on this subject today.

Gasoline consumption is another area where substantial savings are possible, yet since April 20, we have seen such an erosion of support for the administration's proposals that questions have arisen whether these portions of the plan were intended as bargaining chips for others. However, several analysts have suggested that the goal of cutting gasoline consumption by 10 percent is within reach without the full range of proposed taxes on automobiles and gasoline.

To consider these and other questions, we have a distinguished panel of witnesses to provide us with both a national overview and an appraisal of how the plan would affect utilities and industry, particularly in the Southern States. We will hear more about the environmental effect of conversion to coal. We will gain further insight about how the plan burdens and benefits different regions of the economy and sectors of the population.

The New England hearings contributed a great deal to our understanding of the latter questions.

OPENING STATEMENT OF REPRESENTATIVE LONG

Representative LONG. Thank you, Senator.

I have just a short opening statement. This series of hearings on the economic impact of the President's energy program, of course, is an extremely important endeavor on the part of the Joint Economic Committee. I fully support it. Those of us in Congress probably more than any other sector of the Government, particularly those of us in the House of Representatives, are in a position to be able to understand how confused the American people are about the economic impact of the energy plan. When you realize the conflicting claims that have been made in all sectors, all along the line, it is small wonder that so many people are confused. Just as one example of this confusion: When the President delivered his original energy message on April 20,

he claimed that some 100,000 new jobs would be created as a direct result; later, this claim was withdrawn.

The President also assured the American people that the massive amount of dollars which will be flowing to the Federal Treasury as a result of the taxes he proposed would be rebated to the taxpayers. Next, the Secretary of Transportation proposed using some of these tax revenues for mass transportation. I understand that that proposal was then withdrawn. Now, I understand, it is again a possibility. This is something I hope that you can help set the record straight on today, Mr. Schlesinger.

Mr. SCHLESINGER. I would be delighted.

Representative LONG. One big question on people's mind—and on my mind—is the use of new taxes, and whether the President and the administration plans to use these revenues to fund new social programs. As an example, a lot of the mail I have been getting asks that the oil and natural gas taxes be used to bail out the social security system. Again, I am not suggesting this is a valid use, but I am suggesting that it is valid in the minds of the people who are writing to me; consequently it is something that needs to be clarified.

I hope, again, that you will be able to assure us today that that is not going to happen. It is the worst example, in my opinion, of mixing apples and oranges. It seems to me, though, that if the money is not rebated to the American people we will likely experience a classic case of cost-push inflation. The question of the administration's projections for the impact of the oil pricing program on the secondary users of oil is one that is, in my part of the country immensely important to the rubber, synthetic fiber, petrochemical, fertilizer, and other industries.

I am sure you are prepared to address these. We are pleased to have you with us.

Senator KENNEDY. The chairman of the committee, Congressman Bolling.

Representative BOLLING. I have no opening statement, Senator, go right ahead.

Senator KENNEDY. We will look forward to your testimony, Mr. Schlesinger. I think all Americans are very much aware of the presence in the country of Prince Fahd and the members of the Saudi Arabian Government. Is there anything you can tell us about where we are in terms of those agreements? I think this is going to have an enormous impact on the President's energy program. Is there anything we can start off with? I think that would be a matter of great interest to the American people.

Barring objection, the prepared statements of the witnesses will be printed in the record.

STATEMENT OF JAMES R. SCHLESINGER, ASSISTANT TO THE PRESIDENT AND SECRETARY-DESIGNATE OF THE PROPOSED DEPARTMENT OF ENERGY

Mr. SCHLESINGER. Senator, the only comment I think appropriate at this stage of the discussions is that the discussions are proceeding with harmony, that the Saudis and the Government of the United States recognize their joint interests in making the transition

which we all must make from an age in which oil was the dominant fuel to a future age in which our supplies will be depleted. All nations of the world must make that transition.

We shall be attempting to make that transition cooperatively with the Saudi Government. The discussions on that point have been quite harmonious.

Senator KENNEDY. Is there anything you can tell us with regard to pricing? That is obviously a matter of importance in terms of the U.S. perspective. Is there any indication that they are going to continue a more moderate line in terms of pricing? Is there anything that you can tell us on that?

Mr. SCHLESINGER. The Saudi Government amongst the OPEC nations has been the Government which, I believe, has most clearly recognized the impact on the industrialized nations of any substantial increase in oil prices. They have followed a very moderate line with regard to prices.

Senator KENNEDY. You expect it to continue?

Mr. SCHLESINGER. I would expect that their policy would continue.

Senator KENNEDY. Would you interpret that as meaning no price increase or a modest increase?

Mr. SCHLESINGER. I would think that there will continue to be an effort on the part of all members of OPEC to move toward a common price; but I think that the position of the Saudis will continue to be that price adjustments must be moderate so as not to upset the political and economic stability of the industrialized world.

Senator KENNEDY. Just a final question. Are they tying into the pricing issue the attitude of the United States toward Middle East policy generally and Israel in particular?

Mr. SCHLESINGER. I think that you had best ask that question of those who participated in the discussion of the Middle Eastern settlement. I do not think that question has been explicit. I trust that it shall not become explicit.

Senator KENNEDY. We will go on with your testimony and come back for questions.

Mr. SCHLESINGER. Thank you, Senator.

Senator Kennedy, Congressman Long, Congressman Bollings, and ladies and gentlemen, I will summarize my prepared statement with a few brief remarks on where we stand as a nation.

We face an immense challenge of adjusting from a period in which oil was widely available worldwide for the growth of the industrialized economies and the development of the lesser developed countries in this post-World War II period to a future period of severe oil stringency. All of us must make that adjustment in common.

It is a challenge to us in the executive branch and to the Congress. We must work together.

I, therefore, welcome, Senator, the opportunity to appear before the Joint Economic Committee which has done such superlative work in illuminating the relationship between international oil prices and the domestic economic consequences of such changes in oil prices in terms of the impact on inflation and upon unemployment.

We face a long-term struggle, Senator; this is one of those subtle challenges to the future of the country. It is not a clear and unequivocal

ocal signal as was Pearl Harbor which immediately indicated that the Nation must unite. In its stead, we face a more subtle signal of a more chronic problem; and as a consequence, there is graver doubt about whether we can react with a sense of common purpose to the challenge that lies before us.

Briefly, we face a future in which world oil production will not increase more than and probably less than a third above the present level. It will probably never exceed 75 to 80 million barrels a day. At present, it is running at about 60 million barrels a day.

Worldwide demand for oil has been increasing at approximately 5 percent a year. The problem that we face is that increases in future oil production capacity worldwide cannot continue to accommodate the surging worldwide demand for oil.

Sometime in the 1980's, we will face a capacity limitation; and unless we begin to rein in our demand for oil and other nations around the world do the same, we will have very severe economic consequences. The plan that lies before you, Senator, is one that has economic consequences of the plan which we have attempted to adjust by the tax. There may be—there was originally believed to be—a very mild stimulative impact of the plan. Further model runs suggested there may be a slight contradictory effect. All of these are in the range of 1 percent or less and all of them fall within the range of uncertainty in such projections; but the significant thing about the macroeconomic consequences is that these are matters normally left to monetary and fiscal policy in order to adjust to larger economic considerations.

On the side of inflation, there will be some mild inflationary consequences of the plan which we have attempted to adjust by the tax rebate plans to which Congressman Long referred. However, the basic issue with regard to the economic consequences of the energy situation is missed when we talk about the immediate impact of the plan; the basic issues are the economic consequences if we fail to take appropriate action now to deal with a crisis that we see arriving in the 1980's.

We have a simple set of options, Senator. The American stock of capital is fuel inefficient; it has been based upon an assumption of cheap and abundant energy. That assumption is now becoming increasingly invalid. We must begin now to make that stock of capital more fuel efficient than it has been in the past. We have a period to make that adjustment. We must start now. Failure to start now means that in the middle 1980's we will face dramatic shortages of oil, rapid increases in prices that will spill over into major unemployment in the United States, and further inflation that will shake the stability not only of the enterprise system but the political stability of the United States in a period of rapid inflation and major unemployment.

We have a choice. We can react now or we can drift along for a few more years.

Senator, I submit that our problem is to avoid economics as usual, as well as business as usual and politics as usual. If we have the foresight and the vision, we can react in an appropriate fashion.

The proposals that lie before the Hill include some 113 individual items. Almost all of the controversy has been stirred by three or four of these items—major items involving price and tax provisions; but the bulk of that plan, something between 105 and 110 proposals, has

not generated significant controversy. I think that it is incumbent upon all of us to look at the comprehensive nature of this plan. It is designed to allow the society to ride out a serious transition in which the fuel of choice since World War II ceases to be available in the quantities that we should like. In the longer run, we must hold out the prospect of technological changes that will permit us and the rest of the world to support a continued expansion of our economy; but in the short run, we must make do with the tools that we have available. The principal items in this plan, Senator, are conservation through a variety of devices, and the switch to more abundant fuels, principally coal and to a lesser extent solar energy.

The plan rests upon a number of incentives that will induce changes in the pattern of consumer behavior and business behavior. It is a plan that rests upon the provision of incentives, relying upon the free choice, by and large, of individuals and corporations. We have attempted to avoid mandating major changes in the economy. That is a cumbersome device. It is not appropriate save in a period of immediate acute crisis. We do not face that yet. We will face that a number of years down the line.

Unless we begin to act now, we will have to turn to those techniques of mandating in the future.

We seek now to change the stock of capital in order to avoid, Senator, a serious and abrupt interruption of the flow of goods and services in the 1980's which implies a decline in income in the United States with all the consequences that ensue.

This plan is designed to distribute the sacrifices equitably amongst regions, amongst income groups, amongst interest groups. It is significant, it seems to me, that there has been some mild protest from all of the affected groups. It suggests some equality in the pain that will be inflicted by the plan. We intend to see—

Senator KENNEDY. Not without some reason, though. I know from our part of the country, when you talk about increased taxes and you talk about rebates that are going to come about, we have seen on formula after formula how principal petroleum-consuming areas of the country have been shortchanged. We commend the President for the conservation program and his attempt to establish some equity; but I think you misread the mood of the people. Up our way they want to know very clearly and precisely about how the rebate is going to come about, how people who may be paying more because of increased taxes, or through a rebate program not be paying more, how that will function and work.

We see additional billions of dollars effectively coming from petroleum-consuming areas. They are going to be distributed in perhaps a rather general way in terms of different kinds of other social programs.

I think it would be unfair to characterize that concern as a reservation or opposition to the general approaches the President has taken on it. It is not so. People want to know, first, how this is going to function. I know you want to explain that, but I think it is important that we interpret what the concerns are and the reason for them.

Mr. SCHLESINGER. Absolutely, Senator. Those are legitimate questions. They demand good answers; but let me conclude with my informal remarks and then turn to the specific issues.

We project a continued increase in the Gross National Product and in national income that will exceed the growth of population. Per capita income in the United States will continue to rise. When the President refers to the moral equivalent of war, he calls for sacrifice, but it does not mean that we are going to decline in per capita income. It means that we will have to change some of our assumptions. We will have to give up our casual spendthrift ways. We will have to have a higher consciousness with regard to energy usage; but per capita income will continue to rise. The time to act is now, Senator. I am ready for your specific questions. Thank you.

[The prepared statement of Mr. Schlesinger follows:]

PREPARED STATEMENT OF JAMES R. SCHLESINGER

Mr. Chairman and members of the committee: I am very pleased to be here today to discuss with you the proposed National Energy Act and to emphasize the importance of the President's energy program for our continued economic growth.

The diagnosis of the U.S. energy problem is very simple: Demand for energy is increasing, while the available domestic supplies of oil and natural gas have been declining. To meet increasing demand, the United States has increasingly turned to imports, which has resulted in increased vulnerability to supply interruptions.

The principal oil-exporting countries will have severe difficulties in supplying all the increases in demand expected to occur in the U.S. and other countries throughout the 1980's. In 1976, the 13 OPEC countries exported 29 million barrels of oil per day. If world demand for exported oil continues to grow at the rates of recent years, by 1985, it could reach or even exceed 50 million barrels per day. However, many OPEC countries cannot significantly expand production; and, in some production will actually decline. Thus, as a practical matter, overall OPEC production could approach the expected level of world demand only if Saudi Arabia greatly increased its oil production. Even if Saudi Arabia did so, the highest level of OPEC production probably would be inadequate to meet increasing world demand beyond the late 1980's or early 1990's.

The energy problem should be addressed comprehensively. Levels of domestic energy demand, domestic supply, and oil imports should be consistent with the goals of public policy, such as economic growth, security from supply interruptions, and protection of the environment.

The national energy plan does address the energy problem comprehensively. By doing so, it is able to propose measures that would reduce imports to a manageable level, instead of incurring the full costs of eliminating them. This approach would also bring about effective conservation without changing the basic standard of living or interfering with continued economic growth. The plan would provide generous incentives from new energy production without providing inventory profits unrelated to economic contributions. And it would encourage increased use of coal, with appropriate concern for the environment.

The energy crisis touches every aspect of American life. Its solution will require the courage to call for action and support by the American people. The government will have to show skill in bringing about short-term adjustments, and vision in planning for the long-term future.

The national energy plan proposes seven ambitious goals for the American people to be achieved by 1985:

- To reduce the rate of growth of energy consumption to below 2 percent per year;

- To reduce gasoline consumption by 10 percent below the current level;

- To reduce oil imports to less than 6 million barrels per day, about one-eighth of total energy consumption;

- To establish a strategic petroleum reserve of 1 billion barrels;

- To increase coal production by about two-thirds, to more than 1 billion tons annually;

- To insulate 90 percent of American homes and all new buildings; and

- To use solar energy in more than 2½ million homes.

These goals are established to deal with three overriding objectives. As an immediate objective that will become even more important in the future, the United States should reduce dependence on foreign oil and vulnerability to supply interruptions. In the medium term, the United States should keep U.S. imports sufficiently low to weather the period during the 1980's when world oil production approaches its capacity limitation. In the long run, beyond 2000, the United States should have available renewable and essentially inexhaustible sources of energy for sustained economic growth.

The United States should seek to achieve these objectives within the context of certain fundamental principles. Economic growth with high levels of employment and production should be maintained. National policies for the protection of the environment should be continued. Above all, the United States should solve its energy problems in a manner that is fair to all regions, sectors, and income groups.

To achieve these objectives, the plan has four major features:

- Conservation and increased fuel efficiency;
- Rational pricing and production policies;
- Substitution of abundant energy sources for those in short supply; and
- Development of nonconventional technologies for the future.

The national energy plan would lead to a 33-percent increase in domestic energy production by 1985. However, even that significant increase would not be sufficient to satisfy unrestrained demand. Therefore, the American people need to conserve energy, increase fuel efficiency, and substitute abundant energy sources for those that are scarce.

Conservation, including increased fuel efficiency, is the cornerstone of the plan. The plan does not seek to reduce energy consumption in absolute terms, but rather, to reduce the rate of increase of energy consumption from the 1950-73 average of 3.5 percent to less than 2 percent per year. The conservation goal is fully consistent with the President's economic goals, including high rates of employment and expanding output.

The strategy of the plan is to achieve sensible, cost-effective conservation in all sectors of energy use: In transportation, homes and other buildings, factory equipment, and appliances. The Nation's current stock of automobiles, buildings, equipment, and other capital goods currently uses energy inefficiently. The conservation measures would modify that capital stock in an orderly way, so that by the mid 1980's, energy can be used far more efficiently than today.

Although no one can predict future supply with complete confidence, the prospects for world oil supply are not reassuring. To act prudently, the United States should not rely on a continuous flow of large new discoveries in meeting new demands. To increase the likelihood of avoiding severe adverse consequences during the 1980's, steps should be taken now to improve the efficiency of the Nation's stock of capital goods. Conservation should also be promoted through reforming utility rate structures, so that they give consumers proper signals concerning the costs of service. In developing the conservation program, direct regulation of energy use has been minimized in order to maintain a high degree of free choice among individuals and corporations. The United States has time now to allow adjustments to be made voluntarily.

The conservation programs of the National Energy Act would reach all major segments of energy consumption. The two major proposals would provide a good deal of latitude among consumers: A tax on automobiles with fuel economy less than the fleet averages under current legislation, with corresponding rebates on fuel-efficient cars; and a standby tax on gasoline, designed to take effect if total national consumption exceeds prescribed target levels. The latter proposal would provide a challenge to the American people to meet a common goal. The tax would be imposed only if the American people failed to meet annual goals by more than 1 percent. This represents the type of challenge Americans have been so successful in meeting in the past and will likely meet in the future.

The National Energy Act proposes a wide variety of financial incentives, regulatory changes, and other measures to achieve conservation in homes and commercial buildings. These incentives, coupled with rising fuel costs, should make homeowners and businesses willing and able to insulate buildings and otherwise conserve energy. If the voluntary measures do not succeed, mandatory measures, such as requiring that houses be insulated before they are sold, will have to be considered.

For the industrial and utility sector, the national energy act contains a program of economic incentives and disincentives and regulatory measures. It creates

incentives to decrease use of energy in general and in particular to reduce peak load use of energy by industry. Also, incentives are created for the congeneration of electricity and industrial process steam to achieve much greater efficiency of production by making beneficial use of waste heat.

The plan would reform the pricing of oil and natural gas, so as to provide strong incentives for new production, to avoid windfall profits on production from existing fields, and to promote conservation through more realistic pricing of oil in the marketplace.

The plan provides very significant incentives for new production. Over the next three years, the price of newly discovered oil would be allowed to rise to the 1977 world oil price, adjusted for inflation. This measure would yield revenues greater than those available to oil producers anywhere in the world. The incentive would be higher, for example, than the level of revenues for production in the North Sea, where producers have to contend with deep water and 30-foot waves. The proposed incentives for new natural gas production are also generous. Moreover, the National Energy Act would end the interstate-intrastate distinction for pricing new gas, together with its distorting effect on production and distribution.

To bring about more realistic prices for oil in the marketplace, the National Energy Act contains a crude oil equalization tax, designed to raise the total well-head price of domestic crude oil to the level of the world oil price. Only if domestic wellhead prices are raised to the world level will consumers recognize the true replacement cost of oil and respond by conserving. Producers, however, should not earn inventory profits arising from price increases unrelated to any risk-taking or economic contribution on their part. Rather, the proceeds of the price increase should be returned to the American people.

The National Energy Act contains provisions designed to bring about conversion by industrial firms and electric utilities from scarce oil and natural gas to coal and other abundant fuels. Coal constitutes 90 percent of U.S. conventional energy reserves, but last year contributed only 18 percent of U.S. energy consumption. A major strategy for reducing U.S. dependence on oil imports and for assuring sufficient natural gas for high priority residential and commercial use is to induce industry and utilities to convert to coal and other abundant domestic fuels.

Under the proposed legislation, taxes would be levied on the use of oil and natural gas by industrial firms and utilities. By raising the cost of oil and natural gas to these users and by providing rebates and tax credits for reconstruction and replacement of gas and oil burning facilities, the legislation would provide strong incentives for conversion to coal and other sources of energy. In addition, the legislation contains a revised and simplified regulatory program for oil and natural gas conversions. Restrictions would be placed on the burning of oil and gas in new facilities, and permits would be required for conversion of existing facilities to either oil or natural gas. The national energy plan includes policies and programs to ensure that as the United States increases its use of coal, the quality of the environment will be protected.

The plan contains a variety of measures to promote the development and use of nonconventional energy sources. Tax credits for residential and business use of solar energy, a tax deduction for intangible drilling costs of geothermal drilling equivalent to that available for oil and gas production, and new research and development initiatives should contribute significantly to the development of renewable and essentially inexhaustible energy sources for the country's long-term future.

The macro-economic impacts of the national energy plan would be very small, below the range of confident projection compared to a \$2 trillion economy. An analysis of the impacts of the plan over the 1978-81 period was prepared by the administration. This analysis concluded that the plan would have no significant impact of the growth of real gross national product (GNP) or unemployment. The plan would have a measurable, but modest net inflationary impact of 0.3 to 0.4 percent annually over the next two years and 0.1 to 0.3 percent annually over the following two years. While there is considerable hope that gasoline tax will not be triggered during the period analyzed, an assessment has been made assuming the tax were triggered each year, beginning in 1979. In that unlikely event, prices would be expected to increase by an additional 0.2 to 0.3 percent annually. The impact on real GNP would be slightly contractionary, although of such a small magnitude to be within the margin of error for forecasts of this type.

In assessing the economic consequences of the plan, it is important not to become mired in the relatively small differences in econometric projections covering a long time period. Rather the focus should be on the economic consequences of not dealing with the energy problem effectively. Standard econometric projections

assume there will be enough energy to continue maintaining high levels of economic growth and standards of living. That assumption is coming increasingly in the question.

Therefore, the proper question is not whether the macro-economic effects of the national energy plan are slightly negative. The proper question is whether there is any other approach that would achieve the needed improvement in the U.S. energy situation consistent with other basic government policies and with significantly better macro-economic consequences. On the basis of our studies of these matters, we have concluded that there is not.

Mr. Chairman, the energy crisis is probably the most important domestic problem we will have to address during the next several years. It is a problem that will test our vision, our creativity, and our courage. Future generations—including our own children and grandchildren—will look back at what we did in facing this problem. They will inquire whether we made effective use of the time available to us. It is, therefore, essential to have close cooperation between the administration and the Congress now, while we still have time to deal with the energy problem in an orderly manner. I look forward to working with you on the large and complex task that lies before us.

Senator KENNEDY. Perhaps first of all we could carry on the area of inquiry of last Friday about the tying in of the taxes in the United States to the OPEC differential which has been reached between the administration's estimates and also the estimates of the Joint Economic Committee. Specifically the committee staff projects 1985 crude oil tax revenues of from \$23 billion to \$40 million assuming that this tax, which absorbs the price difference between the domestic price and the import price which we project to rise between 7 and 10 percent yearly. You state in your opinion that the 1985 tax collection would only be 12.3 billion. I think the question is: What rate of OPEC price increase was assumed in your calculations? Could you explain that?

Mr. SCHLESINGER. The calculations, Senator, have been based upon the premise, which is an objective of American foreign policy, that there be no real increase in the price of oil internationally. The conclusions, of course, flow from that particular assumption. We have not wanted to create an energy plan that in any way legitimates further increases in OPEC prices. What reaction the U.S. Government might take under circumstances in which OPEC chose to increase the prices is a subject on which we have retained our freedom of action. Quite obviously, if there were major increases in prices, the Government would act in such a way as to offset them. If there are only minor increases in prices, it may be more convenient to adjust with them.

However, the heart of your question is whether there will be substantial increases in OPEC prices. We do not know the answer to that. We have our hopes, and we have our fears. If you wish, Senator, to speculate on a range of possible prices for OPEC, we would be happy to supply the data which would be consistent with that range of prices. Let me underscore, however, that if one speculates on substantial real increases in the price of OPEC oil, the domestic economic consequences of that are far more serious than anything that has been proposed in this plan.

Indeed, the inflationary impact of this plan, the impact on prices which will be offset by rising real incomes, are about equal to a dollar rise in the real price of OPEC oil. If you contemplate a \$5 price in constant dollars rise in the price of OPEC oil, the consequences would be five times as severe.

Senator KENNEDY. Well, I think that is a worthy goal in terms of a policy consideration but it does not help us very much in terms of

estimating what the amounts are going to be in terms of taking out of the economy. The idea that we will continue to adjust to any minor or modest increase in OPEC but decouple if there is a significant one should be addressed. We are talking about billions and billions of dollars. We have to have at least some kind of range to be able to make some estimates in terms of—I think the economic impact. How much higher would it have to go in terms of you thinking about the decoupling? I can understand from a foreign policy point of view the administration wants to retain some degree of flexibility. I think what we are talking about is an essential aspect of the whole program in terms of the impact in terms of inflation, potential for unemployment, balance-of-payment factors, a variety of other economic implications. We ought to be able to at least have some general areas by which estimates can be made.

Mr. SCHLESINGER. Sir, we will provide for the record the consequences of a range of hypothetical OPEC prices with the impact on balance of payments and the impact on the revenues that are generated.

[The following information was subsequently supplied for the record:]

The Energy Policy and Planning Staff is currently working on a paper which will discuss the impacts of a range of OPEC prices. When the analysis is completed, we will provide the committee with these results.

Mr. SCHLESINGER. The point that should be stressed, however, is that it is the intent to return to the American people whatever revenues are generated by the wellhead equalization tax. The procedures are ones that are being developed by the Treasury Department for those who have filed tax returns. They will have an immediate writeoff on a per capita basis. Those who do not file tax returns will be pursued, check in hand, by HEW in order to give them their per capita rebate on the funds generated by the wellhead equalization tax. All of that money is intended to be returned to the American people.

So there will be no drain from the economy. There will be transfers within the economy that will return the funds that are obtained through higher prices, reflected in taxes, to the public at large.

Senator KENNEDY. Well, tell me if you decouple, are you going to go back to the entitlement program?

Mr. SCHLESINGER. We would have to if the difference between the world price and the domestic price were significant. It is our hope, of course, to get away from that.

Senator KENNEDY. Quite frankly, we need something other than just signing a blank check—something to show what the range of different alternatives are going to be on it. When are you going to get back into the questions of the entitlement program—speaking from an area that has anywhere from 50 to 100 percent higher energy costs in some fuels—to just sign a blank check? You can't expect that any more than you would expect representatives from producing States to do it. What kind of assurances are going to be given? Everyone is prepared to tighten their belt in terms of an energy international program.

I am completely convinced, based upon what has happened to date, about the interest of the President and Mr. O'Leary and others, in-

cluding yourself, in equalizing these various factors to the extent you can. However, you have to give us some idea other than saying, if it gets too high, we may go back into a program.

If there was anyone in the room from any of the principal oil-producing areas, they would laugh you out of the room. They would laugh me out if I went back with that answer.

Mr. SCHLESINGER. Senator, let me make one general point. The effect of this program will be to tend to equalize energy costs nationwide. The differentials that have existed between the producing areas and the consuming areas will be reduced by this program. That will alleviate significantly, I believe, the burden on New England and therefore, I hope, the special sensitivities of New England. With regard to the two specific questions that you raise: First, if the difference between world oil prices and domestic oil prices, in the event that the U.S. Government did not follow world oil prices, reached, say, 5 percent and certainly below when it reached 10 percent, it would be in my judgment necessary to reestablish the entitlement program. You can have a small difference in price domestic and worldwide, but you cannot have a significant difference. Five to ten percent in my judgment would be about the right range.

Similarly, while I must remain somewhat imprecise with regard to the circumstances in which the United States would or would not follow OPEC prices were they to increase significantly, it is clear that a 5-percent rise or a 10-percent rise in real costs, in constant dollar costs, of OPEC oil would force us to consider very carefully going back to the entitlements program. We hope at a minimum to see in the years immediately ahead no rise in the real cost of OPEC oil.

Senator KENNEDY. That is helpful. Over what period? Can you give us a precise date?

Mr. SCHLESINGER. I would hope that as a result of bringing on North Sea oil and bringing on North Slope oil, which will start in July of this year, that that added supply on a worldwide basis, and particularly to the advanced industrialized nations, will temper any increase in demand for OPEC oil in the short run and up to about late 1979 or early 1980. There should be some degree of surplus capacity so that the ability of the more hawkish members of OPEC to push up prices will be limited.

Senator KENNEDY. Thank you, my time is up.

Congressman Long.

Representative LONG. Thank you very much, Senator.

Mr. Schlesinger, the question of the availability of large amounts of capital required for conversion to coal is one that continually plagues a lot of people, and is one that plagues me. What figures do you have as to what the requirements are in that regard, in keeping with the plan that you have proposed? Do you have a reasonably sure feeling that adequate capital will be available in the private market for that purpose?

Mr. SCHLESINGER. Yes, sir. There are two sides to the impact on the capital market. There are capital saving features to our plan. In particular, the rate reform for utilities, which will permit them to square up their loads and thus avoid to a considerable extent nationwide what would otherwise have to be a substantial expansion of utility capacity, will save something on the order of \$55 billion worth of

investment between now and 1985. The plant conversion will cost us about \$35 billion; so that the net impact on the capital market will be to reduce demand for capital, if you take those two features into account. You, Congressman Long, are understandably particularly concerned about the Southwest where there will have to be major shifts from the present gas-burning capacity. Construction in the Southwest will require \$11 billion more in capital. Rate reform and conservation for the utilities will save an estimated \$7 to \$8 billion worth of capital in the Southwest. So, there will be a requirement of something on the order of \$3 to \$4 billion worth of capital in the Southwest.

I believe that the capital market can well cope with these kinds of problems. We have looked very carefully at the conditions in the Southwest. We have extended the time in which the conversion from gas to coal will be required to go on until 1990. I should point out, Congressman, that all of the funds generated by the oil and gas tax will be available to the company making the conversion to coal to help make that conversion.

Representative LONG. One or two companies that have fairly modern facilities in the southern part of the United States have talked to me about this problem. Even though these companies have a very substantial investment in their facilities, which are currently using gas, they say that the economics are such, and the costs are so high for conversion to coal, that they will find it very difficult to convert to coal. They say they really are going to be in a position of having to close down these facilities rather than converting them to coal, because, economically, conversion is not justified when it is complicated by these additional problems. Have you all done a study with respect to these situations?

Mr. SCHLESINGER. Yes, sir. We should underscore the fact that the utilities will not be obligated to go over to coal until 1990, 13 years from now. That will permit in virtually all cases an attrition of the capital values of the plants. Coal indeed should be available. There may be some unique cases that we will have to look at in the 1980's, but what we are providing is a thrust for policy. That thrust must incorporate an increased proportion of our available oil for the transportation sector in which it has its highest and best use and a greater reliance by stationary sources—utilities and industry—on coal. There may be local difficulties. They may be special problems. During the course of the next 13 years, we will have ample time to review them and to ease the transition.

Representative LONG. Consequently, you think the transition could be made? Is that correct?

Mr. SCHLESINGER. Yes, sir.

Representative LONG. The question of the impact of higher utility rate upon poor people is one that has a great many people concerned. I am one of those who is greatly concerned. As you know, a number of so-called lifeline proposals for pricing of a minimum amount of energy available to poor families have been made in various parts of the country.

I do not know what the minimum would be, perhaps 500 kilowatts; I do not know what the averages are. Have you done a study regarding the effect of such plans upon your overall program? And what

is the general view of the administration toward making a minimum amount of energy available to poor families at a minimum price?

Mr. SCHLESINGER. That is an issue we are leaving to the State regulatory bodies to decide. We have sympathy for it. Each State regulatory body is free to move in that direction. The effect of the reforms that we are proposing will be to block discount rates for electric power. The effect of this change will be to hold down rates to household consumers compared to what they would otherwise be.

Indeed, we project for household consumers a decline in electric power rates of some 1.5 percent compared to what they would have reached in 1985.

The State regulatory authorities, should they wish, go beyond that to establish lifeline rates. We are sympathetic to that proposal, but at this stage, all that we seek is the elimination of block discount rates in the utility rate reform.

Representative LONG. It seems that within the elimination of the block discount rates there should be sufficient room for the State utility commissions to follow this type of pattern without having any drastic effect upon your overall program. Is that right?

Mr. SCHLESINGER. Yes, sir. We have left considerable latitude to the States should they wish to move in that direction.

Representative LONG. One final question: Everyone seems to agree that coal reserves of this country are sufficient to last us for a longer period of time. The questions, of getting the coal out of the ground, and of getting it to a place where it can be used—and in some form in which it can be used—are probably the more significant questions, of conversion problem. Together with the amount of capital required to convert these facilities, of course.

What kind of specific projections have been made by the administration as to the availability of coal, in a form and in the places where it needs to be used, during this entire period of conversion?

Mr. SCHLESINGER. We are now doing planning on that issue. We want to provide incentives but we do not want to provide for the movement of goods and services around the country. We have reviewed that matter, Congressman Long.

The first point that I should make is that we are supporting enabling legislation to provide for coal slurry lines. Each coal slurry line would have to be justified on its own merits. We are supporting enabling legislation with regard to rail transportation. The main point that should be made is that the period for improving the roadbeds or the rolling stock is shorter than the period for the construction of new plants. The leadtimes provide us with the opportunity to review bottleneck transportation problems; and we shall be reviewing that. There are a number of areas that are problematical concerning individual lines; and, of course, as Senator Kennedy will indicate, we have had in the past, a major problem in New England with regard to the rail transportation of coal. We also have a problem that we shall have to look at closely which will develop in the Southwest as the Southwest makes the transition from oil and gas to coal.

Representative LONG. I think maybe I have a minute or two left. Let me ask you one other question. I well recognize the difficulty of advocating a program of increased exploration and at the same time, you are trying to talk conservation. It is very difficult. There

is a matter of getting your message across and a matter of relations with the public and confidence in the program that you are projecting. Many of us in Congress, I think, are concerned about what we feel are inadequate incentives for production of energy; as a collateral matter, some of us feel that the Government has failed to approach aggressively and to pursue exploration for oil and gas in areas where a substantial amount of research indicates are new resources. Because of environmental problems, similar to those that we from producing States have been living with for many, many years, we believe the Government has not aggressively pursued a program of new exploration. These two areas are not directly related, but they are closely related problems.

Mr. SCHLESINGER. They are quite closely related with regard to the outcome, Mr. Long. On your second point, I think, as a Government we can do a better job with regard to making leased areas available more rapidly than we have been able to in the past.

As you know, we had a major disappointment with regard to the judicial view of the Baltimore Canyon lease. The administration has challenged that in the courts.

On the first point, Congressman, we agree with you—we strongly urge that the industry go out and find oil. Our premise has been the premise that the industry has stated: That if the price is right, there is oil to be found. The price indeed will be right for new oil. We are putting the emphasis on new exploration.

The numbers that I have put up here indicate that the returns to a U.S. company will be dramatically in excess for that barrel of new oil compared to anything that they can attain elsewhere in the world. In the Middle East, for example, they receive a fee of 20 to 40 cents for lifting a barrel of oil. That, of course, is a direct fee rather than profit; but in the North Sea which is perhaps the most prominent example, where production costs are high, they run about \$5 a barrel. The British Government imposes taxes of \$7.50 a barrel.

The wellhead returns in the North Sea are quite low compared to what they will be in the United States. The same companies which in the United States are complaining about the lack of incentives and the prices not being right are scampering around in the North Sea, as it were, looking for oil with lower returns at the wellhead. These are generous incentives; and I think that the generous incentive have been offered in the attempt to find those new fields of oil.

Representative LONG. Thank you.

My time has expired.

Senator KENNEDY. Congressman Bolling.

Representative BOLLING. Mr. Schlesinger, I seldom quarrel with you about the use of a word, but I am worried about your use of the word "subtle" in describing this challenge. It seems to me that the damage that has been done to the world and the U.S. economy by the price increases of the relatively recent past make it a great deal more than a subtle challenge. I understand what you mean. You mean an unrecognized challenge, a challenge that is harder to recognize than a military attack; but it seems to me that the challenge while harder to recognize and harder to accept may be at least as dangerous as the challenge of that war which we almost lost, World War II, because it may very easily result in our complete failure

to deal with the problem because we see so many complexities and so many difficulties on a regional and more particularized basis. It seems to me that it is terribly important to reemphasize, as everybody does, that the usual question is whether we are able to deal with the challenge at all.

The difficulties and the complexities are enormous; but the fundamental overriding fact is that unless we deal with it now, it will deal with us later; and it will destroy almost surely the economy and it very well might destroy the political system. I would like to emphasize at the front end that the challenge is as tough as any we have had.

One thing that does concern me about the administration's program is the—my feeling—and I cannot prove it as yet—although I may be able to later—I have the feeling in what I have seen and what our staff has developed that the method of recycling the taxes builds in a significant period of fiscal drag. I am not prepared to say how many months, but it seems to me that it might have a very significant skewing effect; and we know so little about the effects of fiscal policy really—and even monetary policy. We never have agreed—I do not mean you and I—but the country never agrees on the appropriateness of a fiscal policy or a monetary policy. I would like you to discuss the question of whether my instinct—and it is more than an instinct, it is based upon figures particularly in relation to the industrial taxes that are designed to shift from oil and gas to coal—it seems to me that there is some drag there and it worries me.

Mr. SCHLESINGER. May I take just one second to respond to your initial observations? I heartily concur. Our problem is the relative invisibility of the crisis. It is not subtle. It can be devastating. It is simply more subtle than Pearl Harbor, which—whatever its demerits—was not lacking in subtlety.

The question of fiscal drag is one which has concerned us as well, Senator. On the side of rebates to the taxpayers, we have a provision that permits the funds that would be generated for the individual family to be generated during the course of the year rather than waiting to the end of the year through the withholding system. So, that for the \$12 or \$14 billion to which Senator Kennedy referred a moment ago, that would start to be rebated should the taxpayer wish to do so immediately through his withholding form.

There is a possibility that the oil and gas taxes could have some fiscal drag. We shall have to review that carefully during the transition period to see that that does not take place. In the longer run, it would have a fiscal stimulus, of course, but in the shorter run, we shall have to look at the drag effects. I share that concern, Congressman Bolling.

Representative BOLLING. What about the various notions that have surfaced? It has been stated explicitly that the administration decided on the most neutral form of rebate that it could because it saw so much controversy being generated by the alternative choices. Is that essentially—

Mr. SCHLESINGER. You put it very clearly though with no—

Representative BOLLING. No subtlety?

Mr. SCHLESINGER. No subtlety and no charity [Laughter.]

Representative BOLLING. I guess there probably is not any harm,

because it is probably going to be inevitable. To put it another way, it seems to me there is a real likelihood the Congress is going to concern itself in one fashion or another, in one body or the other, with the various ways in which the enormous tax take could be used. It seems to me that probably if we are going to have a result—although I agree with your point that there are only a couple, oh, perhaps four or five items in the program that are very controversial, they are very major items. That being the case, it is terribly important how they are dealt with. Is there any particular reason why it could not be healthy for the Congress to have a knockdown drag out fight internally over how those funds should be used?

Mr. SCHLESINGER. Congressman Bolling, I believe the Congress will have a knockdown, drag out fight whether or not it is healthy or not. [Laughter.]

There is no reason that it should not do so. The administration's proposals are, I think, very clear. It was our judgment that in order to bring about these changes in price relationship and in taxation, that we would have to assure that the money was not going to generate undue benefits on the part of certain concerns; this is a part of the equity program. This is our response to that need for equity. That is our proposal to the Congress.

The President has proposed and the Congress, I am sure, will review that proposal.

Representative BOLLING. If I may just close by saying something that is obvious: It seems to me that the really important problem that Members of Congress have to adjust themselves to is that this Congress in the next year and a half is going to get the credit or the lack of credit almost surely for whatever happens in the 1980's. There may be some miracles around the corner that none of us see; but if we get so confused by our knockdown, drag-out fights on a variety of issues that we do not come up with a final program, this is the Congress that is going to be remembered in history for a very particular reason. That reason is going to be that it did no deal with a comprehensive energy program. I think that is the fundamental underlying dilemma that faces each of us individually and all of us collectively.

Mr. SCHLESINGER. I totally agree.

Representative BOLLING. Thank you, Senator Kennedy.

Senator KENNEDY. Just to get back to a point that Congressman Bolling mentioned, you talked about the rebates in terms of withholding. What about in the area of small businesses? That happens to be an area that is the primary business in many of the regions of the country such as in New England, where the availability of capital, of course, is a key factor in terms of competition. In the larger companies, the corporations can carry these various factors over. Generally, the small businesses and industries cannot. I am just wondering if you have given thought to that—and can—in terms of seeing a similar kind of rebate program?

Mr. SCHLESINGER. The concern about small business, Senator, lead us to exempt those concerns with fewer than 3,000 employees, I believe, from the oil and gas taxes. Those taxes will be applied to the larger concerns but not to the smaller ones. There will be some increase in the costs for energy for small businesses. However, for most small businesses as opposed to large businesses, the proportion of resources used in the form of energy is relatively small. They are not energy

intensive; and I believe that the small business relieved of the oil and gas tax should not have a significant problem. We will be happy to review it further.

Senator KENNEDY. If we could get back to you on that particular item, in terms of the small business groups, this is an item which they have very strong concerns about. I am the chairman of the Antitrust Subcommittee. One of the principal factors in terms of the whole competitive concentration is the availability of capital, as you well understand. How we are going to be able to continue or structure both the tax system and the capital formation system and whether they are going to be able to compete? This is an aspect in which they are enormously concerned.

The other item in terms of the response, too, on the movement of coal to different sections of the country, the fact of the matter is in certain sections of the country under the various freight rates which were devised 30 to 40 years ago to benefit certain railroads, there are some sections of the country that pay 30 percent more in terms of transportation.

As you try to equalize these various factors in terms of the country and the cost of various energy, that they are having to pay the additional 30 percent in terms of coal prices, it is not going to move us toward the system of equity which you stated.

Now, again from a region of the country that has seen these discriminatory rates, the ICC has found these rates are discriminatory, but then said they have not been able to determine injury, which is just one of the most amazing conclusions that I have seen from a regulatory agency, and I have seen many of them. This obviously has to be a factor in the shaping and the development of your policy. There are many different groups—the New England Regional Commission and other groups are attempting to get equity and hope there is concern in the administration for the importance of that. Transportation, as you mentioned, is a key item in terms of the issues of that.

Could I get back to an area which Congressman Long was talking about and that was the area availability of coal. I am sure you are familiar with the Power Commission's findings, the Congressional Budget Office's findings in terms of the quantity of coal which is currently available and under contract. As I understand it, the Power Commission has estimated that the utility facilities under construction would use 360 million tons of coal in 1985 and add this to the present output of 650 million tons, you get the billion tons. So, if there is a coal conversion at the level anticipated, how much over this billion will the 1985 coal demand be and how will this affect the prices and what will the administration do if we see coal prices escalate rapidly, which a number of economists have felt would be the case if there were to be the availability of the product?

Mr. SCHLESINGER. On the question of coal, Senator, the President has indicated a minimum objective of obtaining something on the order of two-thirds increase in production. According to our projections, the amount of coal that would be required in 1985 would be 1.25 billion tons, which is something on the order of 200 million tons in excess of the number to which you refer. That will come about through the coal conversion program.

We have, as Congressman Long indicated, massive amounts of coal available in the country to be mined. I should underscore—and your reference to your chairmanship of the Antitrust Subcommittee underscores this as well: We have in the West major leases which the Government has given at little or no fee to the various companies. Those lands have not been produced. There are due diligence requirements in the law. It is likely to be necessary to insist on those due diligence provisions to see whether those coal lands leased from the Government indeed are produced rather than simply lying idle. I would not think that over this period of time, we would have that much difficulty in providing the incentives to produce coal.

I am more concerned about the use of coal, the development of demand as opposed to supply projections.

Senator KENNEDY. Of course, there is certainly a hope in the area of the—of both the Power Commission and the CBO, that they have estimated that there is just not an effect on line. I gather from your testimony that you feel—you are prepared to use whatever stick that is available to the Government to insure the increase in production.

Mr. SCHLESINGER. Sir, we will generate sticks if the need arises, as well as using the ones available.

Senator KENNEDY. What about the price? What can you tell us in terms of the—

Mr. SCHLESINGER. Of course, price is related closely to supply. The coal industry for many years has been competitive. We will watch it carefully to see that it continues to be competitive.

Senator KENNEDY. What is your estimate in terms of increased costs of the price? We have seen important studies that have been worked out both by this committee and by other economists that in terms of the estimated escalation in terms of price—could you give us any idea of what you think are going to be the levels over the expanded production?

Mr. SCHLESINGER. We will put in some ranges in the record, Senator.

[The following information was subsequently supplied for the record:]

The increases in coal production and consumption under the President's program will not require significant price increases. This is because increased coal production from the Nation's vast reserves can be accomplished without substantial increases in the production costs. Specifically, analysis has been developed on the costs of delivering coal to utilities in various regions. The following table summarizes the coal prices forecast by the PIES model.

1985 PRICES FOR COAL DELIVERED TO THE ELECTRIC UTILITY SECTOR

	Base case ¹	President's case ²	Percentage difference
Appalachian high sulfur bituminous coal to Middle Atlantic utility region...	0.98	1.00	+2.0
Midwestern high sulfur bituminous coal to Midwest utility region.....	.94	.98	+4.3
Western low sulfur bituminous coal to West utility region.....	1.22	1.41	+15.6
Western low sulfur sub-bituminous coal to Central utility region.....	.98	.99	+1.0

¹ PIES run A148542C.

² PIES run A158568C.

³ For the purpose of this analysis, it was assumed that additional sub-bituminous coal could not be shipped to the West utility region. This is an artificial constraint. Removing this constraint would have reduced the percentage change in coal prices in this region.

Mr. SCHLESINGER. I should stress that we have had major increases in coal prices in recent years. They have been driven by genuine costs and falling productivity. We hope to see productivity rise in the mines in the future rather than the downward trend we have witnessed in recent years. If that is the case, there should be no increase in real costs. It should be minimal. We want to see the gap between coal and oil widened.

Senator KENNEDY. Well, this is obviously something to follow closely. Shortages arising from rapid expansion of coal resources that we see in the Office of Technology Assessment may include certain types of personnel who are absolutely essential in terms of safety and other factors. Those are going to be difficult to develop.

One of the other primary areas that you should be concerned with is insulation.

The fact is we have a small number of companies involved in the production of insulation. Basically, there are three major producing companies in insulation. One of them has a significant corner on the market at the present time. There has been an explosion in terms of costs of insulation in the last 2 years, even without the very significant incentives that are being suggested by the administration's program.

I, for one, am very much concerned that your tax incentive programs for insulation are just going to be absorbed by these companies. They may get whatever several hundred dollars homeowners are able to acquire in terms of tax incentives.

In a number of the new facilities which I think primarily would have been insulated in any event because of the increased costs of energy tax credits may just end up being a windfall to the companies themselves and be sort of a massive Federal subsidy to a small number of companies. I am wondering in the area of both the tax aspects of it and also in the availability of the product. What would your information be?

Mr. SCHLESINGER. Senator, we share your concern. We must watch that very carefully. The Office of Business Research and Analysis in the Department of Commerce is presently surveying the production capacity of the insulation industry. What we have projected is approximately a doubling of requirements as compared to the present time. We are now insulating about 3 million homes a year. We project something on the order of 6 million homes a year. We will have to watch that very carefully.

Senator KENNEDY. The increase in the cost of inflation has been anywhere from 2.5 times the Consumer Price Index over this period of time. There would be a dramatic explosion in terms of demand, if that happens, I do not see how you are going to be able to control that particular factor, particularly with the additional kind of incentive of rebate. I made that point. I think that this would be a significant factor in terms of both availability and in terms of how the Federal Government is going to end up paying more for this development.

Congressman Long.

Representative LONG. Thank you very much, Senator. One question, Mr. Schlesinger. In the past, as you know, Congress has in many instances treated large industrial users as utilities, in many of its accounts. This has been the net effect, at any rate, even though it is

sometimes done by an exemption or an exception. Your plan establishes one conversion date for industry and another for utilities; the utilities are permitted a longer period in which to convert, about 3 or 4 years longer, if I remember correctly. Some of these large industrial users in many ways function as utilities; do you think Congress should give consideration to treating them as utilities, for conversion purposes, rather than simply industrial users?

Mr. SCHLESINGER. No, I would think not. The utilities are regulated. They have limitations on capital which are imposed by law or by regulation. I think that they are in a different category than is the average industrial firm.

Because of the massive investments required for utilities, as you indicate, the oil and gas taxes are triggered for utilities at a later date than they are for industry.

The only mandatory date that would be involved here is the 1990 date for utilities.

Representative LONG. That is all, Senator. Thank you.

Senator KENNEDY. I just have a couple of others. As for the industrial oil and gas consumption tax to be levied in the beginning of 1979, statements of some of the other witnesses to appear later this morning indicate that the conversion to coal will take considerably longer, at least perhaps 6 or 7 years. In the meantime, the tax will ratchet up prices and drain capital from labor-intensive firms. Also, the collection of this tax without a rebate will exert a fiscal drag on the economy that may not be wanted at this time. The question would be, Should we postpone the imposition of this tax until at least the early 1980's?

Mr. SCHLESINGER. The answer to that, Senator, I think, is an unequivocal no. We have phased in this tax in order to deal with just the contingency that you mentioned. It is not triggered for a number of years. It then is phased upward so that the adjustments can remain over an appropriate period of time.

The impact of these taxes, Senator, is very significant in our projections. We hope to substantially reduce the use of oil and natural gas and bring about something on the order of 3½ million barrels of oil equivalent in coal more than would otherwise occur; and the oil and gas tax is critical. It lies at the heart of that coal conversion program. We have phased it in gently. I would hope that that gentle introduction would be appropriate in the eyes of the Congress.

Senator KENNEDY. Why do you do the industries in 1979 and the utilities in 1983?

Mr. SCHLESINGER. Congressman Long addressed that issue a moment ago. The possibilities for conversion of a utility which requires major investment is a more time-consuming and more expensive process than it is in the case of industry. For that reason, we have phased it in even more gently for the utilities than we have for industry. Indeed, the introductory date, 1983, for utilities is but 2 years before the Texas Legislature has considered mandating an end to gas-fired utilities in Texas. So, it is introduced very gradually. I do not think that our problem is precipitousness. It may be ondue gradualness.

Senator KENNEDY. Is the position of the administration now to rebate all of these resources to the people? Can you go over that one more time?

Mr. SCHLESINGER. There are a number of taxes here. The wellhead tax and the gasoline tax should be rebated to the people at large through the income tax or through the Department of Health, Education, and Welfare providing a direct check. For the oil and gas taxes—

Senator KENNEDY. Now, what do you estimate that would be? Do you have the estimates?

Mr. SCHLESINGER. They run up to about \$14 billion at the maximum gross; and about \$11 billion net in terms of Treasury receipts in approximately 1981; and then they begin to taper off. Although, as your initial question suggested, if there should be price increases by OPEC, that would have to be reconsidered.

That would generate something on the order of \$47 a head.

Senator KENNEDY. Why is it gross and why is it net? Can you tell me that, please?

Mr. SCHLESINGER. Because the net figure must make an adjustment for the lower take from oil company profits that occurs with these more restrictive profit levels for the companies. That would amount to something on the order of \$2 billion to \$3 billion lower taxes for the oil companies which must be offset against the gross receipts of the wellhead tax.

Senator KENNEDY. Why is that? You mean because their growth of profits is going to be somewhat less than your estimate in terms of profits?

Mr. SCHLESINGER. If the prices were going up in such a way that the companies get all of the benefits, the taxes would be higher. The effect of the wellhead equalization tax would be for them to hold their profits, and therefore the taxes would be lower. The loss of that revenue from that source must be offset against the \$15 billion wellhead equalization tax gross receipts to get the net figure.

Senator KENNEDY. That will not be passed on?

Mr. SCHLESINGER. On the passthrough, Senator, we estimate that two-thirds of the wellhead equalization tax will be passed through to the consumer. One-third will come out of a more restricted refinery margin.

Senator KENNEDY. The third would what?

Mr. SCHLESINGER. Be offset by more restricted refinery margins. At the present time, the ineffectiveness of competitive forces in that area has resulted in a fattening of refinery margins which we believe would be squeezed when we go to a uniform price facing all refineries as opposed to the entire system.

Senator KENNEDY. Tell us a little bit about the other—how are the rest of the tax programs being treated by the administration? This will be rebated?

Mr. SCHLESINGER. The oil and gas tax will generate revenues that are contingently rebatable to a firm that converts to coal. We estimate that most of those funds will be used by utilities. We do not estimate that all of those funds will be used by industry. As a result, between now 1985, if I recall, something like \$40 billion of additional revenues will be generated and will go into the general fund of the Treasury.

Senator KENNEDY. What percent will be used by the utilities in the conversion and what will go to general revenues?

Mr. SCHLESINGER. We expect for industry that about \$85 billion worth of funds would be generated.

Senator KENNEDY. Excuse me?

Mr. SCHLESINGER. \$85 billion; that about \$40 billion of that would be rebated as industry makes the conversion to coal, \$5 billion would be lost due to reduced income tax, but that \$40 billion would go net to the general fund of the Treasury.

For utilities, we expect to see something on the order, by 1985, of \$6 billion worth of funds generated; and \$6 billion of that would be rebated.

Senator KENNEDY. What else is left? Is that it?

Mr. SCHLESINGER. That is it.

Senator KENNEDY. Briefly, the \$85 billion, how do you get that?

Mr. SCHLESINGER. That is from all of the oil and gas taxes that will be imposed after 1979 on industry. Industrial use of oil and gas, given that gradually increasing scale, would between 1979 and 1985 generate the \$85 billion to which I referred.

Senator KENNEDY. Well, we will write you a letter. I would be interested in where that money is coming from in terms of just the \$90 billion; what segment of our industrial population is paying that in. Have you made any kind of estimates of that?

Mr. SCHLESINGER. Yes, sir. We have some estimates. Of course, the costs of this program will differ industry by industry. For example, in the case of the aluminum industry, which is a very energy-intensive industry, the costs will rise significantly.

In most cases, you will have an offset of these cost increases through adjustment of prices by the consumers.

Senator KENNEDY. Senator Javits.

Senator JAVITS. Mr. Schlesinger, one question that I think agitates the country and kind of juxtaposes a difference in philosophy, and without in any way adopting the philosophy as my own, I would like to put it to you. I think your summary answer would be very important. On the one hand, there is the Carter-Schlesinger school which says put on this variety of taxes; you cut consumption; you will redistribute the impact of that price increase and the total economy will benefit, including our balance of payments.

On the other hand, there is another philosophy which says to take off all controls, let the marketplace determine conservation by price. A lot of people want it; the price will go up; they will have to take a lot less. Take it off in excess profits taxes. Now, those latter people argue that either way the Government gets its take, and that individuals do not have windfalls and do not exploit the public.

Why is the former philosophy, to wit, yours and the President's, superior in the national interests to the latter philosophy?

Mr. SCHLESINGER. The question zeroes in, Senator Javits, on the question of oil and gas prices, and those prices alone, because nowhere else is the argument made about market forces.

The market forces in the case of a commodity which is in increasingly short supply will be likely to drive that price up far higher than is necessary to compensate the producers for their contribution to the economy. Indeed, in the case of natural gas, last winter estimates of the price of natural gas were that it would go up as high as \$5 or \$6-

per thousand cubic feet, a tripling or quadrupling of prices, not related to any productive contribution by the producers.

So, the market forces will work only up to a point in such an industry. We have given very generous incentives, but they are not excessive incentives. The \$15 billion to which Senator Kennedy referred a few minutes ago is twice the present level of profits of the oil industry. It would mean a massive shift of incoming wealth from the society at large to the industry. That is equal to approximately 1 percent of the GNP; and in the name of equity, it seems to me, as well as the productive contribution of the economy, that would be a serious error.

Senator JAVITS. Yearwise, you are going to take it all away from us in taxes anyhow, argue the private enterprise.

If the people lose nothing, why not go the market route which is time honored and for some centuries has demonstrated its ability to condition supply and demand.

Mr. SCHLESINGER. Well, the market mechanism has been time dishonored in the case of the oil and gas industry in the days of the Standard Oil trust.

If we look at the attitude toward Government, the Government should provide a helping hand to the industry as reflected in prorationing regulations by the Texas Railroad Commission, the passage of the Connally Hot Oil Act, the Interstate Oil Compact, which, in effect, extends prorationing to the entire Nation, as well as the most recent experiences with OPEC.

This is not an industry that has embraced the market. In general, as a rule of thumb, one can say that when supply exceeds demand, the industry demands regulation; when demand exceeds supply, the virtues of the free market are advertised.

So, I am not sure how time-honored those are, but the main points are that we have an essential commodity in increasingly short supply, that prices would be driven, in many cases, sky high, and the impact on the distribution of income as well as the impact on prices would be very severe.

Senator JAVITS. Would you say, then, that the fair test for us to apply—that is we who will pass on this will be that you believe that the governmental machinery is more perfect—not perfect, but more perfect, in respect to the oil and gas industry than the private enterprise machine would be; and that, therefore, we should essentially go the Government route, that we can depend upon the Government more than we can upon private enterprise to see that there are fewer distortions as a result of a price mechanism?

Mr. SCHLESINGER. I agree with the general thrust of that definition, Senator Javits. I would like to rephrase it slightly.

Senator JAVITS. Please do.

Mr. SCHLESINGER. At the present time our incremental fuel comes in from abroad.

Its price is established by a cartel. The producers in the case of that cartel are receiving something like 20 to 40 cents a barrel.

Much of the rest of it is government receipts imposed by the Saudis, the Algerians, what-have-you. That is not a market price. That is an administered price. It is an administered price that has quadrupled in the last 4 years. To suggest, as the industry is inclined to suggest,

that they should be the exclusive beneficiaries of a posted administered price strikes me as incorrect.

If there is going to be administered pricing in this area, it should be by the U.S. Government and the benefits of that administered pricing should be distributed amongst society at large rather than simply resulting in a shift of an additional 1 percent of GNP to a limited part of society.

Senator JAVITS. So, the added argument, which has not been made public very much at all is that we are a Government facing governments, whereas private enterprises are a diversity of companies facing governments.

Therefore, we feel our hand will be stronger in dealing, in getting equity, if we face it on a governmental basis, which is really what the tax idea does; is that true?

Mr. SCHLESINGER. I think that is fair, yes, sir.

Senator JAVITS. Aren't you, therefore, obligated on the part of the United States to take a much deeper interest in what the companies do with the oil when they get it?

Remember that no matter what you have done, they will pick it up at the source, transport it, market it, deliver it, and they allocate it, determine where they are going to take it, to the United States or some other place.

Doesn't what you are describing as the governmental justification for taking this action also include a much greater control over the oil business?

Mr. SCHLESINGER. I do not know, Senator Javits, whether such actions would be necessary.

I do agree with your observation that we shall have to study further the impact of these types of arrangements and we shall do so.

Senator JAVITS. Thank you, sir.

I think this is very helpful, because I think that this is a big question that has been bedeviling people. We all have an idea that somehow or other these taxes stick to the sides of the funnel and won't come back.

Like any other proposition in life, what I have asked you is what is the alternative.

Is that better or worse? I gather that you feel that it is worse.

Mr. SCHLESINGER. Yes, sir.

Senator JAVITS. One other thing, Mr. Secretary—forgive me for calling you Secretary, you will be again, I am sure.

What I wondered about was the cost of the conversions. I gather before I was here—I had to be at the White House and the State Department this morning, so I apologize—you gave an estimate of about \$35 billion for conversions.

Now, not everybody can afford that. Perhaps it might not even be bankable. The question is: Should the Government—again as an element of this total scheme—establish some form of financing facility to see that this conversion is made more rapidly than perhaps normal market forces would permit in view of the fact that it would be in the national interest?

Mr. SCHLESINGER. We regard the contingency rebatement of these oil and gas taxes as, in a sense, that kind of financing facility.

All the funds generated from a company's taxes under this particular tax will be rebatable in order to make that conversion.

Senator JAVITS. That's a key point, Mr. Schlesinger, for this reason: It has to be done promptly enough and with sufficient solidarity to make it a business proposition if it is going to stand in lieu of financing.

We are going to have to examine it from that point of view. Our experience in this area is very bad; but the promise gets stuck in the bureaucratic channel. We really don't get the delivery on time, et cetera.

Is that in the mind of the administration so assurances may be given to the Congress that the flow of funds will really be related to the need for financing?

Mr. SCHLESINGER. Yes, sir.

Senator JAVITS. Thank you very much. We will examine it carefully from that point of view.

One other question occurred to me and my staff, Mr. Schlesinger. We would like this insulation of buildings, et cetera; we would like the installation, for example, of solar energy equipment, et cetera.

Some of these things we would like to start right away. We know very well that it is going to take time for this energy program to be approved.

We all understand that. It is essential to our system. Could the administration give some assurance to those who are concerned that there will be retroactivity in respect to these matters so there would be an inducement to go forward promptly, perhaps even some incentive to go forward promptly as it is a little gamble.

I am confident that we are so anxious to do this that we will do it, just as the administration recommends, but nonetheless, it seems to me this is an area which could very well be explored.

Also, it has been said that the utility companies are in the best position, from the point of view of the small user, to do this.

Well, it has happened before. The President can bring the utility presidents to the White House and say, "I want you to install this now."

It is the "now" concept that I would like to submit to you.

Mr. SCHLESINGER. Yes, sir. I think we agree entirely with your point. The administration has requested that the Congress make this retroactive.

I hope that the Congress does indeed make it retroactive to the time of the President's address or whatever date you should choose.

We will examine the proposal of calling in the utility companies to request early action.

Senator JAVITS. Or any other such thing, Mr. Schlesinger, that would get the thing off the ground now and give the country a feeling of not only forensic but of action urgency.

I thoroughly agree with you we are on the verge of a great catastrophe. This is one of the most serious things this country has ever faced.

The people should get that concept of urgency as well as we, not just by rhetoric but by action.

Mr. SCHLESINGER. Thank you.

Representative LONG. Mr. Schlesinger, many people in the country feel that your proposal with respect to gasoline tax is going to seri-

ously disrupt the long-time love affair between the American public and the automobile.

If I may be parochial for just a moment, I represent basically a rural area, a half million people or a little more, in south central Louisiana, with no mass transit at all, many of the people live in the rural areas and work in the towns. There is no way for them to get to work except by an automobile. Many of them are construction workers. Frankly, there is no way that they can car pool.

Consequently, the gasoline tax poses a very serious problem for me if I am going to represent my constituency adequately.

Are you still in support of your proposal with respect to the gasoline tax?

Mr. SCHLESINGER. The answer to that is strongly affirmative.

Representative LONG. I was afraid of that. [Laughter.]

Mr. SCHLESINGER. The gasoline tax is a reminder. We are dealing with a target of 10 percent reduction in our gasoline consumption nationwide by 1985, which we can do; everybody recognizes we can do it.

The average automobile in the fleet will have 50 percent better mileage by 1985 than it does today.

So, reducing gasoline consumption by 10 percent will not be difficult if we respond to the President's challenge which we know we can do.

Now, it will be more difficult, obviously, in rural areas than in suburban areas or metropolitan areas. Those areas provide the opportunity for car pooling and for van pooling.

We hope that we will avoid the triggering of that gasoline tax. That represents a reminder to us to save gasoline.

I notice that the CBO has indicated it does not expect that gasoline tax to be triggered in the early years. If we do a good job, it will not be triggered in the later years.

Representative LONG. Thank you, Senator, and thank you, Mr. Schlesinger.

Senator KENNEDY. Thank you, Mr. Schlesinger.

Mr. SCHLESINGER. Thank you, Senator.

[A brief recess was taken.]

Senator KENNEDY. We will be in order.

Cornell C. Maier is president and chief executive officer of Kaiser Aluminum & Chemical Corp.; and Floyd Lewis is president of Middle South Utilities, Inc., and president of Electric Edison Institute.

I think what would be the most useful to us, with your approval, would be if we submit your prepared statements for the record. I think it would be very helpful to us if you could react to Mr. Schlesinger's comments generally.

I think that would be the most informative for the committee.

Obviously, we want to give every witness the opportunity to make a presentation they want to make in the way they want to do it.

If you would comment on your initial reaction to Mr. Schlesinger, maybe each of you, and then maybe summarize your prepared statement. I think that would be most helpful to the committee and make it most useful for an exchange.

With that, Mr. Maier, we will start with you.

STATEMENT OF CORNELL C. MAIER, PRESIDENT AND CHIEF EXECUTIVE OFFICER, KAISER ALUMINUM & CHEMICAL CORP.

Mr. MAIER. Thank you, Senator.

I would be happy to respond to Mr. Schlesinger's testimony and his response to questions.

I would start by saying I disagree completely with the —

Senator KENNEDY. We will have to have some order. I want to make sure the witness is heard.

Mr. MAIER. I disagree completely with Mr. Schlesinger that the impact of the gas consumption tax and oil consumption tax on industry is—I believe he used the word "gentle."

In the case of our company, during the period 1979 through 1985, we would pay taxes of \$700 million in excess of the rebates that we would get to spend money to convert to coal.

In relationship to our profits and the profitability of our industry, that is not gentle; that is very, very large.

To put it in perspective, if the consumption tax were applied in 1979, we would mostly pay the taxes. We would not be able to spend very much money for coal conversion by that early date.

We would be able to spend some. We would have to have a price increase in aluminum in 1979 of approximately 20 percent just to cover the tax.

So, I disagree completely with Mr. Schlesinger.

Senator KENNEDY. What will this mean to your industry?

Mr. MAIER. To our industry I think it would probably be, frankly, more money than the industry could possibly come up with during that period of time.

If we start paying the tax in 1979, we won't be able to spend the money fast enough to get rebates. We would get rebates in later years.

The important point is that we would pay during the period 1979 to 1985 some \$700 million in excess of what we would spend for coal conversion. This is very, very substantial.

I disagree completely with Mr. Schlesinger on that point.

Senator KENNEDY. What would you pass on to the consumer?

Mr. MAIER. I think the industry would have no choice but to pass the costs on to the consumer which, as I have indicated to Kaiser, this would mean approximately a 20-percent price increase in aluminum in 1979 just to offset this tax, not considering any other cost increases.

I might point out that this would happen at a time when the industry is being encouraged to expand in the United States. Most of the expansion in the aluminum industry in recent years has taken place offshore.

The expansion is needed in this country. Aluminum is one of the alternatives to improving energy consumption in this country, particularly in the automobile.

The automobile which today uses approximately 100 pounds of aluminum per car. If a medium-sized automobile were to use 325 pounds of aluminum, which is still very small in terms of total weight, it would meet the 1985 gas standards of 27.5 miles per gallon mandated by law.

Aluminum is vital. The industry ought to be expanding. At a time it needs the money for expansion, it would be paying higher taxes which would have to be passed on to the consumer or we would not have a viable industry.

Senator KENNEDY. Maybe you could comment about whether this—what decisions, or what considerations you would give to moves overseas.

Mr. MAIER. I think there is no question that if the tax went in as now scheduled, there would be greater incentives to expand offshore. The United States is already a net importer of aluminum. In recent years, as I have indicated, most of the expansion has taken place offshore, for energy and other reasons. We think this is very bad.

This is where the metal is needed. This is where the jobs are needed. We want to expand in this country. I don't see how the industry could expand under the proposals that are being suggested by the administration.

Representative LONG. Would the gentleman yield a moment?

Senator KENNEDY. Yes.

Representative LONG. Mr. Maier, Kaiser has a plant in my district. I had a conversation with you, and perhaps the answer to my question is in your prepared testimony. I understand, basically, that it is impossible for you to convert some of these facilities to coal, and that was the basis of the question that I asked Mr. Schlesinger a few minutes ago. That relates specifically to what Senator Kennedy is talking about with respect to the possibility—perhaps even the necessity—for moving out of the country, at least insofar as any expansion is concerned. This goes even further, and perhaps could mean—if you are correct in your analysis of it—the closing down of existing facilities.

Would you discuss these two items, and how they relate to the cost of conversion and the tax situation, which are the areas that are of primary concern to you?

Mr. MAIER. Conversion, at least as far as much of industry is concerned is not an accurate description. We do have—

Representative LONG. I am sorry. I didn't hear you, Mr. Maier.

Mr. MAIER. Conversion is not an accurate description of what takes place in industry. Our facilities in Louisiana cannot be converted to coal. They would have to be scrapped.

Representative LONG. Why?

Mr. MAIER. Because they cannot physically or technically be converted to coal. Existing facilities would be scrapped at a cost of some hundreds of millions of dollars. We would have to build new facilities. We do not have the present sites. The new facilities would have to be built in a new location.

The facilities we have, which are good, usable facilities, cannot be converted to coal. They must be scrapped, and new facilities must be built.

I think that there is a threat to the continued operation of some facilities in this country if this bill is passed. I would hope to continue to operate our facilities. Certainly they would have a competitive disadvantage compared to other facilities, and when we are faced with decisions as we had in 1975 and 1976 where the industry had to cut down on capacity, I believe we would find that the domestic plants

would be reducing production and having to lay off people, and the overseas plants would be operating and bringing aluminum into this country.

As I indicated, the aluminum industry is a net importer of aluminum.

Senator KENNEDY. What is your reaction to a proposal that we move away from gas to process aluminum—if we agree it takes 7 years to construct a new coal plant—should we just not simply mandate such conversion and forget the tax in the intervening years, and forget the tax on your new plants?

Mr. MAIER. I think the industry should move to coal. I have no objection to that. I think it is a very good thing to do. It is a question of timing. The problem I have with the administration's proposal is they concede it takes 3, 4, or 5 years for a utility to build a new plant, but don't understand why it takes an industry longer than that.

I think the problem with the proposal is one basically of timing. I think Senator Bentsen testified on this last week. He thought it was trying to do too much too soon. We think the thrust of the program is fine, to convert away from gas to coal. We think the time schedule, particularly at the start of the taxes, is completely unrealistic. We think it will hurt the industry rather than help, because you take resources away from us.

Senator KENNEDY. Is there anything else just specifically on Mr. Schlesinger you would like to cover?

Mr. MAIER. No. I think I covered that pretty well.

Thank you.

[The prepared statement of Mr. Maier follows:]

PREPARED STATEMENT OF CORNELL C. MAIER

Good morning. My name is Cornell C. Maier. I'm President and chief executive officer of Kaiser Aluminum & Chemical Corporation. Kaiser Aluminum is incorporated in the State of Delaware, has its headquarters in Oakland, California, and owns and operates 107 manufacturing plants and major support facilities in 34 states in the United States and, through subsidiaries and affiliates, operates in 22 foreign countries.

Our primary products include: primary, semi-fabricated, and finished aluminum products; industrial and agricultural chemicals; and refractories. We also have financial interests in real estate and international trading.

Last year the corporation had sales of \$1.8 billion, and a net income of \$44.5 million, with a return on average invested capital of 5.1 percent. We employ approximately 25,000 people.

There are two facts about our company which are the most relevant to the subject of this hearing. First, we serve industries essential to the economy of the nation. Secondly, we are a large energy consumer.

PRODUCTS ESSENTIALITY

Because of aluminum's versatility, it has found uses in almost every segment of the U.S. economy. Some of the qualities which have made use of the metal so widespread include its light weight, tensile strength, corrosion resistance, electrical and thermal conductivity and reflectivity. Because of these characteristics, the metal is widely used today in transportation, building and construction, electrical applications, containers and packaging, and machinery and equipment. Aluminum's qualities make it particularly important in energy conservation applications, a subject which I will discuss more fully.

Our agricultural and industrial chemicals also serve essential markets ranging from agricultural fertilizers to the basic chemicals required for aluminum production and a wide variety of industrial applications. Refractories are used

as a lining material for high temperature furnaces and kilns upon which the metals, cement, and glass industries are absolutely dependent.

Just as these primary products we produce are essential to all other industry and our national economy, so energy is an essential and primary ingredient in the production of aluminum, agricultural and industrial chemicals, and refractories.

KACC'S ENERGY USE

In 1976, our corporation consumed 168 trillion BTU's of energy in our domestic operations. In compliance with the Energy Policy and Conservation Act of 1975, the FEA has identified us as being one of the top 50 energy using companies in four of the ten largest energy consuming industries. The four industries are Chemicals, Primary Metals, Fabricated Metals, and Stone, Clay and Glass.

The company consumes all forms of fossil energy, from natural gas to coal, in many different processes. These uses include large boilers producing steam, fertilizer feedstock, highly critical aluminum furnaces, and refractory kilns. Sixty percent of our energy consumption is in the form of electricity used in our primary aluminum reduction plants. This large electrical demand necessitates that we be concerned both with electrical generation and electrical consumption. We can be considered, in many ways, a utility. At our Chalmette plant on the outskirts of New Orleans, we operate one of the largest industrial generating plants in the country, generating more than 500 megawatts of electric power—all for our own consumption. Some of our plants also co-generate steam and electricity, a practice which is recognized as being highly energy efficient.

Energy to Kaiser Aluminum is like the weather to the farmer. We cannot effectively and profitably operate without an adequate supply of dependable and reasonably-priced energy.

It is not unlike the Midwest farmer, who selected his seed grain for maximum production; carefully prepared the seedbed; properly fertilized his crop and had the promise of a good harvest—only to have it destroyed in a few minutes by a cyclone. He could control everything but the weather.

Today, Kaiser Aluminum can control most things, but we have a very great unknown in relation to our domestic energy supply—a threat that could wipe out our yield as surely as the cyclone can destroy the farmer's crop.

COMMENTS ON ADMINISTRATION'S ENERGY PROPOSALS

With this as a background, I would like to discuss six major points in regard to President Carter's energy proposals. These may be summarized as follows:

- (1) We fully support the need for an energy policy and program.
- (2) The proposed program will increase demand for aluminum for energy conservation applications.
- (3) The coal conversion provisions are based upon an unrealistic timetable.
- (4) The heavy tax burden that would be imposed by the proposed energy consumption tax on gas and oil is highly inflationary and an impediment to the financing of conversion.
- (5) The proposed revisions to electrical rate design are vague and are potentially inflationary.
- (6) The energy proposal lacks some of the conservation incentives which would encourage many industrial conservation investments now considered uneconomic.

1. NEED FOR ENERGY POLICY

In our opinion, our nation has been drifting for more than a decade without a comprehensive energy policy. As a result, our company and the economy have suffered. It has contributed to inflation; it has driven industry offshore to seek secure supplies of energy; it has adversely affected our balance of payments; and it has cost our economy jobs and income. But perhaps most corrosive of all, it has forced companies like ours to delay and postpone decisions on new investment, energy conservation and conversion investments, and other decisions which will effect demand, supply, prices, jobs, and income for years to come.

We endorse a national energy policy, and encourage Congress to properly consider and pass the implementing legislation as soon as practicable so that we can properly plan and execute our investment decisions for the future. We believe the national energy policy should put maximum emphasis on both energy con-

servation and the development of additional domestic energy supplies. The Administration's program seems to be oriented toward conservation but it is weak in stimulating the development of domestic energy supplies. We concur with the Administration's recommendation for the maximum development of our coal resources as technology and economic will allow.

2. INCREASED USE OF ALUMINUM FOR ENERGY CONSERVATION

One of the positive results of the proposed energy program will be a significantly increased demand for our products, particularly aluminum and high insulation refractories, both of which contribute to energy conservation systems. The properties of aluminum make it the material of choice for many energy saving applications. It weighs one-third as much as steel or copper; it doesn't rust and is easily formable; it is also one of the most efficient conductors of heat and electricity; and finally, once it has served a useful product life, it can easily and inexpensively be recycled and used again. These properties open a number of expanded aluminum markets in the future as energy conservation is implemented. They include:

Aluminum storm doors and windows used for weatherization; Aluminum house siding backed with insulating materials; Solar screens, louvers and collectors; Heat exchangers; Electric transmission cable; Food packaging; Foil-backed home insulation; More efficient electric motors; and Cryogenic tanks for transportation and storage of liquefied natural gas.

One of the most productive energy saving applications for aluminum is in weight savings in automobiles, buses, trucks, and other vehicles. It has been established that reduction in vehicle weight is the single most significant change that can be made to improve gasoline mileage. Aluminum can save up to 2¼ pounds of vehicle weight per pound of aluminum substituted for iron and steel in a car. Today there are already nearly 100 pounds of aluminum in a car in manifolds, transmissions, housings and other parts. We have estimated a total of 325 pounds of aluminum substituted in a mid-size six passenger car will save enough weight to meet the 1985 mileage standard of 27.5 miles per gallon mandated by law. The potential net energy savings through the use of aluminum in this application is tremendous. There is no need to stop at 325 pounds per car.

The Administration's energy program would stimulate all these markets and the economic impact on the aluminum industry would be favorable. This would result in an increased demand for aluminum and the necessity for the industry to expand to meet these markets. This, in turn, will require new energy sources and large sums of capital. These requirements for investment capital must be reconciled with the capital requirements for the conversion and conversion required by this bill.

3. THE COAL CONVERSION TIMETABLE IS UNREALISTIC

This brings us to a major problem we see in the Administration's energy proposal in regard to coal conversion. We concur with Senator Bentsen's comments last week that the "Administration's program is too drastic." He said, if you recall, that "we do have to reduce our reliance on natural gas and oil but what the program calls for is too much, too soon." He concluded, and we agree, that "more time is needed."

Let me give you some background on our use of natural gas. Over the years, our corporation, like most industries, has made extensive use of natural gas. In recent years we have shifted many of our processes away from gas and have also made many conservation process changes which reduced our use of gas. In spite of this, our natural gas consumption remains high. Many processes once constructed are simply not convertible to other fuels, and others take tremendous capital for conversion. Much of our natural gas consumption is along the Gulf Coast where natural gas is purchased in the intrastate market under long term contracts and is used to generate electricity. During the Korean war and at the Government's request, we located our Chalmette, Louisiana primary reduction plant, one of the largest in the country, near New Orleans to take advantage of natural gas. Our capital investments along the Gulf Coast are very large—with more than a \$¾ billion investment in Louisiana alone which has a replacement value of \$1.6 billion. Until recent years, the coupling of aluminum produc-

tion with natural gas reserves was highly advantageous, and sought after. Natural gas was being discovered, associated with oil, and we represented a useful market for the gas to avoid its flaring.

Our plants in this region are still operating predominantly on gas, and there are major problems in substituting coal.

Our studies indicate the most optimistic coal conversion time for large power plants is 7 years. Eight years is probably more realistic. These same figures have been confirmed by several independent consultants and utilities. This is a long time, and the primary reason is that "conversion" is the wrong word. None of our power plants are convertible to coal. They must be completely rebuilt and the existing plants scrapped. In several instances the new power plants cannot even be constructed at the same site. Physical space won't permit it. The new plants will have to be constructed miles away from where the power will be used. This means time consuming new construction. The schedules we are looking at are:

12 months to collect meteorological and other data required for an environmental impact statement;

12 to 16 months to obtain the required environmental and construction permits;

36 to 42 months for engineering;

44 to 48 months for construction; and

4 to 6 months for startup.

If this were carried out sequentially it would require from 9 to 10 years. However, some of this work can be carried on concurrently. Overall it adds up to a minimum of 7 years. This is assuming the new generating equipment, a supply of coal and means to transport that coal are available within that time frame. We believe that the Administration's energy legislation should reflect a more realistic schedule for substitution of coal for natural gas. In some regions of the country like Southern California where it is presently unacceptable to burn coal, the legislation should recognize that coal substitution may never be appropriate.

4. THE PROPOSED ENERGY CONSUMPTION TAX IS COUNTERPRODUCTIVE

A second problem area we see with the Administration's proposal is the heavy tax burden that the proposed energy consumption tax will impose on us early in the program. In our opinion, this tax is unnecessary and counterproductive and ought to be eliminated from the plan. To show you how counterproductive it would be, if it were imposed beginning in 1979, we would be facing heavy and highly inflationary tax burdens without the ability to convert. Many operations are not convertible from gas or oil to coal at all; and years remain before we could make investments in alternative energy property against which a credit for the natural gas consumption tax could be taken. Large sums of money would be drained from our financial resources at the very time we are trying to expand to meet energy-stimulated market demands. As a result, we feel that the net effect of the tax program would be highly inflationary.

Let me give you several examples. If the tax were imposed in 1979, our refractories energy costs would increase by more than 12 percent; our chemicals and aluminum energy costs would increase by more than 100 percent. As you know, the proposed 1979 tax rate is rapidly escalated in succeeding years. While it is true that the Administration's bill provides for credits against the oil and natural gas consumption taxes for investments in alternative energy property, these would be of little benefit in the early years. If it would be possible for use to take maximum advantage of the credits, our tax payments would exceed the credits by more than 100 percent. These consumption taxes can only be reflected in higher prices and serious inflation.

Our industry is already in a position where product prices will have to increase to provide an adequate return on our existing investments. Artificial energy costs from consumption taxes would require additional price increases which can only add to inflation.

I used to point out that the aluminum industry did not contribute to inflation. Product price increases lagged the U.S. inflation rate for many years. Energy has changed this. I now believe the price of aluminum will contribute to inflation. How much will depend on the Administration's energy program. Heavy energy taxes at an early date would make us highly inflationary and would cripple our ability to grow, at least domestically.

We urge the elimination of the oil and natural gas consumption tax from the legislation. If Congress does decide to retain this concept, we strongly urge a deferral of the 1979 effective date to a more realistic date. Given the time for conversion, we believe the tax should not be imposed for at least eight years. Assuming the legislation is enacted in 1977, a 1985 effective date would appear realistic.

5. ELECTRICAL RATE DESIGN IS VAGUE AND POTENTIALLY INFLATIONARY

There is one other part of the Administration's proposal which could affect our costs significantly and add to inflation. Subpart 2 of Part E of Title I establishes national electric rate design policy. We have carefully studied this portion of the proposal, but we are unclear as to exactly what it means and how it might be implemented. As I mentioned earlier, our industry depends heavily on electric energy. The availability of electricity at competitive prices is an important factor to the continued viability of the U.S. domestic aluminum industry. Aluminum moves freely in the international trade, and electric costs frequently determine where aluminum is produced and where expansions take place. It should be noted that the domestic aluminum capacity is currently projected to grow by only four-tenths of one percent annually, through 1981—far below anticipated future demand growth rates. During the next few years, the U.S. supply shortfall can only be met by increased imports. If the energy supply and pricing problem is not solved in the U.S., it is highly likely that new capacity will be built principally off-shore—further increasing reliance on imports. We subscribe fully to paying our share of electric costs as determined by a cost of service study, but we do not subscribe to subsidizing other customer classes through the application of marginal or incremental costs to industry as proposed by some advocates. The U.S. aluminum industry would be unable to compete world-wide if plants had to operate under these philosophies. Should they come about, the economic impact to our industry and several others dependent on electric power would be highly unfavorable. We recommend a clarification of the language in the proposed legislation to insure that electric costs are not disproportionate to the cost of providing service to any customer class.

6. THE LEGISLATION LACKS SOME CONSERVATION INCENTIVES

While the thrust of this legislation is energy conservation, use of increased investment tax credits as an incentive has been severely limited both as to amount and to the type of equipment to which it can be applied. The aluminum industry has committed to FEA that it will improve its energy efficiency by at least 10 percent by 1980 using 1972 as a base year. In the case of our company alone, that will require the additional expenditure of about \$60 million to achieve that goal. In addition to these very major efforts, there are many other potential energy conservation projects which are not going forward because of their relatively low return on investment. With limited capital and so many urgent requirements, there simply is not sufficient return to be able to finance these potential conservation projects.

Broadening the scope of the bill to include tax incentives for many of these potential conservation projects would provide the needed return to finance these projects and get them under way. We have done some special studies relating to incentives for conservation, and would be willing to discuss these studies with your staff as appropriate.

CONCLUSIONS

In conclusion, we thank the committee for this opportunity to discuss the economic impact of the Administration's bill. While I have dwelled upon some of the problem areas of the legislation for the industries we serve, I want to reinforce that the direction of the legislation is correct. We must have a consistent and equitable national energy policy. It must provide for conservation and in increasing supply. But most of all it must not be excessively inflationary and must have a reasonable timetable and objectives.

Thank you for your consideration. I would be happy to answer any questions or to furnish any additional information the Subcommittee would find helpful.

Senator KENNEDY. Mr. Lewis.

STATEMENT OF FLOYD LEWIS, PRESIDENT, MIDDLE SOUTH
UTILITIES, INC.

Mr. Lewis. Thank you, Senator, I would have to say that the estimates of the cost of conversion of electrical generating facilities now fueled by gas and oil to coal, which I believe Mr. Schlesinger used a figure of \$35 billion, seems grossly on the low side based on the information we have been able to put together. He also made mention of \$11 billion in the Southwest.

We have done an estimate of three States, Arkansas, Louisiana, and Mississippi, which are the three we operate in principally. We are a little in Missouri, but principally these three States.

Our estimate, not including the installation of scrubbers on all of this capacity, is about \$8.25 billion. The \$11 billion figure he used I cannot identify. I think it is very much on the low side when you look at the amount of generation in the States of Texas and Oklahoma, which are now—and Kansas, also—which are now fueled by either gas or oil.

So I think his numbers are very much on the low side. Nationally, he was using the figure of \$35 billion. Our best estimate is that if you were to convert all of the electric utility generating facilities now on oil and gas to coal, it would cost in 1976 dollars about \$50 billion: If you take into account that you can't do this instantly, if you can do it at all—spread it, for instance, over 10 years at a 7-percent inflation rate, assumed over that period of time—you are looking at \$71 billion.

There, again, this does not assume scrubbers on all of them. This is a very substantial item that would increase that figure much beyond that.

I would like to speak also to the point of the practicality of converting these facilities. Very much what Mr. Maier said is applicable to the electric utilities. Great numbers of the plants could not physically be made to work with coal. The boiler which is built for a gas-fired unit is maybe half the size required for similar capacity using coal. Plant site expansion for unloading and storing coal, for ash disposal, for the disposal of the sludge that would come from scrubbers, if you had to put the scrubbers on—we just don't have that kind of room. We have plants that are in metropolitan areas. There is developed property all around them. It is not possible to do it.

The boiler manufacturers have testified before various committees of the Congress to the effect that there is no way they could deliver that much additional coal boiler equipment within a 10-year period. There is now—I think the figure that Senator Kennedy made reference to—is about 111,000 megawatts of coal-fired capacity, new coal-fired capacity, that is under construction, on order, or planned to be in operation within the next 10 years—or really 8 years, by 1985—and that that would require the 360 billion tons a year of—360 million tons a year—of coal to fuel it.

There is no way you can get enough equipment, there is not enough engineering and architect capability available to do this on top of the major construction programs that are ongoing. There is not enough craft labor available.

Beyond that, there is not enough generating capacity in this country to provide firm service, while all of this capacity is out for extended periods of time during any conversion program.

In our part of the country, where our system was designed for natural gas firing up through about 1970, we committed to nuclear in 1967. We have a nuclear plant on. We are going to coal, and have a plant under construction in Arkansas. You cannot justify on any kind of a technical or economic basis the conversion of any plant on our system, as it now stands, to burn coal as its principal fuel.

So if you can't justify it on that basis, and if you make the decision on a broad basis of national public interest that you simply must do it, the economic penalty that goes with that will be just horrendous.

I question whether that really makes good sense in terms of the total national public interest, because somebody has to pay these dollars. You cannot scrap good assets and put new assets in their place that are much more costly, have the same or less capacity to produce energy for the American public when you get finished, without there being a tremendous penalty on somebody to make up that difference.

So I would say that our approach to getting off of oil and gas—and our system, our industry, agrees with this as a program—is to encourage, and remove roadblocks to the construction of nuclear and coal-fired generation.

In our case, all of the new generation we have in our construction plan is either nuclear fueled or coal-fueled. The industry as a whole in 1976 had only 13 percent of its fuel in the electric generating plants of the country in the form of natural gas. The projections of our industry are that by 1985 the percentage of all the fuel used in that year that will be natural gas is only 3 percent. We have already greatly reduced the amount of natural gas being used in powerplants in our own system; from 1970 to 1976 we reduced it by 31 percent.

There will be another 60 percent reduction in the volume of gas used in our system by 1985. I say we have a program going. We need the time to work it out. The way to get there is not to make arbitrary decisions—you simply must not tear down a good plant and build a new one in its place and have somebody bear that cost—but to encourage the ability to build new plants that are coal-fueled or nuclear-fueled.

Thank you.

[The prepared statement, with an appendix, of Mr. Lewis follows:]

PREPARED STATEMENT OF FLOYD LEWIS

My name is Floyd Lewis, I am president of Middle South Utilities, Inc., a holding company registered under the Public Utility Holding Company Act of 1935 which has five operating subsidiary companies; i.e., Arkansas Power & Light Company, Arkansas-Missouri Power Company, Louisiana Power & Light Company, Mississippi Power & Light Company, and New Orleans Public Service Inc. These Middle South Utilities operating companies are operated as a single integrated electric system.

I would like to talk about the impact of a "coal conversion" program on our system and its customers, about the tax and other provisions of the national energy plan and whether it is the appropriate way of achieving a phase out of oil and gas as boiler fuel, and then to touch briefly on some aspects of the rate and co-generation parts of the program.

All major generating units in the Middle South Utilities System were designed for burning natural gas as the primary fuel until about 1969 when evidence of the impending shortage of natural gas became apparent. Since 1970, its expansion plans have been based on having all future base load units in the form of nuclear and coal-fired. While the System's generating units were historically designed to burn only natural gas on a continuous basis, to handle emergency situations involving loss of gas fuel for short periods of time, the boilers were equipped to be able to burn fuel oil intermittently for very limited periods.

Under orders of the Federal Power Commission, delivery of natural gas to Middle South power plants by interstate pipelines already has been greatly curtailed. The System's natural gas usage as a boiler fuel has dropped by 31 percent in the period from 1970 to 1976, representing a total reduction estimated at 667,000,000 MCF of boiler fuel gas for the six-year period. Our present projections plan for an additional 61 percent reduction in use of natural gas as a boiler fuel by the System between now and 1986. Concurrently, the System's oil usage increased from 975,120 barrels in 1970 to 25,130,000 barrels in 1976.

Substitution of fuel oil and purchased energy for this gas (which was contracted for on a contract-price firm-delivery basis but not delivered) has increased the fuel costs to our customers by an estimated \$610,000,000 over this six-year period. These costs, together with associated boiler conversion costs, represent a burden already thrust upon the consumers in our service area by virtue of federal governmental action. At the same time, curtailments by United Gas Pipe Line Co., the interstate pipeline supplying the greater portion of the System's boiler fuel, have been about double those of the next largest pipeline's curtailments (Schedule I, FPC Curtailment Report, November 1976).

Additionally, the Middle South Utilities System operating companies have expended approximately \$180,000,000 to convert their major boilers in order to permit burning oil for extended periods. None of these modifications were done with the contemplation of eventually converting to coal-firing; therefore, all of the modified facilities would have to be prematurely retired and replaced with new coal burning facilities. Furthermore, the System companies have experienced greatly increased operating and maintenance problems and expenses as a consequence of the increased use of fuel oil in boilers not originally designed to burn oil on an extended basis.

It is anticipated that the Middle South Utilities System will consume about 36,000,000 barrels of oil in 1977 (44 percent more than in 1976) to supplant the natural gas shortfall and meet our customers' energy requirements. We feel that it is obvious from the foregoing facts that the Middle South Utilities System and its customers are already bearing a heavy financial burden as a result of shifting from natural gas to oil as a boiler fuel.

A report dated March 7, 1977 entitled "The Phasing Out of Oil and Gas Used for Boiler Fuel—Constraints and Incentives" (a copy of which is attached as Appendix "A") outlines many of the technical, legal and economic problems involved in a massive, sudden, forced conversion-to-coal program.

We have prepared an estimate of capital costs which would be incurred in our three state area, by all utilities, including the Middle South Utilities System from such a conversion program using the average cost per kilowatt quoted in the above-referenced report. This estimated cost, expressed in 1976 dollars, is as follows:

Arkansas -----	\$1,349,125,000
Louisiana -----	5,366,600,000
Mississippi -----	1,550,200,000

The amount attributable to the Middle South System, in 1976 dollars is \$4,913,825,000. Considering only the estimated capital costs for conversion to coal and assuming that these costs would be spread uniformly over the eight-year period, 1978-1985, with an average annual inflation rate of seven percent, the total estimated expenditures for the Middle South System in that period would be \$7,215,336,000. Assuming that 70 percent of this cost would be financed with bonds at a 10 percent interest rate, with the balance being equity capital at 14 percent and a 20-year amortization period, the annual fixed charge rate would be about 15 percent. Based on these assumptions, the levelized annual cost would be \$1,082,300,000. Applying this levelized annual cost to our total estimated energy sales for 1986 would result in an average increase of 12.58 mills per KWH. Assuming that this cost would be passed on to all customer classes

ratably, the average residential customer's 1986 bill would amount to about \$925, an increase of about \$200. On the other hand, it could be assumed that the total incremental cost would ultimately be borne by residential customers, since the incremental electric cost component of goods and services are passed on to the ultimate consumer. The effect would then be to virtually double the homeowner's yearly electrical energy cost to about \$1,450 by 1986. To the extent that commercial and industrial energy costs are not borne by local customers using such goods and services, this figure would be reduced; however, it would increase to the extent that these customers would bear the additional costs of goods and services produced elsewhere and consumed locally.

It should be noted that, in using average conversion costs, certain basic assumptions were made which, in our opinion, make these costs extremely conservative. Among these assumptions are:

(1) It has been assumed that "if compliance coal" were used, sulfur removal equipment would not be required on all units. The President's proposal for scrubbers on *all* coal units, including those utilizing "compliance coal", would greatly increase the cost of the coal conversion program. This represents non-productive investment in a technology of questionable technical value and effect.

(2) Many technical and/or legal constraints make it impracticable to convert a number of our existing units to coal-firing. Included among these constraints are such factors as:

(a) Lack of physical space for new boilers, coal storage, handling facilities, ash and sludge disposal areas. Some of our major generating stations are located in heavily populated metropolitan areas and it would be literally impossible to acquire the necessary land, which we understand would require about 2,000 acres for a 1,000 MW plant.

(b) Height limitations imposed by local, regional, state and/or federal regulations such as, proximity to commercial or private airports. Such limitations would preclude the possibility of constructing tall stacks (400-800 feet).

(c) The lack of adequate manufacturing capability for boilers and associated equipment, which would be required if the proposed legislation were enacted.

(d) The lack of adequate manufacturing capability for combustion turbines or other capacity, which would have to be constructed to provide replacement power for the existing facilities during the conversion period.

(e) The problem associated with mining and transportation of the additional coal which would be required in the event of passage of such legislation. There is a serious question whether or not there are adequate mining and transportation facilities to accommodate coal units currently in the planning and/or construction period. Legislation authorizing the construction of coal slurry pipelines appears essential in order to supplement the capability of railroads for transporting coal.

The estimated conversion cost of \$4,913,825,000 enumerated hereinabove represents capital cost only (in 1976 dollars); we have not attempted to quantify other obvious costs, such as cost of replacement capacity, loss of capacity from conversion, increased fuel cost and additional operation and maintenance expenses. Nor have we assumed stack-gas scrubbers on all units.

The System's present plans call for substantial expenditures for electric production facilities during the period 1978-1985. The proposed legislation, if enacted, would approximately double these expenditures, making it impossible for our System to finance such a program when we are still burdened with financial difficulties brought about by factors beyond our control, such as inflation of recent years, the effects of inadequate rate relief, and higher fuel costs resulting from curtailments of firm contracts.

The estimated conversion cost of \$4,913,825,000 (in 1976 dollars) would be equivalent to a levelized annual cost of \$737,074,000, again assuming a 15 percent fixed charge rate. Relating this levelized cost to our total actual 1976 energy sales (excluding sales to other utilities) would represent an average incremental cost of 19.48 mills per KWH. This cost is equivalent to \$11.66 per barrel, based on our actual 1976 oil-fired generation and oil consumption. Our average oil cost in 1976 was about \$11.40; therefore, the incremental cost represents an increase of over 100%. It appears to us that, in view of the above described constraints and other major problems concerning the national energy situation, it would be much more appropriate and logical to use the \$11.66 per barrel equivalent for securing fuels through the use of more advanced technologies. It is possible that such a program could advance commercial development of such fuels which would be more compatible with our existing boilers.

If tax measures relating to electric utilities in the National Energy Act, H.R. 6831, are enacted and implemented, the Nation's electricity users would face a

significant additional cost burden. Some of these estimated additional costs and amounts that would apply in 1985 without including the inflation adjustment factor are as follows:

Fixed charges on scrubbers on all new coal burning power plans (billion per year)-----	\$3.3
Additional operating costs to use and maintain scrubbers (billion per year)-----	1.7
Tax on utility oil consumption beginning in 1983 (billion per year)-----	1.2
Tax on utility gas consumption beginning in 1983 (million per year)-----	850

The increase attributed to the crude oil equalization tax would add to the above stated \$7 billion per year. Because of the variable formula for imposing the tax after 1978 and uncertain allocation of first tier crude oil, we cannot accurately project the amount or the effect of the tax on electric utilities.

But these price impacts would not be uniformly felt across the country. The oil consumption tax burden would fall disproportionately hard on electric customers in the Northeast, the Southeast and in California. The gas consumption tax burden would hit the hardest on customers mainly in the Southeast and the Southwest.

The interrelationship between these tax provisions, the "coal conversion" provisions and tax and economic policy on one hand, and pending clean air act, strip mining, and other environmental provisions on the other, needs particular study and correlation if we are to have a rational energy plan.

This legislation recognizes in Title I that environmental restrictions may result in exemptions from requirements to convert, where possible, from oil to coal for boiler fuel, yet, despite this, Title II imposes a punitive tax on these facilities even where no other feasible fuel option exists. Such taxes are not the rational way to have utilities phase out oil and gas as boiler fuels. Today's high cost of these fuels is already bringing about this phase-out, and no new base-load, petroleum-fueled generation is now being planned. A course of action that would be much more in the public interest would be the removal of constraints against, and the encouragement of construction of new coal, and nuclear fueled generating facilities rather than grossly uneconomic conversion or retirement of existing oil and gas fueled facilities. I submit that such a course will also be more effective in achieving the phase-out of gas and oil for such use.

Turning to some of the rate proposals in the National Energy Plan. I would like to address provisions that mandate state institution of time of day pricing. We feel that "peak load" pricing of electricity might be helpful in many instances in reducing our need to build additional generating facilities to meet our highest demand. Research presently being undertaken by utilities and state regulators should ultimately enable us to determine the impact of these proposals. Because of the almost infinite variety of conditions applicable to individual electric utilities. I feel it would be a mistake to mandate a single pervasive national requirement that may well work in only limited situations. This and the other rate proposals should be left to local regulatory authorities to study and implement where appropriate. For instance, utilities with high load factors are likely to gain little or nothing from this requirement and need their present "off peak" periods for maintenance, and as load curves flatten, additional generation may actually have to be constructed just to provide reserve margins for system reliability during scheduled maintenance.

Co-generation is another concept with much surface appeal. Difficulties in using energy from industrial boilers for electric service relate to plant heat balances and utility load factors. In addition, states have generally imposed utility-type regulation over "co-generators" to protect other classes of customers against price discrimination. Should other customers subsidize co-generators who sell off-peak power at expensive costs or want to buy cheap on-peak back-up power? In whose rates will the additional transmission capacity for wheeling between co-generators and for back-up plant capacity be reflected? We believe that these issues can be worked out with our customers where economically feasible without interposing additional federal regulatory procedures. Tax incentives to industries should be particularly helpful in this regard.

In summary, we are of the considered opinion that it is not feasible, technically or economically, to convert any of our existing gas or oil-fired boilers to permit burning coal. Conversion to coal-burning would involve (1) completely replacing the existing boilers with new boilers; (2) constructing new boilers remote from the existing boilers and reconnecting the steam lines to

the new boilers; or (3) installing a coal gasification plant on the plant site and modifying the existing boilers to permit burning low Btu gas. None of these alternatives could be accomplished for a number of years because of the lead times involved in the design and construction of such facilities. The third option has not yet been proven as being viable for large scale, commercial application, with the degree of reliability required by the electric power industry. If we were forced to convert to coal-firing, the inevitable result, in our opinion, would be that electric service to our customers would be seriously jeopardized during the conversion period.

Additionally, peak load pricing should be studied on a local level, and tax incentives, not additional federal regulation should be used to encourage cogeneration where feasible.

APPENDIX A

The Phasing Out of Oil and Gas Used for Boiler Fuel

I. SUMMARY

Shifting the nation's dependence from oil and gas to coal and uranium is the key to solving the energy crisis. American industry recognizes that as part of this necessary transition, its own use of oil and gas in boilers must eventually be minimized. However, the phasing out of oil and gas is an objective which must be reached taking into account numerous economic, physical, and other elements involved in the maintenance of a healthy economy served by reliable energy supplies. This objective can best be attained by facilitating the construction of new coal and nuclear steam electric generating capacity and by allowing those oil and gas burning industrial and utility facilities which were originally designed to burn coal to convert or reconvert to this fuel. Emphasis should be placed on expediting the construction of new steam electric generation plant because the long-term substitution of coal and uranium in most end-use applications will require the conversion of these fuels to electricity.

Assuring the timely installation of new capacity will require the removal of regulatory obstacles to its construction and operation. It will also require Federal and state actions in the realms of tax policy and rate regulation designed to enable the electric utility industry to mobilize the necessary capital resources. Switching existing industrial and utility convertible capacity back to coal will require a realistic implementation of air quality regulations including recognition that alternative methods of SO₂ control are preferable to the retrofitting of scrubbers. This recognition is especially critical for those convertible boilers whose age and size preclude such retrofitting.

II. INCENTIVES FOR PHASING OUT OIL AND GAS CONSTRUCTION OF NEW NUCLEAR AND COAL FACILITIES

Measures required to accelerate use of coal and nuclear fuels for boilers relate primarily to the removal of existing regulatory obstacles. Government efforts to shorten lead times by eliminating regulatory delays in the construction and operation of both nuclear and coal-fired generating units would have a significant impact on oil and gas use and would serve to reduce the heavy cost burden on utilities and their customers by minimizing the effects of cost escalation during construction.

Besides reforming regulatory procedures for the approval of new plant construction and operation, a number of other incentives are needed to hasten the building of these facilities. These include:

(1) Prompt and adequate rate relief by state and Federal regulatory agencies to permit building necessary nuclear and coal facilities while maintaining the financial integrity of the industry and minimizing the cost of capital needed to serve the electricity consumer.

(2) Modification of the Clean Air Act to: recognize alternative strategies in meeting health-related, primary ambient sulphur oxide standards (i.e., tall stacks and intermittent controls) and require cost-benefit justification of stringent state implementation plans, no significant deterioration and non-attainment interpretations.

(3) Governmental commitment to the immediate additional leasing, development, transportation and utilization of western coal in those areas now primarily dependent on natural gas, including the possible conversion of coal to low Btu gas for boiler fuel use.

(4) Resolving the major issues relating to the nuclear fuel cycle to keep this energy option viable.

(5) Resolving the continuing uncertainty over nuclear plant design and safety standards which risks driving both utilities and equipment fabricators away from nuclear power.

(6) Requiring the users of natural gas to pay for the scarcity value of this fuel and permitting electric utilities obliged to surrender rights to gas supplies to sell these rights at prices which cover the full cost to electric consumers of any forced conversions.

(7) Enacting legislation to permit the construction and use of coal slurry pipelines where feasible.

(8) Establishing a permanent investment tax credit at 12 percent and permitting the credit to be offset against the full tax liability, as in 1976, rather than reducing it at the rate of 10 percent per year until only 50 percent of the liability is usable.

(9) Eliminating the double taxation of dividends. If this cannot be achieved, at a minimum, dividends reinvested should be exempt from taxation until the stock is sold.

(10) Encouraging the inclusion of construction work in progress (CWIP) in the rate base with a commensurate rate of return.

(11) Allowing higher book depreciation rates.

(12) Normalizing the tax benefits resulting from accelerated depreciation.

Conversion of existing convertible capacity

Measures which could hasten the reconversion to coal of industrial and utility boilers originally designed for its use must deal essentially with existing air quality control regulations which effectively preclude many reconversions. Necessary modifications include allowing the use of: Tall stacks for SO₂ emission dispersal; intermittent control as a means of maintaining ambient air standards; and natural gas when available is part of an intermittent control technique.

III. THE IMPRACTICALITY OF ATTEMPTING AN OIL AND GAS PHASE OUT THROUGH THE RECONSTRUCTION OF BOILERS NOT ORIGINALLY DESIGNED TO BURN COAL

Discussions of phase-out strategies frequently include reference to the possibility of converting to coal those oil and gas fired boilers which were not originally designed and constructed for use of this fuel. In order to achieve any such accelerated conversion of industrial and utility boilers, a number of significant problem areas would have to be dealt with and various incentives considered which are at the heart of national energy policy decisions and which potentially conflict with policy options in the environmental, economic and Federal-state political areas. In addition, several threshold factors require recognition: (1) almost no new base-load oil or gas electric generating capacity has been planned since 1973; (2) existing oil and gas generating capacity represents substantial investment being paid for by electric consumers, based on government energy policy existing at the time of construction; (3) much of the industrial and utility boiler capacity is impractical to convert to coal and has substantial economic life remaining; (4) electricity is supplied to consumers on a "cost of service" basis and the full economic costs of forced conversion from oil and gas will have to be borne by those served by systems now using these fuels, including the cost of: forced conversion and associated pollution control, replacement power during conversion, and the loss of efficiency or reliability resulting from conversion; (5) conservation of energy to be effective and accepted must be accomplished on an economy-wide basis and not solely through an individual fuel, energy source or industry, with its economic costs and benefits carefully studied beforehand; and (6) the role of state governments and Federal pre-emption will have to be resolved.

All of these factors must be considered against the background of the massive physical and financial undertaking which a forced draft conversion to coal would represent for the American economy. The dimensions of such an undertaking for the electric utility industry are outlined in the following discussion.

A. Steam electric generating capacity using oil and gas existing installations

In 1976 some 93,000 MW of steam electric generating capacity in the United States was oil-fired. This total included approximately 20,000 MW in units capable of burning coal without complete reconstruction of boilers and fuel han-

ding facilities. Gas-fired steam capacity amounted to nearly 59,000 MW of which only 2,000 MW was convertible to coal without major rebuilding.¹

Planned additions

Between 1977 and 1985, utilities have scheduled for commercial operation a further 16,500 MW of oil burning steam electric facilities and 1,000 MW of gas-fired steam plant. Virtually all of this capacity will be in service by 1980, reflecting the fact that since 1973, the uncertainty of future oil and gas supplies plus government restrictions have effectively excluded these fuels as planning options for steam electric generation.

B. Coal requirements for total conversion

If it were possible to convert existing oil and gas burning steam capacity which will still be in service in 1985 to coal utilization, the incremental coal requirement would be on the order of 275 million tons by 1985. Were the planned 17,500 MW of gas and oil using capacity also converted to coal, an additional increment of coal supply of approximately 40 million tons would be required. These estimates are based on the following assumptions:

Capacity existing in 1976 and still in service in 1985.—137,500 MW to be converted; utilization of 3,800 hours per year in 1985; average effective heat rate of 10,500 Btu/Kwhr; and coal with an average heat content of 20 million Btu/ton.

Additional capacity planned as of 1976.—17,500 MW to be converted; utilization of 5,000 hours per year in 1985; average effective heat rate of 9,500 Btu/Kwhr; and coal with an average heat content of 20 million Btu/ton.

Of the existing 152,000 MW operating on oil and gas, only 22,000 MW are convertible to coal without major reconstruction. The coal requirement of these "easily" converted facilities could total about 30 million tons in 1985 if the following were assumed: Utilization of 3,000 hours per year in 1985; average effective heat rate of 11,000 Btu/Kwhr; and eastern coal with an average heat content of 24 million Btu/ton.

The total coal requirement implied by complete conversion is thus some 314 million tons of which only 30 million tons would be for use in plants subject to conversion without major reconstruction.

C. Coal requirements for planned new coal burning capacity

Any incremental coal requirements resulting from conversion of existing or planned gas and oil burning facilities would have to be supplied by a mining industry already straining to expand production necessary to fuel some 111,000 MW of new coal-fired capacity planned for operation by 1985.² This new capacity will have an annual need of nearly 358 million tons fuel by year-end 1985. Thus, presently projected coal output from new and expanded mines supplying utility fuel would have to be augmented by 88 percent if the 315 million tons of "conversion" coal requirements were to be satisfied.

D. Mining industry requirements to handle total conversion

The additional 315 million tons of coal required by total conversion of existing and planned gas and oil capacity would necessitate the development of some 40 new surface mines of 5 million tons annual output and some 75 underground mines of 1.5 million tons of yearly production. These estimates are premised on an incremental expansion pattern similar to the coal industry's present expansion profile which calls for 65 percent of all new capacity in the form of surface operations.³

Capital costs for such an incremental expansion would approximate \$12 per ton of annual surface production and \$35 per ton of underground annual capacity.⁴ The total capital burden on the coal industry would approximate some \$6.3 billion of which: \$2.45 billion for surface mines ($\$12/\text{ton} \times 205$ million tons of annual capacity) and \$3.85 billion for underground mines ($\$35/\text{ton} \times 110$ million tons of annual capacity).

Labor requirements in 1985 to man the "conversion" coal production could

¹ Total capacity figures from "Fossil and Nuclear Fuel for Electric Utility Generation—Requirements and Constraints" 1976–1985, NERC June 1976.

Convertible Capacity data from "The Potential for Conversion of Oil-Fired and Gas-Fired Electric Generating Units to Use of Coal"—Staff Report, Bureau of Power, FPC November 1973.

² Status of Coal Supply Contracts for New Electric Generating Units, 1976–1985—Staff Report by the Bureau of Power, FPC, January, 1977.

³ "Coal Mine Development and Expansion Survey"—Coal Market Commentary and Research Service, Appalachian Coals, Inc., February 10, 1977, Vol. XXXVII, No. 6.

⁴ "Project Financing"—J. A. Self, Vice President, Chase Manhattan Bank, Southern Coals Conference, Cincinnati, October 21, 1976.

approximate 73,000 men (50,000 underground—23,000 surface) based on the following assumptions:

Underground.—220 work days/year \times 10 tons/man day and 110 million tons annual production.

Surface.—220 work days/year \times 40 tons/man day and 205 million tons annual production.

E. Transportation

Moving the incremental cost supplies necessary for a total conversion program would present economic and physical problems as great or greater than those associated with increasing coal output. The bulk of these problems would rest on the railroads. Since most of the additional fuel would come from Western sources, the capacity of rail lines linking the coal regions of the West to the Northeast, Southwest and Pacific Coast would have to be increased considerably. Quantifying the cost of the incremental expansion needed is difficult because these rail arteries are already in need of considerable rebuilding simply to handle presently projected coal, grain, and other goods movement. To these costs, however large, would also have to be added a sizeable investment in rolling stock and power units.

F. Electric utility financial requirements to handle total conversion

The additional financial burden placed on the coal industry to meet a total conversion of utility gas and oil use would be dwarfed by the capital requirements which the electric industry would have to face. To convert the 155,000 MW of existing and planned oil and gas burning capacity expected to be still in service in 1985 would necessitate an expenditure of \$50 billion in 1976 dollars. Of this total approximately \$28 billion would represent conversion of oil facilities to coal and \$22 billion would be accounted for by gas to coal conversion. These expenditure requirements are based on the following assumptions:

	<i>Oil to coal</i>	<i>Billions</i>
Reconstruction ¹		
89,500 MW \times \$300/kW-----		\$26.9
Easily Converted ¹		
20,000 MW \times \$80/kW-----		1.6
Subtotal oil to coal-----		28.5
	<i>Gas to coal</i>	
Reconstruction—Units of 150 MW or smaller ²		
10,000 MW \times \$600/kW-----		6.00
Reconstruction—Units of more than 150 MW ²		
33,500 MW \times \$475/kW-----		15.90
Easily Converted ¹		
2,000 MW \times \$80/kW-----		0.16
Subtotal gas to coal-----		22.06
Total cost of conversion—Oil and gas to coal-----		50.56

¹EEI estimates based on cost figures appearing in the Preliminary Report of the FPC Technical Advisory Committee on Fuels on the "Fuel Oil Conservation Targets for the Electric Utility Industry Outlined in the President's October 8, 1974 Economic Message and the Accompanying Fact Sheet", October 18, 1974. Scrubbers are assumed needed on one third of reconstructed capacity and half of convertible capacity.

²EEI estimates based on unit cost figures for use of low sulfur coal appearing in the submission by "The Utilities of the State of Texas pursuant to Texas Railroad Commission Docket No. 600—Reducing or Eliminating Natural Gas as a Boiler Fuel in Texas," EBASCO Services Incorporated, May 1975. If scrubbers were required or reconstructed gas-fired boilers, unit costs could equal or exceed \$700/kW.

If an annual inflation rate of 7 percent were assumed and conversion expenditures were staged uniformly over the nine years, 1977–1985, the \$50 billion constant dollar capital requirement would equate to a current dollar outlay of \$71 billion. Present estimates of electric utility current dollar expenditures on electric plant and equipment over the same period total some \$345 billion. Thus a total conversion program would increase presently projected capital requirements by more than 20 percent. Virtually all of the additional funds would have to be raised externally if present rate and regulatory practices were maintained. In the case of investor-owned electric utilities, an external financing rate of 60 percent is presently being envisioned based on existing expansion plans. This rate would probably increase to nearly 70 percent if a total conversion program were undertaken.

A dependence on money markets for up to 70 percent of total construction expenditures would produce extremely serious financing problems for an in-

dustry burdened with financial difficulties engendered by the inflation of recent years and the effects of inadequate rate relief. Maintaining such an external financing rate for any length of time would likely prove to be impossible. At some point companies with inferior credit would just not be able to obtain funds. At any rate, coverage ratios would drop precipitously and the cost of all new financing increased significantly with a concomitant impact on the prices ultimately paid by electricity users. Moreover, these burdens would be concentrated essentially on utilities and electricity users in the Northeast, Southwest, and Pacific Coast regions of the country.

G. Constraints on conversion through reconstruction

A number of constraints in addition to financial limitations would tend to hinder any accelerated phasing out of oil and gas as boiler fuel through reconstruction. These include:

Sites and plants restricted from the standpoint of zoning requirements and the availability of land for fuel delivery, storage and handling facilities as well as the storage and handling of wastes.

Present system designs and operational reliability which will not tolerate the 2 to 3 years of outage time required for the conversion of an existing steam generator to burn coal. Insufficient capacity would be available to meet peak obligations and many utilities would be obliged to install additional combustion turbines and/or reinforce transmission interties in order to maintain reliable service. The cost of these interim measures would only aggravate the financial problems posed by the first order costs of conversion itself.

The limited ability of boiler manufacturers and the fabricators of the necessary auxiliary equipment to produce equipment, of coal suppliers to mine and transport coal, of engineers to plan and design, and of craft manpower to do construction work.

Air quality controls by Federal, state and local regulations for both primary and secondary standards which could require use of SO₂ scrubbers which are characterized by reduced reliability, high operation and maintenance costs, and waste disposal problems.

Regulatory lag due to proliferation and division of responsibility for approving utility construction projects.

Environmental and regulatory limits on access to coal supplies for future power generation.

Federal and state environmental restrictions on the construction of transmission interconnections needed to assure reliability during conversion or to implement any coal-substitution-by-transmission policy.

The age of many plants which would have been reduced to only peaking service before their conversion could be completed.

IV. ELECTRIC UTILITY PLANS FOR PHASING OUT OIL AND GAS BY THE CONSTRUCTION OF NEW NUCLEAR AND COAL FACILITIES

The magnitude of the physical and financial prerequisites for a total "forced draft" conversion to coal by reconstructing existing utility coal and gas-fired generating facilities clearly indicate that such a course of action is not to be recommended. Phasing out of even half of the present oil and gas use through reconstruction would entail a reallocation of capital and other resources in the economy which cannot be justified. Instead, the optimum way to reduce oil and gas as rapidly as possible lies in expediting the electric utilities' planned expansion program which is focused on the construction of new coal and nuclear facilities.

National Electric Reliability Council (NERC) studies conducted in response to questions posed in the Joint Hearings on Greater Coal Utilization before the Committee on Interior and Insular Affairs and Public Works of the United States Senate, pursuant to S. Res. 45, 94th Congress, National Fuels and Energy Policy Study on S. 1777, indicate that the electric utility industry is already phasing out installation of new oil-fired and gas-fired generating units. No new major generating units are planned for natural gas-firing in the years ahead and installation of oil-fired units is essentially phased out by the early 1980's. The bulk of this capability is already committed and under construction. The following charts indicating the substitution of coal and nuclear planned by utilities are taken from the NERC "Review of Overall Adequacy and Reliability of the North American Bulk Power Systems (Sixth Annual Review—July 1976)."

Figure 1 reveals that next year will mark the installation of the last gas-fired unit of more than 300 MW. The last unit of this size using oil is due for

completion in 1983. Figure 2 delineates the shifts in the relative importance of oil and gas in the electric utilities' generation mix. From 30 percent of generation in 1976, the share of these two fuels in total output is projected to fall by nearly half by 1985. More importantly, gas use is forecast to account for only 3 percent of electricity production in that year compared to almost 13 percent in 1976. This draconian reduction in gas' percentage share will be due in part to a 60 percent decline in absolute gas use from 2.9 TCF in 1976 to 1.1 TCF in 1985.

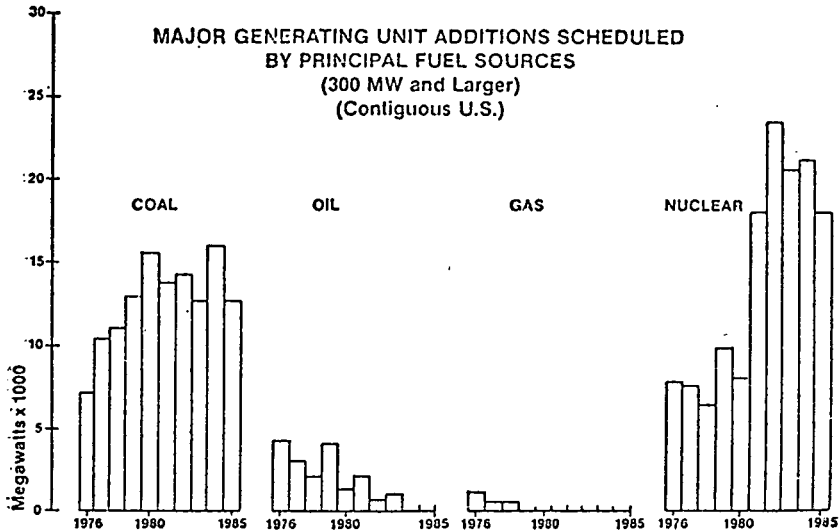


FIGURE 1

**ELECTRIC GENERATION
by
PRINCIPAL ENERGY SOURCES
(Contiguous U.S.)**

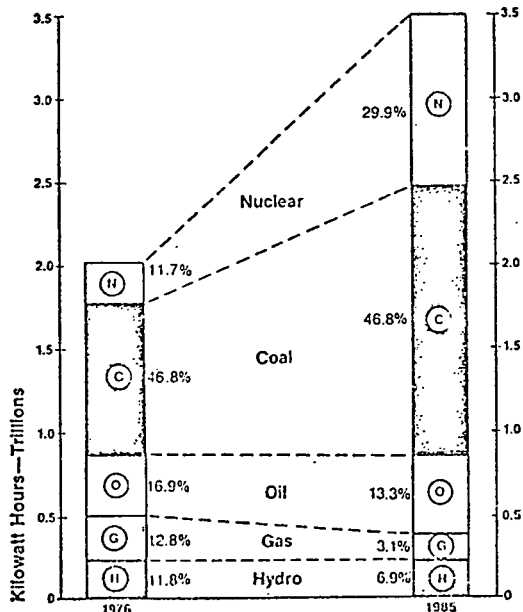


FIGURE 2

V. CONCLUSION

The minimizing of oil and gas use in industrial and utility boilers is a desirable objective for a national energy policy. This objective can best be attained by facilitating the construction of new coal and nuclear capacity sufficient to cover load growth requirements while permitting a steady and rational withdrawal from base load service of existing oil and gas burning plants. Assuring the timely installation of this new capacity will require the removal of regulatory obstacles to its construction and operation. It will also require Federal and state actions in the realms of tax policy and rate regulation designed to enable the electric utility industry to mobilize the necessary capital resources.

Senator KENNEDY. Why don't we proceed with your other comments? Would you like to proceed with your summary of other comments, Mr. Maier?

Mr. MAIER. I think my testimony is a matter of record, Senator. The main plant is that in Louisiana, where most of our gas is used in our production facilities, our gas contracts will terminate over a period of time and we will convert to coal in Louisiana regardless of when the tax starts. In the mid 1980's, we will have converted to coal regardless of the type of tax program. We are sympathetic with the program of converting to coal, but we are concerned tremendously about the timing of it and the tax penalties our company would have to face.

Representative LONG. Senator Kennedy.

Senator KENNEDY. Yes.

Representative LONG. Mr. Maier, you recall the question I asked Mr. Schlesinger about the treatment of large industrial users which in many instances use as much energy as small utility systems. I also pointed out that Congress has in many instances in the past treated these users as utilities. Mr. Schlesinger gave some rather strong arguments as to why that should not be the case and why they should not be so treated. What are your views on this matter?

Mr. MAIER. I disagree with him completely. The powerplant we have outside of New Orleans is one of the largest privately owned industrial powerplants in the United States. It is a plant that is capable of supplying most of the major cities in this country with all of their power.

This plant alone could supply a city of 750,000 to 1 million people with all of their power requirements. It is the same as a utility for all practical purposes. We just happen to use the power to make aluminum rather than supply energy to homes. I think the same problems exist.

He implied that the utilities were regulated and business was not regulated and that was the difference. I was disturbed with that because I thought it was in conflict with what the administration has been saying. The administration has been saying that the program is not very inflationary. If his implication is that private industry can go ahead and raise prices to offset those costs, I think that is disturbing and an indication that the program is extremely inflationary. As I indicated, to pay for the increased taxes in 1979, Kaiser would have to increase the prices of aluminum 20 percent just to cover the costs of the gas and oil consumption tax. I consider this extremely inflationary.

Representative LONG. Members of the Ways and Means Committee asked Secretary Blumenthal to comment on the energy plan's in-

flationary impact on the aluminum industry, in particular. Mr. Maier, perhaps you can give us the benefit of your views on this. Secretary Blumenthal said, in his opinion, that the studies showed the inflationary impact would be around 4 cents a pound. How does that relate to your studies?

Mr. MAIER. I do not know the basis for his calculations. Our calculations show that over the period 1979 through 1987, we, our company, would have to have a price increase of approximately 15 percent starting in 1979 to cover that entire period of time. As I have indicated, in the early years we pay the high tax but cannot use the money to build coal plants. So we do not get significant rebates. Therefore, if you just look to 1979, you would have to have a price increase of approximately 20 percent to equate in that year. Over the period of time, it would be approximately 15 percent.

I do not know where he received his figures. I am using our calculations, averaged over our entire system. Our costs in Louisiana would go up considerably more than that. Averaging over our entire system, brings us to the lower figure I indicated here. I do not know where they received their figures. I would be very happy to discuss the figures with them or anybody else. I think our figures are quite realistic.

Senator KENNEDY. Mr. Maier, the recent data by Charles Rivers & Associates indicates that the power costs comprise about 10 percent of the costs of making aluminum in 1969. This may increase, let's say, about 20 percent. Now, the industrial oil and gas consumption tax would add about 15 percent to the price of oil, perhaps somewhat more to the price of gas. So, if we assume a 15-percent rise and a 20-percent cost component, we get a 3-percent rise in total cost. Yet, you state you would raise prices by 20 percent. Could you explain the figure more fully?

Mr. MAIER. I have simply taken the administration's bill, projected what it would do to our costs, and divided those costs by the total pounds we would produce in our entire system; that is, averaging those cost increases over our entire system, even in those areas where our costs would perhaps not increase.

Senator KENNEDY. Could you submit a more full explanation of that?

Mr. MAIER. We would be happy to submit to the committee additional information on that; yes, sir.

[The following information was subsequently supplied for the record:]

KAISER ALUMINUM & CHEMICAL CORP.,
May 31, 1977.

HON. EDWARD M. KENNEDY,
U.S. Senate,
Washington, D.C.

DEAR SENATOR KENNEDY: Last week in our discussion of the inflationary impact of President Carter's energy proposal before your Energy Subcommittee of the Joint Economic Committee, I indicated I would provide further information on the effects of the proposed natural gas consumption tax on Kaiser Aluminum & Chemical Corporation's ingot costs. As you recall, I indicated that Kaiser Aluminum would require a 20% increase in aluminum prices in 1979 to offset the effects of the proposed energy consumption tax. You asked me to elaborate on this point, indicating that approximately 20% of the cost of aluminum is energy

and with a 15% increase in cost from the proposed taxes, the impact would only be 3%.

The 20% figure represents a 1979 Kaiser Aluminum impact and was derived as follows:

Estimated 1979 cost of the President's energy program to Kaiser Aluminum & Chemical Corp., including the net effect of coal conversion rebate (million)-----	\$172
Kaiser Aluminum's annual U.S. aluminum sales volume (billion lb.)-----	1.7
Program cost per lb. of aluminum (cents)-----	10.1
Percent increase in ingot price required to offset the taxes (present ingot price is 51¢ per lb.) (percent)-----	19.8

The average effect on Kaiser Aluminum over the years 1979-1985 would be approximately 15%, as I indicated in my testimony.

Energy costs differ widely between plants and regions, depending upon energy source; however, we estimate the average energy cost of producing aluminum ranges from 20 to 30%. This component of the figures you quoted is reasonably close. The problem lies in the increase which will come from the President's energy program. In his proposal, the oil and natural gas consumption tax will be derived as the difference between the present delivered cost of natural gas or fuel oil and a figure which is tied to the national average price of distillate oil. In calculating the effective oil and gas price which consumers like our corporation would pay, the Administration used a national average distillate oil price in 1979 of \$3.00 per million Btu's. They assumed this would rise to \$3.30 by 1985. Using the Administration's formulas, this would result in the following effective natural gas costs to large consumers:

Year	Base distillate oil price	Administration proposed adjustment factor	Effective natural gas costs including the tax (per thousand cubic feet)
1979-----	\$3.00	\$1.05	\$1.95
1980-----	3.05	.40	2.65
1981-----	3.10	.35	2.75
1982-----	3.15	.25	2.90
1983-----	3.20	.20	3.00
1984-----	3.25	.15	3.10
1985 and after-----	3.30	.00	3.30

We believe these base distillate oil price figures may be significantly low, and that the resulting natural gas costs will be proportionately higher. However, we have used the above figures in calculating the 20-percent impact in 1979.

Kaiser Aluminum has a number of long-term natural gas contracts in Louisiana, negotiated in the mid- and late 1960's, which have a fixed price and are low in terms of current-day market prices. Our largest facility, the Chalmette reduction plant, was constructed during the Korean war at government request. All of our large Louisiana investments were originally made to utilize natural gas which at the time was a by-product of crude oil production. The Administration's proposed natural gas tax applied to these contracts would cost Kaiser Aluminum several hundred million dollars. We believe we are typical of many other important industries and utilities which have located in the Gulf Coast area to take advantage of natural gas. The impact of these steep taxes on all these industries would be very damaging.

As I indicated in my testimony, the imposition of the natural gas and oil consumption taxes at the early date proposed by the President is counterproductive. If the tax were imposed beginning in 1979, we would be facing heavy and highly inflationary tax burdens and the resulting draining of large sums of money at the very time we need it to try to expand to meet energy-stimulated market demands and to convert to alternate fuels. Since we are already committed to converting these facilities to alternate fuels by 1985, the imposition of this tax can not materially affect our timetable. We urge the deletion of the consumption tax from the plan, or, at the very least, deferral of the effective date to 1985.

Sincerely,

CORNELL C. MAIER,
President and Chief Executive Officer.

Senator KENNEDY. Mr. Lewis, why have you not switched to coal before?

Mr. LEWIS. The reason we have not switched to coal before is that on each of the plants that we were building, we were looking at the lowest cost source of fuel to produce the lowest cost to our electric consumers at the time we were designing the plant and committing to construct it. In the case of all our plants up until the coal-fired plant we now have under construction, other fuels were available and were lesser in cost, and there was no way we could explain to the State Public Service Commissions on the one hand or our customers on the other why they should pay more for a fuel we chose that was more costly than some other option that was available to us.

We went in 1967 to a nuclear plant which was the first such commitment by any utility in the whole South and Southwest area of the country because our studies showed at that point in time that it would be lesser in cost for the life of the plant than the traditional gas and oil that we burned in that area. We are very pleased, in hindsight, with that decision. All our decisions do not turn out that well. That one has been proven by time to have been a very good decision. It now produces some of the lowest cost energy on our whole system. I wish we had put in two then rather than one.

One other comment I would like to offer if I might, Senator, relating back to Mr. Schlesinger's comments is this question of equity in the impact of the oil and gas user taxes insofar as utilities are concerned. It seems quite clear to me that the impact of this, if and when it is collected from the customer, is going to be concentrated in the Northeast, a bit in the Mid-Atlantic, the State of Florida, the Central and Southwest part of the country, and California, depending upon the mix of oil on the one hand or gas fuel in those areas.

Those people are going to bear the cost of this huge tax program rather than the people of the Nation generally.

Senator KENNEDY. Why is that?

Mr. LEWIS. Because of the imposition of the taxes on the fuel. These are the places where your oil and gas are used as major fuels for electrical generation. The other areas are basically coal fueled already. Coal provides on the order of 45 percent. That is not precise, but it is in that range of total fuel for the whole country.

So the people who are from the areas that are already coal fueled are not going to have to pay any part of this tax. It is going to fall on the others. I might mention that in the case of our own system, since 1970 we have spent about \$180 million on converting gas-fired boilers to the point where they can use oil on a continuous basis because of gas becoming unavailable, even though we had contracts for it. Our customers in that period of time from 1970 through 1976 have already paid \$610 million of additional fuel costs over and above what they would have paid if our original contracts had all been performed. So it is not as though we have been immune to any of the problems of the changes in the fuel picture. We are already experiencing it, and we think that if this burden of conversion costs on the one hand is to be borne for public policy reasons, it ought to be generally distributed, and yet the source of the funds for that conversion, according to my understanding of the administration's program, will be from the cus-

tomers who get the energy that is generated with oil and gas through your oil and gas use tax.

Senator KENNEDY. What do you estimate it will increase in terms of cost to your consumers?

Mr. LEWIS. I am perplexed about that, Senator Kennedy. The figure that Mr. Schlesinger used, \$12 billion through 1985 for the industry as a whole—of which \$6 billion he said would be rebated, which would mean a \$6 billion net charge to customers during that period, is about three times higher than our figures.

Our figures for the whole industry are about \$1.2 billion per year for oil use and \$50 million for gas use. So I have to go back and look at my numbers.

It may be three times as bad as I thought it was. [Laughter.]

Senator KENNEDY. Well, would you go back and take a look at it and let us know?

Mr. LEWIS. You better believe we will be looking at it.

[The following information was subsequently supplied for the record:]

The White House Energy Policy Staff has advised us that the impact of the oil and gas use consumption taxes on the utility industry, cumulative through 1985 would be \$7 billion gross tax, and \$300 million net tax after rebate according to their calculations. Our calculations indicate a gross tax of \$2 billion per year, which would amount to \$6 billion through 1985; we are unable to calculate the extent, if any, of the rebate for investment in facilities to replace or phase out generating facilities using oil and gas.

Mr. LEWIS. There are two other aspects that he commented on briefly that I would like to just say a word about. That had to do with the question of utility rate design. I have a statement in my paper. The principle espoused in the President's statement, and then in the program, is that utility rates ought to be cost-based. I don't know what they are talking about if they say that our present rate structures are not cost-based to the maximum extent possible on the basis of presently available information. We believe they are decidedly cost-based and that it is an extremely simplistic approach taken by some people to simply take the unit cost of energy per kilowatt hour, which is the unit of measurement, and simply take what that figures out for various classes of customers and say, "Well, one is paying twice as much as another."

There are decided differences of costs of serving different classes of customers. For instance, residential customers, who are the smallest customers who require the most distribution facilities to reach them and use in small quantities, are by far the most costly to serve.

In every study of which I am informed, trying to measure the earnings contribution to the utility company of its various classes of customers, almost invariably you find that the residential customers class as a whole contributed less to the net earnings of the utility company than do either commercial or industrial customers, even though their units price as it may be figured out ultimately is less than the residential customer. The costs don't occur that way.

We agree wholly with the idea of having cost-based rates. We just say let's be sure we get to the cost. It is a very complex subject, one that we think ought to be left to the regulatory authorities who are charged

with this responsibility and who have some expertise on their staff. There is no easy answer to it.

We think it would be a mistake to apply some national rule which might or might not fit the situation in various States.

One other aspect of that is the question of time-of-day rates, peak load pricing. Some utilities have fairly good annual load factors, meaning that their peak requirements of their customers in the summer and winter are kind of balanced. They are somewhere in the range of 68 or 70 percent annual load factor. In the case of our companies it is in the low 50's. The higher a company's annual load factor, the less room there is to move load off of peak, which you have to build these big, expensive plants to serve, into the valley, if you will.

Our people tell me that it is very possible that where you have a high annual load factor, if you move a lot of load from the peak to the off-peak, you could end up actually having to build additional generating capacity in order to provide adequate reserves. It is very complex.

I would hope that the Congress in its wisdom would not try to substitute itself for the people who spend full time struggling with these problems in the light of the peculiar circumstances of a State and the service area of each of the utilities they regulate.

Senator KENNEDY. OK. Well, you have raised many troublesome questions and brought them to our attention. I think there are implications here in terms of the economic situation in the country that are extremely significant. Obviously they are ones which we are very much interested in. I hope we would be able to work with you in terms of understanding these questions more closely. I want to thank you very much for your appearance here.

Mr. LEWIS. In one parting shot, if I might, Senator, we felt that the program definitely slights the supply side of the energy equation, and that the American public would be best served if more attention were given to how we develop the energy resources which we do in fact have available in the United States so that we can have adequate energy for Americans as they want it and need it.

Senator KENNEDY. Are you talking nuclear, or conservation?

Mr. LEWIS. I am talking about undue reliance on conservation. For instance, we feel like there ought to be good insulation. We have programs for our customers. We will tell them what they need in their house, things of this sort. We actually designed a type of construction in the State of Arkansas which was written up in one of the Washington papers recently, which reduces the energy requirement for heating and cooling, just those two applications, by up to 65 percent, compared to conventional construction.

We are committed to conservation. But, we don't believe we can save ourselves into plenty. We ought not to waste. We ought to conserve what we can. But what we need to do in the nuclear era is move forward with the breeder reactor technology so if and when it is needed in the 1990's, we know how to do it.

There is now in storage—not speculated—in storage at Portsmouth, Ohio, Paducah, Ky., and Oak Ridge, Tenn., uranium U²³³ which has a fuel value in the range of 10 to 20 trillion dollars, and could meet our needs literally for centuries if we perfect and apply the breeder reactor technology. The rest of the world is going ahead

with the breeder. I think this is part of the message Mr. Carter got in London. They are going to go ahead and use breeder technology.

If we deny ourselves that, we throw away from 10 to 20 trillion dollars worth of fuel.

The shale oil in the Rockies is greater than the total Arab oil reserves, if we have the will to find a way to develop it and protect it against being undercut by the OPEC countries where they have production costs of half a dollar, or something like that. That is a risk that you can't expect private capital to take.

There is a huge resource there.

In the South, in the water stratas, underlying the northern Gulf of Mexico, south Louisiana and south Texas, it is believed—and I emphasize the “believed”—that there is more dissolved methane, the principal component of natural gas, than all the natural gas that has been developed in this country up to this point in time.

We need to be determining first whether it is there, and how we can extract it.

I would say to you about coal—everybody says we have hundreds of years' supply—and yet the chances are we may not be able to produce what we need for the next 10 years. I say we are not a Nation deficient in energy sources.

This is not even touching fusion and solar and geothermal, which we obviously ought to be moving to prove out and to develop, but we need to put more emphasis on the supply side rather than thinking about becoming an austere society through continual cutback, cutback, cutback.

Frankly, I don't know anybody who wants to go back to the good old days of the wash pot out in the back yard, or the oil lamp on the mantel.

Excuse me. I get wound up on this.

Senator JAVITS. Could I ask you a question in that regard? Isn't the problem—that is what the administration is addressing itself to, how to piece today to tomorrow until we get this halcyon period you described. I thoroughly agree with you. I am not a bit afraid by investing money. I am not a bit scared by \$11 billion in a society that has a gross national product of a \$1.750 trillion. That is just beyond me.

So we have to become accustomed to the concept, but the coal probably is only to tide us over until that time, and we really have to do both. That is my only point.

Would you agree with that?

Mr. LEWIS. I certainly agree with that. In the case of our own system, I can illustrate that, Senator Javits. We have six baseload generating plants under construction right now for service between now and 1984. Four of them are nuclear; two of them are coal. We have also committed for two more coal plants. We think you have got to ride both of these horses.

Senator JAVITS. Now, isn't the real guts of that—because we are going to—at least I don't believe—that we are going to go with the administration quite the way it wants us to go on this whole tax structure. Isn't our real problem, then; to deal both with facilitating

these various moves which are to be made now, including coal conversion, and the big new investment through capital? Bearing in mind that we spent at present prices \$200 billion a year in World War II and it didn't make us poorer. It made us richer.

The question is what do you spend it for. How much brains do you use? Do you get it back? The RFC ended up with a profit, a big profit. I think that is where our thinking is deficient. That is why I welcome the enterprise and vision of businessmen like yourselves.

Could I ask you, therefore, this question: Given necessary financing, and considering what you said about energy from the nuclear base which I think is terribly important, because we have been blocked in that for years by many well-meaning people but they are not doing us much good.

Is it a question of financing, and do you believe that the necessary financing is possible, or must come from Government?

Mr. LEWIS. I think that in most cases the private economy can provide most of the capital if it is given an opportunity to earn sufficient income to service that capital. In the case of our own system, the coal-fired plant that I mentioned, which is located near Redfield, Ark., has two 700-megawatt units. We had to shut down the construction project there simply because our earnings in that company under a restrictive regulatory climate got so low we couldn't continue to sell mortgage bonds under the earnings test of our mortgage indenture.

The problem is that you end up in the utilities with such a huge proportion of your total capital that you have raised from investors in projects that are still under construction, which are not permitted in most cases to earn currently, that you cannot show enough good earnings other than the book accounting figure of allowance for funds used during construction. I apologize for even referring to it, but it does get into the picture. We don't have enough good earnings, cash earnings, if you will, to carry out the financing.

In the utility area, I think it is extremely critical that all of the capital invested in the business be earning currently because you have to pay interest and dividends currently. In the case of most of these big energy projects, they are terribly costly. The figure of "a billion dollars per" just seems to roll out.

We are interested in a slurry pipeline project, \$750 million for a pipeline project.

I think that money can be raised in the private sector if there is real assurance that it will pay out, that the cost of servicing that capital and amortizing a plant with a fair return to investors can be expected.

Senator JAVRS. Well, if I may, Senator, ask one question of Mr. Maier: You say in your prepared statement:

While it is true that the administration's bill provides for credits against the oil and natural gas consumption, taxes for investments in alternative energy property, these would be of little benefit in the early years.

If it would be possible for us to take maximum advantage of the credits, our tax payments would exceed the credits by more than 100 percent.

You say if it were possible for us to take maximum advantage of the credit, what do you want us to do with this?

Mr. MAIER. I think what we are saying here is that during the period 1979 through 1985, assuming we could use all the credits that were available to convert to coal, we would still pay \$700 million in taxes in

excess of the rebates we received. We think the thing to do here is the thing that Senator Bentsen suggests. It is to delay the time that the gas consumption tax starts.

Senator JAVITS. So you could use that as capital?

Mr. MAIER. Yes, sir. We would be paying taxes in the earlier years, but we really couldn't spend the money in the early years. There would be a net outflow to our company.

Senator JAVITS. Could that be conditioned upon some form of good-faith effort; that is, by contract commitment, planning commitment to the construction of new facilities?

Mr. MAIER. I think it definitely could. Also, there should be a provision for carryforwards on those taxes. That would be a way of doing it. It means they wouldn't be available unless you went ahead with the project.

Senator KENNEDY. What are you talking about in terms of a tax subsidy? What magnitude for the new plant?

Mr. MAIER. A tax subsidy?

Senator KENNEDY. Yes.

Mr. MAIER. To convert our coal facilities in Louisiana would cost approximately \$450 to \$500 million.

Senator KENNEDY. Of which how much would be taxable?

Mr. MAIER. I assume we would get credit for all of that. We would pay taxes in excess of that amount. The taxes would be considerably higher than the 100 percent I mentioned in my statement.

Senator KENNEDY. Thank you very much.

Mr. MAIER. I would just like to make a final remark, if I may, Senator.

I know it is part of the administration's program, but I am disappointed it hasn't been emphasized. I think it is well acknowledged that one of the best ways to save gasoline is to enforce the 55-mile-an-hour speed limit. It is also recognized that it saves lives. This, it seems to me, is a very easy thing to enforce. I hope Congress will put some emphasis on that program to save gasoline and lives.

Senator KENNEDY. Thank you.

Mr. LEWIS. Thank you very much, Senator.

Senator KENNEDY. Our next witnesses are Hans Landsberg, from Resources for the Future, and Philip Mause, of the Environmental Defense Fund.

We will include your prepared statements in the record.

I think it would be useful to comment on what Mr. Schlesinger had to say.

We will start off with Mr. Landsberg.

STATEMENT OF HANS H. LANDSBERG, CODIRECTOR, ENERGY POLICY RESEARCH, RESOURCES FOR THE FUTURE

Mr. LANDSBERG. To begin with, I find there is a contradiction between some of the attitudes on the future OPEC price on the one hand and the vision of catastrophe because oil and gas are being rapidly depleted. I don't think both can have the same odds of occurring. My own view is that there is no doubt in my mind that the OPEC

price will rise. Not catastrophically, but it will rise faster than inflation. I find this, therefore, to be a problem in the plan.

Second, while the large amount of rebating is motivated, I believe, by two things, first, a matter of equity; and second, an attempt to minimize the problems of inflation and depressing the growth rate of the gross national product, that—

Senator KENNEDY. Would you bring the mike a little closer to you?

Could we have order, please.

Mr. LANDSBERG. While I assume that the amount of rebating to the public that is in the plan is motivated by concern for equity and also concern for not increasing the rate of inflation and not reducing the growth rate of the GNP, it does have, however, an offsetting effect. That is, it does in some way, which is never specified, affect the demand-reducing impact. That is, if I know I am going to get reimbursed, it certainly has an effect on the amount of energy I will consume, even though I am going to be faced with slightly higher energy prices.

I think that is not specifically taken into account. I have seen no calculations, although I am sure the administration has calculations. They have after all, the largest model in the world. It would be useful to find out what their ideas are on this dampening of the effect through rebating. I think it is clear in the case of the gasoline tax, for example, that if the tax were triggered a large number of people would have a net gain from the gasoline tax rebate scheme.

Third, I would like to learn the expected size of coal consumption in 1985. It is not clear in the plan. You can get four different figures if you look closely. The 1,250 million tons that Mr. Schlesinger gave us is the highest figure that has ever been given out as a tonnage figure. Even that is on the low side. It does not take into account the low Btu value of western coal, which is a factor we can not escape, and probably underestimates the coal target of 1985 by 5 percent or so. We simply need more tonnage in order to get the same heat value out of it.

On the same point—the whole question of reaching the coal target about which he spoke—the plan adds an additional obstacle. We all know the obstacles of manpower, Federal and State regulations, water, stripping, transportation, et cetera. I won't go into those. But there is a new one. That is the application of best available technology to coal-burning facilities. That means scrubbers, and it means scrubbers for everybody.

Now the main advantage of western coal, which is far from market and has a low heat value, has always been that it is low in sulfur, and therefore utilities or industries that use it need not install scrubbers. I think that by one stroke of the best available technology for everybody that competitive edge has been blunted if not totally eroded.

On the other hand, if there is any chance at all of reaching the very high coal target in 1985, it can only be done by drawing very heavily on western coal. There is no other way. It is the western coal where mines are planned now to produce 10, 15, and 20 million tons per year. Most of them are surface mines. Most would have very few labor problems, if any. Whereas, if you go east of the Mississippi, you will have largely underground mines. You will have small mines. I think the largest underground coal mine now operating is not quite 5 million tons. You would have very slow growth with such mines.

Since the energy plan intends to shift that competitive edge, it frustrates, at the same time, any idea that the coal target could be reached which one might have entertained until that particular aspect arose.

Now, the motivation is quite clear. I don't quarrel with that. It is the maintenance of environmental quality, and it leads to another problem; that is, the administration is not facing any kinds of trade-offs. It does not even discuss them. It has monolithic goals both in quantities and in philosophy. There is nowhere in the plan any discussion of what might have to give. In this instance, the clash is very obvious: Between environmental quality, not letting it deteriorate anywhere, and reaching a coal target that will enable us to reduce our oil and gas consumption. This is a very tough problem that is not being faced in the energy plan.

Next I would like to deal with the administration's refusal to contemplate unifying oil prices but staying with tiers.

The great advantage of unifying oil prices and letting them go up to the OPEC level is that one could do away with an enormously complex administrative machinery, including invitations to loopholes, maneuvers on the part of industry, and so forth.

I do not share Mr. Schlesinger's view that this would be giving the producers what they do not really need. I think that poses the wrong question. I think the right question is how much oil do you want produced domestically? You can produce some oil domestically at any price. You can produce some oil at \$2, \$3, \$5, and \$10. If you were giving the OPEC price to the industry for all oil—and you can phase this in over 2 or 3 years if you wish to, and probably ought to—that would be the marginal price for domestically produced oil. You would, in fact, create a great deal of rent income to the industry, and the Government would be in a perfect position to scoop off whatever part it desired. Even now, taxes syphon off a large share.

If, on the other hand, you import it from abroad, you are faced with a \$13 or \$14 price, and you get nothing out of it as far as this country is concerned, except oil, of course. You cannot "scoop" anything out of that price. Therefore, I think that to maximize domestic production is a very good deal; and one way of doing that is, in fact, to concede the OPEC price, scoop off, or skim off, excess profits and be able to dispense with the complicated machinery.

Saying that industry does not "need" that price is simply asking the wrong question. The country needs it because it is cheaper, in terms of resource cost, to produce the oil domestically than bringing it in, as the Secretary has been saying. Keep in mind that the marginal cost of oil is that of a barrel of imported OPEC oil; every single additional barrel commands that price.

The next point is that some of the demand projections on the optimistic side, especially, those involving insulation. This raises a general point. In the entire program there is a heavy stress on conservation through hardware. It is really a hardware-oriented conservation program. If I turn down my thermostat to 60 and wear a sweater, I get nothing. Yet I may be as conserving of energy as someone who insulates and gets a tax rebate. I understand it is hard to deal with subsidies if you don't tie them to something tangible like hardware. But there are various process changes that do not involve hardware. The plan's orientation toward hardware is something that troubles me.

As for the targets in the 1985 plan for oil, gas, and nuclear, I believe they are all high. Having written about it, I will not go into the detail, but I will be glad to answer questions.

In summary, my concerns and quarrels are, first, with the time horizon of 1985 which is far too close. I think we ought to get off the 1985 time horizon. It simply means you have to squeeze developments into a time frame that makes the achievement unrealistic. I believe that is bad for the plan, for the administration and for the Congress which will be held responsible for it.

Next, I think the plan has unnecessarily complex mechanics; and it is my judgment that they are introduced largely to get away from seeming to favor the energy industries; that is why you go the tax route, but then the incentive will not be there; although on the whole the plan expresses a proper principle, that is, that the replacement costs ought to be reflected in the price.

Third, I don't think the plan faces tradeoff questions anywhere, between environmental quality, growth, inflation, et cetera. What worries me about this is that the plan therefore ends up with fixed goals for 1985; goals that the administration is asking the Congress to subscribe to, for example, the 6 million barrels per day imports, 2 percent demand growth, et cetera.

I do not like to see these fixed rates. Moreover, I believe they are all optimistic, all overstated. I would much rather see the Congress change these, first of all to reasonable quantities; and second to reasonable ranges. What I fear is that if it turns out, 2 or 3 years from now, that these are not achievable targets, we are likely to get into a panic and come to far more unattractive mechanisms in order to save these goals. Thinking in ranges and tradeoffs would save us that trouble.

Thank you.

Senator KENNEDY. Mr. Mause.

STATEMENT OF PHILIP J. MAUSE, STAFF ATTORNEY, ENVIRONMENTAL DEFENSE FUND

Mr. MAUSE. Thank you, Senator.

Just by way of very brief background, my career as an environmental attorney has probably been somewhat unusual. I have been engaged mostly in efforts to promote energy conservation—most specifically through pricing reform, and utility rate structure reform at the State level. We have been before a number of State commissions over the years advocating the adoption of marginal cost pricing.

In reaction to Mr. Schlesinger's comments, we share Mr. Schlesinger's overall view that the short-term alternatives available to the United States increasingly appear to be nuclear power, coal, OPEC oil, and energy conservation including within energy conservation, solar heating and cooling. For this reason, we feel that it is an imperative objective of the environmental movement to encourage rapid implementation of an energy conservation strategy.

We applaud the President's commitment in principle and in practice to the notion of replacement cost pricing. I think the case is made eloquently in the National Energy Message.

As I discussed in my prepared statement, I feel that we will never resolve the energy problem in the United States unless we have a commitment to replacement cost pricing.

The energy market is peculiar and requires Government attention because it is largely dominated by regulated monopolies whose earnings are limited to a fair rate of return on existing investments. Roughly one-half of the energy in the U.S. economy is sold through regulated electric or gas utilities which do not operate in any sense in a free market form which would guarantee that their current prices equal or approximate replacement costs. We thus have a situation in which prices for energy in many parts of the country are dramatically below replacement costs.

Just in response to Mr. Maier's comments, let me give you a brief example.

The price of natural gas according to a recent FEA release in the Federal Register in the southwestern region of the country, which includes Arkansas, Louisiana, New Mexico, Oklahoma, and Texas, to industrial users is \$1.25 per thousand cubic feet.

Senator, you are probably aware that in your region of the country the price is substantially in excess of that. Without any changes in national energy policy, the price in the southwestern region is projected to go up 94 percent in real dollars, not counting inflation, between 1977 and 1987. So an aluminum industry, based upon \$1.25 per thousand cubic feet natural gas, and producing aluminum probably used partially to produce nonreturnable cans is not really part of a stable economic future for this country anymore.

Let me just review the implementation of the replacement cost pricing strategy and our reaction to it. We generally agree with what has been done with petroleum pricing. We have some disagreement in the natural gas area. On the supply side, it appears that we will continue to have two prices for new sources of natural gas production. Conventional producers will be limited to a price in the \$1.70 to \$1.75 area while we will continue to add liquefied natural gas and synthetic natural gas at prices ranging between \$3.50 and \$5.50 for new sources.

If some of that liquefied natural gas could be replaced by some conventionally produced natural gas which would cost \$2.50 a thousand cubic feet, we would all be much better off. This will not happen unless the price for new conventional sources of natural gas is allowed to rise closer to the replacement cost price. In my testimony I deal in more detail with what we think the formula would be for arriving at such a price, but our general reaction is that it would be above the price currently set in the administration's plan.

Simultaneously, we would continue tight restrictions on the addition of SNG—the conversion of petroleum to natural gas—and LNG additions to the supply.

With respect to electricity, I think the administration and the country faces a very critical dilemma. I agree with Mr. Lewis' comments that the situation varies tremendously regionally, and that to state that rates should be based upon costs is a very simplified statement of an extremely complicated problem. But leaving the problem of electric utility rate structure completely to State regulatory commissions opens the door to industrial blackmail, as industrial users of electricity about to be faced with the full costs they are imposing on the system threaten

to leave the State and take jobs away. I think this is the kind of situation which prompts a need for national standards. Electricity—under any plausible scenario—is going to become a more and more important part of our energy mix. Roughly one-half of the increment in energy added between 1977 and 1985 will be in the form of electricity. For this reason it is essential that electricity rate structure be rationalized. The basic dilemma is that electric utilities are limited to a rate of return on relatively inexpensive embedded capacity which does not allow rates to rise to the level of the marginal costs of expanding that capacity.

My testimony contains an illustration from a recent *Fortune* magazine article showing how an industrial user, because he was confronted with a low average price rather than the marginal price of new electricity capacity expansion, determined not to make an investment in cogeneration which would have saved considerable oil, considerable capital in the long run, and would have reduced air pollution. This is because the rate was simply too low to call forth the appropriate energy conservation investment from an industrial customer. I make it a practice to subscribe to the publications that are issued to industrial users of energy. These publications are constantly filled with various technologies which promise to reduce energy consumption by industrial users. Very frequently the stories describing these technologies indicate that while the technologies are widely adopted in Germany, Japan, or Sweden, they are not being adopted in the United States because they are too expensive.

In many, many cases this simply means that electricity and natural gas being sold to industrial users is too cheap.

With respect to State-Federal relations, we would also propose that the "finders keepers" formula for natural gas be adopted to give State utility commissions the option of reducing residential consumption and keeping the gas which they generated through conservation efforts. We would also propose that the tax incentive formula for energy conservation investments be revised to give greater advantages to a State which elected to adopt the plan proposed by William Rosenberg of the Federal Energy Administration to allow for direct utility investments on the customers' side of the meter.

In summary, we feel energy conservation technologies have to be a key part of the solution. Cost comparisons for—between solar water heating and new sources of electricity in areas that have summer peaking electric utilities—indicate that solar is a very promising; but in order to get there, to get to the conservation strategy, to get to solar heating, and cooling, we have to be rational about the prices of the alternatives and get those prices as close to the level of marginal cost to create a sufficient incentive.

I think my final remark would be that as we have viewed national energy policy over the last 5 years, we have consistently thought that the worst alternative, and one which we are very glad the President has rejected, would be to subsidize new supply ventures and thereby guarantee that energy will continue to be underpriced and therefore inefficiently used.

Thank you very much.

Senator KENNEDY. Thank you, Mr. Mause.

[The prepared statement of Mr. Mause follows:]

PREPARED STATEMENT OF PHILIP J. MAUSE

Thank you for the opportunity to testify concerning an issue of increasing national importance.

By way of brief background, the Environmental Defense Fund is a national environmental action organization of 45,000 members dedicated to the application of scientific analysis (including economic analysis) to environmental and natural resource problems. We have a staff of some 20 attorneys and scientists located in offices in Berkeley, California; Denver, Colorado; New York, New York; and Washington, D.C.

The Environmental Defense Fund is in some respects unique. We have devoted a substantial portion of our staff resources since the early 1970's to the demand side of the energy problem. Even before the OPEC embargo, EDF staffers and Trustees realized that unless some effort was made to reduce the rapidly increasing demand for energy, it would be difficult for the country to pursue a sound environmental policy. We determined that it would be more useful for us to devote our limited resources to efforts to increase the end-use efficiency of energy, rather than the piecemeal effort to wage environmentalist battles against specific supply projects. This insight was in part due to our feeling that stopping any single supply project would simply increase the pressure for its alternatives—in the absence of a concerted effort to understand and modify the rapidly increasing demand for energy which this country experienced in the 1950's and 1960's.

As we analyzed the demand for energy, we began to see—even in the early 1970's and before the OPEC embargo—that the costs of new energy supply sources were dramatically higher than the prices consumers were paying for energy. This disparity between marginal (or replacement) costs of energy and the prices confronting consumers led to economically inefficient increases in demand for energy and the neglect of economically efficient technologies for end-use conservation. It is important to remember roughly one-half of the energy market of the United States consists of regulated gas and electric utilities, and thus the normal free market mechanism which generally guarantees that prices equal or approximate replacement costs does not operate in large sections of the energy market.

Our first efforts with respect to energy were interventions before the state regulatory commissions and Federal Power Commission to assure that gas and electric rates more accurately reflected marginal costs.

My testimony today will attempt to trace the marginal—or replacement—cost philosophy which the President has adopted as one of his principles for national energy policy through the various legislative proposals included in the National Energy Plan.

At the outset, I must say that we at EDF are encouraged by the President's political fortitude in trying to attack the pricing dilemma which characterizes the energy market. Energy conservation requires, as one of its supporting policies, a commitment to replacement (or marginal) cost pricing. In our free market and highly diverse society, there is simply no other mechanism as effective at inducing people to use a commodity more efficiently as raising the price for that commodity. The President's willingness to pursue this policy—in the face of obvious political difficulties—indicates substantial political courage. It evidences a concern for those who are unrepresented by the various special interest lobbies which dominate Washington—future generations of Americans, those Americans presently unemployed who will obtain jobs due to the increased economic growth in the energy conservation sectors of the economy, and the American taxpayer, who would face an open-ended burden were we to embark on a strategy of increasing subsidies for energy supply projects.

I. THE REPLACEMENT COST PHILOSOPHY

The pricing of energy is a particularly difficult problem for the United States. This is because the United States not only imports enormous quantities of energy; we also produce and have produced large quantities of energy domestically. Unlike many other industrialized nations, we have become accustomed to very, very low prices for energy. In addition, it is tempting to average in those low cost domestic sources of energy with the more expensive imports to produce an intermediate price. In the end, this rolling-in of inexpensive with expensive sources of energy will only lead us further down the road to OPEC depend-

ence. It is vitally important to understand that increased consumption of most forms of energy means—at the margin—increased requirements of energy imports. Thus, the cost—or saving—to the American economy of an increase—or decrease—in energy consumption is generally the price of energy on the world's market. To maintain energy prices below that level is to encourage inefficient use of energy and to render economically impossible those opportunities for the more efficient end-use of energy which will reduce our dependence upon foreign sources. Under-pricing energy will lead us into a never-ending spiral of administered shortages, dependence upon foreign cartels, makeshift efforts to subsidize energy supplies, and environmental deterioration. As long as we are unwilling to bite the energy pricing bullet, an efficient resolution of the energy problem consistent with American free enterprise principles is impossible.

I will now try to trace through our analysis of the application of the replacement cost philosophy to various sectors of the energy economy.

II. PETROLEUM PRICING

In this area, the President's energy proposals faithfully incorporate notions of replacement cost pricing on both the supply and demand side. The world price of petroleum is used as the price signal both to encourage energy conservation measures and to reward new supply ventures. Thus, "exotic" sources of new supply (oil shale) are given the world's market price (and no further incentive) to encourage their development. Likewise, conventional new petroleum development is given the same price. We view this as a rational policy. There does not seem to be any justification for discriminating in favor of oil shale and against conventional petroleum development.

Similarly, barrels of oil that are found through energy conservation and efficiency improvements by industrial users of energy are also rewarded by receiving the world oil price. This is achieved by raising the effective price to users to the level of the world oil price through a tax.

III. NATURAL GAS

In the natural gas area the President's plan tends to move the market toward replacement cost pricing—but does not achieve the result nearly as quickly nor as symmetrically as it does with respect to petroleum. Let us examine the supply side first.

New conventionally produced natural gas will, under the President's plan, receive a price in the neighborhood of \$1.70–\$1.75 an Mcf. This appears to be much lower than the "replacement cost" of natural gas. Natural gas is—in reality—"replaced" by OPEC oil. This occurs as industrial natural gas consumers who are curtailed switch to petroleum products—and the increased demand for petroleum occasioned by this switch results in increasing demands for OPEC oil. Because this switch is not to crude petroleum—but rather to refined petroleum products—the replacement cost of delivered natural gas is in reality the Btu-equivalent price of a substitute refined petroleum product made from OPEC oil. Interestingly enough, this seems to be the theory underlying the "natural gas target price" adopted by the Administration for purposes of taxing natural gas to encourage coal conversion.

It should be noted that the replacement cost of delivered natural gas is not the replacement cost of well-head natural gas—the costs of transmission must be subtracted. It is also arguable that—due to the environmental and handling advantages of natural gas—an increment should be added to the petroleum replacement cost. On balance, it appears clear that the replacement cost philosophy would suggest a higher price for new natural gas production than the price the Administration has adopted.

While conventional producers of natural gas will not receive a price equivalent to the replacement cost of natural gas—it appears that we continue to pay a price for "exotic" sources of natural gas far in excess of the replacement cost of natural gas. Thus, the plan appears to liberalize the standards for adding SNG (from petroleum conversion) and LNG to the natural gas supply. New gas from these sources generally costs between \$3.50 and \$5.50 an Mcf. It also involves

increased dependence upon OPEC—and in some cases substantial environmental risks. We would all be better off if we could replace some \$4.00 an Mcf LNG with some natural gas produced conventionally at a cost of \$2.50. Unfortunately, this will not happen as long as domestic producers of new natural gas are not given a price equivalent to replacement costs.

The other important source of natural gas—energy conservation—must not be neglected. We are becoming increasingly aware it is quicker, cheaper, and cleaner, to produce new natural gas by insulating homes, retrofitting furnaces, removing pilot lights, and adopting various energy efficiency improvement measures than it is to produce natural gas through virtually any of the available supply technologies. Once again, natural gas produced through improvements in end-use efficiency should receive the same price as natural gas produced through new supply production ventures. The Administration plan—in the long run—will achieve this objective. But for a considerable length of time, rates to large users of natural gas will remain significantly below replacement costs. The average price paid by an industrial user of natural gas who took directly from a pipeline company was \$1.12 per Mcf as of November, 1976. This is a price which is dramatically below the marginal cost—or replacement cost—of new gas supplies being added to the system. We would have preferred a more immediate effort to raise prices to the level of gas replacement costs.

IV. ELECTRICITY

Under the President's energy plan, and indeed under most plausible energy scenarios, electricity will become a more and more important part of the nation's energy economy. As is indicated in the National Energy Plan publication issued by the Executive Office of the President with or without the President's energy plan, by 1985, electricity will increase from roughly 25% of the nation's use of energy to roughly 33% of the nation's use of energy. Another way of looking at this is to analyze the increase in national energy consumption between 1976 and 1985 and the proportion of that increase which is accounted for by electricity. Without the energy plan the increase is 11.3 millions of barrels of oil per day equivalent of which 5.8 (roughly $\frac{1}{2}$) is due to increased demand for electricity. With the plan, the increase is 9.4 millions of barrels of oil per day equivalent of which 5 (more than $\frac{1}{2}$) is accountable due to increased demand for electricity. Thus, electricity is destined to become a more important sector of the energy economy of the United States, and therefore, appropriate pricing policies with respect to electricity will become more and more important.

The statistics cited above may appear to be abstract products of computer printouts unless coupled with concrete details of current energy trends. A very striking statistic—which is important for us all to reflect upon—is that while only 9% of American homes are currently heating with electricity, in 1976 roughly 50% of new housing units built were equipped with electric heating. The combination of high oil prices and new hookup prohibitions for natural gas has led to a dramatic increase in the proportion of residential energy usage accounted for by electricity. There is no indication that this trend will be abated in the near future.

Electricity is sold by publicly or privately held utilities regulated largely at the state level by regulatory commissions. These utilities are limited to a fair rate of return on their existing capital investment—and the dominant issue in most utility rate cases has been the level of earnings appropriate to achieve that rate of return. It is fair to say that the general result of this process—in recent years—has been rates for electricity which are dramatically below the level of marginal (or replacement) costs.

Analysis of marginal (or replacement) costs for electric utilities is somewhat more complicated than analysis of such costs with respect to natural gas or oil. Such costs consist of: (1) the fuel costs associated with generating somewhat more electricity at a given time; and (2) the capacity costs associated with adding to the generation, transmission, and distribution system of a given utility in response to increased demand. Thus, achieving replacement cost pricing for various fuels does not necessarily guarantee replacement cost pricing for electricity—because the capacity component of electricity may not be priced correctly even if the fuels used to generate electricity are priced correctly.

The past several years have seen rapid escalation in the costs of new electrical generating capacity. Marginal cost studies, performed to indicate a level of rates

necessary to give consumers the correct signal about the marginal (or replacement) costs associated with increased use of electricity, have generally shown that rates based upon a fair rate of return on embedded capacity are too low to present consumers with a correct signal concerning the marginal costs associated with the use of somewhat more electricity.

The Administration's proposals with respect to electric utility rate structure go part of the way toward achieving marginal (or replacement) cost pricing. They encourage—and in some cases require—peak load pricing for electric utilities. This recognizes the fact that the marginal cost of electricity usage is higher at times of system peak—because usage at such times generally requires the addition of more capacity. Peak load pricing is a concept which is already achieving widespread acceptance at the state level. The Administration's proposals concerning electric utility rate structure will further encourage the acceptance of this concept.

Even with peak load pricing, however, the rates charged by electric utilities may still—in many areas of the country—be dramatically below the costs associated with additional use of electricity. The consequences of this disparity are not trivial. A recent example presented in an article concerning energy conservation in *Fortune Magazine* indicates the kind of inefficient investment incentive caused by the existence of this disparity:

“Late last year, a major cement company investigated buying a co-generating system to tap waste heat from some of its kilns and generate 4,700 kilowatts of power. The cost of the equipment would have been around \$2.7 million and the ‘fuel,’ of course, would have been free. But partly because of the low ‘average’ price that the company currently pays for purchased power, it decided against the project even though the purchased power is subject to unforeseeable rate increases. Even so, the rate of return on the co-generation project would have been a very attractive 22 percent. But this company, like many, had a double standard, insisting on a 30 percent return from cost-cutting projects while settling for only 15 percent on those that expand capacity.

“What made sense to the cement company, however, makes no sense for the country. An equivalent amount of new generating capacity, including fuel-supply facilities, transmission lines, etc., will eventually have to be built, at a cost of more than \$7 million to the electric utility that supplies the company's power. Thus the nation will waste at least \$4 million of scarce capital, burn the equivalent of 180 barrels of unnecessary oil per day, and get some additional air pollution in the bargain.” (*Fortune Magazine*, May 1977, p. 198)

The kind of decision illustrated above—and recurring hundreds and thousands (and perhaps even millions) of times, as consumers decide to purchase appliances of various efficiency levels, determine to make investments in energy conservation technologies, and make day-to-day decisions about electricity usage—will result in an economically inefficient excessive demand for electricity. This will produce an inefficient distortion in the capital market toward investments in central generating facilities, insufficient incentive toward energy conservation, and an economically sub-optimal pattern of investment.

Unfortunately, once we are aware of the dilemma, it is not simple to devise a solution. The gap between rates (based upon embedded costs) and true marginal costs varies tremendously in different sections of the country. In some areas, rates may now be nearly at the marginal costs; in other areas of the country, where cheap hydroelectric power is averaged in to produce a very low price—while expensive nuclear or fossil fueled capacity is being added at the margin—the gap may be enormous.

We recently analyzed the growth trends of a utility on the west coast, and determined that a very significant factor in the gap between marginal costs and current prices was the investment tax credit.

We would urge careful examination of this problem, and an effort to devise a variety of strategies to ensure that prices more closely reflect true marginal costs. These strategies might include: 1) a tax on kilowatt hour consumption of electricity; 2) the inclusion of construction work in progress in the rate base of electric utilities for the purpose of determining a fair earnings target; and 3) where indicated by marginal costs, the adoption of progressive—or life-line—rate for electric utility consumption to ensure that at least the “tail” blocks (to which consumers respond when determining whether to use more or less electricity) reflect marginal costs.

V. STATE/FEDERAL RELATIONS

Because both gas and electric utilities are largely regulated at the state level, we believe it important that the states be given a rational set of incentives by the Federal government to regulate these utilities so as to maximize economic efficiency. There are a number of talented and energetic people operating at the state level—but they are increasingly frustrated by the irrational policies of the Federal government in fashioning sensible energy policies. Let me give two important examples.

Natural gas distribution companies—through which a large percentage of the natural gas in the United States is sold—have both their rate structures and investment policies regulated by state utility commissions. Many of these commissions—especially in light of the events of the past winter—are aware of the need to conserve natural gas. Unfortunately, the present array of policies adopted by the Federal Power Commission gives states little or no incentive to adopt policies promoting natural gas conservation. This is because gas conserved in one state (through an insulation, retrofit, or pilot light replacement program) is likely to be reallocated to another state. It is vital that we adopt a “finders-keepers” policy—which gives each state the incentive to use gas efficiently. In the event of an emergency, excessive gas from one state could be transferred to another state—but only at a free market price. The adoption of such a policy might render less necessary efforts to adopt Federal standards for natural gas rate structures promulgated at the state level.

Last winter, the Federal Energy Administration unveiled an interesting proposal for implementing energy conservation. Under this proposal—“Energy Conservation Investments Be Considered A Natural Gas Supply Option,” proposed by William G. Rosenberg, Director, Energy Resource Development, Federal Energy Administration, December, 1976—natural gas distribution companies would be allowed to make investments in energy conservation under basically the same standards which are applied to investments in new energy supply. The utility would pay for insulation, furnace retrofit, pilot light replacement, and other energy conservation measures which would conserve natural gas—and thus produce gas in just as real a sense as in investments in liquefied natural gas, SNG, or new conventional production. The cost of the energy conservation investments would be spread over the price of all gas sold by the utility.

This is a concept which we at EDF have long advocated. Indeed, we would extend this concept to investments by electric utilities and to investments in solar heating and cooling by both electric and gas utilities. This plan makes energy conservation available to the poor immediately—something which tax credits for energy conservation do not accomplish. It also resolves the extraordinarily complex problem of energy conservation in the landlord-tenant situation. We have agonized over this problem for a long time—there is simply no easy way to give both the landlord and the tenant the correct economic incentive to adopt energy conservation measures. Finally, it does not involve the creation of a Federal bureaucracy—or the appropriation of one penny of Federal money. It also allows the utility (supervised by the state regulatory commission) to achieve equality between investments in new energy supply and investments in energy conservation—that is, a gas utility which is adding \$3.37 per Mcf liquefied natural gas can simultaneously make investments in energy conservation (insulation, furnace retrofit, etc.) which are cost-effective at \$3.37 per Mcf. In the absence of such a program, it will be difficult to cause such investments to occur unless all consumers are charged \$3.37 per Mcf for all gas used.

Federal policy should probably be to leave it open to state regulatory authorities to determine whether or not this plan makes sense as a local option. It is probably not appropriate for the Federal government to force this option upon state regulatory authorities.

In order to give state regulatory authorities the maximum freedom of action to determine whether or not to adopt this type of program, it is necessary that Federal tax policy be neutral with respect to the adoption of this program. It appears that the President's energy plan would create some disincentives which would discriminate against a state which elected to adopt this program. Most importantly, the tax credit provided to energy consumers who make energy conservation investments might not be available to states which had elected to adopt this program. For example, if a state determined to adopt the program

and allowed the utility to make investments on the customer's side of the meter, the energy conservation tax credit might not be available. We would suggest a provision in the energy plan which would allow investment tax credits to be utilized by every energy consumer served by a utility which was allowed to adopt this plan. The consumer would be allowed to utilize the tax credit for that portion of his electric or gas bill allocable to the utility's investments in energy conservation. Thus, the state would be given an unbiased incentive to adopt the program of energy conservation which it determined best fit its local situation.

It is important to note that there are important advantages associated with the proposal that utilities be enabled to invest in energy conservation—it is the only way (short of raising all prices to marginal costs) to guarantee that energy conservation investments at costs per unit of energy saved equal to new energy supply are actually made. It should not be foreclosed by discriminatory Federal tax policy.

VI. CONCLUSION

Energy conservation—a concept once viewed by some as radical or associated with “no growth” economics—has now become part of the conventional wisdom. Its virtues are preached in the pages of *Fortune* magazine; it has become the cornerstone of Federal energy policy.

Those of us who have worked for a number of years on its implementation are at the same time encouraged and disturbed. Energy conservation is in serious danger of becoming one of those catch phrases—diluted by political rhetoric, Madison Avenue promotion, and media oversell—which loses all substantive meaning through reduction to a lowest common denominator.

The technologies (more efficient appliances, cogeneration, industrial investments in end-use efficiency, and solar heating and cooling) for using energy more wisely are available now. Their implementation requires investment decisions made by literally millions of businessmen, homeowners, and government officials. Although the economic benefits to our society of having these investments made can fairly easily be demonstrated, there is no painless mechanism for causing the decisions necessary to implement these technologies to occur.

Higher prices are never popular. It is essential to recognize, however, that once higher prices are rejected as a mechanism toward achieving energy conservation—the alternatives are also very difficult. Utility investments on the customer's side of the meter may not be popular in some quarters. Government programs to provide subsidies to millions of homeowners and businessmen are likely to be fraught with possibilities for corruption, bureaucratic delay, inefficiency, and increased government involvement in day-to-day consumer decisions. Government standard-setting—especially for the industrial use of energy—may add a bureaucratic burden to our already over-regulated economy.

Criticisms of the President's proposals should include concrete alternatives designed to implement energy conservation. There is no simple, easy, and painless way out of the hole which we have dug for ourselves by consistently underpricing energy. Thank you.

Senator KENNEDY. Mr. Landsberg, you mentioned in your article that was in the *Post* recently, about the shortages of coal, coal production. What do you think about the principal constraints, the constraints in terms of production? Is it environmental standards? Is it coal cars? Mines? Roadbeds? What are the problems?

Mr. LANDSBERG. I don't know that I can say what the principal one is. I think at the moment the principal prospective deterrent is again demand because of the widening of the application of the scrubber and therefore the decided slide in the competitiveness of western coal and the impossibility of getting enough coal out of fields east of the Mississippi.

Senator KENNEDY. What is your reaction, Mr. Mause?

Mr. MAUSE. I am not very familiar with the coal market. I think one factor reducing the demand for coal in the last 2 or 3 years between earlier projections—well, Senator, I was about to say one of the factors

reducing the demand for coal was the reduced demand for electricity we have seen in the last 3 or 4 years.

I think demand projections of electric utilities have gone down dramatically since around 1973. How that balances with the scrubber in terms of reducing the demand for coal is something with which I am not very familiar. Simply increasing the demand for coal by increasing consumption of electricity, although it does increase our coal production, is not necessarily a desirable thing. There is a danger that we will lose sight of the ball here. The objective is to reduce consumption of oil and gas, and I think that is consistent with a very aggressive conservation effort with respect to electricity.

Senator KENNEDY. Mr. Landsberg, you mentioned about hardware and the emphasis on it. Do you have any suggestions about things that ought to be included to move us in a different direction?

Mr. LANDSBERG. Well, without the price spur, I think for the private citizen, it is going to be very difficult, while for industry there is a possibility of trying to assess energy savings in some way regardless of whether they are brought about by hardware or otherwise. I think it is easier for industry than for the private citizen, private consumer who heats or cools his house; but I do think it bears thinking about because we do not want particularly to push hardware. That is the wrong way to go.

It is an old problem. I think it came up in the problem of pollution control where there had been a great emphasis on hardware, even though there are other ways of dealing with it. Yet when you deal with it in other ways, it becomes very difficult to prove that you are in effect doing the right thing. It does encourage people, or gives them an incentive, to buy a piece of machinery that has an invoice that can be subjected to inspection on the basis of which you get some money. I am simply mentioning this as worth investigating.

Mr. MAUSE. It is hard to think about a way of inducing the non-hardware energy conservation effort without talking about higher prices for energy. I think this is an area where at least in certain regions of the country the lifeline proposal becomes attractive. It tends to raise the price of energy at the margin where somebody is deciding to use a little more or a little less by turning down his thermostat or turning up his thermostat while keeping the total bill relatively low.

I am not sure that is appropriate every place in the country. I think it is appropriate where marginal costs are dramatically higher than embedded costs, perhaps in the Pacific Northwest, perhaps on the TVA system.

It is striking that the parallel is drawn to pollution control, because the way of resolving that dilemma with respect to pollution is quite similar. I would think effluent charges would be more likely to lead to a better balance between hardware and other ways of reducing pollution than any other scheme.

Mr. LANDSBERG. As a matter of fact, there is one general answer. It was just suggested, and it derives precisely from the idea of an effluent charge, an idea that has never gone very far. Like higher prices a general "Btu tax" leaves the energy user totally free as to ways of getting

out of that tax or paying little of it, or less and less of it. It leaves him free to use less energy, to change equipment, or to change the process. He can redirect the flow of heat from point A to point B which involves practically no hardware. Or he can buy a new piece of machinery. I think it is the whip of the tax in general that will be effective, and will leave the person that is taxed wholly free as to how he gets to where he wants to get; and where he wants to get is to pay less tax. That route is not even being considered or being exposed to view by the administration.

Senator KENNEDY. Thank you very much for your helpful testimony. This concludes our hearing.

The committee will stand adjourned.

[Whereupon, at 12:27 p.m., the committee adjourned, subject to the call of the Chair.]

