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PRESIDENT'S ENERGY PROGRAM
Description, Impact and Alternatives
for the
Northeast U.S.



INTRODUCTION

The United States is now in a situation where major energy policy initiatives must be taken to avoid increasing dependence on potentially unstable foreign oil sources, by decreasing development of new supplies. In starkest terms, oil and gas account for approximately two-thirds of our national energy consumption. Domestic production of these energy sources has been declining in the last several years. If this decline is not checked our dependence on foreign oil will increase from 38% now to approximately 50% by 1985. This degree of dependence is unacceptable because it would threaten our economy and our national security.

The Northeast and New England, in particular, due to historic patterns and the impact of the embargo are high cost energy regions.

- ° New England depends on petroleum for approximately 85% of its energy requirements versus a U.S. average of 46%.
- ° New England's petroleum demand is satisfied by a mix of 55% from domestic sources and 45% from imports.
- ° New England's household energy expenditures are approximately \$1,250 per year versus a national average of \$970 per year.
- ° Household consumption of petroleum products in New England exceeds the national average by about 60%.

New England, and to a lesser extent the Northeast, are high energy cost regions because of very heavy dependence on petroleum products and an absence of other lower cost sources such as hydroelectric, nuclear, natural gas and coal.

This document summarizes the overall philosophy and content of the President's energy program, its regional economic impacts and possible alternatives for mitigating the economic impact on the Northeast. The following sections detail:

- ° Program Description -- This section provides a synopsis of all of the elements of the President's program.
- ° Program Costs and Income Effects -- This section presents relevant statistics on the regional and aggregate economic effects of the President's program.

- ° Near-Term Alternatives -- This section identifies and briefly describes several conceptual approaches to mitigating the economic impact of the program on the Northeast.
- ° Long-Term Solutions -- This section provides a synopsis of important supply increase actions which must be taken to achieve a long-term solution. It further cites some of the regional and institutional impediments to achievement of these solutions which must be reduced or removed.
- ° Rationing -- This section provides a detailed description and analysis of rationing.

While recognizing that the Northeast/New England's historic patterns have rendered it a high energy cost region, two very important facts should be understood with respect to the specific impact of the President's program:

1. The net regional energy cost effect results in the Northeast/New England having an equal (possibly lower) energy cost increase than the rest of the country; and
2. The direct energy cost increases per household in New England are less than three other regions.

PROGRAM DESCRIPTION

SUMMARY OF PRESIDENT'S ENERGY PROGRAM

In the 1960's, the United States lost its leadership in world energy and its own independence, which, in turn, left our economy vulnerable and subject to international coercion. As demand continued to grow and production peaked, import levels steadily increased (see Figure 1). With rising imports and higher prices, our dollar outflow for petroleum increased from \$2.7 billion in 1970 to \$24 billion in 1974.

The foregoing circumstances have resulted in the development of a comprehensive energy policy which contains the following goals:

- Reduce imports by one million barrels per day (MMB/D) by the end of 1975 and 2 MMB/D by the end of 1977.
- Eliminate the United States' vulnerability to embargoes by 1985. This would be accomplished by cutting imports to 3-5 MMB/D, all of which would be immediately replaceable from emergency storage and by standby measures in the event of an embargo.
- Assure long-run stability of world energy supply and prices by having the capability of supplying a significant share of the free world's energy needs after 1985.

SHORT-TERM ACTIONS

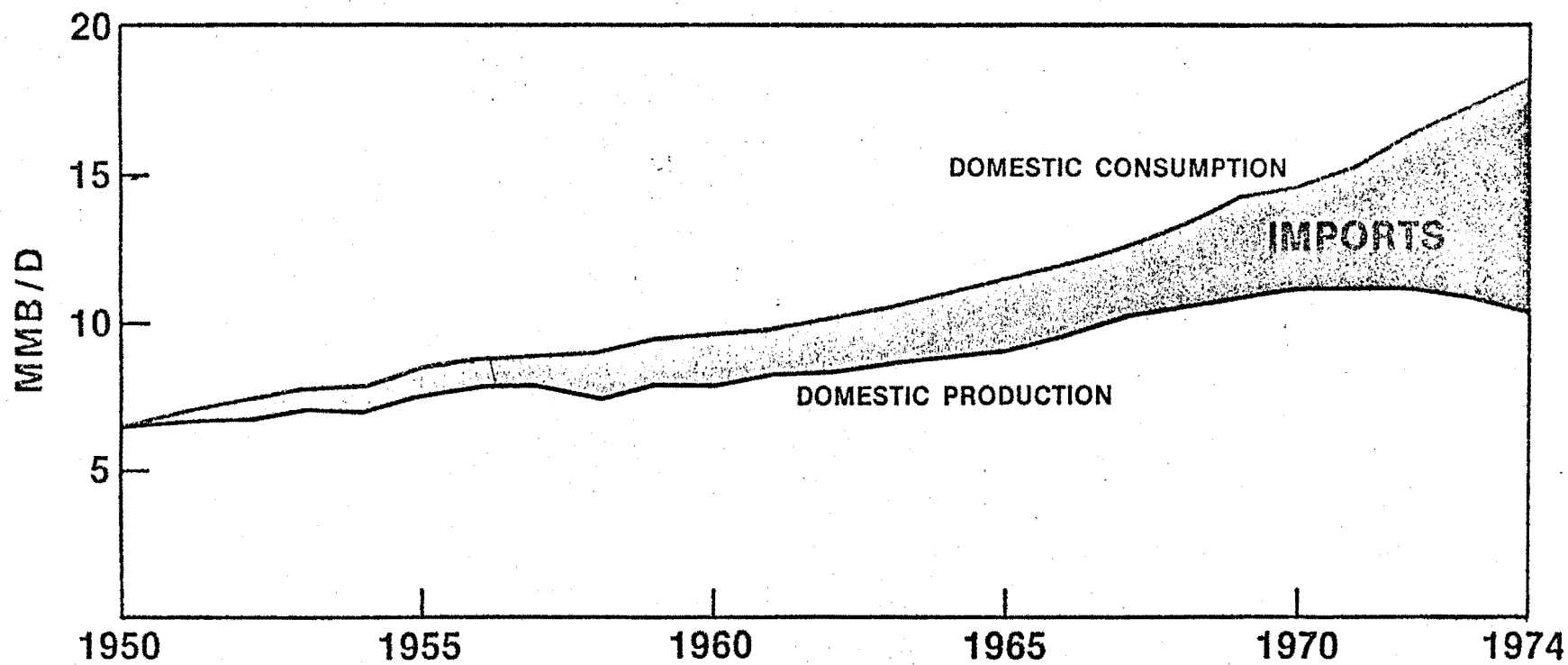
The immediate actions taken by the President include:

- Phased \$3 per barrel fee on crude imports.
- Phased \$1.20/bbl. fee on product imports, designed to mitigate the Northeast/New England high regional energy costs.

The effects of these actions are to cut imports quickly and to increase the price for all petroleum products by less than 5¢ per gallon after taking full effect (after April). The measures are intended to be temporary, until congressional action on the entire tax package occurs. The FEA is issuing regulations to ensure that increased costs are not borne disproportionately by heating oil or residual fuels. The President also announced that steps would be taken to decontrol old oil by April 1 to further reduce demand and encourage increased production.

PETROLEUM TRENDS

FIGURE 1



The short-term legislative proposals requested by the President include:

- \$2/bbl. excise tax on domestic crude oil
- \$2/bbl. fee on all imports
- 37¢/mcf. excise tax on natural gas (thermal equivalent of \$2/bbl. crude oil tax)
- deregulation of new natural gas
- increased coal conversion through amendments to the Energy Supply and Environmental Coordination Act of 1974
- legislation to allow production from Naval Petroleum Reserve-1 (NPR-1) for domestic use

The effect of these actions will be to reduce imports by more than 1 MMB/D in 1975 and 2 MMB/D in 1977 (see Figure 2). Increasing natural gas prices will reduce demand and increase supply and will eliminate the curtailments that have resulted in unemployment.

The program will raise the average family's direct expenses for energy by about \$171 per year and could ultimately increase their indirect energy costs by a maximum of \$104 per year, although all indirect costs will probably not be passed through. In the low-income and middle-income groups, these increased costs will be more than offset by tax rebates and tax cuts as part of the economic program.

MID-TERM PROGRAM

The President's mid-term program to achieve energy independence by 1985 includes mandatory conservation and new supply actions. Each action is an integral part of the total program.

Conservation

The conservation actions in this program will improve efficiency and reduce consumption of all fuels. They include:

- mandatory national thermal efficiency standards for all new buildings
- 15% tax credit for thermal improvements in existing buildings
- low-income and elderly thermal improvement assistance program (\$55 million per year)
- mandatory appliance and automobile efficiency labeling

FIGURE 2

IMPACTS OF SHORT-TERM PROGRAM

	1975 [MMB/D]	1977 [MMB/D]
CONSUMPTION IF NO NEW ACTIONS	18.0	18.3
IMPORTS IF NO NEW ACTIONS	6.5	8.0
IMPORT SAVINGS		
LESS SAVINGS BY SHORT-TERM ACTIONS:	1975 [MMB/D]	1977 [MMB/D]
PRODUCTION FROM ELK HILLS	0.2	0.3
COAL CONVERSION	0.1	0.3
TAX PACKAGE	0.9	1.6
TOTAL IMPORT SAVINGS	1.2	2.2
REMAINING IMPORTS	5.3	5.8

- 40% increase in gas mileage by 1980 model year (19.6 mpg. on a sales-weighted average)
- appliance efficiency standards

Supply

To achieve energy independence, domestic supply must be increased, with proper consideration to environmental goals. The actions are targeted towards particular fuels:

Coal:

- Clean Air Act amendments
- surface mining legislation
- coal leasing

Oil:

- OCS leasing program in frontier areas
- development and production from NPR-4 in Alaska

Nuclear:

- nuclear licensing legislation
- increased funding of safety and waste management

Utilities

- state utility commission reforms
- extended higher investment tax credit directed towards all but oil and gas fired powerplants
- facility siting legislation (also for other energy facilities)

Emergency Preparedness

- development of a large new emergency petroleum storage program
- standby rationing, conservation, and allocation authorities

These programs can achieve energy independence by 1985 and reduce petroleum import dependency from over 50 percent to about 20 percent of consumption (see Figure 3). These actions are all basically economic and will reduce total energy costs.

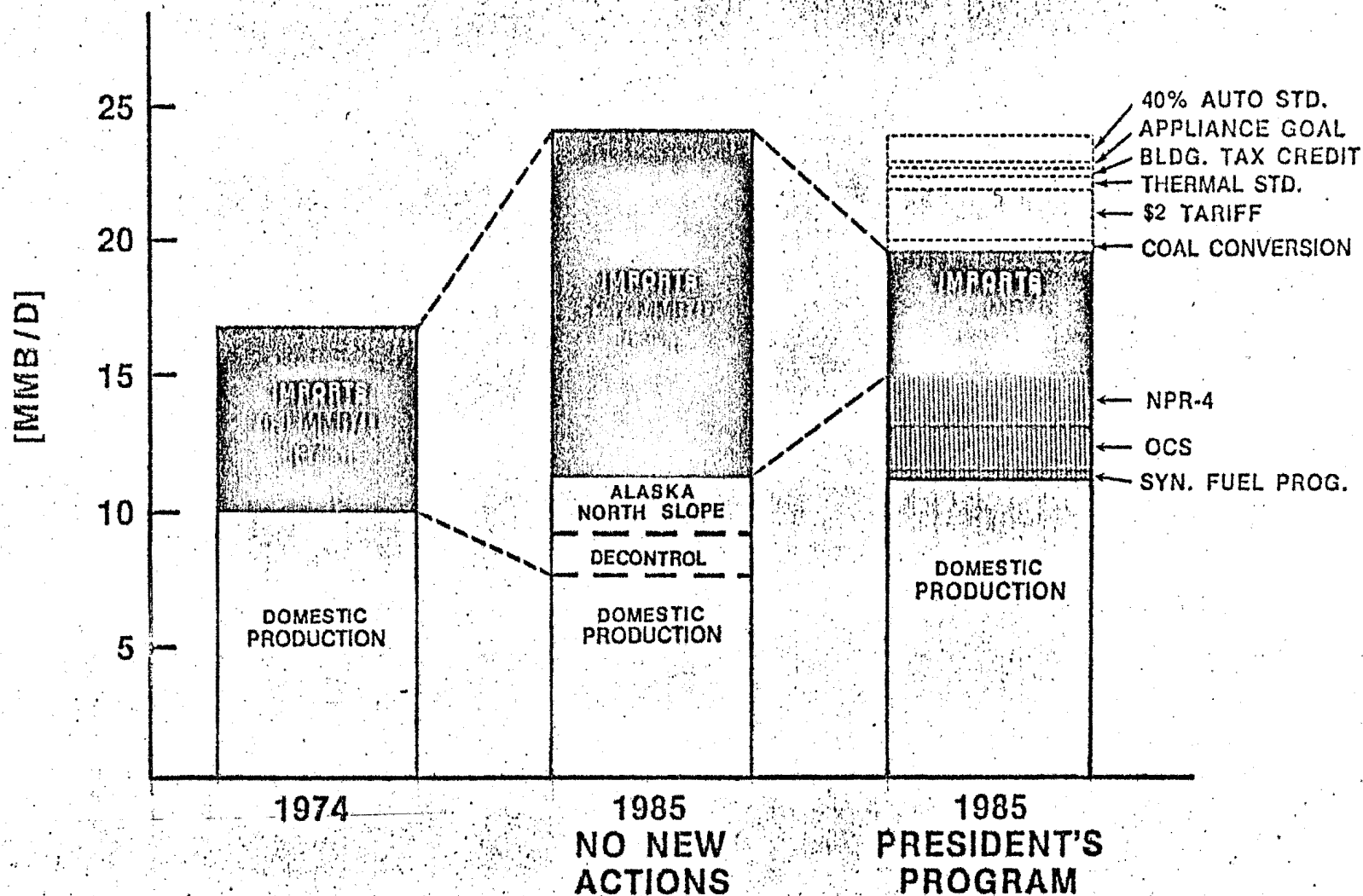
LONG-TERM PROGRAM

The President's long-term program will enable the United States to supply energy to other parts of the free world. The program consists of:

- strong commitment to energy research and development and to continue the \$11 billion, 5-year R&D program.
- new national synthetic fuels program to achieve an equivalent of 1 MMB/D from synthetic fuels by 1985. This would involve Federal incentives to produce these fuels commercially.
- international cooperation on R&D programs.

FIGURE 3

IMPACT OF THE PRESIDENT'S PROGRAMS ON PETROLEUM IMPORTS



PROGRAM COSTS AND
INCOME EFFECTS

THE IMPACT OF THE PRESIDENT'S
PROPOSED ENERGY AND ECONOMICS PROGRAM
ON NET ENERGY COSTS TO CONSUMERS

I. INTRODUCTION

This paper summarizes the major effects of the President's energy program upon consumer costs. The major elements of the program are:

- A \$2 per barrel import fee on petroleum.
- A \$2 per barrel excise tax on domestic petroleum production and a 37¢ per thousand cubic feet (Mcf) excise tax on domestic natural gas.
- Decontrol of domestic petroleum prices and the deregulation of new natural gas prices.
- A windfall profits tax on all domestic petroleum production that is designed to absorb all the profits that would otherwise flow from decontrolling oil prices, plus an additional \$3 billion. This tax does not itself cause price increases but it recaptures the profits from price increases otherwise induced.
- A rebate to consumers of the energy fees and taxes that are collected.

The effect of these actions, with the exception of the excess profits tax, is (1) to increase the prices of petroleum products by about \$4 per barrel (about 10¢ per gallon) if all increased costs are passed through to the consumer and (2) to at least partially offset these price increases with the tax rebates.

This paper presents the impacts of the President's proposed program on consumer energy bills by region, type of energy product, and income class. The effect of the program on the Consumer Price Index (CPI) is estimated as an indication of the total increase in consumer costs. The estimated effect on the CPI is important because it includes higher consumer costs associated with both direct consumer purchases of energy and indirect purchases of energy.

II. DIRECT ENERGY COSTS

The impact of the President's program on the cost of direct energy purchases by households has been estimated for each type of fuel used. Table 1 presents expenditures by fuel type without the program and the estimated impact of the energy program on these expenditures.

Table 1

Impact of the President's Energy Program on
Direct Energy Expenditures for 1975
(\$ per year per household)

	<u>Energy Costs Without the Program</u>	<u>Energy Costs With the Program</u>	<u>Increases Due to Program</u>	
Gasoline & Motor Oil	\$572	\$ 681	\$109	19%
Heating Oil	69	88	19	27
Natural Gas	100	130	30	32
Electricity	<u>228</u>	<u>241</u>	<u>13</u>	<u>6</u>
Total	\$969	\$1140	\$171	18%

The estimates in Table 1 were derived as follows:

Gasoline. Consumption estimates without the program have been derived from a Bureau of Labor Statistics (BLS) survey of gasoline use by region. These were aggregated and divided by the total number of households (70 million) to give consumption per household. The current average price of gasoline is approximately 52¢ per gallon. An increase of 10¢ per gallon to 62¢ per gallon represents a 19 percent increase in the price of gasoline. Hence a 19 percent increase in gasoline and motor oil to \$681 per household per year. Moreover, this increase in costs due to the program is an overstatement in that it is assumed that there is no short run response to the increased prices and hence that there is no reduction in consumption.

Heating Oil. Consumption estimates were obtained from a BLS survey in the same manner as for gasoline. The current average price of heating oil is approximately 37¢ per gallon. An increase of 10¢ per gallon to 47¢ per gallon represents a 27 percent increase in the price of heating oil. This 27 percent increase in heating oil prices increases energy costs for heating oil to \$88 per household per year. A small amount of residual fuel oil is also used by households. This quantity (about \$6 per year per household) was obtained from the BLS survey and included in the heating oil estimates.

Natural Gas. The quantities and prices for natural gas were obtained from analyses that are being performed by the Office of Economic Impact, the Federal Energy Administration. The increase in the average price of natural gas is estimated to be 37¢ per Mcf for intrastate gas and 43¢ per Mcf for interstate gas. Interstate sales of natural gas are currently regulated (by the Federal Power Commission) whereas intrastate sales are not. The excise tax of 37¢ Mcf is levied on all gas. The average price of interstate gas should increase 6¢ per Mcf because of the deregulation of new gas.

Electricity. Electricity cost increases were estimated by the Office of Data, the Federal Energy Administration. These estimates account for the effects of increased fuel costs and do not consider the effects of higher rates of return or accounting practices that would effectively raise utility costs.

Regional Impacts

The regional impacts of the President's program upon household energy costs are shown in Table 2. These data were all derived from the same sources as the data in Table 1 and were calculated by dividing the total regional energy cost increase by the number of households in each region.

Table 2 illustrates that the New England, West North Central, West South Central, and Mountain areas have the greatest relative impact. In all of these areas, except New England, the primary cause of the large increase is gasoline prices. In New England the major factor is heating oil.

Table 2

Regional Distribution of the Increased Direct Energy
Expenditures Per Household

	<u>Gasoline & Motor Oil</u>	<u>Heating Oil</u>	<u>Natural Gas</u>	<u>Elec- tricity</u>	<u>Total</u>
New England	\$ 95	\$56	\$14	\$15	\$180
Middle Atlantic	83	54	24	9	170
East North Central	107	19	44	4	174
West North Central	126	13	36	12	187
South Atlantic	118	10	14	12	154
East South Central	116	2	19	5	142
West South Central	116	0	27	42	185
Mountain	141	3	37	10	191
Pacific	<u>102</u>	<u>3</u>	<u>30</u>	<u>16</u>	<u>151</u>
Total U.S.	\$109	\$ 19	\$30	\$13	\$171

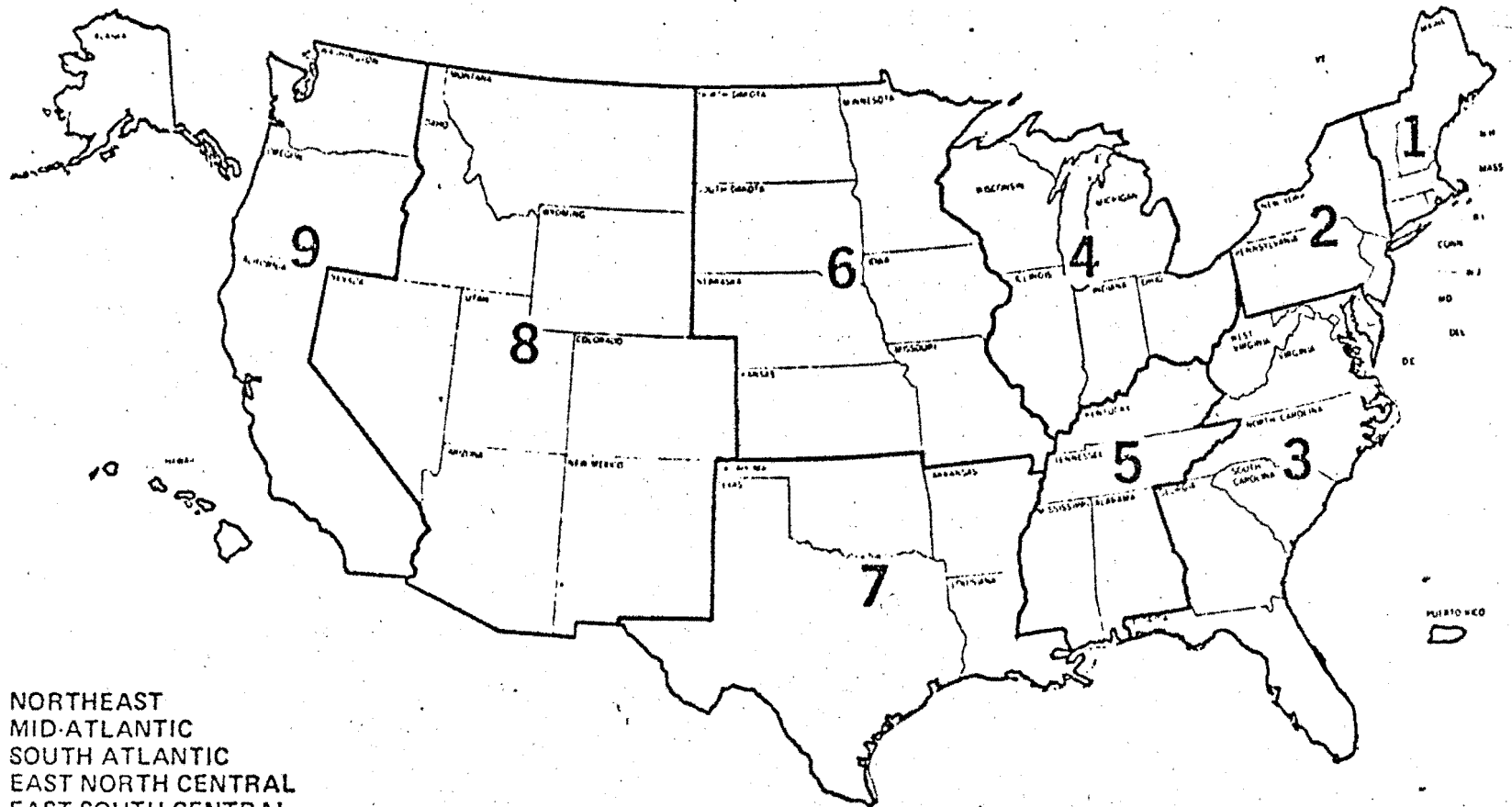
Income Distribution Effects

Tables 3, 4, and 5 give estimates of the effect of the energy program on different income classes. With the exception of the tax rebate data these statistics were obtained from analyses done by the Washington Center for Metropolitan Studies and are totally independent of the estimates made for the aggregate and regional impacts in Tables 1 and 2. However, close examination and comparison of Table 1 with Table 3 shows that the data are consistent. Specifically, the median income of families in 1972 was about \$11,000. Assuming that inflation has raised this to \$13,000 the \$969 total energy bill given in Table 1 is bracketed by the \$742 and \$1085 bills given in Table 3 for the energy costs of the lower middle and upper middle income classes. The other numbers in Table 3 are roughly consistent with Table 1.

Tables 3 and 4 illustrate that low income groups spend a larger proportion of their income on direct energy purchases than higher income groups. These tables also show that the tax rebate slightly offsets the average increase in energy costs of the poor and the upper middle income class,

PROJECT INDEPENDENCE EVALUATION REGIONS

CENSUS REGIONS



1. NORTHEAST
2. MID-ATLANTIC
3. SOUTH ATLANTIC
4. EAST NORTH CENTRAL
5. EAST SOUTH CENTRAL
6. WEST NORTH CENTRAL
7. WEST SOUTH CENTRAL
8. MOUNTAIN
9. PACIFIC

significantly offsets the average cost of the lower middle income group and falls short of meeting the higher costs of the well-off group by \$50.

Table 3

Current Energy Costs Without the President's Program a/

	Poor Average \$2,500	Lower Middle Average \$8,000	Upper Middle Average \$14,000	Well-Off Average \$24,500
Gasoline	\$140	\$349	\$ 627	\$ 736
Heating Oil	66	66	66	83
Natural Gas	91	108	117	140
Electricity	160	203	259	319
Coal	<u>16</u>	<u>16</u>	<u>16</u>	<u>16</u>
Total	\$473	\$742	\$1085	\$1294
% of Average Income	18.9%	9.3%	7.8%	5.3%

a/ Source: WCMS Survey for 1972-1973, adjusted for price increases to September 1974.

Table 4

Energy Costs with President's Program a/

	<u>Poor</u>	<u>Lower Middle</u>	<u>Upper Middle</u>	<u>Well-Off</u>
Gasoline	\$166	\$415	\$ 746	\$ 876
Heating Oil	83	83	83	105
Natural Gas	120	142	154	184
Electricity	170	215	275	338
Coal	<u>16</u>	<u>16</u>	<u>16</u>	<u>16</u>
Total	\$555	\$871	\$1274	\$1519
% of Average Income	22.2%	10.9%	9.1%	6.2%

a/ Estimated by applying percent price increases for each type of energy from Table 1 to the energy costs in Table 3.

Table 5

Net Energy Costs of President's Program

	<u>Poor</u>	<u>Lower Middle</u>	<u>Upper Middle</u>	<u>Well-Off</u>
Average Increase in Energy Costs	\$ 82	\$129	\$ 189	\$ 225
Average Rebate	97	311	253	183
Net Energy Costs	458	560	1021	1336
% of Average Income	18.3%	7.0%	7.3%	5.5%

III. TOTAL ENERGY COSTS

The total price impact of the President's energy program will extend beyond the direct energy purchases to any non-energy products or services that require significant amounts of energy in their production. Chemicals, metal and food products are examples of areas in which the indirect or ripple energy price effects will occur in varying degrees.

The indirect price effects are uncertain and are difficult to forecast. Most price models that measure and forecast these effects depend on historical experience to estimate the responses of various markets to changes in the costs of inputs. The models attempt to capture the extent that costs are passed on to purchasers and the extent that profit margins are adjusted up or down.

The approach used by the Federal Energy Administration to forecast the indirect price effects of the President's program was to use a stage-of-processing model developed by Data Resource Incorporated (DRI) to forecast the overall rise in the Consumer Price Index (CPI) and to use this estimate to derive total increased consumer costs. The indirect costs are then calculated as the difference between the direct and total cost estimates.

A modified version of the DRI stage-of-processing model was used to forecast the effect that energy price changes have upon the CPI and components of the CPI. The model requires two inputs: (1) forecasts of wholesale energy prices and (2) forecasts of the general wholesale and retail price indices prior to energy price changes. Price information is combined with historical information on the relationship between the stages-of-processing to forecast the effects that energy price changes will have on the prices of crude wholesale goods, intermediate wholesale goods, finished wholesale products, and finally retail consumer goods and services.

Using the methodology described above it is estimated that the CPI will increase 2.0% during the first full year of the program. Given a normal unencumbered economy the CPI would rise an estimated 2.5 percentage points during the first full year of the program in addition to the normally expected rise; and there will be small increases of 0.3 and 0.2 percentage points in the second and third years. These estimated increases tend to overestimate the effect of the program for two reasons: First the energy price increases that were used as inputs to the model assume a full pass-through of the taxes and import fees. It is unlikely that this

will occur because of the tax rebates to industry and because the economy is generally weak. This excess supply would result if industry attempts to pass through all of the costs. (Only if demand is totally nonresponsive to price changes would firms and businesses be able to pass all of the increases to consumers.) Secondly, the stage-of-processing model is based upon historical mark-up relationships and these may not hold because of the currently poor market demand conditions. That is, demand is currently at such a low level that companies may not be willing to pass on increased costs for fear of further reducing their markets.

For a 2.0% CPI increase the total and indirect costs per household would be \$275 and \$104 respectively. Table 6 summarizes the steps taken to make these estimates.

Table 6

Estimated Total and Indirect Consumer Costs

1. Estimated Personal Consumption Per Household

- a. Estimated 1975 Personal Consumption = \$966.8 Billion a/
- b. Estimated Number of Households = 70 million
- c. Consumption per Household = \$13,810

2. Estimated Costs (per household per year)

	<u>Total^{b/}</u>	<u>Indirect^{c/}</u>
High Estimate	\$345	\$174
Best Estimate	275	104

a/ From DRI Long-Term Forecast.

b/ Estimated as 2.5 percent times \$13,810 for high estimate and 2.0 percent times \$13,810 for best estimate.

c/ Calculated as total less direct (\$171).

This table shows that the total costs are likely to be \$275 per household with direct cost being about \$171 on average and indirect costs being about \$104.

THE NORTHEAST ENERGY PROBLEM AND ALTERNATIVES

The Northeast Energy Problem

The President's energy program, which seeks to stimulate conservation of petroleum through the imposition of import fees and excise taxes, will increase energy costs throughout the United States. These increases will be offset, but not eliminated, under the President's proposed across-the-board tax rebate program. In the initial phase of the program (February-April 1975) the temporary \$3.00 import fee could cause significant increases in Northeast overall energy costs primarily because of New England's predominant (85%) dependence on petroleum products. The ultimate \$2.00 tariff/excise tax, however, will equalize regional energy costs -- see Tab, Program Costs and Income Effects.

Programs Already in Operation and Proposed to Mitigate the Regional Imbalance

The President's program anticipated the temporary regional imbalance associated with the immediate import tariff element of the overall program by providing for an effective rebate of import fees on imported petroleum products. This is achieved by a \$1.20 fee on products, rather than the \$3.00 fee applied to crude oil.

Also, FEA's Old Oil Entitlements program will be maintained during the scheduled life of the import fee program to continue spreading price increases on crude oil among all refiners and to lessen disproportionate regional cost effects derived from the heavier dependence on imported crude oil.

After the \$2.00 tariff/excise tax program element replaces the temporary import tariff program (April 1975) the overall energy cost increase for New England will be essentially equal to or slightly less than the rest of the country.

In the near term, while the import tariff program is operative, certain additional measures could be adopted to mitigate the Northeast/New England high energy cost situation as enumerated below:

Increased Rebated Portion of Import Fee on Products

Since the Northeast is heavily dependent on imported residual oil, an increase in the rebated portion of the oil import fee from the current proposed level would have a mitigating affect on the impact of petroleum product price increases on the Northeast. Alternatively, the rebate increase could be limited to residual oil only, since New England is dependent on residual oil for 32% of its total energy consumption and about 90% of its residual oil consumption is imported.

However, in both cases, increasing the amount of rebate will widen the cost differential between an imported barrel of crude and an imported barrel of product, thereby increasing the economic attractiveness of imported products and creating a disincentive to increased domestic refinery capacity. Thus, this alternative only is desirable for a short period of time. Also, the benefit of any rebate on products is expected to expire with adoption of the \$2.00 tariff on crude oil and products under the President's program.

Maintain and Adjust Price Controls to Provide for a Disproportionately Higher Pass-Through of Increased Costs to Gasoline

Another alternative for mitigating the impact of increased prices on the Northeast is to limit the pass-through of increased costs of crude oil to those petroleum products on which the Northeast is least heavily dependent. By limiting the proportionate cost increases to products other than gasoline to some fixed percentage of the proportionate share of refinery output, the impact in the Northeast could be reduced at the expense of other regions. This occurs because New England consumes only 82% as much gasoline per capita as the national average (12.6 barrels per capita in New England compared to 15.4 barrels for the United States).

However, several problems are associated with this alternative. First, this places the burden of increased prices on motorists in New England and on businesses such as the motel industry which are heavily dependent on automobile travel. Secondly, although New England consumes less gasoline per capita than the national average, New England is still more heavily dependent on gasoline as an energy source than the United States in total (gasoline consists of 23% of the total energy consumed in New England, while only 18% for the entire United States).

Target Federal Assistance Programs to Northeast Consumers

Another alternative for mitigating the impact of increased petroleum prices on the Northeast is to channel federal assistance funds

associated with proposed federal conservation programs to that area. For instance, the low income assistance program (the Winterization Program) requested by the President provides for grants to states for the winterization of homes occupied by persons in the poverty income category. These funds are for the provision of insulating materials to decrease the energy consumption of these homes and reduce the fuel bills of low income persons.

A significantly higher share of the 55 million dollars of annual funds for this program would normally go to the Northern States since these states have a greater number of homes in need of improved insulating techniques. However, the criteria for allocating the funds among states could be established placing a priority on homes in the areas most heavily impacted by the increased prices. In the long term, it is doubtful whether this priority would provide a greater total amount of funds to New England for winterization than would have been received by the program as currently planned, since the program provides for winterization of all homes of those low income persons expected to voluntarily participate in the program. However, the addition of such a priority could provide New England low income persons the assistance earlier in the life of the program.

Adjustment of Utility Rate Structures to Promote Conservation and Assist Low Income Persons

An alternative which could significantly stimulate conservation of petroleum in the Northeast and also provide assistance to low income and elderly persons would involve an adjustment of utility rate structures. Currently utilities in the Northeast use about 20% of the total petroleum consumed in the Northeast. The typical utility rate structure provides a lower rate per kilowatt hour for increasingly higher consumption levels. This "declining block" rate structure rewards intensive consumers of electricity and places a burden on consumers of smaller quantities, often the low income persons and elderly in a community. These structures typically charge 4¢ per kilowatt hour for the first 100 kilowatt hours, but only 1.5¢ per kilowatt hour for amounts over 400 kilowatt hours.

To assist the low income and elderly persons, a special rate could be designed within the rate structure to ameliorate the impact of anticipated rate increases due to increased petroleum prices on the low income and elderly. This special rate would guarantee a basic amount of electricity at a reasonable rate, for example 400 kilowatt hours per month at 2.5¢ per kilowatt hour, or a total of \$10 per month. This special rate could be tailored to each local or state area's individual socioeconomic composition and usage pattern.

In addition, utility rates could be entirely restructured to provide for an increase in the average price of a kilowatt hour for increasingly larger blocks of electricity. The typical declining block rate structure would be inverted to become an inclining block rate structure. As an illustration, the first 400 kilowatt hours would be provided for an average price of 2 1/2¢ per month per kilowatt hour; the next 100 kilowatt hours would cost an average of 2.8¢ per kilowatt hour, and consumption over 1,000 kilowatt hours would cost 3.5¢ per kilowatt hour. With this type of rate structure, any individual user of electricity would realize a significantly stronger economic incentive to conserve energy.

In addition to the inevitable institutional resistance to such changes, there are a number of economic and operational problems associated with the adoption of an equitable inclining block rate structure. First, the prices of electricity would no longer bear a direct relationship to the costs of producing and generating electricity. Also, difficulties would arise if the total consumption of electricity declined to the point where less base loading was allowable, but peak loading was substantially unchanged. This situation would preclude economic incentives for increased use of coal and nuclear facilities in generating electricity.

LONG-TERM SOLUTIONS

In the longer term, there is sufficient reason to believe that the Northeast can bring its dependency on petroleum products in balance with other regions of the country and thus eliminate proportionately higher adverse impacts of petroleum price increases. Several programs included in the President's program, including coal conversion in electric utilities, and OCS leasing, will tend to reduce the dependency of the Northeast on imported oil. Also the Northeast, especially the New England States and New York can substantially reduce its dependency on imported oil by accelerating construction of nuclear power generation capacity and local refinery capacity.

Coal Conversion Opportunities in Electric Utilities in the Northeast

A dramatic increase in oil consumption for steam electric generation was observed in the last decade in the Northeast. In 1964, 63% of steam electric generation was fueled by coal and 33% by oil; while in 1972 only 6% was derived from coal and 93% from oil. In 1972, electric utilities in New England were consuming 88 million of the 445 million barrels of petroleum consumer per year. If dependency on petroleum in the Northeast is to be reduced, the trend in utilities toward increased use of oil must be changed.

An examination of oil burners in electric utilities in the Northeast has uncovered 33 plants which are eligible for mandatory coal conversion under the provisions of the Energy Supply and Environmental Coordination Act of 1974 (ESECA), as administered by FEA. The total savings from conversion in these 33 plants are estimated at 260 thousand barrels per day of petroleum. However, under the current provisions of ESECA only 53 thousand barrels per day can be saved by 1978 due to the requirement to meet environmental limitations imposed by State Implementation Plans (SIP's) by December 31, 1978. The table below indicates the conversion potential while maintaining the SIP compliance deadlines.

Table 1 - Coal Conversion Potential in the Northeast
AS ESECA Now Reads

	<u># of Plants</u>	<u>MW</u>	<u>BBl/Oil Per Day (000)</u>	<u># of Plants Needing Fuel Desulphurization Equipment</u>
1975	2	161.0	3.68	0
1978	7	1,924.5	49.32	2
1980	17	7,495.7	144.30	11
1985	7	2,922.9	59.83	7

If the deadline for meeting state implementation plans is extended to December 31, 1978, and if the regional requirement currently within ESECA is removed (that no plant can be mandated to covert within a region where air pollution exceeds primary ambient standards) then 170 thousand barrels per day of petroleum savings can be obtained by 1978, over three times the savings in this timeframe, as shown in the table below.

Table 2 - Coal Conversion Potential in the Northeast Providing
Regional Limitations are Removed and Meeting SIP's by Dec. 31, 1980

	<u># of Plants</u>	<u>MW</u>	<u>BBl/Oil Per Day (000)</u>	<u># of Plants Needing Fuel Desulphurization Equipment</u>
1975	9	3,097.0	69.08	4*
1978	12	4,460.5	100.96	8 (6*)
1980	6	2,066.7	37.46	2
1985	6	2,805.3	49.62	6

*Need FGD by Dec 31, 1980.

The FEA is seeking extension of compliance deadlines for state implementation plans and removal of the regional limitation from ESECA. State governors can significantly reduce dependency on petroleum in the Northeast by supporting that effort.

Increase Local Refining Capacity

Although New England consumes about 1.2 million barrels per day of petroleum, it has only 20 thousand barrels per day of petroleum refining capacity, of which over 7,000 barrels per day consists of asphalt. An increase in indigenous refining capacity would not only decrease the costs of domestically produced petroleum consumed in the Northeast due to a reduction in transportation expenses, but would also reduce the dependency of the Northeast on imported petroleum products.

However, New England and Northeastern states have generally resisted attempts to construct refineries within these states during the last few years. If we had built all refineries which were planned but not constructed due to opposition of state and local organizations, the Northeast would have an additional 0.9 million barrels per day of refining capacity, thereby making the region approach refinery self-sufficiency. However, opposition from local citizen's groups, local environmental organizations, and state environmental boards have successfully opposed construction of every proposed refinery. Table 3 summarizes the refineries planned, but not constructed, due to local and state opposition.

New England petroleum consumption is expected to increase to over 1.5 million barrels per day by 1985. For the New England states and the Northeastern states to be protected from arbitrary price increases in foreign countries on petroleum products, it is imperative that these states realize the benefits of siting refineries within their boundaries.

Increased Construction of Nuclear Power Facilities

At the end of 1974, 11.5% of 48,560 megawatts of electric generating capacity in the Northeast was fueled by nuclear power. Over 61% consisted of steam boilers fueled by petroleum. Nuclear generation is planned to increase to 31.4% of total generating capacity in 1983. Oil dependency in electrical generation at that time would be reduced to 44.7% of total generating capacity, as shown in Table 4.

TABLE 3

REFINERIES PLANNED BUT NOT CONSTRUCTED DUE TO OPPOSITION ON ENVIRONMENTAL GROUNDS

<u>COMPANY</u>	<u>LOCATION</u>	<u>SIZE B/D</u>	<u>FINAL ACTION BLOCKING PROJECT</u>
Fuels Desulfurization (1)	Riverhead, L.I.	200,000	City Council opposed project and would not change zoning.
Maine Clean Fuels (1)	South Portland, Me.	200,000	City Council rejected proposal.
Maine Clean Fuels (1)	Searsport, Me.	200,000	Maine Environmental Protection Board rejected proposal.
Northeast Petroleum	Tiverton, R.I.	65,000	City Council rejected proposal.
Supermarine, Inc.	Hoboken, N.J.	100,000	Hoboken Project withdrawn under pressure from environmental groups.
Commerce Oil	Jamestown Island, R.I.-Narragansett Bay	50,000	Opposed by local organizations and contested in court.
Olympic Oil Refineries, Inc. (2)	Durham, N.H.	400,000	Withdrawn after rejection by local referendum.
C.H. Sprague & Son	Newington, N.H.	50,000	Voted down in community vote on June 28, 1974.

(1) Maine Clean Fuels and Georgia Refining Company are subsidiaries of Fuels Desulfurization and the refinery in question is the same in each case, so the capacity in B/D is not additive, but the incidents are independent and additive.

(2) Olympic is still considering other nearby sites.

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For a reduction of dependency on petroleum in electrical generation, it is imperative that nuclear and coal based power plants provide nearly all the growth in generating capacity in the Northeast and New England states. However, the construction of New England nuclear power facilities has been delayed during the last year in several cases due to local protests associated with siting of these facilities. For example, Narragansett Electric Company which planned construction of multiple nuclear units in Charleston, Rhode Island, has delayed construction pending resolution of local protests surrounding the sale of Federal lands for this purpose. Other examples are shown in the table on the next page. In fact, nuclear facility construction delays in New England have effected about three quarters of new nuclear generation capacity planned to go into operation before 1983.

It is imperative that the proper balance of environmental safeguards and energy requirements be considered by state and local areas to assist in the proper and timely development of nuclear power facilities and to avoid further construction delays.

Offshore Leasing

The petroleum dependency of the Northeast can be reduced by the exploration and drilling of offshore areas in the Atlantic. Federal Government projections indicate that the Atlantic OCS may produce as much as 500,000 barrels of oil and 800 MMCF of natural gas per day, by 1985, if leasing and exploration are aggressively pursued.

However, as recently as January 10, 1975, coastal governors and their representatives at meetings in Dover, Delaware and in Princeton, New Jersey were raising strong opposition to Federal Government's offshore drilling plans. In fact, they recommended a halt to any more leasing until broad changes are made in the government's program. The Department of the Interior estimates that the changes requested would result in a 2-4 year delay in obtaining oil from these coastal waters.

TABLE 4

New England and New York Nuclear Power Facility Delays

<u>Name of Company</u>	<u>Unit or Site</u>	<u>Size/Mfg.</u>	<u>Status/Remarks</u>
New England Nuclear Energy Co. (Sub of No. East Utility System)	Montague #1 & #2	1159 MW/GE	Have construction permit... Financial-lack of revenues Delay - 12 months
New York State Electric & Gas	Somerset #1 & #2	1150 MW/GE	Construction Permit not filed Delayed 24 months -- reduced need for power. Trial case of N.Y. State regulatory process.
Boston Edison	Pelgrim #2	1180 MW/	Construction Permit review in process. Mass. State Attorney interviewed on water discharge to Bay.
Narragansett Electric	Charleston R.I. Naval Base	multiple nuclear units	Held up pending resolution of local protest of GSA sale of land for this purpose.
Public Service of New Hampshire	Seabrook #1 & #2	1150/	Construction Permit review in process - strong local intervenor group expected in hearings - project 8-12 months delay.
New England Power Exchange	Sandy Point to Tewksberry	345 KV Transmission line	Delay four months - Prolonged State and local procedures
New England Power Exchange	Bill/Burl to Tewksberry	345 KV Transmission line	Delay four months - Prolonged State and local procedures
Boston Edison	Mystic Station to North Cambridge	345 KV Transmission line	Delay three months - State procedures.

ANALYSIS OF GASOLINE RATIONING

EXECUTIVE SUMMARY

Description of Rationing System

- o Each licensed driver in the country would receive an equal monthly allotment of coupons entitling him to purchase 36 gallons/month at the controlled price. These coupons could be freely traded or sold. The coupon market would permit those drivers with needs greater than those represented by the monthly allotment to purchase additional coupons from those who use less than their monthly amount.
- o Commercial users would receive coupon allotments equivalent to 90 percent of their consumption during the 1973 base period.
- o For that limited class of users for whose special needs the coupon resale market is not a reasonable solution, 3% of the coupons would be set aside and distributed by the state. This distribution would be based primarily on emergency or hardship.
- o Coupons would be picked up in person at Post Offices by each eligible individual. They will be invalidated at the pump at time of purchase, and deposited by retailers with banks in a special coupon account. Gasoline deliveries to suppliers will be made to retailers only for amounts equivalent to coupons collected.

Gasoline Use Data

- o Estimated consumption in 1975 is 6.4 million barrels per day or 270 millions of gallons per day (MG/D)
- o Number of licensed drivers in 1974 was 125.1 million. There will be an increase of up to 15 million anticipated if coupon rationing is put into effect.
- o Without rationing, each driver would use 50 gallons per month.
- o With the expected increase in licensed drivers and supply limited by 1 million barrels per day, by rationing, the allowance for each licensed driver would be:
 - per day = 1.2 gallons
 - per month = 36 gallons
 - per year = 432 gallons

Problems with Gasoline Rationing

Gallons per month and price of Gasoline

- o To save 1 million barrels per day, while assuring adequate fuel for business will mean limiting each licensed driver to about 36 gallons per month, compared to current average of 50 gallons/month. It is expected that the coupons will sell for about \$1.20 per gallon. Hence, for those who must purchase more than their basic ration, the effective price of gasoline (pump plus coupon price) is estimated at \$1.75/gallon.

Impact on National Energy Goals

- o Gasoline rationing, while it may limit consumption in the short run, makes no contribution to our mid- and long-term goals of energy independence, because it provides no incentives for increasing supply.
- o Gasoline consumption is only 40% of total petroleum use. Residual and fuel oil comprise a substantial amount of total petroleum imports. By concentrating exclusively on private vehicles and gasoline, other fruitful areas for energy conservation are not addressed -- such as improved industrial efficiency and better constructed and insulated buildings. In the final analysis, we cannot be independent unless these other petroleum uses are also reduced dramatically.

Potential for Inequities

- o Each person receives an equal number of coupons, but use of gasoline varies widely among drivers. Thus, rationing inevitably leads to inequities. Some examples are:
 - A widowed secretary with two children living in the suburbs who commutes 16 miles each way to work in a car that gets 12 mpg will experience a 68% increase in her commuting costs, because she must purchase 17 additional coupons each month at an average cost of \$1.20 per gallon. This amounts to about \$245/year in additional costs.
 - A blue-collar worker who owns a car that gets only 9 mpg can drive just over 320 miles/month on his basic ration, and could not easily afford to purchase a new, more efficient automobile. On the other hand, an affluent neighbor can readily trade in his equally inefficient old car to purchase one getting better

than 22 mpg. This allows him to drive over 790 miles on the same allotment of coupons.

- Substantial regional inequities would exist. The average driver in some rural states such as Montana travels nearly 600 miles per month versus about 300 in less rural states such as New York and New Jersey. Similar disparities exist between city dwellers and suburbanites. Under rationing each would receive the same gallonage.

- Certain very poor persons, such as migrants, drive large distances each year. They can neither afford to buy additional coupons nor are alternative methods of transportation available to them.

- The recreation and tourism industry would be very heavily impacted, as would the auto industry. Automobile sales could decrease 35% from what they would otherwise be.

Increase Bureaucracy and Complexity

- o The Government would be involved in many new aspects of our every day life, adding an inescapable portion of bureaucracy, complexity, and inconvenience.
- o The Government would decide:
 - if a new business should get fuel;
 - if expanding businesses deserve more fuel;
 - if specific individuals would qualify for more coupons because of hardships.
- o Gasoline rationing can be implemented but it is complex, expensive, and at best a short term solution. It takes 4-6 months to implement, about 15 to 25,000 full-time people and \$2 billion in Federal costs, uses 40,000 Post Offices for distribution, and requires 3,000 state and local boards to handle exceptions.
- o Because coupons are transferable, they must be picked up by each driver in person quarterly at Post Offices. Long lines and delays are inevitable.
- o Gas stations, with limited quantities to sell, are unlikely to maintain more than the most limited service hours. Evening and weekend closings are almost a certainty.

Impact on GNP

- o Use of allocation and rationing to reduce imports by one million barrels per day could create a drop of nearly 13 billion dollars in the GNP and place several hundred thousand more workers on unemployment rolls. Also, rationing would have an inflationary impact due to the significantly higher clearing price of gasoline coupons sold by those having excess coupons.

Comparison of Gas Rationing and President's Program

- o Each option has major regional impacts; rationing hits the mountain states, the southwest and the mid-west hardest. The President's program mitigates these disproportionate regional impacts which otherwise will accompany a rationing program.
- o Rationing will reduce consumption in the short term but is inadequate as long term solution. The President's program is effective in both the short and long run.
- o Both rationing and the President's program transfer about \$2 billion to poor families in the first year.
- o Rationing is costly and complex; the President's program is inexpensive and easy to administer.
- o Rationing raises the CPI by over 2 percentage points; the President's program by about 2 points.
- o Rationing could cost the country \$13 billion in GNP and a substantial increase in unemployment; the President's program would have negligible effects in each area.