The original documents are located in Box 8, folder: "Papers on the President's Program (2)" of the Frank Zarb Papers at the Gerald R. Ford Presidential Library.

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February 4, 1975
Conservation and
Environment

ALLOCATION AND PRICE CONTROLS AS A SOLUTION TO THE ENERGY PROBLEM

Introduction

Allocation is one method of distributing petroleum products throughout the U.S. economy. It does not of itself reduce demand; it merely provides a set of rules and mechanisms to pass out whatever quantity of petroleum supplies are available. Allocation has been linked with price controls, and will no doubt continue to be. This paper discusses the possible use of a mechanism consisting of an import cap, price controls and allocation as an alternative to the President's program to reduce imports. It assumes that the import cap will be used to reduce petroleum imports by one million barrels a day; that prices will not then be allowed to rise to market clearing levels and thus a shortage will be created; and that this shortage will be managed by an allocation program similar in most respects to that which has been in effect since January, 1974.

This should not be confused with the President's program to limit imports. The President's proposal would not create a shortage in fuel and, hence, does not depend on an allocation mechanism to distribute the shortage around the country. Instead, the President's program, by increasing the price for petroleum relative to other goods and services, would cause individuals and industry to reduce their demand for petroleum products thereby reducing the need for imported oil.

Present Allocation Program

The Emergency Petroleum Allocation Act of 1973 provides for the mandatory allocation of crude oil, residual fuel oil and certain refined petroleum products, and for price controls for the producer, refiner, reseller, and retailer levels of the petroleum marketing chain. Major features of the present program are:

- First sales of domestic crude oil are subject to a "two-tier" pricing system. "Old" oil (crude oil produced in amounts up to 1972 levels from a particular property) is priced at an average of $5.25 per barrel. Oil produced from a property in excess of 1972 levels and oil from a property which produced less than 10 barrels per well per day may be sold at free market prices. The price of imported crude oil is also uncontrolled.

- In general, refiners may pass along their increased crude oil costs and some limited non-product cost increases, but may not generally increase profit margins. These same rules apply down the marketing chain: a dollar-for-dollar pass-through of increased product costs, and some additional limited increases in selling prices to reflect non-product cost increases.

- The regulations provide for a crude oil supply program for small and independent refiners, utilizing a freeze as of December 1, 1973 of supplier-purchaser relationships for crude oil and a buy/sell list, under which the 15 major oil corporations are required to sell specified volumes of crude oil to these small and independent refiners. There is also a program which provides for substantial equalization of average crude oil prices among refiners by the purchase and sale of "entitlements" to run cheap, price-controlled "old" oil in the same nationwide proportion at all refineries.

- Refined products are distributed to ultimate users in accordance with the allocation regulations, except for gasoline, where the mandatory allocation chain ends at the retail station and bulk purchaser. Three general classes of users are established:

  - Those users who are authorized to receive their "current requirements" - essentially whatever they request -- and are not subject to any allocation fraction. This includes Department of Defense, agriculture, and space heating for hospitals.

  - Those who receive their current requirements but are subject to an allocation fraction -- emergency services, energy production, etc.

  - Those who receive some percentage of their historical consumption, or "base period volume" (usually based on 1972) and are subject to an allocation fraction.

  - These class definitions, and further percentage delineations within the third class are decided by the government and are spelled out in detail in regulations. Their effect is to limit each user to a specific monthly, or for some fuels quarterly, authorized amount; the user/category scheme varies from one petroleum product to another.

- A supplier must continue to supply the same customers he serviced during the base period. If he has sufficient product to meet the sum of all his customers' authorized amounts, he delivers this amount to each. If not, he reduces each purchaser's share on a pro rata basis by applying his "allocation fraction", equal to his total supply over the sum of his customers' authorizations, and delivers this percentage of authorization to each customer.

- A portion of the product is reserved for each state to use flexibly to eliminate hardships. This "state set-aside" is administered by state energy offices.

- A detailed case handling and appeals process has been established to handle adjustments of base period use to account for changed circumstances or unusual growth, and other applications for exceptions and assignment of supplier.

Positive Aspects of an Import Cap and Allocation Program

There are at least four positive accomplishments that can be expected from a cap on imports and allocation.

- The level of reduction in petroleum imports can be established with certainty. There is no dependence on price elasticities of energy for achieving conservation results.

- Prices can be kept from rising, thus minimizing any increase in the consumer price index.

- Although the allocation program does not save energy, it can spread around the nation the shortages caused by the import cap, thus tempering the regional impacts of such a program.

- The Government can make gross choices as to which sectors of the economy should be allocated the greatest portion of the shortage. For example, fuel can be made available to the industrial sector at the expense of home heating fuel or gasoline for automobiles.

Basic Difficulties with An Import Cap and Allocation

- Under an allocation program the government replaces the market in distributing energy supplies. Several significant problems arise with such a substitution.

  -- An allocation system depends on a government determination of a person's "need" for fuel, and yet need is almost impossible to define. The standards currently employed for making this determination rely on historical use and a government judgment on priorities (e.g., agriculture should get all the fuel it needs). Unfortunately, in thousands of cases, the amount of fuel an individual or firm used two years ago may have little or no relation to how much fuel he currently needs. Thus, an exceptions process must be created and administrative judgment and procedures used to supplement the historical use standard. There simply are not enough Solomons around to make such a system work well.

  In addition, any system that classifies users according to government-determined priorities shifts the struggle for market advantage from the marketplace to the offices of those who write definitions and regulations. The political pressures to give groups special preference become very great. Should tobacco growing be made part of agriculture, and thus tobacco growers be made eligible for the same priority as wheat farmers? What about green houses growing flowers? Are portable toilets part of "sanitation services?" Those who are most effective in these political battles are not necessarily those who would be the most effective in a competitive market situation but for each the decision regarding

their allocation priority can make the difference as to whether the business thrives or suffers.

-- Because the allocation of petroleum products under an allocation system is performed by the Federal and State governments rather than by the market, public costs are incurred. Allocation during the recent embargo required the full-time efforts of about 4,000 people and cost approximately $100 million; in addition, substantial record keeping, reports and audits were required of the private sector.

-- An allocation system assumes that retailers will distribute supplies according to rules set by the government. In practice, however, it is impossible to enforce these rules equitably among thousands of gas station operators and fuel oil dealers. Thus practices such as preferential treatment for special customers, car wash/gasoline fill-up schemes, pre-paid gasoline contracts, and even direct black market operations quickly spring up.

- Allocation does not aid in solving mid- or long-term energy problems. An allocation program, while it is useful in managing a shortage created by embargo or a cap on imports, makes no contribution to our mid- and long-term goals of energy independence, because it provides no incentive for increasing domestic energy supply.

- Choosing the base period in an allocation system is an especially difficult problem. On the one hand, choosing an early base period such as 1972, for which complete data are available, means making numerous individual changes in the system to mirror current consumption, since thousands of new businesses have begun, old ones failed, and many people moved in the intervening years. Using a more recent base period, however, penalizes those who conserved during this period while rewarding those in the same allocation category who did not curtail wasteful fuel use during the base period.

- Allocation has a retarding effect on GNP growth and employment. A reduction of 1 million barrels a day through an import cap and allocation will reduce GNP by an estimated 6 billion dollars and place 250,000 more people on unemployment rolls.

This occurs because an allocation program must spread fuel across the various sectors of the economy according to a set of relatively inflexible and complicated national rules. Energy thus is made available for both more efficient and less efficient uses. On the other hand, reliance on higher prices and the market to deal with a shortage means on the whole a distribution of fuel to those who value it most. It is then more likely to be used efficiently for productive purposes resulting in a higher GNP and greater employment.

- While an allocation and price control program would limit direct increases in fuel costs, it does carry with it other costs. Examples abound: reduced airline schedules and thus reduced mobility; sales of petroleum products linked to contracts or sales of other goods and services; drastically limited service hours; and above all, continuing uncertainty as to supply availability which makes planning impossible for businesses and individual citizens. In this regard, the major cost to the consumer will likely be the inconvenience of gasoline lines. To minimize the negative impact of the shortage on the economy and jobs, most of the reduction in consumption would probably have to come from private auto use of gasoline. Thus, a substantial reduction in imports is likely to result in a recurrence of last year's long gasoline lines.

- Even the best designed allocation program generates unforeseeable effects. During the recent embargo, for example, people took few long trips. Thus rural gasoline consumption was down relative to urban consumption; since allocations to gasoline stations were based on historical consumption, urban stations were unable to supply the unexpected increased demand resulting from this changed consumption.

- An allocation program is not an effective conservation tool and has limited utility as a means of distributing products in short supply due to a cap on imports. Because of the inherent complexities in even a carefully designed allocation system, and the fluid nature of American society, the larger the shortage, the shorter the useful life of such a system.

ONE-DAY A WEEK DRIVING BAN ON PRIVATE AUTOMOBILES

Energy Conservation and Environment
Federal Energy Administration
February 4, 1975

PROPOSAL

One possible method for reducing auto travel is to prohibit use of every private automobile one day each week. In other words, each automobile owner would be allowed to select six days of the week during which his vehicle could be legally operated. Each motorist would be given a sticker to affix to the windshield of his automobile. The color or shape of the sticker would indicate the day of the week on which that car cannot be driven. The stickers would have to be large enough so that enforcement is feasible. Government, commercial, and emergency vehicles would not be covered under such a program.

ENERGY SAVINGS

According to statistics collected by the Federal Highway Administration (FHWA), automobile travel is spread nearly equally among the seven days of the week (roughly 14% each day). However, the distribution of auto travel (in terms of trip purpose, trip length, and origin/destination combination) is quite different for different days. Table 1 shows automobile trip distributions for a typical weekday and for the weekend.

Table 1. Distribution of Daily Automobile Travel

	Weekday	Weekend
Earning a living	52.1%	13.8%
Family business	20.0	17.4
Educational, civic, & religious	4.9	5.2
Social & recreational	21.1	60.8
Other	1.9	2.8
Total	100.0%	100.0%

The maximum possible savings due to implementation of this proposal would be one-seventh of all private automobile fuel use. In 1975, this maximum savings would be 650 thousand bbl/day (1.3 Quads per year). However, this maximum cannot be achieved for a number of reasons.

Perhaps the most important reason that the maximum savings will not be achieved is that most drivers are likely to respond to the one-day a week driving prohibition by shifting their travel to one or more of the other six days rather than by reducing their auto travel. This is especially true for multi-car families, since they can shift travel, whether for commuting, shopping, or personal business, with only minor inconvenience, and equally minor travel reductions. More than half of all U.S. households have two or more cars.

In addition, a mandatory program such as this one, operated over an extended period of time (several years), is prone to abuse. Individuals can buy low-cost, junked cars, register them with the state, and then have two stickers - thus permitting them to drive all seven days of the week. Forging stickers or transferring stickers from one car to another is likely to be easy unless adequate enforcement is available.

Commuting travel is more difficult to curtail or shift. Thus, most people are unlikely to choose a weekday for their non-driving day if they currently commute by car. This is because mass transit is presently unavailable to most people. About 95% of all work related travel is conducted with automobiles. In other words, bus and rail transit presently carry only about 5% of the work-related travel in the U.S. More than half of all the people surveyed by the FHWA (in a 1969 study) indicated that public transportation was not available to them for home-to-work travel. Even among those for whom transit is available, the transit option is generally not exercised because it takes too long, is not convenient to the place of work, and involves too many transfers.

To reduce the ability of motorists to avoid reductions in auto travel, the system could mandate which day of the week each driver must not drive. Such an arrangement would, of course, require an elaborate exceptions and appeals system, and would still not guarantee substantial savings. Because of the great uncertainty with respect to the degree of auto travel reduction due to this program, it is difficult to estimate exact energy savings. Table 2 shows the energy savings in 1975 for a range of travel reductions.

Table 2. Potential Energy Savings in 1975 With a One Day Per Week Driving Ban

Percent reduction in auto travel	Petroleum Savings	
	Quads	bbl/day
0	0	0
5	0.5	230,000
10	0.9	460,000
14	1.3	650,000

In Israel, a one-day per week driving ban imposed during and shortly after the October 1973 war resulted in a 10% reduction in private gasoline consumption. However, the savings are likely to be much lower in the U.S. because of differences in driving levels and patterns and because the intense wartime emergency situation does not exist here. We estimate that U.S. savings would be no more than 200,000 barrels of oil per day, even with substantial enforcement efforts.

EQUITY IMPACTS

This program strongly favors wealthy households because poor people own fewer cars than do wealthy people. Table 3 shows auto ownership in 1969 as a function of income, in terms of both average auto ownership per household and the number of cars owned per household. As income grows, households are more likely to own an automobile and more likely to own more than one automobile. Because this program relates mobility to auto ownership, poor people - who generally own no more than one car - suffer a loss in mobility relative to wealthier families that own more than one car.

Table 3. Automobile Ownership by Income Class

Annual household income ($)	Average number of cars per household	% of households in income class with - 1 car	2 cars	3 or more cars
under 3,000	0.40	33.6	3.3	0.0
3,000 - 3,999	0.74	56.5	8.4	0.3
4,000 - 4,999	0.90	62.3	11.3	1.4
5,000 - 5,999	0.93	64.7	16.5	2.0
6,000 - 7,499	1.22	57.8	25.6	3.6
7,500 - 9,999	1.35	59.2	30.8	4.1
10,000 -14,999	1.61	44.0	46.0	7.2
15,000 and over	1.94	27.4	55.2	16.2
All	1.17	48.4	26.4	4.6

Moreover, such a set of limitations is a very large government incursion into an individual's freedom of mobility, and thus by inference his freedom of association and assembly.

DOLLAR COSTS OF PROGRAM

There are essentially no private dollar costs of operating this program. However, the government costs are likely to be substantial. These costs are the result of:

- producing the stickers
- public advertising and education
- distributing the stickers to motorists
- enforcing the system

The cost of producing the stickers similar to state inspection stickers is about 5¢ each. With 102 million private automobiles and 5 million motorcycles, in use, the annual cost of printing the stickers would be $5.4 million.

The cost of public education and advertising is harder to estimate. Use of both print and broadcast media for advertising would probably cost about $20 million during the first year. Education costs would decline substantially after the program has been in effect for some time.

The cost of distributing the stickers is a function of the distribution mechanism. Post Offices are likely vehicles to use for distribution, although Post Offices are quasi-federal establishments and motor vehicle registrations are handled by state agencies. Assuming 3 minutes to process each sticker and a $10/hour (labor + overhead) cost yields a total cost each year of $54 million. This does not include the additional costs of providing stickers to purchasers of new and used cars or for people who wish to change the day of the week allowed to them. Nor does it include the costs of processing exempt vehicles. Thus, the overall annual costs are likely to be about $70 million.

The cost of enforcement is likely to be sizeable. Without strict enforcement on the part of state highway patrols and municipal police, compliance with the system would decrease with time. For example, the response to the 55 mph speed limit was initially quite good during the embargo; however, as gasoline supplies increased and enforcement waned, average highway speeds gradually increased.

The total cost of highway patrol departments in 1974 was over $1.0 billion. Assuming a 10% increase in highway patrols (and associated support costs) suggests that the cost for adequately enforcing the sticker system would be about $200 million annually ($100 million for rural highway patrols and $100 million for municipal police).

In summary, the total cost to governments of implementing and enforcing this program is about $300 million dollars during the first year. This cost is likely to decrease somewhat with time.

RELEVANT PAST EXPERIENCES

During the October 1973 mideast war, Israel instituted and strictly enforced the system discussed here. The estimated 10% saving was attributed to both the enforcement efforts and to substantial voluntary compliance, since compliance was equated with patriotism, at least during the emergency. Recently, Israel dropped the system in favor of raising gasoline prices from $1.30 to $2.00 per gallon to encourage conservation.

One of the proposals for the Boston Transportation Control Plan (TCP) was to limit driving to six days per week. The only difference between the Boston proposal and the one discussed here is that the Boston proposal assigned the non-driving day to people. The goal of the Boston proposal was to reduce air pollution, rather than to save gasoline. The proposal was later dropped because of the overwhelming public opposition expressed to the plan at the TCP public hearings.

H

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)

	Energy Costs Without the Program	Energy Costs With the Program	Increases Due to Program	
Gasoline & Motor Oil	$572	$ 681	$109	19%
Heating Oil	69	88	19	27
Natural Gas	100	130	30	32
Electricity	228	241	13	6
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 $83 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.

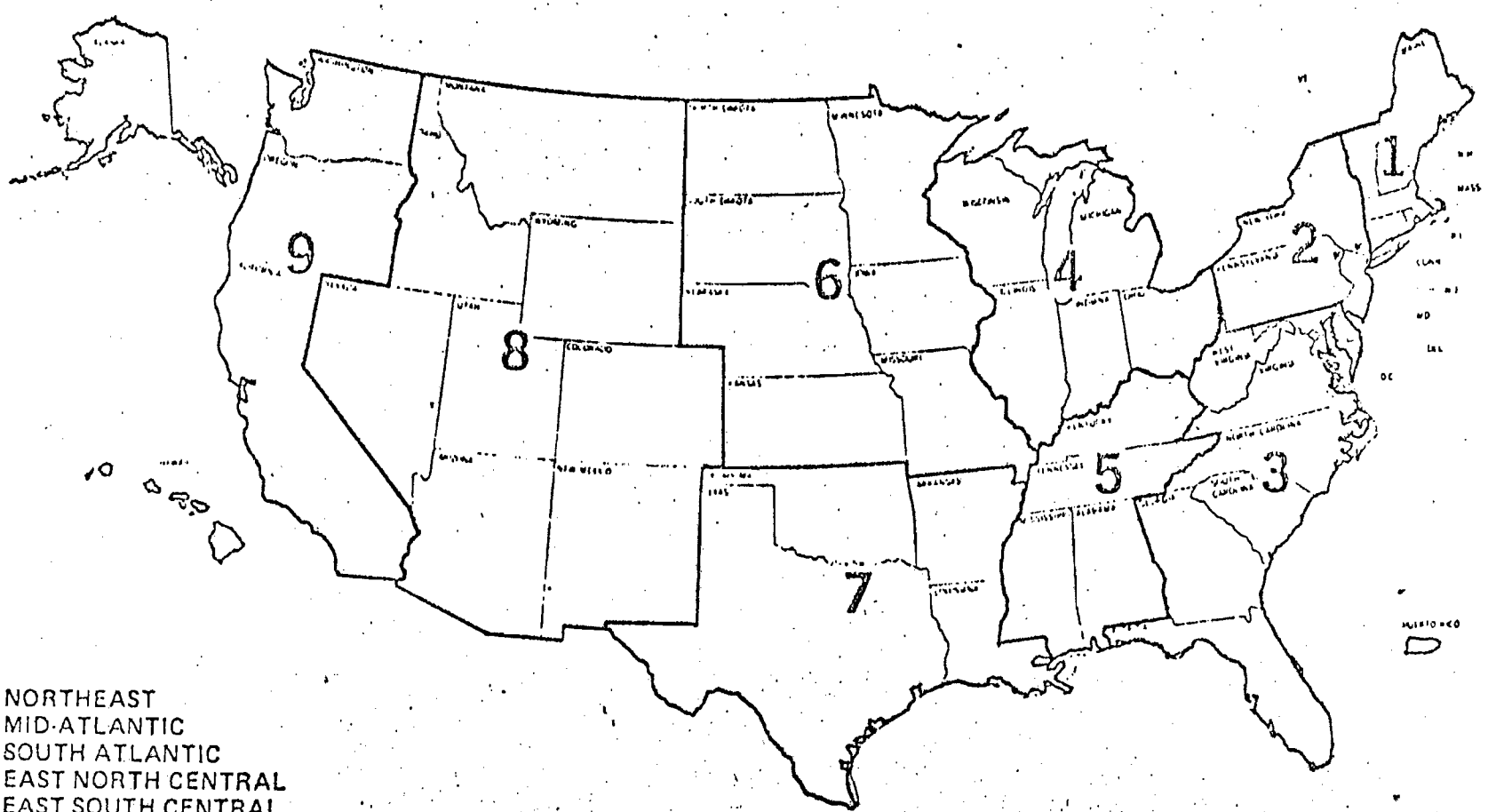
Regional Impacts

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.

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

Table 2

Regional Distribution of the Increased Direct Energy Expenditures Per Household

	Gasoline & Motor Oil	Heating Oil	Natural Gas	Electricity	Total
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	102	3	30	16	151
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.

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	16	16	16	16
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/

	Poor	Lower Middle	Upper Middle	Well-Off
Gasoline	$166	$415	$ 746	$ 876
Heating Oil	83	83	83	105
Natural Gas	120	142	154	184
Electricity	170	215	275	338
Coal	16	16	16	16
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

	Poor	Lower Middle	Upper Middle	Well-Off
Average Increase in Energy Costs direct?	$ 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)

	Total b/	Indirect c/
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.

PETROLEUM IMPORTS:
THE NEED FOR IMMEDIATE ACTION

Last winter's oil embargo demonstrated the vulnerability of the United States to foreign supply cutoffs and the need for a national energy policy. The embargo was the result of years of energy neglect which left the United States' economy and its relationship with other nations subject to foreign influence and disruption. The United States must regain its energy independence if we are to have economic and national security as well as provide leadership in assuring the stability of world energy supply and price.

Since last winter, there has been widespread agreement that a comprehensive energy policy is needed. We have analyzed and debated the policy options. But, the time for study is now past and delay will only compound the problem.

The President has proposed a long-range program to achieve energy independence by 1985. To reach this goal, we must begin now. Our oil and gas supplies will continue to dissipate and imports will grow, unless we take immediate steps to reduce our consumption of oil and bring on new supplies. The President's mid-term program includes tough conservation and supply expansion measures. To cut demand, he has proposed mandatory thermal efficiency standards, a residential insulation tax credit, fuel efficiency and appliance efficiency goals, mandatory appliance and auto efficiency labeling, and a low-income

conservation assistance program. To increase supply, the President proposed deregulation of new natural gas, increased offshore oil and gas development, amendments to the Energy Supply & Environmental Coordination Act, surface mining legislation, facility siting regulations, assistance to electric utilities, and a synthetic fuels program. Yet, even if all these actions were taken immediately, by the end of 1977, we will be importing about 8 million barrels of oil per day -- 25 percent more than at the time of the last embargo. There are long lead times to build new facilities, manpower and equipment constraints, capital availability problems, etc. At this level of imports:

- Half of our oil could be coming from OPEC countries.

- If another Arab oil embargo were to be imposed in 1977, we could be faced with a cutoff of 4 million barrels per day which would have serious repercussions for our economy. There could be approximately a $40 billion drop in the GNP which could leave 2 million people unemployed.

The immediate actions we can take to increase supply can only have a small effect. Development of the Elk Hills Naval Petroleum Reserve and coal conversion can only reduce imports by about 300,000 barrels per day in 1975.

Unless we begin to cut consumption by 1 million barrels per day immediately our dollar outlay for petroleum will continue

to increase dramatically:

- In 1970, our dollar outlay was $2.7 billion;
- Last year it rose to $24 billion,
- and if no action is taken, by 1977, our dollar outlay could increase to $32 billion and with these import dollars go the jobs they would otherwise create.

The net effect of the 1 and 2 MMB/D goal is to stem any increase in U. S. vulnerability between now and 1977 when the longer range programs begin to have measurable impact.

Natural gas curtailments have already left thousands of people out of work. President Ford's proposal for the deregulation of new natural gas and the natural gas excise tax will increase prices, which will in turn reduce demand and increase supply. It will also eliminate these crippling curtailments. By reducing natural gas curtailments, conversions by industry from gas to oil that are now occurring can be reduced.

Action now on the President's program is also imperative if the U.S. is to maintain its international leadership. We cannot expect other nations to tighten their belts without the U.S. doing the same. We cannot appear unwilling to take the unpleasant, but necessary steps to cure our energy and economic problems when other nations have already faced up to their own problems. The consuming nations must band together in this time of crisis in order to deal with this situation. The

surplus of Arab dollars ia already creating a financial crisis in Western Europe and concerted action is needed to break the cartel's prices.

If the U. S. plans to save 8 million barrels per day of imports by 1985 (12.7 without action; 4.7 with President's goals), we will have to reduce imports by almost 1 MMB/D per year in each of the next 10 years. President Ford's program is a start. It offers the first comprehensive, integrated approach to our economic and energy problems ever assembled and will put the nation on the course towards energy independence by 1985. If we do not act now on the short term goals, there will be unacceptable costs to the United States -- both domestically and internationally. The costs of the President's program may be large, but are small when compared with the costs of doing nothing.

J

FEDERAL ENERGY ADMINISTRATION

Date: February 6, 1975

Reply to Attn of: Ottie T. Vipperman

Subject: Preliminary Analysis of the Effect of the President's Energy Program on Hawaii

To: Eric Zausner

On Saturday, February 1, and again on Monday, February 3, meetings were held with various representatives of the State of Hawaii (see attached listing) to discuss the President's energy package and how it might effect Hawaii. These meetings were conducted in a very cooperative spirit with the focus on developing a reasonable set of assumptions upon which a preliminary analysis could be made. Assumptions regarding several essential bits of data were required since the actual data was not available.

Accordingly, in order to access the potential impact of the President's energy package on any given region a certain amount of base data must be available. The following data were assumed for purposes of Saturdays discussions:

- Hawaii's demand for petroleum products is 105,000 Bbls/day
- Thirty-five percent of consumption is satisfied by refined products transported from the mainland
- Twenty-five percent of consumption is satisfied by refined products imported from foreign sources
- Forty percent of consumption is satisfied by product refined on the island from foreign crude oil
- 260,000 households

With these assumptions it is possible to construct a scenario which will demonstrate the possible impact of either the President's short term program or his legislative package.

Short Term Program (3rd month and beyond):

WORST CASE:	Average Increase		Dependence Ratio	Weighted Effect
Crude Oil	$1.80	x	.4	= $.72
Refined Products (Mainland)	1.65	x	.35	= .58
" " (Foreign)	1.20	x	.25	= .30
			1.0	$1.60

MOST LIKELY CASE:				
Crude Oil	1.80	x	.4	= $.72
Product (Mainland)	1.65	x	.15	= .25
" (Foreign)	1.20	x	.45	.54
			1.0	$1.51

In the above example, the worst case reflects the market condition if the potential did not exist for changing sources of supply. Since, however, both mainland and foreign product is essentially handled the same relative to its physical distribution, it is reasonable to assume that some supply adjustments will be made and the "most likely" scenario reflects that which is expected to occur.

It is clear that Hawaii's situation relative to the short term program is similar to that of New England with two exceptions. Firstly, Hawaii is more dependent on petroleum than New England (100% to 86%) and secondly, Hawaii has the potential of increasing its foreign imports to a much greater extent than New England and thereby reduce the effect of the differential fee applicable to crude oil. In general, both Hawaii and New England are, with respect to the increased cost which will attach to petroleum prices, in a slightly favorable position than most other areas of the country. This is not to suggest that either area is in an advantageous position relative to net energy costs, but rather that the incremental cost of the program is no higher in these high dependency areas than in other regions of the country.

President's Legislative Program:

WORST CASE:		Average Increase		Dependence Ratio		Weighted Effect
Crude Oil		$4.00	x	.40	=	$1.60
Refined Products	(Mainland)	4.00	x	.35	=	1.40
" "	(Foreign)	2.00	x	.25	=	.50
				1.0		$3.50/Bbl

MOST LIKELY CASE:

Crude Oil		$2.00/Bbl
Refined Products	(Mainland)	
" "	(Foreign)	

In the worst case, a market situation is presented in which competition fails to exist and a severe two-tier pricing system results. This would only occur if price and allocation controls were maintained which would prevent the normal functioning of the free market system. On the other hand, the most likely case reflects what one would assume to develop in an environment which is competitive and where ample supply and suppliers are available. There is currently no reason to believe that the "most likely case" scenario would not prevail in Hawaii.

On Saturday, we constructed a scenario which results in an incremental cost increase which is roughly the mid-point between the aforementioned most likely and worst cases:

		Average Increase		Dependence Ratio		Weighted Effect
Crude Oil		$2.00	x	.40	=	$ .80
Refined Products	(Mainland)	4.00	x	.35	=	1.40
" "	(Foreign)	2.00	x	.25	=	.50
				1.0		$2.70

With this data we attempted to determine whether or not Hawaii was being disproportionately impacted by the program when compared to other regions of the country. The following should demonstrate the results of this analysis:

	Mainland	Hawaii
1. Total increased cost of petroleum	$24.2 Billion	$103.5 Million
2. Total increased cost of natural gas	7.8 "	- 0 -
3. Total increased cost of energy package	32.0 "	103.5 Million
4. State & Local Rebate	5 "	16.6 "
5. Capital goods lag	4.8 "	15.9 "
6. Reduced profits	3.0 "	9.9 "
7. Net cost first year (Line 3 - Lines 4,5,6)	19.2 "	61.1 "
8. Number of Households	70 Million	260 Thousand
9. Net increased cost per household (Line 7 ÷ Line 8)	$274	$235

In addition, an attempt has been made to quantify the possible effects of the proposed income tax rebate schedule. This was done with what is recognized to be very rough data, it is nevertheless our best estimate of the possible tax rebate and appears as an attachment to this paper.

The data suggests that the average rebate per household significantly exceeds the incremental cost of the program. Although this contains some unverified assumptions we have every reason to believe that it is a reasonable representation of current AGI distribution.

The meetings were concluded with the understanding that the State representatives would prepare a paper within the next week which would specifically describe why the free market system cannot work in Hawaii. They agreed

that our analysis of the impact was valid if conditions were such that a free market could operate. Their entire thesis, however, is based on the assumption that there is no competition on the islands now and that this condition will remain in the future. I informed them that they had not presented sufficient evidence to substantiate their claim and that I considered it highly unlikely that they could. It is simply unreasonable to suggest that a market the size of Hawaii is structured in such a manner as to preclude the possibility of competition. Their response will be received with great interest.

Jim Manke

Larry Nakatsuka

Alyce Thompson

David Nasm

John McConnell

Henry Wong

Eiler Ravnholt

Gil Rodgers

John Curtis

Ottie Vipperman

Enclosure 1

President's Program of Tax Savings applied to 1972 Hawaiian Income Returns

Adj GI	Reduction	1972 Hawaii Income Tax (Millions)	Tax Saving
0-3	-83%	1.3	1.1
3-5	-67%	11	7.3
5-7	-49%	20 (est)	9.8 (est)
7-10	-38%	37	14
10-15	-22%	77	16
15-20	-12%	72	8
20-50	- 5%	130	6.5
50-100	-.8%	36	.3
100 +	-.2%	20	---
			63

If the number of returns scale with population growth, 1975 numbers should be $(1.04)^3$ times the 1972 numbers, or savings should be 70.6 million. In addition, payments to non-taxpayers nationally amounts to 12% of tax savings, so total savings should scale to 1.12 X $70.6 million equals $79 million.

Total Savings		Number of Households		Average Savings Per Household
$79 million	÷	260,000	=	$304

FEDERAL ENERGY ADMINISTRATION
WASHINGTON, D.C. 20461

February 11, 1975

OFFICE OF THE ADMINISTRATOR

MEMORANDUM

TO: Frank Zarb
Eric Zausner
Bert Concklin

THRU: Bruce Pasternack

FROM: Ottie Vipperman

SUBJECT: President's State of the Union Message - New England Economic Impact

This past Tuesday a meeting was held in Boston with various representatives of the New England States. It's purpose was to make a positive effort toward resolving differences in the anticipated impact of the President's energy program.

In the past several weeks there has existed a considerable amount of misinformation relative to both the conceptual framework and specific regional implications associated with both the short term import fee program as well as the proposed legislative package. The preliminary analysis which has been developed by various groups representing all or part of the New England block, reflects a view of the President's energy program which is rather substantially different from that which had been prepared by FEA. Specifically, it had been our opinion that every possible effort had been made to recognize the particular problems of the North Eastern States and that the overall program had been structured in such a fashion as to be responsive to their needs while at the same time maintaining the overall integrity and policy imperative which is the goal of domestic self-sufficiency.

Until Tuesday's meeting it has been the opinion of the New England States, that the $1-$3 import fee program was designed in such a manner as to disproportionally impact them. At first glance it would appear that their concerns might be justified on the basis that New England is more reliant on imported petroleum products than other regions. Consequently, if one assumes that the only increases which will occur will be those associated with imports, then it would logically follow that import dependent regions would be most heavily impacted.

With respect to the short term program, I explained that it was structured in such a fashion as to assure that no single region would be disproportionally impacted. This is accomplished through a combination of internally administered programs involving domestic and foreign oil.

To construct a reasonable scenario of price behavior subsequent to the implementation of the import fee program, it is necessary to have an understanding of the conceptual basis upon which the program is predicated. Accordingly, there are four categories of petroleum which are used in the U.S.

(1) Imported crude oil - accounts for about 35% of the crude oil used in domestic refineries

(2) Imported refined petroleum products

(3) Price controlled domestic crude oil - accounts for approximately 40% of crude oil used in domestic refineries and is commonly referred to as "old oil"

(4) Domestically produced crude oil to which price controls do not apply - this category accounts for the remaining 25% of domestic refinery usage.

Although the fees directly apply only to the import categories, they will also have the effect of increasing uncontrolled domestic crude oil by an equal amount.

In accordance with our program of "Old Oil Allocation," all domestic refiners are permitted an equal share of the low cost domestic crude oil. Based on current crude oil production data, "old oil" accounts for about 40% of refinery usage. Since "old oil" is the only category that will not increase as a result of the import fees, each $1 increment will increase the cost of domestically refined products by $.60. Consequently, in order to treat regions heavily dependent on imports of refined products in a manner such that the resulting incremental cost is the same as that associated with domestic production, it is necessary to establish a differential fee equal to 60% of that which will be applicable to imported crude. Further, in order to maintain the same pricing relationships that currently exist as a function of the "Old Oil Allocation" program, it is necessary to subtract an additional $.60 per barrel from whatever fee is applicable to product imports. The net effect of this is to assure that the price of all petroleum products rise by the same amount regardless of the marketer or the region. The claim, therefore, that a particular region would be required to bear a higher incremental cost can not be substantiated.

It should be specifically noted that their primary arguement against the initial program was not that they were being disproportionately impacted as a function of their petroleum dependency but rather that their analysis indicated that the price of petroleum products would increase more in New England than in other regions of the country. Their analysis inadvertently excluded the movement of domestic uncontrolled crude oil prices which will occur in direct response to the proposed import fees. Without the realization of this aspect of the program, their response has been quite understandable.

The short term program is simply a logical means by which to phase in the President's legislative package and it carries the same incremental impact on petroleum prices in New England as it does throughout the nation. I believe this point was satisfactorily resolved during Tuesday's meeting.

Tuesday afternoon we dealt with the legislative package and, again, there existed a number of areas in which there was substantial disagreement as to its impact on New England. The primary analysis used to represent New England's concept of program was performed by the New England Region Commission (NERCOM). Basically, their analysis represents a reasonable attempt to quantify the program in view of the data resources which were available to them at the time. Consequently, prior to Tuesday's meeting, the following differences existed with respect to stating the direct impact on an individual household basis:

Product	NERCOM Low Estimate	NERCOM High Estimate	FEA
° Distillate (Including Kerosene)	$85	$128	$56
° Natural Gas	14	14	14
° Electricity	33	51	15
° Gasoline	106	128	95
Total Impact	$228	$321	$180

Accordingly, in order to measure the validity of these estimates it is necessary to examine the assumptions and the underlying data used in their development. This is done on a product-by-product basis and appears as attachment A, B and C to this report, the results of which are briefly summarized as follows:

(a) Distillate - There are several differences which exist in this area, the most significant of which regards our assumption of price behavior in a free market system. This is to say that we believe that it will be necessary for domestic marketers to meet the price which will be applicable to imported product. Currently, there exists very little difference between the price of domestic and foreign distillate. Therefore, although the

cost of domestic production will increase by approximately $4/bbl, it does not necessarily follow that the domestic refiner will be able to increase it's product prices by that amount in all regions of the country. In regions which rely heavily on foreign imports, or in which the potential exists for accelerating product imports it will be necessary for the refiner to adjust to the environment. Product prices will be determined on a competitive basis and domestic producers will adjust their prices accordingly or lose their market share. This is not to suggest that it is inevitable that imports will increase, but rather that in an environment which is unencumbered by controls, New England buyers will be in the advantageous position of being able to use foreign imports as leverage in their negotiations for domestic supply. The analysis associated with our impact estimate appears as Attachment A.

(b) Natural Gas - No problems have arisen with respect to this category.

(c) Electricity - There are a number of differences which exist in this area. I am confident that the detail provided in Attachment B is satisfactory to support our position.

(d) Gasoline - NERCOM used a consumption of 1,064 gallons per household while our estimate was approximately 950. The methodology associated with our estimate appears as Attachment C. This factor represents the primary difference between our projection and theirs.

In general, there was rather substantial agreement regarding the fact that (a) the short term program does not disproportionately increase petroleum prices in New England and (b) that the President's legislative program is not discriminatory against New England and, in fact, has the potential of benefiting this region even more the other parts of the nation. Of those attending the meeting (Attachment D) it is reasonable to say that their preliminary concerns over the program have been markedly altered and they now have a much

better understanding of how it was developed and its potential impact. This is not to say that they unanimously agreed with either of the programs, or that they will put forth the requisite effort to convince their State Governor that the programs are well conceived, equitable and are deserving of support. It is clear, however, that the analytical foundation upon which their previous opinions were based was sufficiently shaken as to require a complete reevaluation on their behalf. The result of this forthcoming analysis is fairly predicatable, this is to say that they will probably agree with all of our numbers except that for distillate in which case they will use a 7 1/2¢/gallon as the expected increase as opposed to 10¢ which had been used in NERCOM's paper. The overall effect of that change will be that they will agree to an impact estimate of approximately $200 to $210 per household as opposed to their previous range of $228 to $321.

The last hour of our meeting was devoted toward seeing whether or not there existed enough agreement regarding the fundamental structure of the program as to permit the development of a compromise position which would be supported by the entire New England block. Accordingly, it was agreed that there existed the potential of its receiving their support if the Administration would give some recognition to their disproportionate petroleum dependence and that they are constrained by their short term options. They agreed to form a task force, with representation of each New England State, which would put together a preliminary report that would request a reasonable modification to the President's program. This report will not attempt to manipulate the petroleum tax side of the formula, but rather will be directed toward a tax rebate system which would (a) encourage and reward public utilities relative to conversions from petroleum and natural gas to other energy forms and (b) additional measures which would somehow prorate the tax rebate as a function of regional consumption patterns for petroleum used for uses in other than public utilities. The current schedule for this package is that it will be completed this weekend and circulated to all New England Governors for their comments and concurrence. The next step is for me to meet with the task force in Boston on Thursday to run through their proposal in some detail prior to its being

formally sent to Washington, D.C. and to resolve any last minute questions which might arise. In the meantime I will be in touch with various members of the task force in order to assure that they are provided answers to any questions which may occur in the development of their paper.

ATTACHMENT A

DISTILLATE

Our data is based on 1973 consumption[1/] and divided by the estimated number of households which existed during that time. Our estimate of consumption is significantly higher than their low estimate and about 100 gallons lower than their high estimate. It should be specially noted that various New England representatives have claimed that conservation has resulted in a 15 to 20% fuel savings after degree day adjustments. If this were assumed in our estimate, the consumption would be reduced to about 835 to 890 gallons per household and would have had the effect of significantly reducing the estimated cost increase resulting from the program. This is illustrated as follows:

Assumptions:

° Average annual use per household 1,043 gallons

Consumption:

	Gallons per yr.	% of Total N.E. Households	Weighted Effect (B)x(C) - Gallons
Maine	1,205	8.4%	101
New Hampshire	1,225	6.4	78
Vermont	1,385	3.7	51
Massachusetts	1,154	48.1	555
Rhode Island	987	8.0	79
Connecticut	706	25.4	179
		100%	1,043

° Average retail price of distillate .39/gallon

° Increased cost of the program will be 5¢ per gallon

Therefore:

° Current cost 1,043 x $.39 = $407

° 5¢ increase with no demand reduction
1,043 x $.44 = 459 - 407 = $52 increase[2/]

° 5¢ increase with 7% demand reduction
1,043 x .93 x $.44 = $427 - $407 = $20 increase

1/ Bureau of Mines, Mineral Industry Surveys 1973
2/ Due to roundings, our previous estimate was $56
3/ Apparently a typographical error resulted in showing an increase of $128

The NERCOM estimate is as follows:

	Ave. Annual use per Household (gal)	Increased Cost Gallon	Annual Cost Increase
High Estimate	1,136	10¢	114 2/
Low Estimate	847	10¢	85

It was generally agreed to during the meeting that the NERCOM estimate was too high and should be revised downward in conjunction with the rationale used by FEA to establish its 5¢ increase. They did not completely agree with our estimate but rather that the figure should probably be about 7 1/2¢.

ATTACHMENT B
ELECTRICITY

		NERCOM'S LOW ESTIMATE	FEA
A.	Number of Households	3.7MM	3.92 Dept. of Commerce
B.	Average Residential Bill	$255	-----
C.	Residential Consumers Fraction of Total Utilities Revenue	.35	Not appropriate
D.	Residential Consumers Fraction of Total Utilities Sales Volume	-----	.38 FPC
E.	Average Fuel Price Increase	6¢/gal	5¢/gal
F.	Annual Petroleum Usage By Utilities	93.8 MMBbls (96.5 was used in their calculations)	86.0 1973 75.4 Sept. '73 - Sept. '74
G.	Annual Total Cost Increase [E x 42 X F]	$243.8 MM	$158.3 - $184.8 MM
H.	Residential Component of Total Cost Increase . NERCOM [G x C] . FEA [G x D]	$85.1 MM	$60.2 - 70.2 MM
I.	Average Increase Per Household	$23	$15 - $18

The most significant difference in the above data regards annual petroleum consumption. Our data was obtained from the FPC and I have no reason to suspect that it is inaccurate. Additionally, their estimate was based on 3.7 million households and a 6¢/gallon increase in fuel price. The household estimate is understated and the 6¢/gallon is overstated. Foreign residual fuel oil dominates the New England resid market and is expected to increase by only $2 per barrel or slightly less than 5¢ per gallon. The final difference is that they used a factor of .35 to distribute the increased costs to residential consumers while we used .38. Our number reflects the residential ratio on a volume basis and increases the estimate of costs which would be allocated to residential consumers. The average annual increase per household range is $15 to $18 and results from using either 75.4 MM/BBLS or the 86.0 MM/BBLS annual consumption estimate.

ATTACHMENT C

GASOLINE

Consumption:	Gallons	% of N.E. Household	Weighted Effect
Maine	1,156	8.4%	97
New Hampshire	1,125	6.4	72
Vermont	1,189	3.7	44
Massachusetts	877	48.1	442
Rhode Island	924	8.0	74
Connecticut	957	25.4	243
		100%	952

The data is based on 1973 consumption levels 1/ and an estimate of the number of households (3,920,000) 2/ which existed at that time. If one assumes (a) a 10¢ per gallon price increase and (b) an average retail gasoline price of 52¢ per gallon, the following occurs:

- current gasoline costs = 952 x .52 = $495
- 10¢ increase with no demand reduction:
  952 x .62 = $590 $590 - $495 = $95 increase
- 10¢ increase with 6% demand reduction:
  952 x .94 x .62 = $555 - $495 = $60 increase

The above analysis clearly reflects the fact that our estimate of a $95 per year increase for New England was conservative and, in fact, rationale existed for including an estimate which would have shown less of an impact.

1/ API State Consumption estimates
2/ U.S. Department of Commerce, Social and Economic Statistics Administration, Bureau of the Census
3/ Gasoline consumption per household was arrived at by factoring total gasoline consumed in each state by .7 and dividing by the appropriate number of households. The .7 represents the ratio of passenger automobile consumption to total gasoline consumption and comes from the Bureau of Public Roads, U.S. Department of Transportation

ATTACHMENT D

ATTENDEES
FEA - N.E. CONFERENCE
Boston, Mass.-February 4, 1975

Name	Organization
Larry Faye	Federal Energy Administration-Boston
James S. Couzens	Boston Edison Company
Pasco Gasbarro	New England Electric Co. 20 Turnpike Rd., Westborough
Jed Davis	Maine Energy Agency
Stanton M. Sherman	New England Fuel Institute
Kenneth A. Wood, Jr.	Connecticut Energy Agency
Linda K. Mansfield	Federal Energy Administration-Boston
Duane D. Day	Federal Energy Administration-Boston
Robert W. Mitchell	Federal Energy Administration-Boston
Ottie Vipperman	Federal Energy Administration-Washington
Charles Richmond	State of New Hampshire
Victoria Potter	Governor's Office, Rhode Island
Julian Decyk	Governor's Office, Rhode Island
Fred Nemergut	New England Regional Commission
Paul Levy	Mass. Energy Policy Office
Forrest E. Orr	Vermont Energy Office
Joseph A. Belanger	Connecticut Energy Agency

L

Comparison of GAO Energy Program
With the President's Energy Package

A. The GAO program is in many respects substantially similar to the President's program (see Chart 1, Comparison Summary Sheet on next page for details).

- Both programs provide for a near term goal.
- Conservation programs attack essentially the same sources of energy consumption: gasoline consumption in private automobiles, thermal loss in new and existing homes, and industrial energy inefficiencies.
- Both programs seek to accelerate development of domestic supplies of coal, natural gas, and petroleum. For increased oil and gas supplies; both seek the development of the naval petroleum reserves and the outer continental shelf.
- Both provide for increased prices of gasoline to effect conservation in private automobile consumption.
- Both provide for increased prices for new natural gas to affect conservation and additional reserves of natural gas.
- Both recognize the need for standby authorities in the event of an emergency. Both provide for standby gasoline rationing.

B. However, there are major differences between the programs which critically influence the comparative effectiveness of these programs in reducing oil imports (see Chart 2, Summary of Program Effects, on the following page).

1. Import Goals: GAO's near term import goals are significantly more stringent than the President's import goals for 1977.
   - GAO provides for an import rate of approximately 4.4 million barrels per day by the end of 1977, as compared with 5.8 million barrels per day as contained in the Fact Sheet to the President's State of the Union address. Differences in total import limitations are due to GAO's selection of the import rate on January 1, 1975,

chart 1.

SUMMARY

Comparison of GAO Proposals and the President's Energy Program

	GAO	President's Program
A. Import Goals and Major Policies		
1. One million barrels per day savings	end of 18 months	end of 1975
2. Two million barrels per day savings	end of 30 months	end of 1977
3. Mid-term goal - 1985	N.I.	zero vulnerability
4. Import cap and allocation	applied monthly	standby only
5. Tariff and import fees	N.I.	$2 tariff
6. Crude Oil Prices	N.I.	deregulate & tax
B. Energy Conservation		
Transportation		
1. Cash rebates to efficient purchasers	at least $200	N.I.
2. New car tax	up to $1000	N.I.
3. Automobile efficiency standards	Mandatory	Voluntary w/CAA change
4. Gasoline tax	20¢/gallon	N.I.
5. Gasoline rationing	Standby	Standby
Industry		
1. Performance standards	Voluntary	Voluntary
2. Investment tax credit	10%	12%
Consumer Education		
1. Purchasing housing	Mandatory labeling	N.I.
2. Appliance labeling	Mandatory	Mandatory
Buildings		
1. Tax credit for insulation	50% of 1st $500	15% of 1st $1000
2. Low income winterization	Loans	Subsidy
3. Federal thermal building codes	Govt. financial building	all new building
4. Utility rate restructuring	Voluntary	Some mandatory
5. Appliance efficiency standards	N.I.	Voluntary

	GAO	President's Program
C. Supply Development		
Oil		
1. Develop Naval Petroleum Reserves	NPR-1,3 & 4	1 & 4
2. OCS leasing	Explore only	Lease
3. Price Floors	N.I.	Standby
Coal		
1. Leasing	Study	Diligence requirements
2. Surface mining	N.I.	Addressed
3. Clean Air Act	N.I.	Air, auto changes
Gas		
1. Regulation	Increase price	Deregulate new
Nuclear		
1. Plant construction	N.I.	Expidited ~~licensing~~ and siting
2. Nuclear safety	N.I.	Budget increase
D. Utilities		
1. Investment tax credit increase	N.I.	To 12%
2. Preferred stock dividend deductions	N.I.	Allowed
3. Reform of ~~stock~~ utility processes	N.I.	Mandated
4. Facilities siting	N.I.	Comprehensive process
E. Other		
1. Administrative reorganization	Cabinet ERC, DENR	ERDA created, ERC
F. Emergency Programs		
1. Emergency storage	Unspecified amount	1.3 billion bbls
2. Allocate materials	N.I.	Standby
3. Regulate petroleum inventories	N.I.	Standby
4. Implement IEP	N.I.	Standby
G. Fuel Substitution		
1. Coal conversion	N.I.	Accelerated
2. Ban gas in new boilers	Proposed	N.I.

N.I. - not included

	1975		1977		1985	
Consumption If No New Actions	18.0		18.3		23.9	
Imports If No New Actions	6.5		8.0		12.7	
Less Savings Achieved by the Following Actions:	GAO	PEP	GAO	PEP	GAO	PEP
Price Increases						
° President's tax package with decontrol of trade oil prices and new natural gas deregulation	NI	0.9	NI	1.6	(4.0) ~~NI~~	2.1
° Gasoline Excise Tax of 20¢/gallon	0.1	NI	0.3	NI	0.8	NI
° GAO's ceiling on new natural gas (assumed $1.50 per MeF)	0.0	NI	0.0	NI	(0.4)	NI
Conservation Measures						
° Auto efficiency standards	0.0	0.0	0.1	0.1	1.0	1.0
° Other gasoline consumption reduction programs including cash rebates to purchasers, tax on inefficient new cars, subsidies to buses, etc.	0.0	NI	0.2	NI	0.4	NI
° Tax credit for thermal retrofit	0.1	0.1	0.3	0.3	0.3	0.3
° Thermal building standards	0.0	0.0	0.0	0.0	0.3	0.3
° Appliance efficiency standards	NI	0.0	NI	0.0	NI	0.3
° Industrial investment tax credit increase	UNQ	UNQ	UNQ	UNQ	UNQ	UNQ
Supply Enhancement Measures						
° NPR-4 development	0.0	0.2	0.0	0.3	1.5	2.0
° OCS leasing	0.0	0.0	0.0	0.3	0.5	1.5
° Synthetic fuel commercialization	NI	0.0	NI	0.0	NI	0.3
Fuels Substitution						
° Coal Conversion	NI	0.1	NI	0.3	NI	0.4
° Ban gas in new boilers	0.0	NI	0.2	NI	1.7	NI
Total savings from above actions	0.2	1.3	1.1	2.9	2.1	8.2
Imports remaining	6.3	5.2	6.9	5.1	10.6	4.5
Import Goals*	6.2	6.0	4.4	5.8	-	-
Allocation/Rationing Required	0.1	0	2.5	0	?	0
Standby authority	0.9	1.0	0.0	1.2	1.0	1.7
Emergency storage	0.0	0.0	0.0	0.0	?	3.0
Vulnerable imports	5.3	4.2	4.4	3.9	?	0

* Import goal for 75 for GAO proposal assumes straight line reduction in imports for 18 months beginning April 1, 1975 to obtain 1 million barrels per day savings.

as a base of which to measure savings, the President's program provides for savings to be measured from projected import levels.

2. Use of allocations versus the price mechanism: GAO's program relies heavily on the use of import caps and allocations to attain the near term savings goal; while the President's relies on the effects of price increases chiefly to limit import requirements in the near term, and provides for the use of import caps and allocations as standby measures only.

   - Under the GAO program, the import cap and allocations program would be required to limit imports by approximately 100,000 barrels per day in 1975 and by over 2 million barrels per day in 1977 in order to attain the import goals set by GAO. Under the President's program the use of import quotas will be necessary only if the conservation effects of price increases are not sufficient to reach the import savings goals.

   - The President's program provides for price increases on all petroleum fuels through imposition of import fees and tariffs in order to effect conservation in all sectors of the economy land more equitably across all regions. The GAO program provides for a stiff excise tax on gasoline of 20¢ per gallon phased-in over 21 months, thereby forcing motorists to bear a disproportionate burden in the limiting of energy consumption. Also, a high gasoline excise tax impacts disproportionately the central areas of the U.S., and rural dwellers who historically consume higher volumes per capita of gasoline.

   - The GAO program does not provide for deregulation of crude oil prices, resulting in a loss of 4.0 million barrels per day of production by 1985.

   - The GAO program does not provide for new natural gas deregulation, but sets a ceiling rate (assumed at $1.50 per MCF) which would result in a loss of natural gas production of about 400,000 barrels per day by 1985.

3. Conservation: The GAO's conservation program is less administratively and economically feasible than the President's.

   - In the transportation sector, the use of an excise tax on the purchase of inefficient new cars and rebates for the purchases of efficient new cars would be costly and ineffective when combined with automobile efficiency standards and a high gasoline tax increase. Also, the GAO program provides for stringent mandatory automobile efficiency standards, but does not propose alteration of emission standards. The result would be significantly high increased costs to automobile manufacturers to convert to much smaller, lighter cars in a period of time when these costs can probably not be passed on to the consumer.

   - In the buildings sector, the tax credit program for thermal retrofit provides for no limitation on the amount of expenditures that would be partially subsidized, therefore allowing unlimited expense to the Government; also, GAO's mandatory building codes apply to existing homes as well as new homes and are implemented in one year, which can not be accomplished without high costs to home builders and extreme inflationary effects on insulating materials.

4. Increased domestic supplies: The GAO provides for a delay in the acceleration of production of domestic supplies and does not consider all relevant issues and programs.

   - The GAO program delays development of the Naval Petroleum Reserve and the outer continental shelf by providing for an exploration period before commercialization. The result is a loss of approximately 1.5 million barrels per day of production from these sources by 1985.

   - The GAO program provides for economic incentives and subsidies for increased coal production, not recognizing that the limitation to coal consumption principally derives from constrained demand, and not from inadequate production capabilities. Thus, the GAO program does not consider increased coal

demand through alteration of enviromental constraints (such as the relaxation of air quality standards as specified by the Clean Air Act), and coal conversion in utilities and industry. The neglect of coal conversion in utilities alone would result in a loss of 400,000 barrels per day of oil equivalent that would be saved by 1985.

- The GAO program does not provide for increased construction of nuclear and coal electrical generation facilities, the accelerated development of synthetic fuels and the protection of domestic energy production through the imposition of price floors. The President's program provides for an improved financial condition for utilities through tax credit and dividend deduction allowances, and accelerated construction possibilities through a streamlined process for expedited licensing and siting of facilities. Also, to expedite nuclear facility construction specifically, the President's program provides for increased funds to improve nuclear safeguards and a comprehensive coordinated government process for site selection.

- The GAO program does not include increased development of synthetic fuels, resulting in a loss of approximately 300,000 barrels per day of additional supplies by 1985.

- The GAO program proposes to ban gas in new boilers, which could lead to a savings of 1.7 million barrels per day in 1985, but at significant expense to industry and utilities. Such a program would have to make exceptions in cases where no alternative supplies are available and existing boilers are near the end of their useful lifetime.

5. Standby authority: The GAO program provides for more limited standby authority.

- The GAO program provides for an unspecified amount of emergency oil storage capacity, but does not include in standby authorities the allocation of materials needed for supply production, the

regulation of petroleum inventories and implementation of the international energy program. The lack of these standby authorities could increase vulnerability to supply cutoffs during 1985 by approximately 700,000 barrels per day.

6. Reorganization: The GAO program provides for substantial reorganization of government energy resources.

   - The GAO program provides for a cabinet level reorganization, that is, creation of a Department of Energy and Natural Resources, which is not essential to the proper implementation or coordination of either of the two energy programs.

   - Both programs provide for creation of the Energy Resources Council.

C. Energy Impacts

- In 1975, the GAO program would result in only 200,000 barrels per day savings as compared to 1.3 million barrels per day through the President's program. Most of the difference in 1975 occurs because the President's tax package is implemented approximately two months earlier and covers all petroleum consumption. However, a 200,000 barrels per day potential savings gained by the President's program through immediate development of NPR-4 is lost by the GAO program through delays in exploring for information purposes only.

- In 1977, the savings from the President's program are triple the estimated savings from the GAO program. Again, most of the difference is due to the greater breath of the President's tax package combined with deregulation of crude oil prices. While the President's program is estimated to save approximately 2.9 million barrels per day in 1977, savings from the GAO program is estimated at 1.1 million barrels per day. Thus, the GAO program requires use of an import cap and allocation program to ration over two million barrels per day in order to obtain an import goal of 4.4 million barrels per day at the end of 1977.

- By 1985, the total savings from the GAO program for all actions other than the import cap and allocation measures, are only 1/4 of the total estimated savings from the President's program. The GAO program provides for over 10 million barrels per day of imports before the imposition of the import cap and allocations in 1985; the President's program provides for only 4.5 million barrels per day. Approximately four million barrels per day of the difference occurs due to the maintenance of controls on new natural gas and crude oil prices. The remainder occurs due to the long term effects of delays in the development of the outer continental shelf and the Naval Petroleum Reserve, and the absence of accelerated development of synthetic fuels and electricial generation.

- In 1977, due to the significant use of import caps and allocations required by the GAO program, very little additional savings could be gained through use of other standby authorities in the event of an embargo or foreign production curtailment. The President's program, since it has relied on price increases to effect conservation, and provides for expanded standby authorities, would have a potential of saving an additional 1.2 million barrels per day through exercise of standby authorities.

- In both 1975 and 1977, the United States would be significantly more vulnerable to foreign production curtailments through selection of the GAO program instead of the President's energy program.

D. Economic Impacts: The GAO program does not provide for tax rebates or tax reductions, so it is extremely difficult to estimate the impact of such a program on the GNP and other sectors of the economy; however, some qualitative statements can be made.

- The impact of import caps and allocation on the GNP has been estimated to be approximately 13 billion dollars for each one million barrels per day savings. Thus, a GNP loss on the order of 25 billion dollars could be expected in 1977 through use of the GAO program.

- The imposition of the auto efficiency standards without Clean Air Act changes could have a significant impact on the sales in the automobile industry, if the manufacturers decided to pass on to consumers the increased costs derived from changeover to smaller, lighter cars.

- Although the increase in insulating materials could be significant due to an open-ended tax credit program and an early imposition of thermal building standards on existing homes, the direct price effects of GAO proposal should be less the President's program because of the implied continuation of price controls on crude oil and natural gas.

- The GAO proposal provides for a greater regional imbalance in the price changes, due to the use of increased gasoline prices as the primary price effect. This will impact most heavily on states with a higher per capital consumption of gasoline, mostly in the central part of the U. S., and will also provide for a disproportionate effect on rural dwellers.

Tab A - Analysis of Specific Conservation Measures

A. Conservation in the Transportation Sector

- The phased-in gas tax is not as effective as the President's price increase on all petroleum fuels in the mid to long term since the elasticity of gasoline is less than the elasticity of all petroleum products beyond three years after imposition.

- A gasoline tax results in greater regional balances than a tariff on all petroleum imports, more heavily impacting the Mountain states, the Southwest and the Mid-West, and also discriminates against rural dwellers who are high gasoline consumers.

- The GAO program would severely impact the recreation, tourism, and hotel industries which are heavily dependent on automobile travel. It would also heavily impact the automobile manufacturing industry who must absorb costs or incur reduced sales due to the required changeover to smaller cars resulting from the mandatory efficiency standards without relaxation of emission standards.

- The marginal savings of cash rebates to purchasers of efficient new cars and an excise tax to discourage purchases of inefficient cars are extremely small when superimposed on mandatory fuels efficiency standards and a high gasoline tax.

- Ongoing programs for mass transit improvement through existing agencies (UMTA and FAWA) would be more effective than the establishment of a new special fund for improvement of transportation facilities.

- The GAO program ignores mandatory automobile efficiency labeling which could be extremely effective in assisting automobile purchasers in the selection of efficient new cars.

- Setting automobile efficiency standards based on the average mile per gallon for the entire fleet is administratively difficult since the fleet fuel economy is not easily monitored and not easily controlled by the manufacturer.

B. Conservation in the Buildings Sector

- GAO's tax credit for thermal retrofit (50% of 1st $500; 25% of over $500) can be expected to cost the Government over three times more than the President's lower tax credit (15%), but would not result in significantly

more savings since the level of participation in the program is anticipated to be almost unaffected by the amount of the tax credit above a threshold amount (believed to be 15%). Also, the GAO program provides for subsidy of 25% of all expenditures above $500, thereby providing for an unlimited Government expense for many normally uneconomic energy-saving investments.

- Existing programs managed by Farmers Home Loan Association and HUD indicate that low income home owners fail to respond to loan programs. Thus, GAO's low interest loan program to low income persons would be a less effective way of reaching the poor (those earning less than about 5,000 dollars annually). However, the total estimated savings from the GAO program would be greater than the President's program due to the inclusion of low income persons above the poor income category.

- The GAO program does not include appliance efficiency standards, which could result in 300,000 barrels per day of import savings by 1985.

- The GAO's mandatory labeling of thermal efficiency in homes would cause increased costs to home builders, and does not provide a means for enforcement of the program and a means of correction for purchasers who have been provided erroneous information.

C. Conservation in the Industrial Sector

- The GAO program provides for government's establishment of model performance standards in key energy intensive industries. This program would have a small marginal impact above existing programs being conducted by FEA. Also, increased government effort into the development of performance standards for these industries could only result in replacement of similar efforts being conducted by private industry.

- The GAO proposal provides for an increase in investment tax credit to 10% instead of the 12% requested by the President's program. It is unspecified whether the 10% tax credit would continue through 1985; the President's program provides for a decrease in the industrial tax credit to 7% after one year's duration. It is difficult to quantify the effect of investment tax credits on energy consumption in the industrial sector. The President's program focused more on the use of investment tax credit as a stimulus to the economy.

Conservation in the Transportation Sector

GAO Program	Savings 1977	MMBD 1985	President's Program	Savings 1977	MMBD 1985
° Mandatory Fuel Efficiency Standards -20 mpg for fleet in 1985 -21 mpg for new cars in 1977	0.12	1.0	° Voluntary Fuel Efficiency Standards - 40% increase in fuel efficiency by 1980	0.12	1.0
° Cash rebates to purchasers of fuel-efficient cars	0.04	0.2			
° Phased-in gasoline excise tax of 20¢/gallon over 21 months	0.30	0.8			
° Special fund for subsidized transportation for poor bus lanes, R&D for auto-efficiency, etc.	0.04	0.2	° Ongoing programs in mass transit, bus lanes, R&D through UMTA and FHWA	.08	0.3
° Excise tax to discourage purchase of inefficient cars up to $1000 - begin with 1978 cars	0	0			
			° Mandatory Automobile Efficiency Labeling	UNQ	UNQ
			° Gas Conservation due to crude price decontrol and $2 tariff	0.60	0.8
Total savings in Transportation Sector	0.50	2.2	Total savings in Transportation Sector	0.80	2.1

UNQ = Unquantifiable

GAO Program	Savings (MMBD) 1977	1985	President's Program	Savings (MMBD) 1977	1985
Tax Credit for Thermal Retrofit ° 50% of first $500 ° 25% of all above $500	0.25	0.30	° Tax Credit for Termal Retrofit ° 15% of first $100	0.25	0.30
Government Low Interest Loans to Low-income Persons °° $12,000	0.03	.03	° Low-Income winterization Program ° subsidy for materials ° voluntary participation only for poor, not low income	.01	.01
Mandatory Federal Model Building Codes ° applies to new and existing buildings financed by government ° preempts state and local codes after 2 years	0.03	0.25	° Mandatory Federal Model Building Code ° applies only to new buildings	0.05	0.30
			° Mandatory appliance labeling	UNQ	UNQ
Mandatory Appliance Labeling	UNQ	UNQ	° Voluntary appliance efficiency standards ° 20% average improvement by 1980	0.0	0.30
Mandatory Labeling of Thermal Efficiency Homes	UNQ	UNQ			
Total Savings in Buildings Sector	0.31	.58	Total Savings in Buildings Sector	0.31	0.91

UNQ = Unquantifiable

Tab B - Analysis of Specific Supply Enhancement Measures

A. Petroleum

- The GAO rpoposal to fully explore NPR-4 prior to any production would increase the time required to fully achieve commercial production; it is not feasible to fully explore NPR-4 in five years.

- The requirement by GAO to explore areas for potential OCS leasing, presumably by the Federal Government, prior to leasing would delay increased oil and gas supplies from these areas. By 1977, the delay would amount to a loss of 200,000 barrels per day as compared to the President's program; by 1985 the loss would reach one million barrels per day.

- The President's proposal would bring increased supplies from NPR-1 & 3 sooner than the GAO program since increased production would be delayed until storage facilities would be acquired. This results in a 300,000 barrel per day loss in increased production by 1977.

- By not including the decontrol of crude oil prices, GAO foregoes approximately four million in barrels per day of import savings by 1985. Also, the inequities and distortions created in the marketplace due to the maintenance of these controls for a decade would result in increased consumer costs for all products.

B. Natural Gas

- The GAO proposal, which provides for a cost formula for establishing a price ceiling on natural gas, would be difficult to administer since production cost is not readily determinable and reliance on historic cost data can result in inequities. Also, the GAO program does not provide for any excise tax on natural gas, thus allowing all increased profits to accrue to gas producers and none to the Federal Government for the funding of conservation programs.

C. Coal

- Although the GAO goals for coal production are similar to the President's, the application of subsidies and assistance programs for increased coal production is not believed to be effective in increasing the consumption of coal without the imposition of measures to stimulate increased demand for coal. The President's program provides for coal conversion and amendments to the Clean Air Act to provide for increased burning of coal in order to stimulate the demand for coal.

- The GAO proposal also ignores two key issues in increased coal production, surface mining and accelerated coal leasing. The Administration advocates accelerated coal leasing and a sensible approach to surface mining which balances environmental and energy considerations.

D. Electrical Generation

- The GAO proposal does not address the need for expedited licensing and siting of electrical generation facilities. Specifically, it does not address increased nuclear facility construction and increased nuclear safeguards, as provided by the President's program.

Increase in Domestic Production

GAO Program	Savings 1977	MMBD 1985	President's Program	Savings 1977	MMBD 1985
Oil			**Oil**		
° NPR-4 Exploration -- explore for info first	0.0	1.5	° NPR-4 Development -- begin to develop immediately	0.0	2.0
- fully explore in 5-10 years					
° NPR-1 & 3 - Complete full development in five years	0.0	0.3	° NPR-1 & 3 - increase to 160,000 B/D in 1975 from NPR-1	0.3	0.3
° OCS Leasing - Explore only for information for leasing	0.0	0.5	° OCS Leasing - Increase leasing immediately	0.3	1.5
			° Crude price decontrol	0.1	4.0
			° Price Floors	UNQ	UNQ
Natural Gas			**Natural Gas**		
° Develop statutory formula for new gas price ceiling	0.0	3.4	° Deregulate new natural gas	0.0	3.8
° allocate natural gas among pipelines					
Synthetic Fuel Commercialization			**Synthetic Fuel Commercialization**		
° Not treated by GAO	0.0	0.0	° Increased R&D	0.0	0.3
Total Oil and Gas Production Increase	0.0	5.7	Total Oil and Gas Production Increase	0.8	11.9
Coal Production	MM Tons/Yr		**Coal**	MM Tons/Yr	
° Develop assistance/ incentive program for increased coal production	.75	1.2	° Increase demand for coal through coal conversion program and CAA amendments and coal leasing	.75	1.20
Electrical Generation	New plants		**Electrical Generation**	New plants	
° Nuclear - not addressed	0	160	° Nuclear - expedited siting and leasing	0	200
° Coal - not addressed	0	150	° Coal	0	150

Tab C - Standby and Emergency Programs

A. Emergency Storage

- The GAO program, like the President's program, provides for the acquisition of sites and oil for emergency storage.
- The GAO program leaves unspecified the amount of storage to be established; the President's proposal provides for 1.3 billion barrels by 1985.
- The amount of storage provided for in the President's proposal is needed to reduce vulnerability to zero in a one year period in 1985 at $7 imported crude oil prices.

B. Gasoline Rationing

- The GAO program provides for standby authority for gasoline rationing and an executive decision every six months on whether or not to implement the program; the President's program requests standby authority and no formal implementing timetables.
- The GAO program provides for a 30-day operational readiness for the rationing program. This implies a large commitment of funds, requiring most of the gasoline rationing bureaucracy to be in place on a permanent basis.

C. IEP Program

- The GAO program does not provide for implementation of the IEP; the President requests the authority to implement the agreement signed on 11/18/74 by the U.S.A.
- The IEP is necessary to indicate to the oil producers a consolidated position by the oil consumers to reduce vulnerability to embargoes and import curtailments.

D. Other Standby Authority

- The GAO program does not provide for standby authority to:
  - ration fuels among end-users
  - allocate materials used for energy production
  - regulate petroleum inventories

- increase production of domestic oil

° These authorities may be needed in the event of a national emergency to be exercised in far less time than required to obtain passage through Congress.

A CAP ON IMPORTS AND ALLOCATION AS A SOLUTION TO THE ENERGY PROBLEM

TAB D

Allocation is a form of rationing, It does not reduce demand, it only attempts to spread the shortage. As such, it has a number of severe problems:

A. It severely impacts economic growth and causes unemployment

- A reduction of 1 million barrels a day through an import cap and allocation will reduce GNP by an estimated 6-10 billion dollars and place several hundred thousand more people on unemployment rolls. This is because an allocation program must spread fuel across the various sectors of the economy according to a set of relatively inflexible national rules, making energy available for both efficient and inefficient uses. On the other hand, a price or market approach to reducing demand (President's Program) tends to allocate fuel to the most productive purposes resulting in the highest feasible GNP.

- It creates distortions in the marketplace because economic decisions are based on non-cost criteria. These distortions increase over time, lending to economic inefficiency and marginal investments by American enterpreneurs.

B. It is not a long-term program

- An allocation program can not feasibly be in operation for an extended period, beyond 18 months to two years. By then the millions of adjustments required for determining allocations to respond to changing demand conditions make reasonable administration nearly impossible.

- An allocation program, while it will spread a shortage created by a cap on imports, makes no contribution to our mid- and long-term goals of energy independence, because it provides no incentive for increasing supply.

C. An allocation program is inherently inequitable and administratively burdensome.

- Some standard must be used as a determinant of "need;" historical use or government judgment on priorities (e.g., agriculture should receive 100% of current requirements) are the two standards currently employed. Yet, in numerous cases, the amount of fuel an individual or firm used two years ago may have little relation to current needs. Thus, an exceptions process must be created and bureaucratic judgment and administrative procedure used to supplement the historical use standard, resulting often in gross inequities.

- An allocation system classifies some users as "higher priority" and places no limits on their usage. Thus, the struggle for market advantage shifts from the marketplace to the offices of those who write regulations and definitions. (Is tobacco growing part of agriculture, and thus eligible for a full supply? What about green houses growing flowers?) Those who are most effective in these political battles are not necessarily those who would be the most effective in a competitive market situation.

- An allocation system assumes that retailers will distribute supplies according to rules set by the government. In practice, however, it is difficult to enforce these rules equitably among thousands of gas station operators and fuel oil dealers (e.g., preferential treatment for special customers, car wash gasoline fill-up schemes, pre-paid gasoline contracts, etc.).

- An allocation program requires the establishment of a base period on which to determine the amount to be allocated. If we choose the year 1972, we avoid the problem of penalizing those who made significant efforts to conserve fuel in 1973 when the crisis hit. Unfortunately, the economy has changed immensely in three years. Hundreds of thousands of new businesses have been formed or have gone out of operation during that time, thousands of others have changed from one supplier of fuel to another and the population of some cities has increased significantly while others

have decreased. These changes make allocation based on a 1972 base period extremely difficult, and often inequitable.

- An allocation program changes consumption habits in such a way as to make effective operation of the program difficult. For example, the uncertainty of being able to obtain gasoline (closed service stations and long lines) causes motorists to fill their gasoline tanks close to home before taking trips. The result is an increase in gasoline demand in urban areas and a decrease in rural areas.

D. An allocation system is costly

- Because the allocation of petroleum products under an allocation system is performed by the Federal and State governments rather than by the market, public costs are incurred. Allocation during the recent embargo required the full-time efforts of about 4,000 people and costs approximately $100 million.

- Although an allocation system can artifically hold down the purchase price of petroleum, it generates other costs to users. Examples abound: long waiting time in lines; sales of petroleum products linked to contracts or sales of other goods and services; drastically limited service hours; and above all, continuing uncertainty as to supply availability, making planning difficult for businesses and individual citizens.

E. An allocation system will lead to rationing

- The use of an import cap and an allocation system similar to the existing one will inevitably lead to the rationing of gasoline and, perhaps, other petroleum products in order to limit consumption at the end-user level. Lessons learned during the embargo indicate that dealers in gasoline and heating oil are not positioned appropriately to equitably ration their allocations to end-users. (For instance, home heating oil dealers would not cutoff supplies to homes exceeding base period usage; most gasoline stations serve on a first-come, first-serve basis, which leaves some persons ample supplies and other with none.) Thus, the gross inequities resulting

from allocations without end-user rationing would shortly create political pressures to impose rationing, and ultimately result in the combined costs and problems associated with rationing and allocations.

M

GASOLINE CONSUMPTION

Conservation and Environment
March 5, 1975

J. Hemphill
March 3, 1975

GASOLINE CONSUMPTION

Gasoline is a complex mixture consisting almost exclusively of hydrocarbons, used primarily as an energy source for powering internal combustion engines. Approximately 39 percent of the annual petroleum consumption (by volume) in the United States is gasoline. Highway transportation accounts for over 96 percent of the total gasoline consumption with the major user being the automobile, which consumes about 73% of the total. Trucks use about 23 percent. Table 1 shows a breakdown of gasoline by mode for highway use and by sector for nonhighway use.

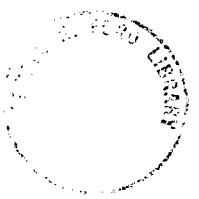
TABLE 1. Percent Annual Gasoline Consumption[1/] by Mode and by Sector

		% of Total Gasoline Use	% of Total Petroleum Use
Highway:	Mode		
	Automobile	73.52	28.53
	Bus	0.38	0.15
	Truck	22.72	8.82
	Total highway	96.62	37.50
Nonhighway:	Sector		
	Agriculture	1.70	0.66
	Aviation	.35	0.14
	Indus, Comm, & Constr.	.37	0.14
	Marine	.69	0.27
	Misc & Unclassified	.27	0.10
	Total nonhighway	3.38	1.31
	Total Highway & Nonhighway	100.00	38.81

The automobile consumes about 76 percent of the highway gasoline (73 percent of total gasoline)[2/] used annually. Trucks consume about 24 percent with buses accounting for less than one percent. Most of the automobile travel occurs in the private sector, which consumes over 63 percent of the total highway gasoline. The percent highway gasoline use by mode and sector is given in Table 2.

TABLE 2. Percent Highway Gasoline Use[1/] by Mode and Sector

Sector:	Mode: Automobile	Bus	Truck	Total
Private	62.65	-	17.28	79.93
Business/Comm.	13.04	0.06	5.70	18.80
Government	0.40	0.33	0.54	1.27
Total	76.09	0.39	23.52	100.00



During the ten-year period between 1963 and 1973 automobile gasoline consumption grew at a rate of about 5 to 6 percent per year. However, due to supply shortages during the oil embargo and subsequent higher gasoline prices, gasoline consumption fell in 1974 to about 1972 levels. Estimates based on continued higher prices for gasoline show consumption to begin increasing again at an annual rate of between 2 to 3 percent. Table 3 gives historical[3/] and forecasted[4/] automobile gasoline consumption and, historical[5/] and forecasted total gasoline consumption[6/] and the annual rate of growth for each.

TABLE 3. Automobile Gasoline Use 1970-85
(MMB/D)

Year:	Auto Gasoline Use (MMB/D)	% Increase From Prev. Yr.	Total Gasoline Use (MMB/D)	% Increase From Prev. Yr.
		HISTORICAL		
1970	4.29	+5.1	6.01	
1971	4.53	+5.3	6.29	+4.5
1972	4.79	+5.4	6.69[7/]	+6.0
1973	5.09	+5.9	6.92	+3.3
		FORECASTED		
1974	4.90	-3.7	6.63	-4.2
1975	4.83	-1.4	6.61	-0.3
1976	4.93	+2.0	6.61	0.0
1977	5.05	+2.4	6.65	+0.6
1978	5.29	+4.5	6.89	+3.5
1979	5.49	+3.6	7.13	+3.4
1980	5.65	+2.8	7.36	+3.1
1981	5.80	+2.6	7.57	+2.8
1982	5.99	+3.2	7.80	+2.9
1983	6.17	+2.9	8.01	+2.6
1984	6.36	+3.0	8.23	+2.7
1985	6.55	+2.9	8.45	+2.6

Regionally per capita total gasoline consumption in the United States varies by as much as 52 percent. The Middle Atlantic States of New York, New Jersey, and Pennsylvania together average only 397 gallons per capita while the Mountain region consisting of Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, and Nevada, average over 600 gallons per capita. Table 4 gives total gasoline use and average per capita usage by region for 1972. Regional divisions of the United States are shown in Figure 1. Table 5 gives the ranked average per capita gasoline consumption by States.

TABLE 4. 1972 Regional Total and Per Capita Gasoline Use[5/]

Region	Total Gasoline Use (MMB/D)	Population (10^6)	Total Gasoline Use Per Capita (gals/capita)
New England	0.34	12.11	429.55
Middle Atlantic	0.97	37.62	369.61
East North Central	1.26	40.79	474.17
West North Central	0.63	16.62	584.82
South Atlantic	1.07	31.92	512.47
East South Central	0.44	13.15	515.58
West South Central	0.76	19.98	580.03
Mountain	0.35	8.88	601.32
Pacific	0.87	27.16	492.11
Total United States	6.69	208.23	492.80

TABLE 5. Ranking of States by Total Gasoline Consumption Per Capita--1972[5/]

State	Gasoline Use (gals/capita)	State	Gasoline Use (gals/capita)
Hawaii	327.51	Vermont	529.37
New York	369.20	North Carolina	530.07
Alaska	377.35	Mississippi	534.07
Massachusetts	395.15	Florida	538.47
West Virginia	410.46	Minnesota	544.21
Pennsylvania	415.83	Oregon	548.61
Md.-D.C.	422.75	South Carolina	549.78
Rhode Island	426.64	Colorado	550.12
Illinois	431.53	Arkansas	560.00
Connecticut	433.78	Missouri	562.02
New Jersey	433.93	Arizona	563.21
Louisiana	455.86	Georgia	568.03
Ohio	464.67	Iowa	580.39
Wisconsin	476.14	Nebraska	600.27
Washington	482.36	Texas	611.32
Kentucky	494.11	Utah	611.38
California	496.23	Idaho	613.43
Virginia	505.63	New Mexico	613.98
New Hampshire	508.16	Oklahoma	633.02
Michigan	508.72	Montana	639.34
Maine	511.99	Kansas	639.61
Delaware	512.66	North Dakota	677.73
Alabama	514.52	South Dakota	691.94
Tennessee	523.46	Nevada	701.99
Indiana	523.46	Wyoming	835.00

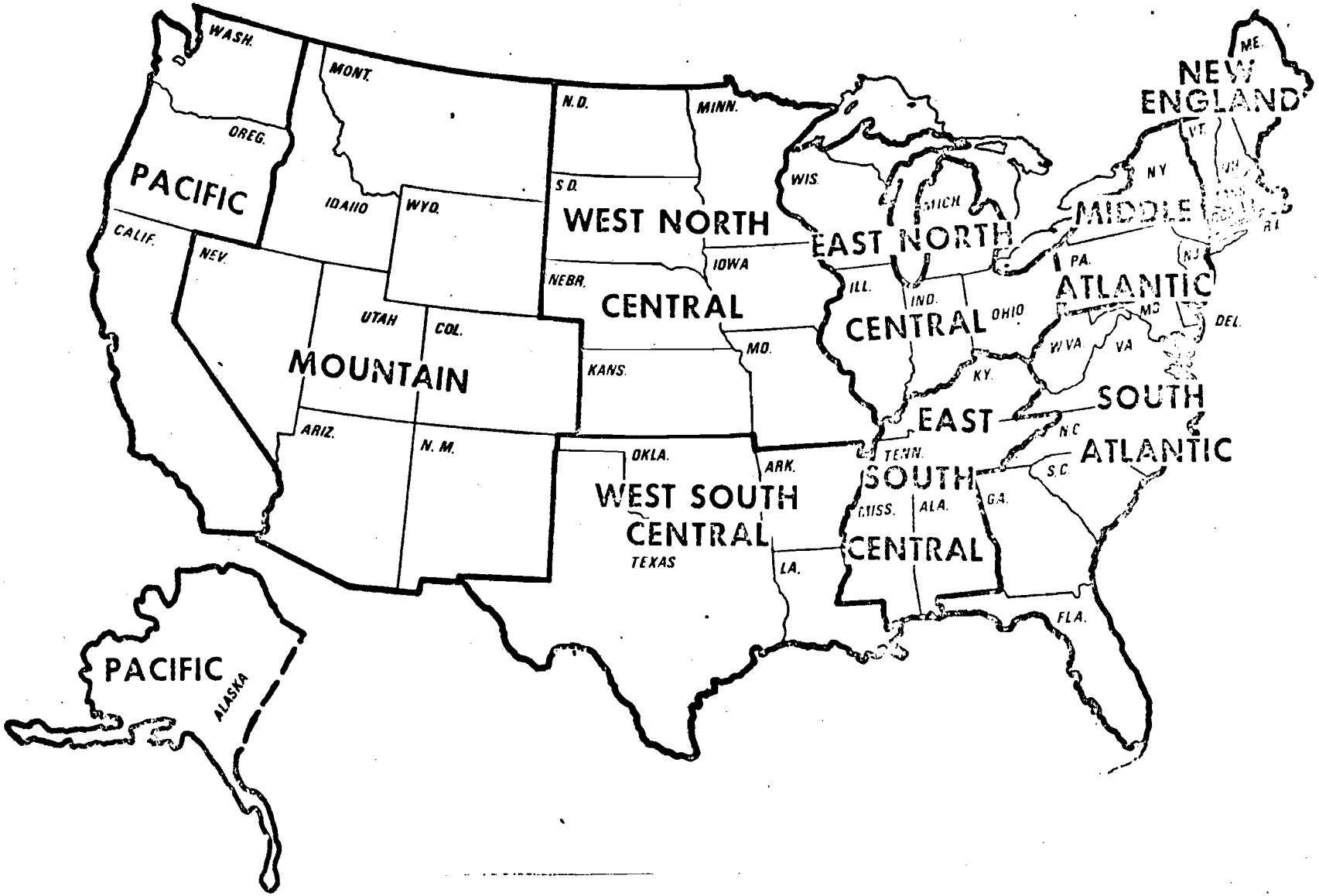


FIGURE 1. - Regional divisions of the United States.

The primary use of the automobile is in earning a living. Over 40 percent of the travel miles driven annually is for this purpose. Social and recreational travel consumes 33 percent of the annual total miles traveled. Family business uses about 19 percent. Table 6 gives a breakdown of percent vehicle miles traveled by trip purpose.

TABLE 6. Percent Automobile Miles Traveled by Trip and Purpose[8]

Trip Purpose:	% Total Miles Traveled	Estimated Gasoline Use by Purpose 1974 (MMB/D)
Earning a Living		
Home-Work	33.7	1.65
Related Business	7.9	0.39
Subtotal	41.6	2.04
Family Business		
Shopping	7.5	0.37
Medical & Dental	1.6	0.08
Other	10.2	0.50
Subtotal	19.3	0.95
Civic, Education & Religious	4.9	0.24
Social & Recreational		
Visiting	12.1	0.59
Pleasure Driving	3.1	0.15
Vacation	2.5	0.12
Other	15.3	0.75
Subtotal	33.0	1.61
Misc.	1.2	0.06
Total	100.0	4.90

Estimates of the average gasoline expenditures and the percent income spent on gasoline for five income groups are given in Table 7. Of the five groups, the lowest income group pays the largest percent of their income for gasoline. The percent income spent on gasoline declines as income increases.

TABLE 7. Annual Household Gasoline Expenditures--1972

Income Group ($)	Number of Households (millions)	Annual Expenditures on Gas and Oil per Household ($)	Mean Households Income ($)	% of Income Spent on Gas & Oil
$3,000 and less	8.6	96.22	1,880	5.14
$3,001 - 6,000	10.4	197.60	4,500	4.39
$6,001 - 10,000	13.4	312.00	8,012	3.89
$10,000 - 15,000	13.9	410.80	12,370	3.32
$15,000 +	13.4	499.20	22,240	2.24
Income Not Reported	11.6	182.00	--	--
Total	71.2	301.60	12,160	4.24

NOTES

1/ Sources: 1972 "Highway Statistics", U.S. Department of Transportation, FHWA
"Facts Bearing on the Problem" unpublished, FHWA, April 4, 1974.

2/ Automobile consumption is often expressed in terms of its percent use of highway fuels (gasoline + diesel). Using highway fuels as a base, the automobile's consumption is approximately 70%.

3/ Source: 1970-1973 "Highway Statistics", U.S. Department of Transportation, FHWA.

4/ Source: FEA Auto Simulation Model.

5/ Source: American Petroleum Institute (API), Division of Statistics and Economics.

6/ Source: FEA Energy Demand Simulation Model, February 25, 1975.

7/ DOT estimated total gasoline consumption for 1972 was 6.52 MMB/D.

8/ Source: "Nationwide Personal Transportation Study, Report 10", U.S. Department of Transportation, FHWA, May 1974.

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MASS TRANSIT AND ENERGY CONSERVATION

Conservation and Environment
March 5, 1975

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March 5, 1975

MASS TRANSIT AND ENERGY CONSERVATION

Introduction

Recently, there has been much discussion of the energy conservation potential of improved mass transit. Articles in "Passenger Transport", "Mass Transit", the general press, and testimony before Congress on the National Mass Transportation Assistance Act of 1974 have argued that increased transit funding will promote substantial energy conservation. Since, on an aggregate basis, transit travel is two to four times more efficient than auto travel, such savings appear possible at first glance. However, it must be realized that the magnitude of the energy conservation requirements are quite large, and mass transit accounts for only a small portion of the Nation's urban travel. When the issue is analyzed realistically and in perspective, it becomes evident that mass transit improvements alone have the potential of playing only a small role in the U.S. energy conservation efforts.

Background

Transit presently carries about 7 billion passengers annually [1], about 2% of the total urban passenger travel. Fifty five percent of transit travel is for commuting purposes [2]. Total transit fuel use (1973) was 0.04 MMB/D (million barrels per day), compared with total auto fuel use (urban and rural) of nearly 5 MMB/D [3]. The Department of Transportation estimates that present transit service is saving approximately 0.04 MMB/D relative to a theoretical situation in which no transit exists, and all trips are made by the auto [3]. Thus, even the doubling of transit ridership by shifting auto drivers to transit would save only an additional 0.04 MMB/D.

TABLE 1

Trends in Annual Urban Transportation Demand

Year	Transit Pass.[2] (in millions)	Transit PM*[9] (in millions)	Auto PM*[9] (in millions)	% Transit
1945	23,254	NA	NA	NA
1950	17,246	46,000	260,000	15%
1955	11,529	31,000	310,000	10%
1960	9,395	25,000	400,000	5%
1965	8,253	22,000	530,000	4%
1970	7,332	20,000	690,000	3%
1973	6,660	18,000 (est)	774,000 (est)	2%
1974	7,002 (est)	19,000 (est)	774,000 (est)	2%

Transit ridership has declined steadily from the World War II peak of 23 billion riders [1] with the exception of a slight increase during the Arab embargo of 1973-4 (see Table 1). This decline is due to a number of factors, the most important being the urban/suburban growth patterns caused from reliance on the private auto. It is important to note that the decline has continued since the creation of Federal mass transit assistance programs in 1964, even though $3.1 B has been spent by UMTA on transit improvement through FY 1974.

Transit Improvements

The reasons for transit's disappointing performance are many, but center around the relative attractiveness of the auto vs. transit in serving today's travel patterns. Since transit is in most cases far less attractive in terms of service characteristics than the auto, improvements to transit have little effect. Fare elasticities, for example, have been estimated [4] to be -.1 to -.3, which means that a 10% decrease in fares will result in only a 1-3% increase in ridership.

* Person Miles

Experience has shown, however, that much of the increase in ridership does not come from former auto drivers, but rather from walkers, carpoolers or those that didn't make the trip before (latent demand). The energy saved from this kind of ridership increase is far less than if all new transit riders were diverted from low occupancy autos. Similarly, service improvements will have an effect on ridership, although the elasticities are also low and the impacts of such improvements generally unpredicable. For example, only 8% of the riders of Chicago's new Dan Ryan Expressway rail line were formerly auto drivers; the ridership increases in the Shirley Highway (Va.), Bus-on-Freeway demonstration came largely from parallel non-freeway bus lines and carpoolers, while auto traffic in the corridor was virtually unaffected; and the $11 million extension of the MTA into the Quincy area south of Boston has had no impact in reducing travel on the three parallel highways [5].

In an effort to overcome many of these problems, Federal and local transportation planners have moved to build major new, technologically advanced, rapid rail transit systems. These systems, however, are not included in present energy conservation plans, primarily because the lead times associated with such projects are long (greater than 10 years) while energy conservation needs are much greater in the near term (5-10 years). In addition, the costs associated with these projects are quite high (up to $100 M/mile construction costs) compared to alternative systems (especially bus systems). Finally, rail systems, as presently used, are less energy efficient than equivalent bus systems, although rail is still not as inefficient in the aggregate as the auto (see Table 2).

TABLE 2

Relative Efficiencies of Urban Transportation Modes

Mode	Energy Intensiveness (BTU/Passenger Mile)
Auto (1.4 occupancy)	8,100
Auto (2.0 occupancy)	5,700
Rail Systems	4,100 1/
Bus Systems	3,700 1/

1/ Energy intensiveness based on existing load factors (26% for rail, 18% for bus). Any expansion of these systems causing lower load factors would result in higher energy intensiveness.

SOURCE: Hirst, Eric [9]

But, rail transit may play an important part in helping to foster more efficient urban land use development, although one model [8] has indicated that rail may have a sub-urbanizing effect on cities. These changes take time, however, and rail transit construction therefore should not be advocated as the solution to our near term problems.

Energy Savings

The only way that mass transit can have any energy conservation impact in the near-term would be to combine transit improvements with policies aimed at reducing single-occupant auto travel into a comprehensive multi-modal urban transportation package (see Table 3). Even though transit improvements are relatively ineffective by themselves, combining these measures with auto disincentives such as parking surcharges, increased tolls, and auto-control zones can have significant modal shift and hence, energy conservation impacts. Studies [7] have shown that the single most effective inducement to shifts from the auto is higher auto user costs, as higher auto costs tend to equalize the attractiveness of auto and transit.

TABLE 3

Mass Transit Mode Shift Policies

Transit Incentives	Auto Disincentives
A. Time and Service	A. Time
Exclusive Bus Lanes	Auto Control Zones
Priority Traffic Signals	Reduced Freeway Lanes
Improved Scheduling	
Reduced Headways	
Improved Routing	
Para-transit	
Park and Ride	
B. Costs	B. Costs
Eliminate Fares	Parking Taxes
Revise Fare Structure	Highway Tolls
Employer-Subsidized Fares	Increased gasoline prices

Even when a comprehensive program is used, however, energy savings are not large. FEA and DOT analyses [3, 6] indicate that savings of 40-50,000 barrels/day is the maximum likely conservation impact possible over the next 5 years, due to the lack of bus production capacity, problems in attracting ridership, and inherent local institutional constraints. Compared to the President's stated conservation goal of 1 MMB/D in 1975 and 2 MMB/D in 1977, and the conservation impacts of alternative transportation strategies (See Table 4), transit savings are quite small -- less than 5% of the President's goal, at best.

TABLE 4

Energy Conservation Potential of Various Transportation Policy Actions

Policy	Estimated Energy Savings (1980)
1. 40% increase in new car fuel economy	640,000 barrels/day [10]
2. Increase car occupancy to 2.0 PM/VM	350,000 barrels/day [6]
3. Double mass transit system size and ridership	40-50,000 barrels/day [3]

Conclusions

Transit does have a very important role in society. Mobility and environmental considerations, when coupled with energy concerns, make the argument for transit legitimately strong, and programs are now in effect which provide a sufficient source of funds for cost-effective improvements. For example, the new National Mass Transportation Assistance Act of 1974 provides $11.8 billion over the next six years which can be used for both capital and operating expenses, and the Federal Highway Administration has a smaller but significant transit assistance program of its own. It is important, however, to ensure that arguments for further major transit expenditures be carefully evaluated before commiting the required public funds in the name of energy conservation, especially when less costly measures to achieve the same results are available to National, state and local governments.

REFERENCES

1. American Transit Association, '74 - '75 Transit Fact Book, 1975.

2. Jack Faucett Assoc., Project Independence and Energy Conservation: Transportation Sectors, November 1974.

3. U.S. Department of Transportation, A Report on Actions and Recommendations for Energy Conservation Through Public Mass Transportation Improvements. Report to Congress pursuant to Section 8(b) PL 93-319, October 1974.

4. Holland, Dempster K., A Review of Reports Relating to the Effect of Fare and Service Changes in Metropolitan Public Transportation Systems, June 1974.

5. Hilton, George W., Federal Transit Subsidies, June 1974.

6. Federal Energy Administration, Project Independence Report, November 1974.

7. Metropolitan Washington Council of Governments, Technical Background on Transportation Control Strategies, 1973.

8. Capozza, "Subways and Land Use," in Environment and Planning, Vol. 5, pp 555-576, 1973.

9. Hirst, Eric, Energy Intensiveness of Passenger and Freight Transportation Modes, April 1973.

10. FEA Office of Energy Systems, Passenger Car Use of Gasoline An Analysis of Policy Options, Draft Report, December 11, 1974.