

A Blueprint for Short- Term Petroleum Supply Crises Management

For most North Carolinians, and for that matter, most Americans, thoughts of the Organization of Petroleum Exporting Countries' (OPEC) oil embargo during the winter and spring of 1973 do not provide pleasant memories. It was a time of personal hardship, dramatically changing daily routines, considerable inconvenience, and a deepened national recession. However, the embargo's end saw most of the population return to normal routines, changed somewhat to accommodate higher petroleum prices, but unhampered by fuel shortages. A sluggish economy began the long slow road to recovery. But suspicion still lingers that the problem of future petroleum embargoes, and subsequent economic and daily chaos, remained unaddressed. Would the national and state governments be able to respond quickly and boldly should another sudden supply interruption occur in the near future? Are we better prepared for this contingency in the near future, and if we are, at what levels of preparedness are we?

This paper is written to dispel some of the apprehension which now surrounds any discussion of petroleum embargoes. Its focus is short term supply crisis management caused by an embargo or natural catastrophe such as a break in the Alaskan pipeline. It describes the legislated national goals which will be operating during the next supply denial and briefly details the national programs which have been developed around them. It closes with a summary of actions which have been taken in North Carolina, and some comments on the basic orientation of the management framework and its implications to state and local policy making.

At the outset it is necessary to distinguish between long term and short term energy policies. Planning for

the long term allows much greater flexibility in the choice of policy direction and implementation tools. Large capital expenditures can be made over extended periods. "Project Independence" is a long term effort. In the short term we are restricted to the capital stock at hand; we must focus attention on the societal preferences which define energy demand patterns, and institute programs which can be activated quickly without burdensome administrative machinery.

Clearly the only way to protect ourselves completely against future international petroleum embargoes is to attain total self-sufficiency in petroleum by a combination of increased domestic production, petroleum conservation and fuel substitution in the long run. This is the goal of the "Project Independence" program. It is evident from President Carter's campaign statements that the new administration will increase the importance of certain elements of "Project Independence" at the expense of others. We may expect greater emphasis on solar energy, conservation, and coal and lesser emphasis on nuclear fuel. Nevertheless, conservative estimates now place the time of complete petroleum self sufficiency 15 to 20 years in the future. Clearly a program is required to ease possible short term crises like embargoes during this interim period.

The current national program for accomplishing this is a direct outgrowth of the Emergency Petroleum Allocation Act (93-159) and the Energy Policy and Conservation Act (94-163) drafted by predominantly Democratic Congresses in 1973 and 1975. Its basic orientation is price control, governmental allocation of fuels, and emergency release of petroleum stockpiles. This emphasis on a governmentally controlled market is indicative of the party which controlled Congress during this period. With the Democratic party now in power in both the legislative and executive branches, a shift toward a freer market approach is highly unlikely. For these reasons and the fact that national policy makers will now most assuredly focus their attention on the longer term self-sufficiency solutions, we can expect little change in this short term crisis management blueprint. While there may be some slight modifications, the basic format will in all likelihood remain.

U. S. Vulnerability

In October 1973, the United States was consuming about 17.6 million barrels (mmb) of petroleum each day, of which 6.2 mmb (or 35%) were supplied by crude oil and refined product (residual oil) imports. The Arab oil embargo, which lasted from October to February of that year, reduced available petroleum supplies in the U. S. from 5-15 per cent over the period. It was most critically felt during the first

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Are we prepared to confront a future petroleum embargo?
Photo by Alan Geir, The Daily Tar Heel

quarter of 1974 when imports were 2.2 mmb below previously projected volumes.

The impact of the embargo on the nation's economy was severe. First quarter 1974 Gross National Product (GNP) figures showed a 7 per cent drop where a slight increase had been forecast. The projected slowdown became a deep recession. A subsequent economic analysis¹ estimated the GNP loss at 3-4 percent for the duration of the embargo or 15-20 billion dollars in damage to the trillion dollar economy.

The most severe economic impacts that consumers still feel every day, were a result of the dramatic increase in the price of crude oil imports, an increase directly traceable to the events of the winter of 1973. Those refiners whose businesses and customers were directly imperiled by the October supply cut-off entered the world market in panic. Their bidding for the small amounts of excess productive capacity which then existed in non-embargoing nations such as Iran pushed prices to double and triple the pre-October prices. Petroleum, which was originally selling at \$5.00 per barrel, now brought \$15.00. Recognizing this high value, and the degree of short term demand inelasticity, OPEC nations immediately doubled world price and since then have artificially managed supply to support higher prices.

Supply Situation is Not Changing

While nationally the impacts of the embargo were severe, in some regions they bordered on the catastrophic. States along the east coast, North Carolina among them, suffered supply shortfalls well in excess of the 10 per cent national average. Accord-

ing to one report released recently by the Federal Energy Administration (FEA),² February 1974 gasoline supplies in North Carolina fell 19 percent short of estimated requirements. At the same time, in some oil rich states (notably Texas, Oklahoma, and Louisiana) supplies were up to 20 percent in excess of demand. The Eastern region, with little domestic oil production, received a large percentage of its imported supplies from insecure resources in the Arab bloc.

Since the embargo high petroleum prices have forced consumption downward. However, import volumes have not been correspondingly reduced because domestic production, due either to naturally dwindling resources or controlled prices has fallen by almost the same amount as consumption. In fact, even though total demand is lower, imports today comprise a greater percentage of total supplies (40 percent of current supplies are imported, 18 percent from Arab nations). The future is no brighter. Alaskan oil and exploration of the outer continental shelf will increase domestic production; but a reduction in present Canadian imports, continued declines in yields from domestic fields, and a now obvious reversal in demand patterns will perpetuate our long term reliance on Saudi and other Mid-eastern oil.

To make matters worse, the current high price of petroleum has forced out of the economy many low-valued uses. Price has forced people to conserve. Thus, a loss of substantial petroleum supplies (of the order of 1973) would wreak much greater economic havoc today than three years ago.

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These post 1973 trends of increasing reliance upon imports and deepening economic vulnerability have established the need for a contingency strategy at the national level. Planning activities over the last three years, in both the legislative and executive branches of government have resulted in a sharply defined program for facing future crises in petroleum supply. In order to place the components of this response strategy in a viable planning framework we first must consider the national objectives which will be pursued during a future embargo.

National Objectives

The basic focus of the national response is stated clearly in two national energy policy bills: the Emergency Petroleum Allocation Act (PL 93-159) passed during the 1973 embargo, and the Energy Policy and Conservation Act (PL 94-163) passed two years later. The four national goals to be pursued in combatting a supply crisis were clearly enunciated in the EPAA and unchanged in the later bill. They are to:

(1) Meet national priority needs especially with respect to public health, safety and welfare, national defense, agriculture, basic public services, and energy production.

(2) Achieve an equitable distribution of crude oil, residual fuel oil, and refined petroleum products at equitable prices among all regions and areas of the United States, assuring full refinery operation to the extent practicable.

(3) Protect market shares of independent refiners, small refiners, and nonbranded independent marketers.

(4) And maintain economic efficiency by minimizing economic distortion, inflexibility and unnecessary interference with market mechanisms.

To advance these goals, three major programs were outlined in the Act: one of price controls, another to equitably allocate crude oil, and a third to distribute petroleum products according to a priority system.

The Energy Policy and Conservation Act maintained these programs except for minor refinements and mandated the formulation of standby coupon rationing and energy conservation plans. The core proposal of the EPCA, the creation of a Strategic Petroleum Reserve (SPR), marked a dramatic shift in contingency planning; a shift away from conservation and allocation toward replacement of lost supplies with additional petroleum sources. This change in emphasis reflects the perceived increasing economic vulnerability of the United States to petroleum import interruptions and the rising cost in inconvenience, delay, and economic hardship associated with crash energy conservation programs.

The Strategic Petroleum Reserve (SPR), as authorized by Congress, is an 8-10 billion dollar pro-

ject designed to store between 500 million and 1 billion barrels of crude oil and petroleum products. The massive size of the program would provide six months to one year of direct supply substitution for a very severe embargo on the order of 3mmb a day.

The SPR program has been justified by a cost/benefit analysis which computed the economic losses averted by the reserve expressed as GNP and consumer surplus, for specific embargo scenarios (i.e., duration, magnitude, time of occurrence). These benefits were then compared against the cost of particular reserve volumes.³

Most of the Strategic Reserve will be stored as crude oil in natural salt dome formations along the Gulf of Mexico. The National Petroleum Council⁴ suggested storing two types of crude oils: one a high density, high sulfur variety, and the other of low density and low sulfur content. The first report of the Reserve Program to Congress is due by December 1976. Filling should commence shortly thereafter. It is projected, however, that the 500 mmb mark will not be reached until 1982.

The programs established by the acts, or those growing out of the stipulated national goals fall into four broad categories: programs to increase available supplies, programs to control petroleum prices, programs to reduce petroleum demand, and programs to allocate crude oil and petroleum products.

Table 1 lists the current status of these programs: whether they are currently operating and significantly affecting petroleum supply and/or demand; operating but of major importance only during a supply shortfall; or operational only upon activation by the President or his representative during a supply crisis. Figure 1 is a summary schematic showing the relationship of each program to the various elements of the petroleum distribution chain.

The burden each program will bear in meeting the crisis, will to a large extent, depend upon the circumstances surrounding the interruption; however, together they represent the extent of the non-military

Table 1
Status of Strategic Programs

Category	Program	Status
Increase supplies	International energy program	Emergency Standby
	Strategic Petroleum Reserve	Emergency Standby
	Temporary Pumping Rates	Emergency Standby
Control Prices	Two-tier Price System	Currently operating with substantial supply/demand impact. Phasing out over next 3 years.
	National Average Price (Entitlements Program)	Currently operating. Phasing out.
Reduce Demand	Cost Pass Through	Currently operating. Phasing out.
	Voluntary Conservation	Emergency Standby
	Mandatory Conservation	Emergency Standby
Allocate Available Supplies	Buy-Sell program	Currently operating but of little impact except during supply crisis.
	Refinery Yield	Emergency Standby
	Mandatory Product Allocation	Currently operating but of little impact except during a supply crisis.
	Coupon Gasoline Rationing	Emergency Standby

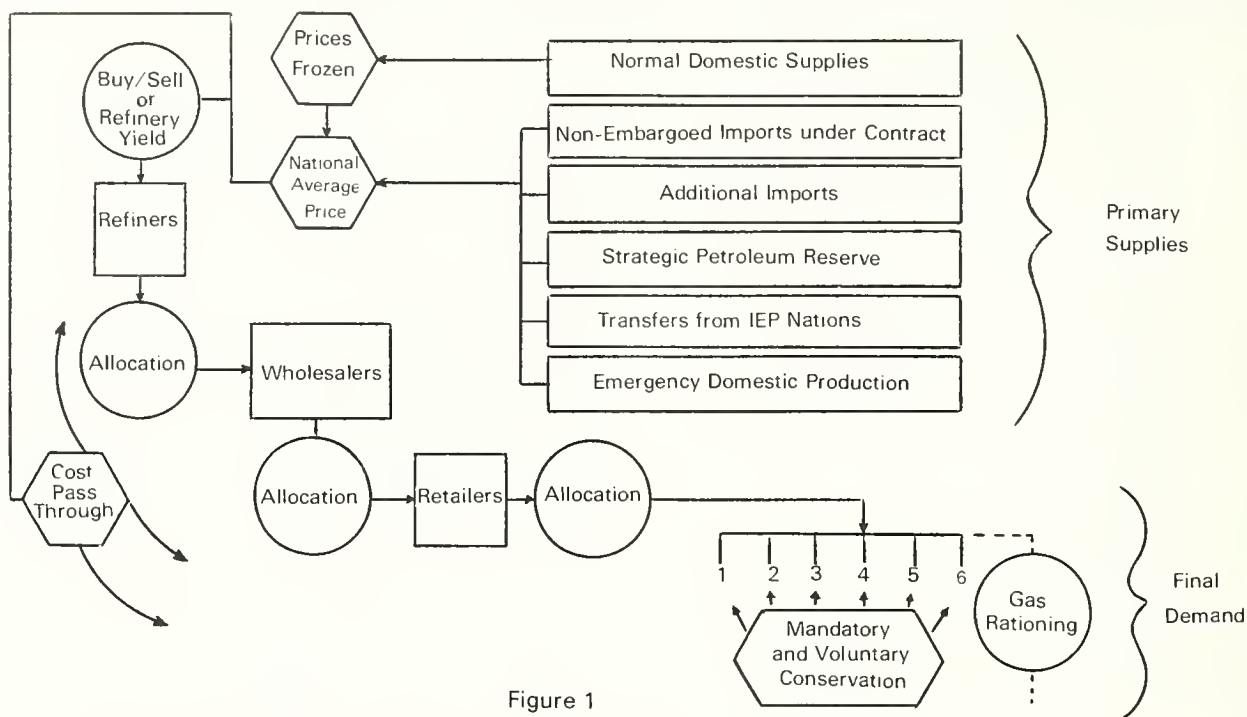


Figure 1

Impact of Contingency Programs on Elements of Petroleum Distribution Chain

strategic response. Following is a brief description of each program and a glimpse at what the situation might look like the next time around.

Increase Available Supplies

The quickest way to defeat the embargo would be to arrange for long term substitution of the petroleum supplies lost. This minimizes economic damage and alerts the perpetrators that to be effective the embargo must be very long in duration and very great in the amount of petroleum denied. Four programs are directed at increasing available supplies.

International Energy Program. If the interruption is directed against one or a few nations the International Energy Program (IEP) will act to distribute the remaining total imports among all importing nations. This will result in a net increase in supplies to the nations against which the embargo is specifically targeted. Most oil importing nations, the United States, the countries of western Europe, and others, belong to the IEP. The program is activated if any one member experiences a supply loss of 7% or greater. Supplies are redistributed up to the point where all nonembargoed members suffer a loss of 10 percent of their own supplies.⁵ Since the United States is the most likely victim of a future Arab oil embargo we should derive considerable benefits from the program.

Increase Imports from Non-embargoing Nations. The decrease in world demand for petroleum brought about by the sudden price increase has left many petroleum exporters with excess capacity. This excess capacity represents a readily available "reserve". However, we do not want importing firms to enter the market in a state of panic, as happened during the 1973 crisis, bidding prices up to new ex-

cessively high levels. The government must act to relieve the price pressure and at the same time offer incentives for seeking out reasonably priced additional imports. The Strategic Petroleum Reserve, besides reducing economic damage by supplying additional oil, is well suited to this task.

Strategic Petroleum Reserve. The reserve will probably be one of the first programs instituted in a sudden supply loss. However, the operation of the reserve will require a number of specific policy decisions at the time of release. Once reserve use has been initiated, decisions must be made about the amount of petroleum to be drawn down, the price to be charged for the petroleum, and the proportions of different types of reserve crude which will be sold. The reserve will most likely be drawn down at a rapid rate in the initial stages in an attempt to break the will of the embargoers and prevent citizen panic. Reserves will be depleted at lower rates as the embargo period lengthens and other programs begin to show results; for example, as mandatory and voluntary fuel conservation force demand downward. The price charged for the released petroleum, if set slightly above pre-embargo prices, would act to encourage the contracting of additional imports and at the same time place a ceiling on import prices. All else being equal a refiner seeing two sources of supply will opt for the cheaper of the two. In this sense the SPR functions as an additional petroleum exporter in competition with non-embargoing exporters. In times of a severe shortfall, the amount of reserve released could be put up for bids subject to some minimum price. Thus import prices would be forced to equilibrate with reserve price. Pricing and drawdown strategies for the reserve are still in the early stages of formulation

but optimal strategies are essential if full benefits are to be derived from the SPR.

Emergency Pumping Rates. The EPCA gave the President the authority to order increased pumping rates from certain domestic natural gas and petroleum fields. The President may require these fields to produce at the maximum efficient rate for the duration, and at a temporary production rate for a period not to exceed 90 days. The temporary rate carries the risk of permanent rupture of the oil reservoir if prolonged, and most domestic fields currently produce at the maximum efficient rate due to a price incentive.

Only minimal additional supplies are expected from these programs, and some price incentives would have to be offered to assure the increased production.

Control Prices

The price control program has three major elements. Its foundation is a two-tier price system and a cost pass-through. Complementing this is a program to average petroleum prices among purchasers. The program is designed to prevent inordinate profit-taking, equitably distribute the differences in the prices of oil from different sources, and provide economic incentives for developing additional sources of supply.

The two tier system currently imposed on all oil supplies went into effect with the passage of the EPAA and will gradually be phased out over the next three years. However it will most likely be reinstated in a similar form in the event of a future embargo. The program establishes two base prices for crude oil. The lower tier is a price set on 1972 volumes of domestically produced oil. This price is currently \$5.25 per barrel. The higher price, approximately that of imported oil, applies to imports, small well production and volumes above those of 1972. Together the two prices act to prevent huge profits on traditional domestic supplies which would be brought about by allowing these supplies to equilibrate with artificially high OPEC prices while providing a price incentive for increased production.

In order to eliminate the competitive price advantage of those companies with large domestic supplies controlled at the lower price, a national average price is calculated and revenues are consequently divided among suppliers and importer. The cost pass-through program assures that dramatic increases in price or supply related costs are passed through to the consumer on a strictly dollar for dollar basis. No additional profitting is permitted at any step in the distribution chain from primary supplier to retail distributor. Such a program permits the search for more expensive sources, but ensures that final consumers will derive full benefits from additional supplies.

Since a price control program will be in effect, it follows that price will not be used to equilibrate supply with demand nor will it bear the burden of fuel allocation as it would if prices were allowed to float. Thus, if the combination of emergency supply increases and small price rises fail to accommodate the perceived national demand, additional programs must take on the task of reducing that demand and

allocating the supply available. To reduce demand, a contingency conservation plan has been drafted, but as of this date it has not been submitted to Congress.⁶

Reduce Petroleum Demand

Two kinds of fuel conservation programs are outlined. The mandatory program consists of those measures which will be taken under penalty of legal prosecution. Presently five measures are proposed. These are: (1) restrictions on heating and cooling of public, commercial, and industrial establishments, (2) restrictions on available commuter parking spaces, (3) elimination of weekend gasoline sales to privately operated motor vehicles, (4) requirements to increase industrial boiler efficiency, and (5) reductions in illuminated advertising and natural gas lighting. Taken together these measures could save between .3 and .5 mmb per day.

In addition to these mandatory programs, citizens and business establishments will be requested to undertake a number of voluntary activities aimed at restraining demand. Suggested actions made through the media will include thermostat adjustments, reduced electricity use, automobile tuneups, and elimination of nonessential motor vehicle use. The last embargo revealed a willingness on the part of the American people to reduce demand in a crisis. We can therefore expect some voluntary demand restraint in the future, although probably less than the last crisis situation due to the higher value (price) petroleum now has in our society.

If the reduced demand is not sufficient to eliminate the supply/demand shortfall, an allocation program must be introduced. Particular quantities of fuels must be targeted for specific consumers. Currently two allocation programs are operational. The first allocates crude oil among refineries, while the second takes the outputs from the refineries, — gasoline, distillate fuel, residual oil, etc., —and distributes them by the type of end use to which they will be put.

Petroleum Allocation

The crude oil program, aimed at refineries, is designed to equalize the crude shortfall among the primary producers of petroleum products with the hope that by so doing regional inequities will be reduced and relative market shares will be protected. As currently set up, this program, (called the buy/sell program) calculates a national fraction of base period supply. A refinery is classified as buyer or seller depending on how its supplies compare to the national fraction. If it is above the national fraction, the refinery will be forced to sell the excess to those who fall below it.

In times of severe crisis or substantial reductions in petroleum product imports, another program much more complex than the buy/sell will be activated. While still on the drawing board, the Refinery Yield Program is designed to optimally use available refinery capacity to produce a specific mix of products. For instance, if an embargo were to occur during an especially cold winter, concern for public safety might require the sacrifice of some gasoline

production in favor of producing a greater percentage of middle distillate fuels for home heating. That is, for each barrel of crude oil processed a much larger fraction of distillate oil would be produced than is normally the case. By shifting the product mix in this way no new supplies will be created. We simply trade disruption brought on by gasoline unavailability for the health of those living in oil heated homes. Such a program could use price or allocation as incentive for the production shift. For instance, during the 1973 episode the government wanted to effect a shift away from gasoline and toward production of middle distillates. The shift was accomplished by allowing a 2 cent per gallon price increase for heating fuels at the same time reducing allowable gasoline prices by 1 cent per gallon. A shift could also be affected by allowing the more flexible refineries or those with historically higher yields of preferred products proportionately larger crude oil supplies. This would favor large refineries like those in Texas and Louisiana with more internal flexibility over smaller operations. A possible deliberate inequity in crude oil allocations would have to be reversed by money or refined product transfers among affected refineries.

Output from refineries is distributed by the Mandatory Product Allocation Program. This program assigns a priority classification to each end user and associates with each classification a certain percentage allocation based on available supplies. Six priority

groups are defined. National defense and agriculture, designated as priority one users, receive 100 percent of current requirements. Emergency services and mass transportation systems, among others of priority two, are allocated their current requirements adjusted by an allocation fraction which relates current supplies to those that were expected given traditional demand. The next four priority groups receive a decreasing fractional percentage of their base period demand or current requirements. Private motor vehicles are assigned the lowest priority for gasoline and no individual allocations are made (the only legal stipulation being that a retailer must not discriminate among purchasers). Table 2 gives a list of some common petroleum users, and the percent of supplies to which they are entitled from the three major petroleum products. The table is not all inclusive since some users receive different allocations over the spectrum of petroleum products.

To insure a smooth operation of the product allocation program each state may reserve three to four percent of available supplies. These are dispensed by petition to customers of wholesalers and retailers particularly hard hit by high priority demands.

The final allocation program designed specifically for priority seven is gasoline coupon rationing. The EPCA mandated that a gasoline coupon rationing plan be developed and the plan is scheduled for submission to Congress some time next year. The ration-

Table 2
Petroleum Uses and Mandatory Allocations

Fuel Type	Energy Uses	Allocation
Motor Gasoline	Agricultural Production	100% C.R.
	National Defense	100% C.R.
	Emergency Services	100% C.R. x A.F.
	Mass Transportation	100% C.R. x A.F.
	Industrial Use	100% B.P. x A.F.
	Commercial Use	100% B.P. x A.F.
	Governmental Use	100% B.P. x A.F.
Middle Distillates	Agricultural Production	100% C.R.
	National Defense	100% C.R.
	Space Heating of Hospitals And Nursing Buildings	100% C.R.
	Emergency Services	100% C.R. x A.F.
	Drug Manufacture	100% C.R. x A.F.
	Industrial Space Heating	100% C.R. x A.F.
	Commercial and Residential Space Heating	100% B.P. x A.F. or .88B.P (Whichever is greater)
	Residual Fuel	Agricultural Production
	National Defense	100% C.R.
	Electric Utilities	Equal percentage cutback within specified groups
	Industrial Use	100% B.P.

Legend

C.R. Current Requirements
 B.P. Base Period Demand
 A.F. Allocation Fraction (Equal to supplies available divided by projected demand after a certain priority group have been allocated fuel.)

ing program would allow a "white market"; the above-board selling of ration coupons, and would act to alleviate long gasoline lines and inconvenience and annoyance. However, the actual price of gasoline would increase as coupons are bid up. The number of coupons released would approximate projected gasoline production.

Are We Prepared?

To state that we are more prepared than we were in 1973 would be saying little, since the events of 1973 took us all by complete surprise. Since that time energy conditions in the United States have drastically changed. Nevertheless, the detailed strategy plans have been prepared and the larger projects like the Strategic Reserve are moving forward. While it is not possible to "arrange" a trial embargo to evaluate these elaborate plans under fire, their existence and continuing refinement should remove much of the uncertainty, apprehension and fear associated with a repeat of October 1973. Although we may still be called upon to make considerable sacrifices we will not be taken by surprise.

Of particular importance to North Carolina is the fact that considerable care has been taken in these plans to protect those of us on the east coast; that is, to regionally distribute any shortfall related economic hardship. Also, the Federal Energy Administration has encouraged individual states to adopt contingency conservation and distribution plans of their own.

Because of our bitter experience during the last embargo, the state of North Carolina is well along in this effort. In October of this year the Emergency Energy Program Subcommittee of the state's Energy Policy Council published a draft form of a state contingency plan.⁷ This document, entitled *Emergency Energy Program*, proposes a variety of conservation measures, describes the procedures for administering the State Set Aside, and details the organizational structure which will supply the interface required for the national programs to operate effectively. The state's program is developed in such a way as to function in the event the crisis is local in effect or before a state of national emergency has been declared.

The long list of conservation programs in the state's plan includes restrictions on times of gasoline sales, increased use of public transportation and car pools, reduced shopping trips, and increased fuel efficiency by specific suggestions on vehicle operation and maintenance.

Efficient implementation of the State Set Aside Program; well detailed in the Emergency Energy Program will be especially important in helping protect our elderly population, who because of location and general conditions within the general distribution system, may have no other recourse in the event of allocation imperfections. The State Set Aside is a channel to quickly rectify spot changes.

With the proper preparation, resolve, and citizen trust, both locally and nationally, we will be able to economically fight back. The Arab nations are becoming increasingly dependent upon oil revenues. The



Domestic fuels are given high priority rating

Photo by Bruce Stiftel

next embargo will impact them to a much greater degree and will put us in that much stronger a position. As time goes on and the Strategic Reserve approaches its design volume, our position can only improve, and as a direct consequence, the likelihood of another embargo will diminish.

However, this is not to say that the national and state strategies are without important implications for North Carolinians or that a future embargo will require no more than a few modest changes in lifestyle. Rather the very orientation of these programs will make it a very hard time for those people and regions heavily dependent on motor gasoline for essential daily activities.

Implications and Comments

Of the three major uses for petroleum which most concern our daily well being—electric power generation, home heating and transportation—North Carolinians are relatively secure with two. Unlike the Northeast, where air quality constraints compel the use of low sulfur residual fuel oil, electric power in North Carolina is generated primarily from coal burning and nuclear facilities. For example, only 3% of Duke Power's total generating capacity from fossil fuel and hydroelectric plants is petroleum based.⁸ This small percentage which is considerably less upon inclusion of nuclear generation is almost totally due to a number of small peak load internal combustion plants. Such peak load facilities are only activated during the hot summer months, the least vulnerable time of the year from the standpoint of a petroleum embargo since demand for distillate fuels for home heating is negligible. With this low reliance on petroleum-derived electricity we should expect no brownouts, nor will the utilities serving the state be forced to make large orders for emergency coal

shipments. Business as usual should suffice.

The state, however, is quite reliant on petroleum for home heating. A recent energy study in Orange County, not a representative area but indicative of our reliance on petroleum based home heating, estimated residential heating to be 12% of total petroleum consumption.⁹ Seasonal variations probably double or triple that percentage during the winter. A considerable reduction in distillate fuel supply would create a sizable public health hazard. It is to alleviate this threat to the public health that the Mandatory Product Allocation Program places a floor

“The national and state plans fail to address the physical need for moving people to essential activities.”

of 88 percent of base period use under residential distillate supplies. However this protection is not without its cost. As already mentioned, during the last embargo, distillate production was increased at the expense of gasoline. If the public health is jeopardized once again the same tradeoff will be made.

It is the resultant compounded reduction in gasoline supplies which poses the greatest threat to the personal and economic well being of the citizens of this state. North Carolina is basically a commuting state. Low residential densities make efficient (cost returning) mass transportation systems virtually impossible. Most larger cities have small bus systems but even these have serious financial problems, witness the Raleigh and Chapel Hill systems. Thus our main worry in a future substantial petroleum supply denial will be finding alternatives to private automobile use, now the life blood of our economic activity.

The national and state plans fail to address the physical need for moving people to essential activities. Whereas the focus of the national programs is on governmental regulation of the energy market, it is nevertheless entirely market oriented. It simply establishes new rules for market transactions. Fuel allocation is done by coupon, priority level, or mandated conservation rather than by price. The individual actor or “purchaser” in this market is still required to fend for himself, to do the best he can for himself under the circumstances. This is fine for national level programs, but state and local activities should go much further. However, the emergency plan of the state echoes this same orientation. Fuel is made less available by restricting sales or requiring certain conservation practices, and emergency allocations are made to special hardship cases, but the fact that many people will have to get to certain locations is ignored.

This focus on market regulation and reliance on individual action neglects the basic economic definition of the short term. It is in the short term that we are most restricted on the actions we can take, most committed to our present way of doing things. It is in the

short term that individual action will be the most unproductive, especially in efficiently reducing gasoline use patterns, which are currently so vital.

State and local government planners must go beyond “encouragement” or “guidance” and propose concrete measures for moving people to essential activities during periods of substantially reduced gasoline supplies. Such measures might include emergency use of the school bus fleets which lie idle most of the day, a system for rewarding those who form car pools, emergency car pool information centers in town halls, radio stations, and industrial firms, and shifting to abbreviated 3-4 day work weeks, with extended work shifts. Particularly effective programs might be centered around large governmental and industrial employers. For instance, in order to encourage pooling, employers should be required to observe strict time schedules for all non-hourly employees. The luxury of flexible schedules is contrary to energy efficient automobile transportation. When it is necessary to require overtime or an extended work day, employees should be notified well in advance and work structured around car pool members who stay beyond quitting time to accommodate one who is forced to work.

Such simple measures should be specified clearly within any contingency program developed by state or local authorities. The market is impersonal. It is easy to say that we will all have to “conserve” more, “tighten our belts”, but severe reductions in gasoline availability will strike particular individuals very hard, especially a sudden event like an embargo. To them personal security will be as important as national security. We have now addressed the latter, it is time to give some assurances of the former.

Footnotes

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