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BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

The United States Remains Unprepared For Oil Import Disruptions

Volume I ~~of 2 Volumes~~

Summary: includes conclusions and recommendations

The U.S. Government is almost totally unprepared to deal with disruptions in oil imports. Oil import disruptions--such as the 1973 oil embargo and the 1979 Iranian shortfall--pose a significant threat to national security, and the lack of effective contingency planning and program development to date is serious and requires immediate attention.

The Government must make a determined commitment to emergency preparedness now, while oil markets are slack, to prepare for any future disruption. GAO's report contains numerous recommendations which will facilitate effective planning.

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-203975

The President of the Senate and the
Speaker of the House of Representatives

This report examines the Federal Government's ability to cope with oil import disruptions. It discusses the adequacy of the Department of Energy's current contingency programs and organization for dealing with oil shortages and suggests ways to strengthen the Nation's energy emergency preparedness.

The report was prepared at the request of Senator Charles H. Percy, Chairman, Subcommittee on Energy, Nuclear Proliferation and Government Processes, Senate Committee on Governmental Affairs, and Senator Edward M. Kennedy, then Chairman, Energy Subcommittee, Joint Economic Committee. Because of the wide interest in the subject, they agreed that the report should be addressed to the entire Congress. In the interest of timely release of the report, Senators Percy and Kennedy requested that GAO not seek agency comments.

Copies of this report are being sent to the Secretary of Energy, the Secretary of the Treasury, the Secretary of State and the Director, Office of Management and Budget.

Milton J. Socolar

Acting Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

THE UNITED STATES REMAINS UNPREPARED FOR OIL IMPORT DISRUPTIONS

D I G E S T

With the exception of the recent buildup of the Strategic Petroleum Reserve, the United States is no better prepared to deal with significant disruptions in oil imports than it was during the 1973 oil embargo.

The Nation's almost total lack of emergency preparedness requires immediate attention. The Federal Government bears the primary responsibility and must take concerted action to counter this serious threat to national security. While the current state of readiness is poor, GAO believes that immediate steps can be taken to improve preparedness. Some will help in the near term, while others will bring significant benefits within 2 to 4 years.

Time is the important factor. The world oil market is inherently unstable. The Nation needs to act now to protect itself against import disruptions. The U.S. now has the luxury of importing less oil than in recent years in a market characterized by oversupply and falling prices. The slack market is similar to the one prevailing in the years preceding the Iranian oil shortfall of 1979. The U.S. ignored the underlying instability of the Middle East then and paid for it dearly as prices doubled in 1979 and 1980. With effective domestic and international contingency planning, that small shortfall probably would not have caused the price hike which severely damaged the economies of both the developed and underdeveloped nations. The Government would be short-sighted if it let this opportunity to develop an effective oil emergency preparedness program pass.

GAO's two-volume study was made at the request of Senator Charles Percy, Chairman of the Subcommittee on Energy, Nuclear Proliferation and Government Processes, Senate Committee on Governmental Affairs, and Senator Edward Kennedy, former Chairman of the Energy Subcommittee of the Joint Economic Committee.

Tear Sheet

EMD-81-117
SEPTEMBER 29, 1981

Volume I summarizes GAO's conclusions and recommendations. Volume II is a more detailed discussion of the results of GAO's comprehensive reviews of the status of contingency plans and programs and alternative approaches for coping with oil import disruptions. All page references in this digest are to Volume I.

CURRENT STATE OF READINESS

In order to examine present emergency preparedness, GAO hypothesized an import shortfall of 3 million barrels per day (MMBD) to the United States. While this is a substantial shortfall, it is by no means a "worst case." (See pp. 2-3.)

The analysis is not limited to the 3 MMBD case; however, that was chosen to simplify presentation of this complex subject and provide a benchmark for evaluating larger and smaller disruptions. GAO examined emergency programs for quickly increasing oil supply, substituting other fuels for oil, restraining oil demand, and allocating short supplies both nationally and internationally (international allocation is carried out by the 21-nation International Energy Agency--IEA).

Legislative authority, provided by the Emergency Petroleum Allocation Act (EPAA) which enables the Federal Government to establish contingency programs in a number of important areas, will expire September 30, 1981. GAO analyzed how these programs have fitted into the Nation's overall emergency preparedness, since Congress might choose to renew or otherwise extend the authority for one or more of them. During the summer, 1981, GAO briefed several congressional committees on the principal findings and conclusions of this study, with special reference to the expiring EPAA authorities.

GAO found that the Nation is grossly unprepared to cope with a 3 MMBD shortfall (see pp. 6-9):

--No plan has been prepared for emergency surge oil production.

--There is no adequate plan for using the Nation's most important disruption insurance--the Strategic Petroleum Reserve (SPR).

--The Government has no plans for managing private oil stock drawdown, and the Govern-

ment's authority to manage private stocks expires on September 30, 1981.

--Both crude oil and petroleum product allocation programs are in disarray, and most authority for such programs lapses on September 30, 1981.

--Federal and State plans for restraining oil demand are totally inadequate, and the legal framework for demand restraint is impractical.

--Emergency oil reserves both here and in other industrialized countries are not adequate.

--The international oil sharing mechanism is too narrowly focused and may not work effectively.

These and other important though secondary conclusions are summarized in Chapters II, III, and IV of Volume I and analyzed more fully in Chapters III through VIII of Volume II.

WHAT CAN BE DONE?

Government has an important role in countering oil import disruptions even though market forces can be used to offset many negative effects of shortfalls. Oil market disruptions are extraordinary happenings; therefore, total reliance on unfettered markets is an inappropriate means for dealing with disruptions and will lead to greater economic and political losses than would occur under an integrated approach guided by governmental action. For example, only the Federal Government can plan effectively for SPR use, nation-wide demand restraint, removing constraints to fuel switching, recycling tax revenues, participating in International Energy Agency (IEA) programs, and many other areas. At the same time, use of the market to balance supply and demand through flexible prices is indispensable for countering disruptions because it supports the goals of governmental measures.

A governmental program also has important psychological benefits, both domestically and internationally. Well-designed, effective, and timely programs will reassure the American public and help avoid panic. They should be developed beforehand so that government at all levels will not have to enact measures in the confusion and political pressures generated by a disruption.

Such quickly instituted measures may be ineffective or even counterproductive. Internationally, a carefully prepared program will reassure our friends, making precipitous price increases less likely by reducing or avoiding pressure on the oil spot market and by asserting American leadership in this important area of political/economic policy.

GAO believes that the Federal Government must provide one crucial ingredient which has been missing from its recipe for oil disruption preparedness. That ingredient is commitment. Eight years of desultory activity in this area show that without this commitment little will be accomplished. The report contains many recommendations both to Congress and the Executive Branch. These are designed to support development of an integrated plan for emergency preparedness.

The Nation can have effective contingency programs to protect itself from the disastrous impacts of world oil market disruptions. Basically, what is needed are programs which will yield significant benefits when applied, are fully developed and kept ready for use, can be implemented in a timely manner, coordinate the actions of the public and private sectors, can be enforced, and are fully tested before use. This is a tall order. The process should begin now; if adopted, GAO's recommendations, both to Congress and the Executive Branch, will support that process.

The full set of conclusions and recommendations is in Chapter V of Volume I. The principal conclusions and recommendations are:

1. The U.S. needs to increase the oil available for emergency use via industry stocks, the SPR, and surge oil production. GAO's recommendations for increasing supply include maintaining government authority to manage private stocks after September 1981; completing, in conjuction with private industry, a plan to manage stocks; and establishing a private petroleum reserve. The Department of Energy (DOE) should use secure supplies such as Alaskan North Slope and U.S. royalty oil as much as possible to fill the SPR, and a comprehensive SPR use plan should be developed and integrated with other contingency plans. Surge oil production holds considerable promise; a law allowing emergency production at

Elk Hills should be passed; and agreements with the governments of Alaska and Texas permitting surge production should be negotiated by DOE. (See pp. 50-56.)

2. Congress needs to replace the crude oil and product allocation authority which expires in September 1981 with authority for an improved emergency distribution system. This is particularly important for the next few years as effective contingency programs are established. Price controls are a counterproductive strategy, and GAO recommends that they not be used; gasoline rationing also should be avoided because it is clumsy and expensive and would need a price control program to work. (See pp. 56-61.)

3. One promising way to counter disruptions is a mechanism which works through the oil market. Emergency taxes with rebates may be easier to operate than gasoline rationing, be less disruptive, and could be as equitable. Development of such a system is particularly important, and GAO recommends that the Departments of Energy and Treasury review the potential of such a system as quickly as possible. The State Department should also promote emergency taxes as an IEA policy. (See pp. 58-61, 68.)

4. Demand restraint planning needs a complete overhaul. Primary emphasis needs to be placed on voluntary programs which provide flexibility and build consumer confidence and participation. Mandatory programs should be developed for use as a last resort. State planning is a sound concept, but the law must be changed to require States to submit their plans before, not after the disruption begins. If States do not submit plans, the Federal plan should be imposed immediately if a disruption occurs. (See pp. 61-66.)

5. Estimates of oil-to-gas fuel switching potential vary widely and are highly speculative. GAO recommends that a better assessment of gas supplies, deliverability, and switching capability be made. An adequate oil-to-coal switching program--which is much less far along than

oil-to-gas switching--should be developed. DOE's plans in this area cannot now be implemented quickly enough to effectively substitute for a significant amount of oil. One important aspect of both oil-to-gas and oil-to-coal programs is reliable data. GAO recommends that DOE ensure the necessary information is kept current and is in useable form for contingency purposes. (See pp. 66-67.)

6. Much needs to be done to develop a more effective international energy emergency preparedness program. Oil disruptions are inherently international, and measures to cope with them are much more effective if they are internationally coordinated. GAO recommends that the Departments of Energy and State work within the IEA to increase member country useable emergency reserves to at least 90 days; develop better programs to cope with small but significant market disruptions; establish a binding oil price reconciliation mechanism for emergency sharing; and consider establishing an IEA-wide emergency oil tax. (See pp. 67-68.)

The Appendix contains suggested legislative language for certain recommendations in the report.

AGENCY COMMENTS

In the interest of timely release of this report, Senators Percy and Kennedy requested that GAO not seek agency comments.

Contents

VOLUME I

SUMMARY REPORT

APPENDIX SUGGESTED LEGISLATIVE LANGUAGE FOR RECOMMENDATIONS

ABBREVIATIONS

AGA	American Gas Association
ANS	Alaska North Slope
API	American Petroleum Institute
BPFC	Base Period Final Consumption
CBO	Congressional Budget Office
CIA	Central Intelligence Agency
CPI	Consumer Price Index
DAS	Deputy Assistant Secretary
DCO	Delayed Compliance Order
DOE	Department of Energy
DR	Demand Restraint
EBTR	Emergency Building Temperature Restrictions
EECA	Emergency Energy Conservation Act
EMD	Energy and Minerals Division (of GAO)
EP	Assistant Secretary for Environmental Protection, Safety and Emergency Preparedness
EPA	Environmental Protection Agency
EPAA	Emergency Petroleum Allocation Act
EPCA	Energy Policy and Conservation Act
ERA	Economic Regulatory Administration
ERDO	Emergency Reserve Drawdown Obligation
ESS	Emergency Sharing System
ESSD	Emergency Strategies and Scenario Development Division (of DOE)
FEA	Federal Energy Administration
FEO	Federal Energy Office
FERC	Federal Energy Regulatory Commission
FUA	Powerplant and Industrial Fuel Use Act
GAO	General Accounting Office
GNP	Gross National Product
IAB	Industry Advisory Board
IEA	International Energy Agency
IEP	International Energy Program
IPR	Industrial Petroleum Reserve
ISAG	Industry Supply Advisory Group
LNG	Liquefied Natural Gas
MBD	Thousand Barrels Per Day
MER	Maximum Efficient Rate of Production
MMB	Million Barrels
MMBD	Million Barrels Per Day
MMBDOE	Million Barrels Per Day Oil Equivalent
MPH	Miles Per Hour
NMMA	National Marine Manufacturer's Association
NATO	North Atlantic Treaty Orgnization
NPC	National Petroleum Council
NPR	Naval Petroleum Reserves
NRC	Nuclear Regulatory Commission
NSPD	National Security and Plans Development Division (of DOE/EP)
NUR	National Utilization Rate

OAPEC	Organization of Arab Petroleum Exporting Countries
OECD	Organization for Economic Cooperation and Development
OECP	Office of Energy Contingency Planning
OMB	Office of Management and Budget
OPEC	Organization of Petroleum Exporting Countries
PEMEX	Petroleos Mejicanos
SPR	Strategic Petroleum Reserve
TEPR	Temporary Emergency Production Rate
UK	United Kingdom
VAT	Value Added Tax
VEPCO	Virginia Electric Power Company

CHAPTER 1

THE UNITED STATES IS VULNERABLE TO OIL

IMPORT DISRUPTIONS--IT CAN

AND MUST BE PREPARED

The United States is little better prepared for a disruption of oil imports than it was for the 1973 Arab Oil Embargo. The Executive Branch must bear primary responsibility for our vulnerability. The Executive has never given energy emergency preparedness the priority and attention it deserves and the Department of Energy (DOE, especially) has never mounted an adequate contingency planning effort.

The inadequate state of the Nation's emergency preparedness eight years after the 1973 embargo is a serious problem requiring immediate attention. We believe the Federal Government should take prompt and concerted action to counter this serious potential threat to national security. There are numerous steps which can be taken in the immediate future to significantly improve the Nation's ability to cope with oil supply disruptions. If maximum efforts are made, results could be in place within a year. We also believe that within three to four years dramatic progress could be made in preparing ourselves for disruptions.

Much public policy making on oil imports has confused two concepts: dependence and vulnerability. Dependence is simply the percentage of oil which is imported. Vulnerability concerns the security of imports. Clearly, we should be much more worried about oil if it comes from insecure sources than secure ones. Of course, this is exactly the problem addressed by contingency planning: that we are vulnerable to oil supply disruptions, particularly from the Middle East. Confusion over dependence and vulnerability has led to an overemphasis on the former. Most U.S. programs designed to lower imports are long-term gradual ones. Examples are synfuel development and solar energy promotion. However, vulnerability, and hence contingency planning, have been neglected, leaving us open to substantial damage from short-term disruptions in oil imports.

This report is divided into two volumes. Volume I is a summary report which includes all our conclusions and recommendations. These can be found in Chapter V. Chapter I of Volume I describes our current state of readiness, while Chapters II, III, and IV summarize our preparedness in the various contingency planning areas.

Volume II discusses in much greater detail the problems posed by an oil import disruption, the state of emergency planning, and alternative approaches to coping with disruptions. Chapters I and II of Volume II introduce the subject and describe the serious threat to national well-being posed by oil import disruptions. Chapters III through VIII of Volume II discuss the question "What happens if the oil stops flowing tomorrow?" Answers are discussed

by examining past and current policies, programs, and organization for dealing with imported oil disruptions.

Chapters IX-XIII of Volume II ask "What should we do to prepare?" The discussion here revolves around what improvements in present plans and what new programs in each area should be developed to cope with future cutoffs.

OBJECTIVES, SCOPE, and METHODOLOGY

Our review was undertaken under two similar requests received from Senators Edward M. Kennedy and Charles H. Percy. On July 15, 1980, Senator Kennedy, then Chairman of the Joint Economic Committee's Energy Subcommittee told GAO that "despite official pronouncements to the contrary, I am concerned that the United States may be in no better position to deal with a foreign oil supply interruption than we were before the 1973 Arab oil embargo." He asked GAO to investigate and evaluate the Department of Energy's present capabilities to manage oil supply disruptions and to provide a comprehensive analysis of its current plans. On July 10, 1980, Senator Percy, then Ranking Minority Member of the Senate Permanent Subcommittee on Investigations, Committee on Governmental Affairs, made a similar request, asking GAO to examine how ready the United States is to cope with a major oil supply disruption and what steps can be taken to improve our readiness.

Thus, the basic objectives of this study were to evaluate present U.S. energy preparedness planning for oil import disruptions and evaluate alternative approaches to improve preparedness.

The scope of energy contingency planning generally encompasses increasing oil supply, substituting for oil, demand restraint allocation and pricing policies, and international cooperation programs. Examples of programs to increase supply include increased oil production and oil stock drawdown. Examples of substitution include switching from oil to gas, coal, or other fuels. Demand restraint involves emergency temporary action to bring energy consumption into line with curtailed supplies; it is sometimes described as "emergency conservation." Allocation programs distribute petroleum in ways which would not be done by markets left to themselves. Gasoline rationing and standby crude oil and product allocation systems are examples. Unregulated markets or market-like mechanisms such as taxes are the alternative to allocation. The subject of international programs includes measures in all these areas. However, they deserve to be considered separately, since most are administered by the International Energy Agency (IEA).

In 1980 the Secretary of Energy summarized DOE's thinking on the size of shortfalls which may occur. He said that the United States must be prepared for three levels of world oil supply disruption: 2-3, 4-10, and 12-18 million barrels per day (MMBD) and lasting for a year. These represent, he said, losses to the Nation of less than 1, 1-3, and 4-6 MMBD, and roughly correspond to the loss of one medium volume oil-producing country in the Persian

Gulf, the loss of a major producer or three medium volume countries, and the catastrophic loss of a major part of the Persian Gulf, respectively.

We selected an oil supply disruption of [illegible] MMBD as the U. S. as a benchmark for examining the [illegible] U. S. contingency programs. [illegible] a single disruption possibility is to [illegible] a complex subject and put it in proper [illegible]

There are several [illegible] MMBD. First, it is a substantial [illegible] greater than anything the United States [illegible] Since large disruptions are a real [illegible] major [illegible] disruption [illegible] International Energy Agency [illegible] United States is a member [illegible]

this may seem [illegible] often been ignored in the past. For example, [illegible] difficulties had existed for six years [illegible]. However, that crisis [illegible] allocate on the [illegible] procedures, and staff were [illegible] was small.

[illegible] implementation [illegible] success [illegible] manner, [illegible] exam- [illegible]

[illegible]

National Petroleum Council, the Harvard University Energy and National Security Research Project, and the colloquium on "Contingency Planning for an Energy Emergency" held at Stanford University in June 1980. 1 Finally, we had many contacts with private individuals involved in aspects of contingency planning and policy.

To evaluate planning in the area of increasing oil supplies we also spoke with officials of the United States Geological Survey, the State of Alaska, the American Petroleum Institute, the National Petroleum Council and the Texas Railroad Commission. These officials provided considerable information on industry oil stocks, surge oil production capabilities and Federal royalty oil. At the request of several members of Congress, GAO has been publishing periodic reports on the status of the Strategic Petroleum Reserve since September 1980, which were useful in our evaluation of the readiness of the Reserve. Three statistical publications which were especially useful on industry stocks were DOE's Weekly Petroleum Status Report and International Energy Indicators, and British Petroleum's Statistical Review of the World.

To evaluate current and potential fuel switching programs, we held discussions with--besides DOE--the Environmental Protection Agency and the National Petroleum Council (on oil-to-coal switching); the American Gas Association, Gas Research Institute and the National Petroleum Council (on oil-to-gas switching); the National Electric [illegible] companies (on electricity [illegible] the American Gas Association, Gas Research [illegible] National Petroleum [illegible], Federal Energy Regulatory [illegible] emergency gas [illegible] laws and regulations of [illegible] was necessary [illegible] the fuel switching area.

[illegible] the Energy Policy and [illegible] Energy Conservation Act [illegible] imposed requirements [illegible] demand restraint planning [illegible] of the [illegible] Institute [illegible] We did a

[illegible]

. [illegible] Preparedness for International [illegible] United States. Washington, [illegible] David and Joseph [illegible]

. [illegible] Transportation [illegible] Standby Conservation [illegible] National Laboratory, Regulatory Analysis [illegible] Emergency Energy Conservation [illegible]

case study of a 1979 DOE proposal to ban sales of fuel for recreational watercraft on weekends to illustrate how poorly prepared and presented demand restraint measures can damage the potential for developing viable demand restraint programs. In discussing future directions for demand restraint, we analyzed 380 proposals gleaned from over 20 studies according to a set of criteria emphasizing effectiveness and practicality.

Evaluation of petroleum allocation and gasoline rationing also relied heavily on analysis of relevant laws and regulations. Past GAO work--26 reports since 1974--on this subject was also extensively used, especially a major audit of the gasoline allocation program during the 1979 Iranian oil shortfall.

Finally, in order to examine the effectiveness of present international programs, we used materials collected by GAO in our recent review of U.S. participation in the International Energy Agency. 1/ We relied on the results of this review, and conducted additional analyses of DOE and IEA documents. International energy statistics also played a prominent role in our effort. We found the OECD's Quarterly Oil Statistics particularly helpful in evaluating the emergency oil sharing system and IEA emergency oil stock policies.

Our study was coordinated with the Congressional Budget Office and the Congressional Research Service which had ongoing projects in the emergency preparedness area.

CAN WE COPE WITH A 3 MMBD SHORTFALL TODAY?

A 3 MMBD shortfall lasting a year is much larger than any disruption the U.S. has faced in the past. Yet it is only midway on the continuum of disruption possibilities we should be prepared to cope with. Table 1 summarizes the capability of DOE contingency programs for handling such a shortfall with rough approximations. This lack of precision arises because DOE currently only has draft plans that are not yet approved for many of these measures and programs for effective implementation are not yet in place. Furthermore, necessary legal authority for some of these programs will expire at the end of September, and the administration has not indicated that it will seek renewal of such authority. Presumably, if an emergency occurred tomorrow, DOE approval of programs and even a renewal of legal authorities could be secured rather quickly. But that does not mean that effective programs could be quickly put into operation. We are not happy about the tentativeness of the figures but they are the best we have been able to glean from an intensive investigation. The figures are useful for indicating orders of magnitude. The possibilities over time are also somewhat problematic because the state of knowledge about what maximum capabilities are and how fast they can be phased in is poor. Furthermore, the longer a disruption lasts,

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1/U.S. General Accounting Office, "Unresolved Issues Remain Concerning U.S. Participation in the International Energy Agency," ID-81-38, September 8, 1981.

TABLE 1

GAO ESTIMATES OF NEAR TERM CAPABILITY OF FEDERAL GOVERNMENT PROGRAMS TO OFFSET A ONE YEAR, 3 MMBD DISRUPTION

Program or Policy Measure	Oil Offset Capability By End Of 3 Months	6 Months	12 Months
DEMAND RESTRAINT	(MBD)	(MBD)	(MBD)
Minimum Fuel Purchase	Negl.	Negl.	Negl.
Odd/Even Gasoline Purchase	35-70	35-70	35-70
55 MPH Speed Limit Enforcement	30-60	30-60	30-60
Emergency Building Temperature Reductions	80	80	80
Public Information Programs	65-130	65-130	65-130
Subtotal	210-340	210-340	210-340
FUEL SWITCHING			
Oil-to-Gas	50	100-300	300-435*
Oil-to-Coal	--	20	90**
Increased Electricity Production/Transfers	30	145	155***
Increased Use High Sulfur Fuel Oil	5	5	5
Subtotal	85	270-470	550-685
INCREASED OIL SUPPLIES			
Surge Oil Production	Negl.	Negl.	Negl.
Drawdown of Industry-Owned Oil Stocks	275-550	275-550	275-550
SPR Drawdown	0+	0+	0+
Subtotal	275-550	755-550	275-550
TOTAL	570-975	755-1360	1035-1575
(MINUS 3000 MBD SHORTFALL)	(3000)	(3000)	(3000)
NET SHORTFALL TO BE HANDLED BY ALLOCATION CONTROLS OR MARKET MEASURES	(2430-2025)	(2245-1640)	(1965-1425)

*DOE's Office of Policy and Evaluation and AGA estimate maximum potential at 1100-1200 MMBD within one year. We differ because it is not certain that gas supplies and the transportation system would be adequate to meet the maximum switching potential.

**DOE estimates maximum potential at 213. We regard this as too optimistic because it relies substantially on amending legislation and no steps have yet been taken in this direction.

***Reflects DOE's data on the number of coal-fired and nuclear plants near completion as of March 1981. Some plants have already come on line and it is possible that others could be added to an updated list. For details see Vol. II, Chpt. IV, pp. 19-20.

+We assume SPR will not be drawn down except in worst case situations and until the reserve contains about 250 to 500 MMB. Details on p. 53.

the greater the possibility that human ingenuity, sacrifice and hard work can lead to results not previously thought possible.

If anything, the figures reported in Table 1 are optimistic because the savings figures presented assume that the programs will be approved and implemented fairly effectively. In fact, it is questionable whether DOE could implement an effective program for drawdown of industry-owned oil stocks, which in Table 1 accounts for the largest estimated oil offset. If DOE could not effectively implement a drawdown program, achieving the estimated savings would rest on the willingness of oil companies to voluntarily support the program.

The bottom line is this: The United States would be lucky to offset one third of the shortfall with programs now in hand. Even more depressing is the fact that several of the estimates which account for the modest offsets are optimistic.

The next three chapters summarize the deficiencies in each area. These deficiencies are analyzed more completely in Volume II. Our basic conclusions, however, can be stated briefly.

--Surge oil production: No plan has been prepared and several legal constraints must be removed.

--Strategic Petroleum Reserve: Although oil is now being acquired at a reasonable rate, we have too little oil in the SPR and have not developed an adequate plan for SPR oil acquisition and use.

--Private stocks: The Government has not finalized plans prepared for managing stock drawdown, and the Government's authority to manage stocks will expire after September 30th.

--Oil-to-gas switching: Some progress has been made, but the plan still has significant weaknesses.

--Oil-to-coal switching: An effective plan is not even close to completion.

--Electricity transfers and accelerating completion of generating units: Considerable progress has been made, but the potential varies with the seasons and the number of units nearing completion.

--Increased use of high sulfur fuel: The energy payoff here is almost insignificant and the risk to the environment is high.

--Crude oil allocation: The problems with this program could be fixed, but authority for general domestic allocation will expire September 30th.

--Petroleum product allocation: The program was a disaster the last time it was used and no improvements have been made. Authority for domestic product allocation expires September 30th.

--Gasoline rationing: The Administration's decision to stop funding rationing planning means it will not be available for emergency use. Authority for gasoline rationing also expires September 30.

--Federal demand restraint: The current Federal plan is totally inadequate and the legal framework for demand restraint is impractical.

--State demand restraint: States have no effective demand restraint plans; both they and the Federal Government are to blame.

--International emergency reserves: Members of the IEA, including the United States, do not have nearly adequate emergency reserves and probably will not develop them under the present program.

--International demand restraint: IEA members, including the United States, have not developed effective demand restraint measures.

--International oil sharing: The present system holds promise but is too narrowly focused and is also plagued by implementation problems.

Could the U.S. cope with a 3 MMBD shortfall today? No. The U.S. is still grossly unprepared.

WHAT CAN BE DONE?

The Federal Government must get serious about planning for oil supply disruptions. Eight years of desultory activity and general inaction shows that without this commitment little will be accomplished.

Immediate action ought to be taken to upgrade the Nation's ability to counter disruptions. Some actions are short run; within a year or so they can significantly improve the Nation's emergency preparedness. Other actions have benefits which take longer to realize. Our conclusions and specific recommendations can be found in Chapter V. They fall in seven areas.

Conclusion I: The U.S. needs to increase the oil available for emergency use via industry stocks, the SPR and surge oil production. Our recommendations for increasing supply include maintaining Government authority to manage private stocks after September 30, 1981; completing, in conjunction with private industry, a plan to manage stocks; and establishing a private petroleum

reserve. SPR fill should not be interrupted while long-term financing mechanisms are sought. The reserve should be filled at as fast a rate as practical; DOE should use secure supplies such as the Alaskan North Slope and U.S. royalty oil as much as possible to fill the SPR; and a comprehensive SPR use plan should be developed and integrated with other contingency plans. Surge oil production holds considerable promise; a law allowing emergency production at Elk Hills needs to be passed; agreements with the governments of Alaska and Texas permitting surge production need to be negotiated by DOE.

Conclusion II: Congress needs to replace crude oil and product allocation authority, most of which expires in September 1981 with authority for an improved emergency distribution system. This is particularly important for the next few years as contingency programs are being phased in. Price controls are a counterproductive strategy and should not be used; neither should gasoline rationing which would be clumsy and expensive and would need a price control program to work.

Conclusion III: Congress should establish price measures to counter disruptions. Emergency taxes with rebates should be easier to operate than gasoline rationing, be less disruptive, and be at least as equitable. Development of such a system is particularly important and we recommend that the Departments of Energy and Treasury develop such plans as quickly as possible. The State Department should also promote emergency taxes as an IEA policy.

Conclusion IV: Demand restraint planning needs a complete overhaul. Primary emphasis needs to be placed on voluntary programs which provide flexibility and build consumer confidence and participation. Mandatory programs should be developed for use as a last resort. State planning is a sound concept, but the law must be changed to require states to submit their plans before, not after the disruption begins. The Federal Government has the responsibility for providing the needed guidelines and data to States so they can know what is expected. If States do not submit plans, the Federal plan should be imposed immediately if a disruption occurs.

Conclusion V: Estimates of oil-to-gas fuel switching potential vary widely and are highly speculative. A better assessment of gas supplies, deliverability, and switching capability is required. An adequate oil-to-coal switching program--which is much less far along than oil-to-gas switching--needs to be developed. DOE's plan in this area can not now be implemented quickly enough to effectively substitute for a significant amount of oil. One important aspect of both oil-to-gas and oil-to-coal programs is reliable data. DOE should ensure that the necessary information is kept current and is in useable form for contingency purposes.

Conclusion VI: Much needs to be done to develop a more effective international energy emergency preparedness program.

Oil disruptions are inherently international, and measures to cope with them are much more effective if they are internationally coordinated. The United States should work within the IEA to increase member country useable emergency reserves to at least 90 days; develop programs to cope with small but significant market disruptions; develop an oil price reconciliation mechanism for emergency sharing; and consider establishing an IEA-wide emergency oil tax.

CHAPTER II

MAKING UP FOR LOST OIL--INCREASING OIL SUPPLIES AND FUEL SWITCHING

Stabilizing markets and avoiding a crisis during supply disruptions means bringing supply and demand into a new balance. Of course, higher oil prices alone can do this, but that solution can create severe and unnecessary economic hardship. Two ways to help bring about balance at lower prices are temporarily increasing oil supplies and substituting alternate fuels for oil. A third way is to restrain oil demand by having consumers cut back their oil consumption. This alternative is discussed in the next chapter.

The United States can effectively increase its oil supplies by temporarily increasing domestic production and drawing down Government and private oil stocks. It can also free up oil by substituting fuels, such as natural gas, coal, nuclear power, or high sulfur residual fuel oil, for oil in those facilities which have the capability to use them. Also, electricity produced by non-oil-fired generating units can be increased and transferred to areas where electricity is generated by oil. These actions free up oil without necessarily reducing overall energy consumption or industrial and utility output.

The Department of Energy has drafted several plans to enhance supply. However, despite years of effort, the United States is ill-prepared to combat disruptions. This chapter reviews the Government's capabilities in these important areas.

INCREASING DOMESTIC OIL PRODUCTION

A comprehensive contingency plan for increasing domestic oil production does not now exist. According to DOE officials, sufficient data on production capacities has not been available to plan for emergency, or surge, production. To acquire that information, DOE asked the National Petroleum Council (NPC) to assess the opportunities available for surge production. The NPC's report indicates that an additional 326 MBD of crude oil (including private and Government production) could be produced and delivered in 1981 for six to twelve months with minimum risk of reservoir damage or loss of ultimate recovery. Half the total could be available within 2 months, the remainder in about 4 to 6 months. Most of the surge production would come from private fields in Alaska and Texas. All Government production would be from the Naval Petroleum Reserve at Elk Hills, California.

According to the study, the capability for emergency production will decline as fields become depleted. By 1985, the maximum surge oil potential could decline to 143 MBD because by then the existing pipelines will be almost fully used to meet planned increases in throughput.

DOE has prepared a working document for increasing production at Elk Hills by about 25 MBD for 3 months. This estimate differs from the NPC's which indicated that about 16 MBD could be secured for 12 months, but with a 1 percent loss in ultimate recovery. The potential from surge production from other Federal lands has not been established.

Constraints

Obtaining additional production involves overcoming regulatory, legal, and financial constraints. The State of Alaska would have to approve higher production rates for Prudhoe Bay and the Texas Railroad Commission for the Texas fields. To increase production from the Naval Petroleum Reserve at Elk Hills, Congress will have to amend the Naval Petroleum Reserves Production Act of 1976. EPCA provisions concerning oil production at the maximum efficient and temporary emergency production rates do not apply to Elk Hills. Production and pipeline facilities must be modified--about a four to six month process--at a cost of about $30 million according to the NPC. Considerable planning will be required to institute surge production. DOE is still in the early stages of this process. In summary, progress in this important area has been minimal.

THE STRATEGIC PETROLEUM RESERVE

In order to diminish U.S. vulnerability to the effects of a severe oil supply interruption and to carry out U.S. international energy commitments, the Energy Policy and Conservation Act authorized the creation of an SPR to store up to 1 billion barrels of crude oil. The potential value of the SPR was recently reiterated by the Secretary of Energy, who called it "by far the most effective program for reducing the cost of oil market disruptions." However, the current volumes of SPR oil are much too small to meet a severe energy disruption.

DOE has experienced serious difficulties in developing storage facilities and acquiring oil for the SPR. Should the United States begin to experience an oil import shortfall, the 177 MMB in storage in mid-August 1981 could be drawn down at a maximum of about 1.6 MMBD rate for about one and one-half months--at which point the drawdown rate would decrease until the SPR is exhausted about 5 months later.

DOE's SPR drawdown plan, as approved by Congress, does not specify under what conditions or how the SPR would be used, i.e., amount, rate, timing, and distribution mechanism. It also does not identify an amount which should be held in reserve for more extreme emergencies. We believe SPR planning should be integrated with DOE's overall contingency planning and should at least identify options for SPR use.

Developing the SPR

The SPR has fallen far behind its implementation schedule for both developing storage capacity and acquiring oil. Until

recently, obtaining oil was the major problem facing the SPR. However, for fiscal year 1981, with soft market conditions and accelerated efforts, DOE has purchased oil for the SPR at about 300 MBD through August 20, 1981. The rate at which this oil has been delivered has fluctuated widely, from a low of over 100 MBD in October 1980 to a peak of 513 MBD in May 1981. A related problem, the amount of storage capacity available, is addressed in Chapter V.

Acquiring oil

EPCA mandated a 500 MMB SPR by December 1982. President Carter, in his 1977 National Energy Plan, shortened this schedule by 2 years, and called for a billion barrel SPR by December 1985. By late 1979 DOE had to scale down these goals, and currently has no year-by-year schedule for filling the SPR. Its goal now is to fill the 750 MMB capacity by 1989. The Congress, through Title VIII of the Energy Security Act, has required DOE to fill the SPR at an average of at least 100 MBD for fiscal year 1981 and each year thereafter. DOE's fiscal year 1981 appropriation provides for DOE to seek to fill the SPR at a minimum average rate of 300 MBD, or until funds are exhausted. The Omnibus Budget Reconciliation Act of 1981 amends EPCA to provide that DOE seek to fill the SPR at the same rate.

DOE's first approach to Title VIII was to fill the SPR through exchanges of oil from the Naval Petroleum Reserve at Elk Hills, California. It has contracted for over 36 MMB using such exchanges, thus meeting the minimum supply requirements. As of August 19, 1981, DOE had also purchased another 66.8 MMB on the spot market. The Department has also signed a multi-year contract with Mexico's state oil company for 110 MMB and expects about 6 MMB to be delivered by the end of fiscal year 1981. This 6 MMB brings total fiscal year purchases to 110 MMB, or 300 MBD at an average annual rate. 1/

Drawing down the SPR

When Phase I storage is filled to its 251 MMB capacity, the maximum drawdown rate will be 1.7 MMBD. Phase II, with 538 MMB stored, will have drawdown capacity of about 3.5 MMBD. The SPR plan estimated that SPR crude could, if necessary, be distributed to refiners within 7 weeks of a supply disruption.

Before the SPR can be drawn down or distributed the President must determine that such action is necessary due to "a severe energy supply interruption or by obligations of the United States under the International Energy Program." However, the SPR plan,

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1/Since September 1980, we have been issuing a series of status reports, as requested by certain members of the Senate Committee on Energy and Natural Resources and the House Committee on Interstate and Foreign Commerce, on the administration's activities to implement Title VIII of the Energy Security Act.

as transmitted to Congress in early 1977, does not specify under what conditions the SPR would be used, the rate and timing of use, or how it would be distributed and priced.

It does not identify any amount which would be held in reserve for extreme emergencies. Even an October 1979 amendment to the plan, entitled "Distribution Plan for the Strategic Petroleum Reserve," does not specify these items. The plan maintains that it is both infeasible and undesirable to specify the precise conditions in which the reserve would be drawn down. The administration felt that the absence of criteria for triggering an SPR drawdown would keep potential embargoing producers uncertain of U.S. intentions, and thereby maximize the deterrence value of the SPR.

However, the absence of a specific use plan or set of options leaves judgements about SPR use subject to ad hoc decisionmaking during a crisis. The reasons cited for not developing a plan involve legitimate concerns. However, we believe a better way of addressing those concerns is for DOE to develop a plan but not release its details to the public. We do not believe the Department should use national security reasons as an excuse for not developing contingency plans for one of our potentially most valuable tools for use during an energy emergency.

The SPR plan should be integrated with the comprehensive contingency plan being prepared by DOE. This plan is in response to a specific interruption scenario, including size and duration, and is being designed for use in the immediate future if necessary. We believe that such a comprehensive contingency plan should include an SPR drawdown plan that at least outlines principal options, including SPR use and rate, amount, and timing of drawdown, and method of distribution. It should also identify a level below which the SPR would not be used, except for, say, national defense, health and safety. Details of the plan need not be made public.

In summary, there is not much oil in the SPR, and an adequate plan for its use has not been developed.

PRIVATE STOCK DRAWDOWN

The Government currently has some authority to control the inventories of oil producers, importers, refiners, distributors, and retailers, through the Emergency Petroleum Allocation Act (EPAA). If the President finds an existing or impending regional or national supply shortage, or to meet U.S. obligations of the International Energy Program, he may require a drawdown of private stocks. 1/ However, EPAA expires September 30, 1981. Furthermore, this authority may not be used during normal times to prepare for supply shortages.

1/The option of building up private stocks to be better prepared before an energy emergency is discussed in Chapter V.

The potential of industry stocks to offset supply disruptions is a controversial issue. Until 1978, the consensus in Government and industry was that industry stocks were not large enough for purposes of nationwide contingency planning. However, the record high stock levels attained in 1979 and maintained through 1980 have led to a reappraisal of what industry stocks could be made available in an emergency. If private stocks were about 100 to 200 MMB above normal operations levels, as they had been for over a year, they could be drawn down at a rate of 275 to 550 MBD for a 12-month period.

In January 1981 DOE's Office of Energy Contingency Planning issued a draft Inventory Management Plan which discussed options for drawing down private stocks during a supply disruption. However, the plan is not yet implementable, and authority for it expires with the EPAA after September 30, 1981. Therefore, the drawdown rate discussed above could not be assured.

Potentially available stocks

How much petroleum the industry needs to maintain its operations, and how much therefore is available for emergency use, is debatable. Current primary storage capacity within the United States (at refineries, in pipelines, and at bulk terminals) is over 1300 MMB. The largest part of stored oil is needed for "minimum operating levels." The National Petroleum Council defines this as a level below which supplies are not available for consumer use because they are required to fill tank bottoms and pipelines and maintain normal operations. Shortages would begin if inventory fell below this level.

Comparing the "minimum" operating levels required (as defined by the NPC) and actual inventories shows that 232 million barrels were available on July 10, 1981, for crude oil and those products analyzed by the NPC. 1/ This amount compares favorably with the 177 MMB in the SPR as of mid-August 1981. The comparison does not include almost 350 MMB of unfinished and other oils on hand. These large inventories are about 100 to 200 MMB above "normal" operating levels. At least in part, they are the result of an unusual set of circumstances including the oil market disorder accompanying the Iranian revolution in 1979, the resulting large stock build-up, and the unexpectedly sharp drop in U.S. demand in 1980 and 1981. A return to a more stable world oil market and/or U.S. economic recovery might very well result in a drawdown to a more normal range (1100 to 1200 MMB). Should an import shortfall then occur, the United States would have little surplus stock available to draw down, as was the case when the Iranian shortfall occurred in January 1979.

1/Some industry officials believe NPC's estimates, published in December 1979, need to be updated. Some factors, such as reduced demand for gasoline and home heating oil, may tend to reduce minimum operating levels. Other factors, such as increased demand for unleaded gasoline and jet fuel and new pipeline capacity, tend to increase minimum operating levels.

Recent role stocks have played

On a national and international level, a prudent stock management policy calls for stocks to be built up during normal business times and drawn down during a shortage. However, industry cannot be counted on to follow such a policy. In fact, prudent business behavior might suggest the opposite behavior during disruptions because disruptions engender confusion and uncertainty. Furthermore, a profit maximization course for any individual company might also suggest conserving stocks during a disruption.

While inventory accumulations may not have caused recent oil shortages, they probably made them worse. This is apparent in the two major oil disruptions of the seventies, caused by the 1973-74 Arab oil embargo and the 1979 Iranian revolution. Both shortages followed previously low inventories, high petroleum demand growth, and a sharp drop in crude oil production. However, net world-wide oil inventories actually increased both during and after each drop in crude production.

The fact that stocks increased during past shortages does not, of course, mean that the market was manipulated or even mismanaged. With the advantage of hindsight, however, it is possible to argue that the shortages in the United States could have been averted if inventories had been better managed.

Current planning

As described earlier, DOE has authority (through September 30, 1981) to manage private stocks by requiring inventory adjustments during a supply shortfall. However, this authority has never been formally used and cannot now be properly implemented. If a supply disruption were to occur now, DOE could not set valid company-specific inventory levels. It is only now developing plans and procedures for establishing targets, but does not have the data or enforcement resources to manage company inventories. It could only establish some kind of uniform drawdown ratio or percentage industry-wide. Because this kind of action is not tailored to specific companies, DOE believes it could create a great number of hardship cases and appeals.

In January 1981 DOE issued a draft Inventory Management Plan outlining four options for drawing down stocks in the event of a supply disruption. The plan states that the Department will develop detailed national and company profiles of capacity, refinery utilization, stocks, crude and product supply, and sales obligations. Each option calls for a voluntary program followed by mandatory orders if needed. The plan is a good first step in identifying options, legal authorities, and staffing and data requirements. However, numerous problems must be resolved before it is operational.

[redacted]

[redacted]

[redacted]

1. [redacted]

   [redacted] company specific equity data to show ownership [redacted] study since this is how drawdown targets [redacted] orders would be set

   --company-specific projected supply expectations; and

   --company-specific product inventories and product supply expectations.

2. In monitoring compliance and in enforcement, due to unreliable data and the expiration of EPAA authority for mandatory orders and enforcement.

Currently, some effort is being devoted to designing the necessary data systems. However, according to a DOE official, the effort is being complicated by DOE's attempts to develop an overall information system for petroleum balances. This system is being designed to replace scores of antiquated DOE systems, many of which are unrelated to contingency planning Until that effort is completed, it is difficult to determine what additional data will be needed for stock management purposes. According to a DOE official, it could well be several months before the systems are designed and then approved by the Office of Management and Budget.

Unaddressed and unresolved items include where the additional staff needed during a supply disruption would come from and how to achieve international coordination of stock drawdowns. Such coordination would greatly enhance the ultimate success of any stock management plan. Without it, stock reductions in one country, which would normally alleviate demand and price pressures on the international market, could be offset by stock accumulations in another country.

Finally, enforcing any of the options would be impossible after the EPAA expires September 30, 1981. Obtaining the standby authority that DOE would need to implement a stock drawdown, however, has its disadvantages. Industry officials with whom we spoke firmly believe that such standby authority, like mandatory allocation authority, is a big disincentive for industry to maintain stocks above minimum operating levels. Companies believe they should not bear the costs of obtaining and holding additional oil if it may be allocated to other companies--especially at below-market prices.

We agree that drawdown authority may be a disincentive to holding large inventories. Nonetheless, we believe the Government should maintain that authority. With timely, comprehensive, and reliable data systems in place, we believe the Government is in the best position to protect the national interest and determine at what time and company level [illegible] during an energy emergency. We also believe large inventories above operating requirements held by private industry are in the national interest and companies should not be discouraged from accumulating them. We recognize industry's concerns and identify several alternatives in chapter [illegible] to offset the disincentives cited above and to encourage larger holdings of private [illegible].

In summary, the Government is not prepared to manage a private stock drawdown [illegible]. This area [illegible].

[illegible] OIL-TO-GAS SWITCHING

Among the [illegible] oil-to-gas switching seems to be the most promising. [illegible] estimates of possible oil offsets vary widely. The measures identified in DOE's December 1980 draft plan [illegible] displace from [illegible] to [illegible] MBD over a 12-month period. [illegible] MBD [illegible] could be saved [illegible] at 100 to 200 MBD [illegible] months after the onset of a crisis and the remainder 12 months after the disruption. The wide range reflects uncertainties about the number of companies with alternative fuel burning capability and constraints on the ability of the existing pipeline and transmission system to move higher volumes of gas. The estimate of the maximum potential for savings is particularly speculative due to data deficiencies. Other groups have produced even more optimistic figures ranging between [illegible] and 1.2 MMBD. DOE believes these are unrealistic because large capital investments would be required to achieve these savings.

A careful assessment of all the variables affecting oil-to-gas switching potential has not been performed. In particular, gas supply, transportation capacity, and legal and regulatory constraints to switching have not been adequately examined.

DOE has authority to indirectly force switching to gas by prohibiting oil use under the Powerplant and Industrial Fuel Use Act. This authority may be useful in the event of a severe disruption if voluntary action is insufficient. While those firms whose oil was cut off and had gas burning capability would switch voluntarily, this authority can ensure that facilities which can burn gas but are not short of oil would switch. This would minimize disruptions to production of other firms which have no alternative fuel burning capability.

DOE's oil-to-gas switching draft plan identified voluntary and mandatory measures which could be taken and described specific implementation actions for some measures. Voluntary actions, which would displace about [illegible] MBD of oil, include:

--expediting the procedures to obtain exemptions to the Powerplant and Industrial Fuel Use Act to allow powerplants to burn natural gas;

--authorizing natural gas to displace oil through its certification program;

--asking State regulatory agencies to lift gas use restrictions; and

--requesting electric utilities, large industries and Federal facilities to switch to gas temporarily.

Mandatory measures which could displace between 183 and 328 MBD over a 12 month period are:

--prohibiting oil use as a primary energy source in utility and industrial facilities capable of using natural gas;

--seeking new legislation to regulate the production, distribution, sale, and use of natural gas as required for dealing with oil supply disruptions;

--exploring the feasibility of using the Defense Production Act to allocate natural gas.

The oil-to-gas switching plan contains detailed implementation actions for all but the last two measures outlined above. These potentially provide the largest savings, but are not developed to the point that they can be used effectively.

An assessment of gas availability is another important aspect of an oil-to-gas switching program. DOE has not adequately assessed the availability of gas supplies. DOE's draft plan analyzes gas supplies for one scenario--an oil disruption beginning in January 1981 and lasting for six months. DOE concluded that gas supplies could satisfy switching requirements estimated at 435 MBD under this scenario. The NPC, in the only non-DOE study which addresses surge gas potential, indicates that gas supplies available over the near term could displace between 350 and 600 MBD of oil equivalent, depending on the time of the year. Both DOE and the NPC believe that gas availability could be a problem if a disruption takes place during a severe winter because of transportation bottlenecks. The NPC study indicates that a careful assessment of end-user switching capacity, geographical areas where surge production exists, and natural gas pipeline capacity would be required to determine if transportation problems limit oil-to-gas switching potential. We agree that this type of information is required to better estimate the overall role of oil-to-gas switching.

In summary, while a good start has been made on this program, there is no adequate oil-to-gas switching plan on the shelf.

OIL-TO-COAL SWITCHING

Pursuant to the Powerplant and Industrial Fuel Use Act of 1978 and in order to reduce dependence on oil imports and maximize use of domestic energy, DOE has pursued a program to encourage permanent conversions from oil to coal. The long-run plan is not designed for energy emergencies.

However, U.S. vulnerability to oil shortages has drawn more attention to coal conversion as a potential option for dealing with oil supply disruptions. The term oil-to-coal switching, as used here, includes accelerating coal conversions in response to a disruption and encouraging temporary substitution of coal for oil. DOE's June 1981 emergency coal conversion plan contains measures which could potentially displace as much as 213 MBD by the end of twelve months. However, much more planning and a major effort to modify existing laws and regulations are required before this program can be counted on for contingency purposes. Also, DOE has identified several environmental, financial, and logistical constraints to timely coal conversions, but has not proposed any actions to remove them.

DOE's Emergency Oil-to-Coal Switching Program

According to DOE, three provisions of the Clean Air Act can facilitate emergency coal conversions: (1) Section 110 can be used to relax some requirements of State Implementation Plans adopted in response to the Clean Air Act, as long as Federal ambient air quality standards are attained and maintained; (2) Section 113-d-5, which authorizes EPA to issue Delayed Compliance Orders, allows plants prohibited from burning oil or gas to use coal temporarily without having to comply with an applicable State Implementation Plan while installing pollution control equipment; (3) Section 110(f) authorizes the State governors to temporarily suspend their State Implementation Plans for a maximum of only four months. DOE's emergency coal conversion draft plan contains four sets of measures based on these authorities which can be implemented according to the severity of the oil supply disruption. All of them basically address environmental impediments.

While the measures could potentially displace up to 213 MBD within twelve months, depending on the combination of actions pursued, savings during the first six months of the program would be considerably less, probably only 5 MBD, due to the time required for implementation.

To achieve the maximum savings, relevant legal, environmental, and regulatory constraints at the Federal and State levels must be removed. DOE identified several Federal laws and State/local regulations which would have to be changed, but did not outline a specific strategy to accomplish this. This would require coordination with EPA and Congress. Much time and effort are involved in seeking changes to existing laws. Because of long lead times, we believe that DOE's oil saving figures in the coal conversion area are overstated.

Program deficiencies

DOE's present plan lacks some basic elements which characterize a sound contingency plan and cannot be considered an effective mechanism for dealing with an oil supply disruption. Implementation schedules, actions to be taken before and during the disruption, compliance and enforcement mechanisms, and resource requirements have not been specified.

Besides specific inadequacies of some individual measures, DOE's draft plan does not address constraints to coal conversion adequately. The plan only states that DOE will provide assistance to "help identify specific impediments to coal conversions and that once identified, efforts will be made to eliminate them." It is not clear how or when this will be accomplished.

Because of the various flaws in the plan, it is unlikely that the oil-to-coal conversion program can accomplish the level of oil displacement anticipated in DOE's draft plan in a timely fashion. In summary, an effective coal conversion plan is far from being ready.

ELECTRICITY SUPPLIES AND TRANSFERS

DOE has been working closely with industry in developing an electricity sector emergency response plan. Recommended measures include increasing electricity transfers from non-oil-fired units and expediting licensing and startup of new nuclear and coal-fired electric generating units. DOE believes that these measures would save 242 MBD. More than half of the total could be achieved within 12 months, mostly through transfers. Small savings are expected from accelerating completion of coal-fired units, and savings through accelerating start up of nuclear units, though higher, could not be achieved quickly.

Regulatory and legislative requirements, along with considerable public opposition, could impede accelerated completion of nuclear power plants. We believe that the procedures involved in speeding up nuclear plants are so complex that this does not seem to be a practical measure for contingency purposes.

The potential savings identified by DOE reflect current data and may vary as time progresses. Factors that could change the the potential include: availability of transmission capacity, electricity demand, the number of plants scheduled for completion, and the season when the disruption occurs.

While DOE's draft plan does not discuss the possibility of negotiating agreements for additional electricity imports from Canada or Mexico, the Department has been examining this option. However, there are some uncertainties in this area and the potential in the near term does not seem promising. Increasing imports would depend on the willingness and ability of these countries to export excess electricity to the United States. The idea of negotiating agreements for additional imports may be

difficult to pursue, especially if it involves maintaining or developing excess capacity only for contingency purposes. Prospects for increasing electricity imports are limited in the near term because of generation and transmission constraints. Canada has vast hydroelectric resources but developing them is a longer term activity. The NPC report indicates that the potential from Canada is limited in the near term to about 35 MBD of oil equivalent. Additional electricity imports from Mexico would involve considerable investment in facilities. A number of institutional and regulatory constraints may also limit the potential for increasing electricity imports. In the United States, procedures are generally time consuming because a Presidential permit, approval of several Federal and State agencies, and public hearings are required. There may also be concern about increasing U.S. dependency on imported energy sources.

In summary, progress has been made on electricity planning, but the potential varies and some proposed measures may not be plausible.

WAIVING CLEAN AIR STANDARDS TO ALLOW HIGH SULFUR RESIDUAL FUEL OIL USE

High sulfur residual fuel oil is expected to be available to replace other fuel oils in shorter supply during most disruptions. Potential consumers of high sulfur residual oil are powerplants and major industrial installations which currently use low sulfur residual oil but have the technical capability of using high sulfur oils. State Implementation Plans prepared in response to requirements of the Clean Air Act generally prohibit the burning of high sulfur oil.

DOE has analyzed requirements for obtaining temporary suspensions of State Implementation Plans which would let high sulfur residual oil be burned. To waive Clean Air Act standards, the emergency must be of such nature that it causes high levels of unemployment or threatens a loss of residential energy supplies. However, if implemented, these waivers would save very little oil, only 14 MBD, and involve time-consuming findings and burdensome administrative procedures. Even this low estimate, though, is based on the assumption that waivers remove all environmental constraints on burning high sulfur residual oil. A single waiver would save only 250 BD. DOE's draft identifies three potential major environmental impacts: an increase of 1.3 million tons per year in sulfur emissions, increased sulfuric acid resulting in acid rain far from the emission sources, and damage to vegetation and human health.

In summary, using high sulfur residual oil appears difficult to justify because very little oil would be displaced and the environmental risk would be high.

CHAPTER III

DISTRIBUTING THE REMAINING SHORTFALL--

DEMAND RESTRAINT AND ALLOCATION

Increasing oil supplies and substituting other energy sources for lost oil are among the best ways to balance supply and demand while lessening upward pressure on price. This is so because they minimize, if not altogether eliminate, reductions in energy consumption, and so minimize individual hardship and aggregate economic losses. To the extent that these measures cannot make up for lost oil, the remaining shortfall must be managed by distributing it among energy consumers. There are three principal ways to do this: demand restraint, allocation and increasing energy prices.

Demand restraint, also known as emergency conservation, means cutting consumption quickly when energy supplies are abruptly curtailed. Demand restraint differs from conservation taken under normal conditions to gradually reduce energy use because it must be effective quickly. Unique among contingency measures because it calls for direct participation by consumers, demand restraint can be a valuable tool for emergency management. While DOE has made many proposals since 1974, it currently has virtually no demand restraint plans in standby status that could reduce energy consumption in the event of a supply disruption. A few measures are still on the books from past legislative efforts, but DOE is moving away from Federal involvement in demand restraint.

Allocating oil means distributing it in a different pattern than would happen in an unfettered market. This requires government intervention. It can be accomplished in many ways. Mandatory crude oil and petroleum product allocation, along with price controls, were legislated by Congress during the 1973-1974 Arab oil embargo. Congress initially intended that the programs be temporary. However, Congress subsequently extended the controls, which remained in operation until they were suspended by the President in February 1981. Crude oil and product allocation is still on the books, available for emergency use, but authority for them is set to expire on September 30, 1981. Both programs have been plagued by serious problems, and have been accused of worsening past shortages.

An alternative to relying on allocation with or without price control to distribute oil is to increase prices by letting them rise to market-clearing levels or by using emergency taxes on crude oil and petroleum products. The principal drawback to increased prices is that in a significant disruption prices would soar and many people would suffer. Some individuals would not even be able to afford necessary heating and transportation fuel. In addition, oil companies would reap enormous windfall profits. In principle, these negative effects could be largely overcome by taxing away the unearned profits and rebating the increased government revenues to

energy consumers. During the past few years the Executive has paid increasing attention to the possibility of using market forces and tax/rebate mechanisms to distribute whatever oil remains after other contingency programs have been employed. However, to date there are no standby programs available for use. The only measure the Government could put into effect that would increase prices quickly is an emergency fee on imported crude and products.

DEMAND RESTRAINT

Demand restraint programs are those which can be used to reduce demand quickly when supplies are abruptly curtailed. 1/ To date, Federal legislative approaches to demand restraint planning--first under the Emergency Petroleum Allocation Act of 1973 (EPAA), then under the Energy Policy and Conservation Act (EPCA), and finally under the Emergency Energy Conservation Act (EECA)--have yielded little that the United States can rely on during an energy emergency. Federal and State plans required under these laws are almost nonexistent and procedures to implement existing demand restraint programs are too cumbersome and time consuming.

EPAA authorities for demand restraint measures will expire on September 30, 1981; EPCA authorities on June 30, 1985; and EECA authorities on July 1, 1983.

As was shown in Table 1, the capability of present Federal demand restraint measures is estimated at around 210-340 MBD. Five measures have been established under these laws, but the part that they play in DOE planning has not been prominent. With the exception of the second, for which authority is about to expire, these measures could, nonetheless, be implemented in an emergency.

Minimum Fuel Purchase--This measure restricts retail motor fuel purchases to certain minimum amounts. It was used by several states during the Iranian shortfall and saved only a negligible amount of fuel as a result of preventing inventory buildup. As a disruption management tool, it may provide an effective means of shortening gas lines. Both EPAA and EECA provide authority for minimum fuel purchases. While authority provided by the former will expire September 30, 1981, the latter will continue to provide authority for this area.

Odd/Even Motor Fuel Sales--This restricts drivers to purchasing fuel only on alternate days, depending on the last digit of their

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1/This definition is provided to distinguish these programs from conservation programs which have longer run goals of reducing energy use. Although we make this distinction, not everyone does. It is therefore necessary to keep in mind that titles of laws and programs may contain language such as "emergency conservation" but all programs discussed here fall under our definition of demand restraint.

license plate. Savings are estimated between 35 and 70 MBD because of improved trip planning and some decrease in trips over 300 miles. Some States used this measure to help manage shortages in 1979. Use of the measure is authorized by EPAA, so it will not be available for Federal use if not reauthorized after September 1981.

55 MPH Speed Limit Enforcement--The national maximum speed limit was first adopted as a temporary measure in January 1974 under the Emergency Highway Energy Conservation Act and was made permanent one year later by the Federal Aid Highway Amendments. The measure's estimated emergency savings potential of 30-60 MBD results from the expectation that increased enforcement of existing limits could raise compliance from the current level of about 45 percent to 70 percent. The potential for savings will decrease with time, however, because the Surface Transportation Assistance Act of 1978 requires compliance rates to increase each year under normal conditions. By the end of 1983, each State must achieve a minimum rate of 70 percent. For speed limit enforcement to be effective as an emergency measure, the differential between actual and potential compliance rates must be large. As compliance goes up, savings potential goes down.

Emergency Building Temperature Restrictions--This is the only measure that was approved under EPCA. It is discussed in the following section. Savings are estimated to be about 80 MBD.

Public Information Program--Authorized by the EECA Federal Plan, this program would inform motorists about how to cope with a gasoline shortage and maximize use of ride-sharing and public transit. Savings are estimated between 65 and 130 MBD.

EPCA and EECA are too cumbersome

The Energy Policy and Conservation Act of 1975 (EPCA) required the President to develop "one or more energy conservation contingency plans" and to transmit them to the Congress within 180 days. However, no plans were transmitted to Congress for 4 years. Then, in 1979, three demand restraint plans were sent forward by President Carter in the midst of the Iranian oil supply shortfall. These called for:

(1) limitations on outdoor advertising lighting;

(2) emergency building temperature restrictions; and

(3) restrictions on weekend gasoline sales.

Of the three, the emergency temperature restriction was the only one that Congress approved. It was put into effect nationwide in July 1979 and was operational until it was revoked by President Reagan in February 1981. Although authority for this measure still exists under EPCA, it would not do as much to help restrain fuel demand during a future energy emergency because the standards continue to be observed by many commercial establishments. Future

savings are estimated at about 80 MBD, or about half of those previously experienced.

The Emergency Energy Conservation Act (EECA), passed in November 1979, was developed as an alternative to the EPCA failure to achieve adequate contingency programs. Under EECA, States have a primary planning role. Once the President finds that an energy emergency exists or is imminent and publishes State energy emergency targets, each State submits its own emergency demand restraint plan to DOE. The law required DOE to establish a Standby Federal Emergency Conservation Plan within 90 days, for backup use in case States' plans were not acceptable or failed to achieve the necessary savings.

However, although EECA encourages the States to submit their plans without waiting for a supply disruption to occur, they are not required to do so. In an emergency, it could be a minimum of 75 days before State plans are implemented. Furthermore, each State is given at least 90 days to try its plan. If the State plan was not effective, it would, therefore, be months after the energy emergency before the Federal Plan could be imposed. In all, the Federal Plan probably could not be imposed for at least 165 days, as shown by the following table.

TIMETABLE OF EVENTS LEADING TO THE IMPLEMENTATION OF EMERGENCY ENERGY CONSERVATION PLANS UNDER EECA

EVENT	TIME ALLOWED
President determines a severe energy supply interruption exists or is imminent	No Limit
President establishes monthly emergency energy conservation targets for each State.	No Limit
States submit emergency conservation plans to DOE	45 Days (maximum*)
DOE reviews plans and approves (or rejects) each plan	30 Days (maximum)
State implements plan on a trial basis. DOE finds that plan is or is not achieving Federal targets for reduced consumption	90 Days (minimum)
President confers with State governor about ways the State can meet its targets.	No Limit
President imposes standby Federal plan on State.	165 days (probable minimum)

*Can be extended by DOE.

Fifty-seven States and territories are supposed to submit plans if fuel supplies are disrupted. This procedure would be cumbersome under the best circumstances, but in an emergency, when response times are critical, it seems unreasonable to allow such lengthy delays. In addition, if a State is dissatisfied with any aspect of the Federal decision about targets or the acceptability of State plans, the State can appeal to the Federal courts. If the court decides for the State, demand restraint actions could be suspended unless the Federal Government wins on appeal.

The Federal Plan is inadequate--
State Plans are not ready

The Standby Federal Emergency Energy Conservation Plan is intended to provide guidance for States preparing their plans and as a backup. The Plan has never been completed. An interim final version, published in February 1980, contained nine measures for Federal or State use and identified additional measures for the States to consider. 1/ The nine Federal measures, with the exception of one, addressed only gasoline use. One measure was withdrawn in April 1980, and six more were proposed to be withdrawn in February 1981. The two remaining measures are a public information program to encourage reduced motor fuel use and minimum automobile fuel purchases.

The Plan is totally inadequate. DOE itself estimates minimal savings from the two measures that remain. Furthermore, both measures address motor fuel use only, although EECA requires that plans be developed for other fuels, including home heating oil, and any energy sources which may be in short supply.

Numerous problems have plagued the Federal program. Staffing has never reached authorized levels and remains uncertain; funding has been negligible. Coordination efforts with States, the public, industry, and other Federal agencies have been minimal. Voluntary conservation targets, established by DOE to inform States about the procedures and test the systems, have set poor examples. When, in February 1981, DOE proposed to withdraw all but two of the measures in its interim plan, the country was left with a void in the leadership of Federal demand restraint programs. The plan, in

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1/The Federal Plan, as referred to here, includes those nine measures which DOE set out in the Federal Register on February 7, 1980. Five of the nine were final rules, while the other four were proposed rules. This means that only the five final rules were authorized for Federal implementation under EECA. When the Plan was later modified, in February 1981, DOE withdrew all the proposed rules and indicated its intention to eliminate three of the five final rules. However, DOE has never taken final action to eliminate them.

effect, provides nothing to fall back on. DOE apparently trusts the States to develop their own plans while providing them little guidance and no funding. State plans, however, are not ready.

Under EECA, the Federal Plan may not be implemented in any State until that State has had adequate opportunity to try out its own plan. Although the States are encouraged by the legislation to prepare their plans immediately and submit them to DOE for advance tentative approval, they have received discouragement from DOE. Funding has been promised and withdrawn several times. DOE has not established a procedure or even a set of criteria for approving state plans. State energy offices are anxious that they may lose what expertise they have accumulated if funding is not provided. Not surprisingly, one year after EECA, only 3 States had submitted a tentative plan to DOE.

A DOE survey revealed that most States had begun some kind of plan, but representatives of State organizations, testifying before the House Committee on Government Operations, Subcommittee on Environment, Energy and Natural Resources, in September 1980, indicated that this "planning" on the part of the States was not significant--most States were not really working on plans and would not do so until Federal funds were available. Some FY 1981 funding was made available and all of the States complied with the provisions for requesting it, but additional funds were subsequently withdrawn.

The States are not actually required to submit their plans until after the President finds that an emergency exists or is imminent and publishes State energy targets. DOE spokesmen say that if an emergency were declared tomorrow, the States would not be able to prepare plans within the 45 days allotted. This means that the Federal Plan would have to take over. The Federal Plan, however, as discussed above,is proposed to contain only two relatively ineffective measures.

While the exact potential of demand restraint to save oil is unknown, we believe it is significant. For example, in early 1981 the National Petroleum Council's study of U.S. emergency preparedness identified potential savings at about 1.37 MMBD. Furthermore, demand restraint planning is an important part of our commitment to international contingency planning. It is also a valuable deterrent to panic and hoarding at the start of a crisis. DOE has been unwilling or unable to develop credible demand restraint plans. We believe that the primitive state of planning, 6 years after the first law requiring comprehensive demand restraint programs, is totally unacceptable.

In summary, both the legal framework and Federal demand restraint planning efforts must be completely revised.

ALLOCATION

As noted at the start of this chapter, allocating oil means distributing it in a different pattern than would happen in an unfettered market. It can take many forms. Available crude can be allocated among refiners and regions of the country according to national priorities and equity considerations. Refiners can be left free to produce what they wish or can be told to produce certain kinds and amounts of products. In turn, reduced supplies of product can be allocated among wholesalers and retailers according to various schemes. In its extreme form--rationing--allocation extends all the way to the end user.

Crude oil allocation

Authority for general domestic allocation will expire with the expiration of EPAA on September 30, 1981. This statute provided authorization for two crude oil allocation programs, a mandatory and a standby mandatory program. The standby mandatory program was designed to cope with significant oil market disruptions. DOE substantially revoked both programs on April 3, 1981, as a result of the President's Executive Order 12287 of January 28, 1981, which exempted crude oil and refined petroleum products from price and allocation regulations.

Section 251 of the Energy Policy and Conservation Act of 1975 (EPCA) authorizes the President to take action to implement U.S. obligations under the International Energy Program (IEP) relating to the mandatory allocation of oil. (For a discussion of the IEP and allocation, see pp. 38-42.) The standby mandatory crude oil allocation regulations have provided for the activation of the standby program on the activation of the IEP, unless determined otherwise by the Secretary of Energy. Given the likelihood that the two programs would be implemented concurrently, DOE provided for the integration of standby domestic programs with the Emergency Sharing System of the IEP.

In its April 3, 1981, action, DOE left in place certain standby mandatory domestic allocation and pricing regulations. These regulations provide for the domestic pricing and allocation of crude oil which may be necessary to carry out U.S. obligations under the IEP. DOE's General Counsel recently advised us that these regulations will continue in effect after September 30, 1981, the expiration date of EPAA, since they are also authorized under Section 251 of EPCA. GAO is presently examining DOE's authority to use Section 251 to establish such a domestic allocation program.

The Standby Mandatory Crude Oil Allocation Program

Recognizing that the existing regular and emergency Buy Sell Programs would not deal adequately with a generalized crude oil shortage DOE adopted, in January 1979, a Standby Mandatory Crude Oil Allocation Program. In the event of a supply disruption, the Administrator of DOE's Economic Regulatory Administration could

activate any one of three options which he decides is most appropriate in the particular circumstances. The options were designed to increase the number of refiners eligible to buy and sell crude oil under the Buy/Sell Program thereby assuring all refiners of proportional supplies of crude.

Program readiness

In 1979 and in early 1980, the emergency provisions of the regular program were activated in response to the Iranian shortfall. DOE increased allocations from an average of about 20 MBD in 1978 to about 300 MBD in the fourth quarter of 1979. Certain large refiners sued DOE, claiming that purchases of high-priced crude, required to meet their obligations under the program, were not fully compensated by the pricing provisions of the program. However, the program did supply certain small refiners which would have otherwise been unable to obtain sufficient crude to run their refineries or would have been completely dependent on the spot market for supplies.

The standby mandatory crude oil allocation program has never been invoked during an actual crude oil shortage. However, portions of the proposed regulations were subjected to a simulation test in April, May, and June of 1978. DOE pronounced the program "sound and workable" on the basis of the simulation exercise. However, this judgment was not unanimous among DOE officials responsible for administering the test and monitoring the results. Moreover, many important components of the standby program including the pricing provisions, actual exchanges of crude oil among refiners, deadlines for filing data and completing transactions, directed sales, and product importer allocation provisions were not tested.

Serious problems with the standby program became evident both in the simulation test and in public hearings held by ERA during the last two years. Some of these problems have been addressed by DOE; others have not. Each of the three standby options contains potential weaknesses that threaten to overwhelm ERA's capacity to administer the program and undermine the goals of efficient and equitable allocation of crude oil to refiners.

Expanding the number of applicants could result in a huge increase in requests for emergency allocations, each of which requires a detailed examination of the applicant's crude oil supply and acquisition costs. Also, by expanding the class of eligible small refiners, many of whom operate less efficient refineries, the standby options could result in the use of less efficient refineries--a result which does not serve the national interest. DOE has also noted that increasing the number of eligible buyers without enlarging the universe of sellers [illegible] majors places a disproportionate burden on the [illegible] benefits the large independents.

[illegible] options, large refiners would be permitted [illegible] channels enough crude oil [illegible] National Utilization Rate (NUR).

If a refiner had more crude oil than dictated by the NUR, he would be required to sell the excess to a refiner without enough crude to reach the NUR. DOE has acknowledged that requiring refiners to sell all crude oil they acquire above a given amount would reduce the refiner's incentive to seek additional crude.

The use of the acquisition cost pricing mechanism is subject to two particular drawbacks during a worldwide crude oil supply shortage. While pricing allocated crude at actual cost provides an incentive for the refiner-seller to acquire incremental volumes of crude on the world market, it removes the incentive to seek the lowest possible price for incremental supplies. This lack of incentive could be a source of upward pressure on oil prices and could reduce the value of the program to eligible buyers.

DOE acknowledged the above criticisms of the standby mandatory crude oil allocation program, and on November 26, 1979, prepared amendments intended to address them. Following a public hearing on December 13, 1979, however, DOE decided not to adopt any of the recommended changes.

In summary, deficiencies in the standby crude oil allocation program have never been corrected. Furthermore, authority for general domestic allocation regulations will expire by October 1981, unless extended by Congress. DOE recently advised GAO that regulations for the domestic allocation of oil to carry out U.S. obligations under the IEP will continue in effect after September 30, 1981, the expiration date of EPAA. GAO is presently examining DOE's authority to use Section 251 to establish such a domestic allocation program.

The Cabinet Council on National Resources and Environment recently recommended to the President that the administration should oppose enactment of some form of petroleum regulatory authority for essential emergency services to replace EPAA when it expires at the end of September 1981. Concerning our international sharing obligation, it recommended development of a plan, based on EPCA authority, for fair sharing among U.S. oil companies which the President could use if he deemed it necessary to meet our obligations. At about the same time DOE issued a report stating that it plans to develop a contingency plan for a limited crude oil "fairsharing" system to backstop voluntary offers, for activation should the President deem it necessary to meet our international obligations. The aim of this system will be to assure U.S. oil companies that the burden of supplying oil to the IEA sharing system will be shared equitably, if necessary through government ordered transfers of crude oil among them. It will be a very narrow system in order to minimize adverse effects on market decision-making and efficiency.

However, until such a system is developed and in-place on a standby basis, the U.S. ability to effectively meet IEP obligations, should they arise, will not be assured.

[illegible]

The Mandatory Petroleum Allocation Regulations covering petroleum products were issued in January 1974 and remained largely unchanged until [illegible] 1979, when amendments intended to [illegible] were made. Authority for [illegible] expires with the EPAA. The regulations [illegible] were based on maintaining supplier/purchaser relationships that existed in an earlier base period. [illegible] were designated priority, with [illegible] after August 1979 [illegible] users receiving [illegible] percent of base period use. Nonpriority users were given access to the remaining product after subtraction of [illegible] percent state set aside for [illegible] uses.

[illegible] 1979, the emergency product allocation provisions consisted of standby provisions of the program intended to equitably distribute available petroleum products during a major [illegible] supply interruption. The price provisions were meant to reduce the economic impacts that would result from rapid price increases. The final standby provisions adopted in January 1979 broadened the program's purpose even further.

The most significant substantive difference between the regular and standby provisions is the regular program's use of 1972 data to determine normal purchasing patterns. The standby provisions provide for a base period consisting of the 12 months ending with the second full month prior to activation of the program. In addition, ERA retains the option to choose a different base period, including a periodically updated base period.

The 1979 shortfall experience

The standby petroleum product allocation provisions were used for gasoline during the 1979 Iranian disruption. Our review of the program's operation concluded that the program failed to meet its intended objectives and was so seriously flawed that a major overhaul was needed before better results could be expected. 1/

However, we concluded that the standby gasoline allocation program had not had a fair test since it was not significantly revised until the midst of the 1979 gas shortage, and those revisions were "quick fix" remedies. This made industry compliance with the changes difficult and also made it hard for DOE to monitor and enforce the regulations. As a result, the program did not adequately coordinate the actions of refiners and prime suppliers to assure equitable distribution of gasoline supplies throughout the United States. Long delays in ERA or Office of Hearings and Appeals actions on requests for revised base period volumes and new supplier/purchaser relationships were common. The 1979 experience also showed that the regular staff was not able to handle the heavy workload which suddenly developed.

1/U.S. General Accounting Office, "Gasoline Allocation: A Chaotic Program in Need of Overhaul," EMD-80-34, April 23, 1980.

GAO evaluations of state set-asides after the 1979 emergency found that they were not effectively managed. We found wide variations among the States in definitions of emergencies and hardships and the criteria for allocating set-aside supplies. Some of this confusion was due to DOE's failure to provide program guidance and review necessary to promote more effective program administration.

DOE was not prepared to audit compliance with allocation regulations at the start of the 1979 shortage. Subsequent audits and partial audits of refineries and product resellers conducted by DOE and GAO found numerous instances of noncompliance at all levels of the oil industry. All in all, GAO found that gasoline allocation was chaotic and needed to be overhauled.

Responding to our and other analyses, DOE began a rulemaking to reform the allocation system. When the President decontrolled crude oil and petroleum products in January 1981, the allocation and price control regulations and the rulemaking itself were suspended.

In summary, authority for product allocation domestically expires at the end of September 1981. Because the effort to improve the system was suspended, if the authority is extended and the system activated thereafter, the Nation can look forward to the same kind of chaos allocation produced during the Iranian shortfall.

Gasoline rationing

The Emergency Energy Conservation Act of 1979 amended the Energy Policy and Conservation Act and required that the Administration submit a rationing plan to Congress (in addition to one that Congress had turned down in May 1979). The current plan was submitted in June 1980, and effectively approved the following month.

As adopted, the two primary aims of the Standby Gasoline Rationing Plan are to meet essential needs, such as agriculture and emergency services, and that by and large, motorists in each State incur the same percentage reduction in gasoline. In the event of a 20 percent shortfall and the implementation of the rationing plan, the Department of Energy calculates that priority users would receive 90 percent of their base period use, firms and businesses 80 percent, and individual motorists 70 percent. On these calculations, most private Americans would receive about 42 gallons per month per vehicle.

However, the Administration's recent decision to eliminate funds for pre-implementation, and problems inherent in the design of the system, ensure the plan would not be operational if a disruption occurred. Even more important, authority for gasoline rationing will expire on September 30, 1981.

How the rationing plan would have worked

The total amount of ration rights to gasoline would be calculated for each State based on a formula taking account of the historical use of gasoline in each State. Individuals with validly registered motor vehicles would receive an allotment for each vehicle. The number of allotments would be limited, probably to 3 per household. State Ration Reserves would be established for use by State and local offices in issuing hardship allotments. States would have considerable discretion in the use of their ration reserves, subject to general DOE standards and guidelines. Ration allotments would be issued in the form of Government ration checks, which could be exchanged for ration coupons. Checks would be issued in advance of each ration period.

DOE would permit the sale or transfer of ration rights. No price or other controls would be imposed on this market except as needed to prevent abuse or disruption of the rationing program. DOE would have the authority to buy or sell ration rights to maintain the balance between the number of ration rights outstanding and the supply of gasoline, and to ensure the availability of ration rights where needed.

Rationing plan status

Until funds were eliminated, the plan was in the "pre-implementation" (planned) stage. In order to bring rationing to full readiness, pre-implementation called for two consecutive actions:

--developing and instituting a detailed plan for managing the entire pre-implementation effort, and

--completing 16 specific tasks ranging from obtaining an updated vehicle registration list to producing ration checks and coupons.

DOE hoped to complete the pre-implementation phase within 1 year, but the administration's decision to not continue funding and to not seek renewal of authority for rationing have put pre-implementation in limbo.

In order to actually implement the rationing plan, the President must determine that this action is required by a severe energy interruption or is necessary to comply with obligations of the United States under the International Energy Program. A severe shortage is defined by law as a 20-percent shortfall likely to last 30 days or more which is not manageable under other emergency authorities. The shortage must be expected to jeopardize the national economy, health, or safety. An obligation arising out of the International Energy Program must have comparable adverse implications. If the administration is unable to affirm with certainty that the shortfall will reach the 20-percent trigger, the President may request implementation of the plan, subject to approval by both houses of Congress.

Unanswered questions

Equity - Motorists and other gasoline users in one State are expected to experience about the same relative reduction in the amount of gasoline as users in another State. However, intra-state differences in gasoline use may well be as great as those found among the States. Intra-state inequities between rural and urban areas might be greater, and hardships greater, than among States. For example, take a low consumption State like Illinois. Even here there will be many high-volume consumers of gasoline, especially in rural areas. Since the ration will be equal--and low--for all consumers in Illinois the high volume consumers will face the choice of buying a great many expensive coupons on the white market or going without gasoline. Of course, the opposite is also true. A low-volume consumer in a high consumption State like Texas would have a great many excess coupons and would reap a considerable windfall by selling them. It is not at all obvious why such a system is more equitable than markets where people adjust their consumption according to the price at the pump.

Price control - Rationing implies some form of price control and allocation of products by DOE. If the price of gasoline were simply allowed to rise to a market-clearing level, the limited supply would be distributed on the basis of price, an alternative rationing is designed to avoid. In fact, ration coupons and rights are expected to trade freely on a "white market" and their price when bought or sold will represent the difference between the base price of gasoline and the market clearing price for the amount sold on the white market. It is difficult to see how a base price can be maintained without price controls on oil; and price controls, in our view, work against the important goals of reducing consumption and encouraging fuel switching.

Diesel fuel - Diesel fuel has been excluded from the present plan, because it is interchangeable with home heating oil. The Department considers that compliance with diesel fuel rationing could be enforced only at intolerable costs. However, with the rapid increase in diesel autos, competition between commercial trucks and personal cars may be severe.

Timeliness - If the rationing plan were fully pre-implemented, DOE officials estimated that it would take 3 months to put into operation. This interval is longer than the time it would take to receive oil in transit. Concrete steps might be necessary well in advance of that, therefore, to avoid immediate reactions such as hoarding in anticipation of a physical shortage. An effective gasoline allocation program could be used to help deal with this problem. However, the present program is not effective and the authority for it is expiring soon.

Workability of the Government rationing plan - One element crucial to the success of rationing is matching distribution of both ration coupons and gasoline. No system was designed to

match the distribution of gasoline and coupons. The problem is that rationing would be based on historical use patterns. But during a disruption, use patterns may be radically different. Furthermore, with prices of gasoline controlled, there will be no incentive for suppliers to shift gasoline to where demand is high. Here again, there is every reason to suspect that gasoline may not be available where the coupons are.

The information upon which the distribution is to be based may be difficult to obtain on a timely basis. A data base including State motor vehicle registration files is called for during pre-implementation, but has been suspended. Furthermore, DOE says it may contain up to 20 percent errors. There is also the question of whether priority and business users will be pre-registered, and if not, how much delay will be caused by establishing their ration rights.

Finally, the logistical problems are immense. Coupons would form a second currency; more than twice as many coupons as units of paper currency would be in circulation. The opportunities for fraud and counterfeiting would be large; the needed bureaucracy at the Federal, State, and local levels is also tremendous. All in all, the system may be unworkable, or at least extremely clumsy.

Costs of rationing

By DOE's calculation, pre-implementation would have probably cost $103 million. Preliminary DOE estimates of the annual cost of readiness maintenance range between $25 and $39 million. Mobilization costs, covering the period (90 days or less) between the time when rationing is authorized until it actually starts, are estimated at $463.8 million. Once rationing is in effect, DOE estimates quarterly costs at $474.4 million.

The private sector will also experience costs. Rationing per se will impose an additional burden on a variety of businesses and individuals such as the operators of gas stations who will have to keep track of coupons as well as money. These private sector costs, though real, have not been quantified.

In summary, gasoline rationing is not and will not be available for use in a disruption for the foreseeable future. And even if it were ready, gasoline rationing is a poor way to equitably share the short supplies.

CHAPTER IV

COORDINATING EMERGENCY POLICIES AT THE INTERNATIONAL LEVEL

An internationally coordinated response to oil market disruptions is very important to both U.S. energy emergency preparedness and broader U.S. interests as well.

The fundamentally international character of the oil market makes coordinated multilateral action inherently more effective than unilateral action. What other nations do to cope with disruptions will affect the results of our domestic contingency programs and hence our ability to weather an oil shortfall with minimal adverse impacts. For example, if other oil-dependent countries build substantial emergency reserves and draw them down during a disruption, or if they establish and implement effective demand restraint programs, competition for scarce oil supplies in the international market will be considerably reduced. Without such actions, competition for these supplies will increase, and less oil may be available to the United States. Furthermore, competition for scarce supplies will increase upward pressure on oil prices, further damaging the United States economy, both during and after the disruption.

International coordination would also be crucial if a politically motivated oil disruption was targeted on the United States. The 1973-1974 Arab oil embargo is a case in point. Participating in an international contingency program that includes oil sharing among the members may enable us to better cope with embargoes targetted against us, since we could be the beneficiary of shared supplies. In more general disruptions we would usually share our oil with other countries.

Nearly all our allies are even more vulnerable to oil supply interruptions than we are. Should Europe and Japan be cut off from oil, their prosperity and stability and that of the entire international economic and political order could be jeopardized. Consequently, it makes sense for the United States to encourage other nations to establish strong contingency programs that will enable them to manage oil disruptions. International programs provide a means for both encouraging such activities and coordinating them with our own to help ensure maximum benefits for all.

Recognizing these kinds of considerations, the United States took the lead in 1974 in promoting the creation of the International Energy Agency (IEA). Since then, the IEA has been the centerpiece of U.S. efforts to coordinate international emergency preparedness for oil disruptions. Twenty-one industrialized countries have now subscribed to the IEA's International Energy Program (IEP).

The current IEA emergency programs would be useful to help member nations cope with disruptions, but they do not go far enough. Existing programs are not sufficiently ready and are not strong enough to deal with the full range of disruption contingencies.

The United States has not effectively integrated its domestic contingency planning and programs with its IEA commitment. IEA emergency programs require each country to be capable of restraining demand by 10 percent and to maintain emergency reserves equivalent to 90 days of net oil imports. The United States has done neither. Consequently, in a major oil supply disruption that affects all IEA nations, one of two things is likely. Either we do not fully honor our obligations to other IEA countries, which would damage our broad economic, political, and national security relationships, or we honor our commitments, sustaining a greater supply shortfall than we would if properly prepared--with all the adverse economic consequences that the latter implies.

THE EMERGENCY SHARING SYSTEM

A particularly noteworthy feature of the IEP is the Emergency Sharing System (ESS) designed to respond to an oil shortage of 7 percent or more to one or more member countries. The system's success depends on individual members implementing agreed upon programs and adhering to their emergency sharing commitments. There are three important aspects of the ESS: international allocation of available oil supplies, demand restraint, and emergency reserves.

Each participating country subjects its oil supplies to international allocation during an emergency, thereby surrendering partial control of a critical resource. This commitment takes into account each nation's total oil supply, not just its imports. Thus, those countries with substantial domestic oil production--the United States, Canada, and the United Kingdom--include production in the calculation of how oil is to be shared in the event of a shortfall.

However, given the very considerable dependence of the IEA nations as a group on oil imports, it is clear that allocation alone is not sufficient to cope with energy emergencies. Recognizing this, the IEP requires each country to have a program of oil demand restraint measures enabling it to reduce its oil consumption by between 7 and 10 percent, depending on the severity of the shortfall. Each participating country also agrees to maintain emergency reserves equal to at least 90 days of net oil imports.

Capability for dealing with oil supply disruptions

In 1980 the Secretary of Energy stated that the United States must be prepared to deal with oil supply shortfalls of less than 1, 1 to 3, and 4 to 6 MMBD and lasting for one year. For the IEA as a whole these would represent shortfalls of less

than 3, 3 to 8, and 11 to 16 MMBD. The scenarios roughly correspond to the loss of one medium volume oil-producing country in the Persian Gulf, the loss of a major producer or three medium volume countries, and the catastrophic loss of nearly all Persian Gulf exports, respectively.

The potential of the ESS to cope with oil supply disruptions of roughly these magnitudes is illustrated in the following table.

POTENTIAL CAPABILITY OF IEA EMERGENCY SHARING SYSTEM TO HANDLE VARIOUS SIZED OIL DISRUPTIONS, BEGINNING IN 1981 AND LASTING FOR ONE YEAR

	IEA Oil Supply Shortfall		
	3.5 MMBD	7.0 MMBD	12.0 MMBD
Pre-Disruption Available Oil Supply and Base Period Final Consumption (1980)	35.5	35.5	35.5
Minus Demand Restraint Obligation	- 2.5	- 3.6	- 3.6
Equals IEA Permissible Consumption	33.0	31.9	31.9
Minus Emergency Reserves Drawdown Obligation	- 1.0	- 3.4	- 8.4
Equals Available Supply During Disruption	32.0	28.5	23.5
Number Months Emergency Reserves Would Last if Fully Drawn Down	63.1 Mos.	18.5 Mos.	7.5 Mos.
Number Months Emergency Reserves Would Last if Drawn Down Halfway	31.5 Mos.	9.3 Mos.	3.8 Mos.

As the table shows, a fully operational Emergency Sharing System could easily cope with an oil supply disruption of 3.5 MMBD. Demand restraint programs would absorb 2.5 MMBD and emergency reserves could absorb the remaining shortfall for 63 months--far longer than the postulated 12 month disruption. A fully functioning ESS could also handle a 7 MMBD disruption. Demand restraint would offset about one-half of the shortfall and emergency reserves could offset the remainder as long as 18 months.

Even a fully operational ESS could not, however, handle the worst case disruption. Emergency reserves would be exhausted in about 7 months. Clearly, other actions would have to be taken to offset the shortfall before this point was reached, such as increasing the level of mandatory demand restraint.

As stated, the table illustrates the potential of the ESS to offset oil supply disruptions. In fact, there are problems with the allocation system, demand restraint, and emergency reserves programs which currently make the actual case less than ideal.

Problems with the ESS allocation system

On paper, oil sharing appears straightforward and relatively easy to implement. In fact, however, numerous problems must be addressed before international allocation can be counted on.

Data problems have probably been the most pervasive. The complex system relies heavily on accurate and up-to-date information on how the oil market is behaving.

The international oil market consists of many oil exporting and importing nations, and a much larger number of oil companies and middlemen engaged in the oil trade. The IEA needs data on member countries' indigenous oil production, imports, exports, inventories, and stocks at sea for both crude oil and petroleum products. It gets its information from both reporting oil companies and member nation governments. Presently, 47 oil companies trading about 80 percent of the free world's oil voluntarily participate in IEA activities, but companies handling the remaining 20 percent of the oil trade do not directly participate in the system. This large gap could significantly affect the operation and success of the ESS.

Three simulated tests and recent IEA experience with activating of emergency information system components revealed numerous data problems. For example, the latest and most extensive test of the system resulted in serious data discrepancies that the IEA Secretariat could not resolve. The IEA sought to resolve the discrepancies by guessing, a most arbitrary technique. A March 1981 ERA staff report assessing the allocation test results concluded that the IEA data system cannot now function properly. In a real emergency, arbitrary balancing by the IEA would be highly controversial, which in turn could result in a breakdown of the ESS.

A related question concerns how objective oil companies or member countries may be in providing forecast supply and demand information. During a disruption, market conditions and access to supplies will be very uncertain. Given the high stakes involved, companies may submit overly pessimistic forecasts of their supplies and report their current supply situation late if it is favorable. This behavior could lead to significant distortions in the IEA's calculation of allocation rights and obligations, which in turn could impede allocation of oil to the nations most in need. Since

the IEA does not seek to systematically verify the accuracy of data submitted to it, this is a possibility.

In addition to data problems, price disputes between IEA member countries can occur which might delay or disrupt the allocation process. Unless the companies or countries involved can reach agreement through arbitration or other means, it is likely the oil will not be diverted according to the allocation formula.

In July 1980 the IEA established a Dispute Settlement Center to arbitrate price disputes between oil companies during international oil allocations. However, agreement by oil companies to use the Center is voluntary, and in any case, the Center does not address price disputes between IEA member countries. DOE officials have stated that they would not force a U.S. oil company to divert oil to meet U.S. allocation obligations unless the other company agreed beforehand to use a mutually acceptable price dispute mechanism.

Another potentially serious problem with the allocation system is whether the member governments can ensure that their oil companies will receive a "fair share" of the remaining oil available to that country. If the United States does not have a domestic allocation system, U.S. company participation in voluntary sharing may be in jeopardy. EPAA authority for general domestic crude oil allocation in the United States expires after September 30, 1981. According to a DOE opinion, concurred in by the Department of Justice, section 251 of the EPCA provides the President with the independent authority to establish a limited domestic allocation program to meet U.S. allocation obligations to the IEA. Furthermore, DOE advised GAO that certain standby mandatory domestic allocation and pricing regulations, which may be necessary to carry out U.S. obligations under the IEP, will continue in effect after September 30, 1981, since they are authorized under section 251 of EPCA. GAO is presently examining DOE's authority to use Section 251 to establish such a domestic allocation program.

DOE recently issued a report stating that it plans to develop a contingency plan for a limited crude oil "fairsharing" system to backstop voluntary offers, for activation should the President deem it necessary to meet our international obligations. The aim of this system will be to assure U.S. oil companies that the burden of supplying oil to the IEA sharing system will be shared equitably, if necessary through government ordered transfers of crude oil among them. It will be a very narrow system in order to minimize adverse effects on market decision-making and efficiency. However, until such a system is developed and in-place on a standby basis, the U.S. ability to effectively meet IEP obligations, should they arise, will not be assured.

One other problem with the allocation system deserves mention. Although the small IEA staff would be assisted by oil company personnel during an emergency, it is questionable

whether the combined staff could handle the workload involved in a severe disruption that involved allocations.

Problems with the ESS emergency reserves program

The ESS' ability to cope with oil interruptions depends largely on member nations' emergency reserves. Most member nations do not maintain emergency reserves of 90 days net oil imports as the IEP stipulates. They are able to avoid doing so because of the way in which the IEP has defined emergency reserves.

The IEP states that the emergency reserve commitment can be satisfied by oil stocks, fuel switching capacity, and standby oil production. However, oil stocks are all that would be available to satisfy this requirement for most IEA nations. Oil stocks include crude oil, major products, and unfinished oils held in refinery tanks, bulk terminals, pipeline tankage, barges, etc.

The present IEA definition allows serious overstatement of true emergency reserves, since it counts industry inventories that are working stocks used for normal operations. If one subtracts from actual stock levels estimated supplies required for working level purposes, remaining oil stocks available for emergencies are considerably less than the IEA emergency reserves requirement. As shown below, in early 1981 Japan had only 54 days, the United States 58, and the the European nations 78. (The situation was considerably worse than that in early 1980.) Because stocks actually available for emergencies are less than 90 days, the ability of the IEA to cope with oil supply disruptions is diminished.

IEA* EMERGENCY RESERVES REQUIREMENT, ACTUAL OIL STOCKS, AND STOCKS THAT POSSIBLY COULD BE USED IN EMERGENCIES, 1981

	Estimated Minimum Working Level Oil Stocks Required (MMB)	Actual Oil Stock Levels (MMB)	IEA Emergency Reserves Requirement (MMB)	Estimated Oil Stocks Which Could Be Used In Emergencies (MMB)	Estimated Number Days Oil Stocks Which Could Be Used In Emergencies (Days)
IEA Europe	513	1223	819	710	78.0
United States	996	1390	603	394	58.8
Japan	225	501	459	276	54.1
TOTAL *	1734	3114	1881	1380	66.0

*Excludes Australia, Canada, and New Zealand.

NOTE: See Volume II, Chapter VII, for a more complete discussion and presentation of the table.

Another consideration influencing the ability of emergency reserves to cope with oil supply disruptions concerns control of the stocks. In nearly all IEA countries control of primary oil stocks is in private hands. The exceptions are Denmark, West Germany and Japan. A question exists concerning whether, in the event of an oil supply disruption, the IEA member governments could exercise effective control over oil stocks in their respective countries. Those which cannot control oil stocks run the risk that stocks will be drawn down too quickly or not quickly enough. If stocks are drawn down too quickly, demand restraint programs may not be fully realized and the countries' ability to cope with lengthy disruptions will be compromised. If stocks are not drawn down quickly enough, adverse economic impacts over the short run will increase, as will personal hardships. At the same time, spot market demand for oil will grow, increasing pressure on prices.

Little is presently known concerning the ability of other IEA governments to control oil stocks. The IEA has conducted various studies of oil stocks, but it has not assessed the operational effectiveness of each member country's emergency reserve programs. However, most IEA countries are more dependent than the United States on oil relative to total energy consumption, more dependent on oil imports, and without any significant potential for either standby oil production or fuel switching. For these countries, effective control over their respective oil stocks is absolutely essential to satisfy their emergency reserve drawdown obligations.

Concerning the United States, industry officials contend that their oil stocks are part of working inventories and that the amount of pure emergency reserves is very small. While our analysis indicates that considerable industry stocks could be used for emergency purposes, if necessary, all the oil companies we recently contacted in a separate review stated that they had no stocks available or set aside for IEA sharing. The Federal Government has legal authority through September 30, 1981 to manage private oil stocks for emergency purposes, but it does not have the capability to exercise effective control over industry stocks. DOE has prepared a draft plan for developing such a capability, but the plan has not been approved and thus implementation has not begun. (The subject of U.S. private stocks is analyzed more completely in Chapter II.)

Consequently, the only oil stocks that the Government can be absolutely sure of using in an emergency are those in the Strategic Petroleum Reserve. As of mid-August 1981 these were about 177 MMB--far short of the approximately 600 MMB that would be needed to equal 90 days of recent net oil imports.

Problems with the ESS demand restraint program

Reducing oil demand by 7 to 10 percent would necessarily involve substantial economic costs and personal sacrifice. Demand

restraint programs reduced consumption [illegible] of course, it is doubtful whether many IEA nations have demand restraint programs capable of reducing consumption by 7 to 10 percent. As was demonstrated earlier, the United States has only a few demand restraint programs and they would have [illegible] shortfall.

The IEA has defined demand restraint very loosely to include persuasion (i.e., public information programs), compulsory orders (i.e., banning use of automobiles on weekends), fuel switching, allocation, rationing, and even price measures. This definition is quite different from ours (see Volume II, Chapter V) and so broad that it reduces the value of using the term. It includes many of the energy policies which can be used to cope with oil supply shortfalls, yet which can have very different effects in terms of impacts on individuals, the economy and society more generally.

By defining demand restraint to include all of these policies, it is difficult to know what the costs would be to any particular IEA country if it had to implement 7 or 10 percent demand restraint. The costs would depend on the particular kinds of policy programs the country has at its disposal.

In 1980 U.S. oil consumption averaged 17.1 MMBD. This means that the United States should have demand restraint programs capable of reducing consumption by 1.2 - 1.7 MMBD. Using our more narrow definition of demand restraint the Nation has a capability of perhaps 210-340 MBD, which is far short of our obligation.

The 1974 IEP Agreement stipulated continual review of each country's demand restraint program. But reviews which have been conducted have been infrequent and cursory. Reviews have typically involved only a few individuals representing the IEA and have been conducted in a few days or less. For example, the IEA review of the U.S. demand restraint program was performed by 2 examiners from the IEA over a period of two days.

The third simulation test of the ESS, held between October and December 1980, tested IEA demand restraint programs much more thoroughly than did the first two tests. In the United States eight States participated (California, Colorado, Florida, Massachusetts, Michigan, Minnesota, Virginia, and Washington). The United States exercise lacked realism because authority did not exist for some of the measures used, and the exercise assumed that the United States would implement programs that DOE knew were not ready for use. DOE estimated that the measures would reduce demand by about 1.3 MMB. Since these measures could not be counted on to restrain demand adequately, DOE activated the standby mandatory crude oil allocation program to fulfill its IEA obligation. Allocation, though, does not restrain demand, and so the "savings" generated by this action were illusory.

The eight participating States concluded that the demand restraint programs failed the test. The major factors contributing

to the failure, they said, were (1) the absence of State-specific data necessary to support public confidence, regional equity, and rational decisionmaking, and (2) lack of linkage between fuel supply management and demand restraint measures.

Perhaps the best evidence on the utility of the IEA members' demand restraint programs is seen in how the countries responded to the 1979 Iranian oil supply interruptions. In the midst of that disruption the IEA Governing Board met and agreed that member countries would voluntarily reduce anticipated 1979 oil demand by 5 percent, or 2 MMBD. However, by the end of the year IEA had achieved only a 2.6 percent reduction. Only 6 countries--including the United States--achieved the 5 percent target. Furthermore, a GAO study found that the U.S. reduction was mainly due to shortages rather than to DOE's plan. 1/

What must be recognized is that the ESS depends critically upon IEA countries having effective demand restraint programs that can be quickly implemented. Without such programs the economic cost and personal hardship are likely to be much greater. If demand restraint programs do not achieve the intended reductions, demand will exceed available supplies. This may lead to more rapid drawdown of oil stocks, compromising the ability of IEA countries to sustain disruptions of long duration. Moreover, upward pressure on oil prices will be further exaggerated.

OTHER LIMITATIONS OF THE ESS 2/

The IEA is ill-prepared to provide for coordinated multilateral actions to deal with oil supply disruptions like the 1979 Iranian shortfall which are too small to trigger the system but which still cause considerable damage. Particularly noteworthy is its limited ability to deal with dramatic price increases that can accompany oil shortfalls.

The Iranian oil supply interruption, which began in late 1978 and continued into 1979, vividly demonstrated the damage that can be inflicted by smaller disruptions and associated oil price increases. During the first quarter part of 1979, the total loss to the world market was only about 2 MMBD. Nonetheless, a period of oil market instability began, punctuated by threatened supply disruptions and rapidly escalating crude oil prices. Despite decisions by Saudi Arabia and certain other OPEC governments to increase crude oil supplies by a million barrels a day, spot prices soared and served as a catalyst for OPEC producers to raise official crude oil prices. Between the fourth quarter 1978 and the fourth quarter 1979, the average OPEC crude oil office sales price nearly doubled even though OPEC production and other free world crude oil production increased.

1/ GAO letter report to Senator Henry M. Jackson, regarding shortages caused by the Iranian oil cutoff, EMD-79-88, Aug. 27, 1979.

2/ For a discussion of additional limitations to those summarized here, see Volume II, Chapter VII.

Because the Iranian disruption did not result in a 7 percent or more shortfall to IEA countries, the Emergency Sharing System was never activated. Demand restraint and emergency reserve drawdown obligations were not imposed. Yet, implementation of effective demand restraint measures alone, and at less than the 7 percent level, could have more than offset the shortfall.

The IEA response to the disruption was to convene numerous government and industry meetings. The most tangible result was the March 1979 decision, discussed above, whereby member countries agreed to reduce anticipated consumption by 5 percent. That target was never met. The IEA also exhorted its members to stop purchasing high-priced spot market oil, but reluctantly admitted that without a 7 percent shortage, there was little it could do to stabilize the market.

A second weakness in the ESS, also revealed by the 1979 disruption, was its inability to coordiate oil stock policies of member countries. Because the ESS was not activated, emergency reserve drawdown obligations were not in effect. More importantly, member countries were apparently free to build oil stocks if they wished. A frantic scramble to build stocks did occur and was a major contributor to upward pressure on oil prices during the 1979 disruption. As a group, the IEA nations increased their stocks by 14 percent or 387 million barrels. Clearly, just maintaining rather than building stocks by the IEA countries could have had a significant and positive impact on the world oil market.

Thus, the 1979 shortfall revealed the impotence of the IEA to respond to supply shortfalls below the 7 percent level. Since then, the IEA has examined ways to strengthen its ability to deal with oil supply interruptions too small to trigger the ESS. The areas emphasized included coordination of member policies on oil imports, stocks, and spot market prices.

In May 1980 the IEA countries agreed on a system of ceilings for lowering import dependence over the medium term and as a guide for dealing with short-term disruptions. The system includes an agreement that if at any time tight oil market conditions appear imminent, Ministers will meet, decide whether tight conditions exist, and if so, take action to restrain demand. In doing so, the Ministers will decide whether to use individual oil import ceilings to achieve demand restraint and monitor effectiveness. Even if ceilings are agreed upon, each nation's ceiling will be determined by the degree of self-restraint each nation is individually willing to impose on itself at that time.

Also, in May 1980 the IEA Governing Board approved a consultation system for stock policies among governments within the IEA and between governments and oil companies. The program consists of monitoring the stock situation, and contains procedures for developing substantive policies for dealing with adverse trends. If the IEA member countries agree on specific policies, it is up

to individual member governments to decide how to implement them in consultation with the oil industry.

When war broke out between Iran and Iraq in September 1980 and removed about 4 MMBD of oil from world markets, IEA member countries met and decided that oil stocks could be a principal means for coping with the problem. The Secretariat's analysis showed that oil consumption within IEA countries was low compared to recent years, stocks were high, and some spare productive capacity was available. It concluded that overall supply could be managed so as to meet demand over the coming months.

Member countries agreed that during the fourth quarter of 1980 oil stocks should be drawn down to balance supply and demand. The members were to consult with the oil companies, urge private and public market participants to refrain from abnormal purchases on the spot market, and consult one another to ensure consistent and fair implementation of the measures.

Two months later the IEA Governing Board met to review progress and the outlook for the first quarter of 1981. The Board concluded that a combination of continuing high stock levels, declining oil consumption and additional oil production should make the situation manageable. To achieve manageability, the Board reaffirmed and extended the October 1 measures. In addition, member countries agreed to go a step further by establishing what amounted to an informal system for sharing oil. This was necessary, the Board said, "to correct serious imbalances which remain despite national efforts to correct internal imbalances and which are likely to result in undue market pressures on price...."

Under this system, the IEA Secretariat compares country supply positions against a theoretical supply determined by distributing total oil expected to be available to the IEA group among member countries in proportion to their base period final consumption. At the request of a member country, or on his own initiative, the IEA Executive Director identifies major crude oil or product imbalances which seem likely to result in upward pressures on price. There need not be a 7-percent selective or general shortfall or any other particular shortfall to qualify as an imbalance; this is a discretionary decision made by the Secretariat. Once it has been determined that an imbalance exists, the informal sharing system is an elaboration, extension, and intensification of the consultation process used in implementing the consultative stock policy.

By the end of the first quarter of 1981, frantic buying of oil on the spot market had not occurred and panic had been avoided. As a result of an improving global oil supply situation, the IEA did not extend use of the informal sharing system into the second quarter. It is available for future use if judged necessary.

The IEA systems for stock consultation and informal sharing may have partly accounted for the success achieved by IEA countries in coping with the oil shortfall resulting from the Iran-Iraq war during the latter part of 1980 and the early months of 1981. Observers differ about this point. Some contend that the principal factor underlying the oil companies' response to the latest disruption was not the IEA consultative system but rather that oil company stocks were high when the war broke out.

In theory the IEA Emergency Sharing System reduces U.S. vulnerability to supply interruptions targeted on the United States. Equally important, it provides considerable potential for reducing the vulnerability of our principal allies to disruption possibilities. Most of our allies are very vulnerable to oil supply disruptions, and if they are unable to cope with interruptions, U.S. interests could be significantly and adversely affected. Thus, it makes sense for the United States to promote contingency programs that can reduce our and our allies' vulnerability.

But the Emergency Sharing System also imposes certain burdens on the United States. Our review indicates that in practical terms the United States has not integrated its domestic and international contingency planning effectively. As discussed elsewhere in this report, U.S. demand restraint programs are in a shambles, and the Federal Government does not have nor maintain control of emergency reserves anywhere near 90 days of net oil imports. This means that if a disruption were to occur, the United States may not be able to honor its commitments. Or, if it did, it might have much less oil proportionately than those countries who were able to meet their obligations.

CHAPTER V

WHAT NEEDS TO BE DONE TO IMPROVE EMERGENCY PREPAREDNESS?

The Federal Government must get serious about contingency planning for oil supply disruptions.

Immediate action ought to be taken to upgrade the Nation's ability to cope with disruptions. Some actions are short run; within a year or so they can significantly improve the Nation's emergency preparedness. Other actions will have benefits which will take longer to realize. Finally, preparations need to be made to prepare for decisions about other measures to further improve preparedness over the mid-term.

Key actions we think are needed over the short and medium term are:

--increase the oil available for emergency use via industry stocks, SPR, and surge oil production;

--replace the expiring EPAA authorities with authority for an improved standby distribution system to help assure oil availability during disruptions;

--overhaul demand restraint planning and programs;

--acquire better understanding of the role fuel switching can play; and

--develop a more credible international emergency preparedness program.

INCREASE THE OIL AVAILABLE FOR EMERGENCY USE VIA INDUSTRY STOCKS, SPR, AND SURGE PRODUCTION

The greatest potential for improving emergency preparedness over the short-term is by increasing emergency oil supplies--including private industry stocks, the SPR, and surge oil production. Together these measures could offset as much as 1 MMBD or more of an oil supply shortfall. This potential could be realized within weeks of the onset of a disruption, and be relied on for a year or more.

Assign key role to industry stocks

Industry-owned oil stocks offer the greatest potential for immediately upgrading the Nation's ability to deal with disruptions. These reserves easily rival and probably substantially exceed the current size of the SPR. However, since the Emergency Petroleum Allocation Act (EPAA), which provides authority for

government control of oil stocks during an emergency, will expire after September 1981, new legislation must be passed to provide continued authority in this area.

Our conservative estimate is that petroleum industry stocks could support a daily drawdown rate of 275 to 550 MBD for as long as a year. This is consistent with estimates that industry reserves have been ranging between 100 and 200 MMB above previously normal operating levels. Alternatively, stocks could be drawn down faster during the early stages, when other contingency programs are less effective, and at a slower rate as other programs phase in. Looking to the mid-term, reserves of, say, 350 MMB could support, if necessary, a drawdown rate of more than 1 MMBD for nearly a year. This program alone could offset one-third of a 3 MMBD shortfall.

Even with authority, the Federal Government lacks the means to require oil companies to draw down oil reserves in an emergency. Thus, it is essential that the Government and the oil industry agree on appropriate rates for drawing down industry-owned oil stocks, especially during the early stages of a disruption. DOE should secure oil industry review of its draft inventory management plan for controlling industry stocks during emergencies.

The Nation also needs a program which guarantees that large industry reserve stocks will be maintained during normal markets so that they can be drawn down at a rate commensurate with the need during disruptions. The program must provide equitable treatment of the companies involved, ensuring that companies which have built and maintained sizeable reserves will not be penalized for drawing them down. Companies which have built and maintained reserve stocks should be allowed to secure a fair price for having paid the financial costs of doing so. They should not be denied the right to bid for SPR oil simply because they have pursued prudent stock-building policies.

The Secretary of Energy can, under EPCA, require oil companies to set aside 3 percent of last year's throughput or imports.1/ However, DOE believes use of the set-aside authority would generate many legal challenges. Since significant benefits would accrue to the entire Nation from industry-owned reserves, consideration should be given to reducing the oil companies' costs of maintaining large reserves. One way of doing this is to offer financial incentives. For example, tax credits could be used to help finance the construction of new storage capacity, and subsidies, tax credits, or tax deductions could be used to encourage the holding of stocks. Another option is to establish a quasi-public corporation for financing an industrial petroleum reserve. Members could include both the Government and oil companies, with alternative cost-sharing

1/Industry-owned oil may be stored in surplus Government facilities to remedy any refiner or importer inequities.

arrangements possible. The corporation could finance the acquisition and storage of reserves through company fees based on product sales, or sales taxes, or through the sale of bonds to the public. This would remove the costs from the companies' books, eliminating one of industry's main objections to an industrial reserve. At the same time, the corporation could assure some Government control and management of the reserve by providing segregated storage of the stocks. Government and company representatives could sit on the Board of Directors. The latter two alternatives could even be structured to include companies outside the oil industry. Costs of the program would vary greatly, depending on the option chosen, method of implementation, and size of the desired reserve.

On July 31, 1981, Senator Bill Bradley requested GAO to conduct a review of the major alternatives for building or maintaining U.S. oil reserves in the private sector, and to evaluate the advantages and disadvantages of each. We have recently initiated such a study.

We recommend that Congress:

--provide for the Secretary of Energy to maintain, after expiration of the EPAA, the authority to require companies to adjust stock levels in times of an energy emergency. (For suggested legislative language to accomplish this recommendation see Appendix A, pp. 71-72.)

We recommend that the Secretary of Energy:

--ensure the timely completion of an inventory drawdown plan so that the government can effectively manage drawdown of industry stocks. Design of data systems should not be held up while other DOE data needs are being assessed. Most important is receiving industry-wide input on the draft plan and OMB approval for required data collection systems.

--prepare plans to establish a private petroleum reserve to ensure that high levels of industry stocks are available for emergency purposes and to promote buillding of industry reserves. In this connection, the Secretary should review and analyze the various options to achieve this objective, including--(i) requiring companies to set aside, as present law permits, 3 percent of the previous year's imports or thoughtput; (ii) providing financial incentives for holding oil stocks above a certain level; and (iii) establishing a quasi-public corporation to build and maintain stocks so as to remove their costs from company books and to assure some Government control and management of them. The Secretary

should decide which option(s) will best assure the establishment of the private petroleum reserve and, if necessary, seek legislative authority to carry out such option(s).

Accelerate the Strategic Petroleum Reserve

Recommending an industrial petroleum reserve and drawdown of industry oil stocks does not in any way imply lower priority for the SPR. The Nation's preparedness for dealing with oil supply disruptions is so poor that the SPR should be filled as quickly as practicable. SPR fill should not be interrupted while long-term financing mechanisms are sought. Furthermore, ways to accelerate construction of the next segment of SPR storage capacity or develop additional capacity should be considered.

Many studies of SPR use strategy advocate that a minimum fill be reached before the reserve is drawn down except to meet critical needs during a very severe disruption. For example, the National Petroleum Council recommended that about 200 MMB should be held in reserve for such contingencies since the SPR is a one time source of crude which must be replenished. A DOE study prepared in late 1979 indicated that 250 to 550 MMB should be retained as insurance for "survival uses." 1/ We believe the concept of maintaining a minimum reserve for the most severe disruptions is reasonable. Therefore, in evaluating the capability for handling a U.S. shortfall of 3 MMBD, we have proceeded on the premise that the Federal Government would not draw down the SPR except in a worst case disruption or until it reached a size of about 250 to 500 million barrels. A 3 MMBD oil shortfall would be serious, but does not represent a worst case disruption. Since under the fill rates proposed in DOE's fiscal year 1982 budget the SPR will not even reach the 250 MMB range until at least late 1982, under our assumption it will be some time before the SPR can be drawn down.

To ensure sound overall contingency planning, the Secretary of Energy should at a minimum clearly specify the options being entertained for SPR use in various size disruptions that might occur in the near-term future, including the rate, amount, and timing of drawdown, and method of distribution. This is necessary to assure that other parts of comprehensive contingency plans are consistent with the role envisioned for the SPR. DOE said that lack of a specific plan is designed to keep potential embargoing producers uncertain of U.S. intentions and thereby maximize the deterrent value of the SPR. However, the absence of a specific use plan or set of options leaves judgements about SPR use subject to ad hoc decisionmaking during a crisis. The reason for not developing a plan involves legitimate concerns.

1 "DOE Analysis of the Appropriate Size of the Strategic Petroleum Reserve," November 30, 1979.

However, we believe a better way of [illegible] concerns is for DOE to develop a plan but not [illegible] to the public. We do not believe the Depart[illegible] national security reasons as an excuse for not [illegible] emergency plans for one of our potentially [illegible] countering an oil emergency.

Because the oil market is likely [illegible] and is subject to many kinds of disrupt[illegible] its SPR oil acquisition strategy to provide a [illegible] of secure supplies. Then, even if the SPR is not [illegible] it is much larger, it could still play an [illegible] the SPR is filled at an accelerated rate and from [illegible], oil destined for the SPR could be diverted [illegible] shortfall. The SPR should be filled with domest[illegible] oil to the greatest extent possible--especiall[illegible] North Slope and Federal royalty oil. Because [illegible] occurs on State-owned lands, the State of Al[illegible] a 12 1/2 percent royalty in currency or in kind. [illegible] attempt to acquire some of this oil (up to 140 MBD [illegible] negotiation with the State Government. The [illegible] has begun to explore use of this royalty oil and [illegible] with State government officials to determine if there [illegible] basis for further negotiations. DOE has already [illegible] some Alaskan oil directly for the producing companies and [illegible] to buy more. Also, the Federal Government leases offshore and onshore Federal lands for oil exploration, receiving a royalty based on a percentage of future production--normally [illegible] percent of offshore production and 12 1/2 percent of onshore production. It has the right to take the royalty oil in cash or in kind from most leases. The Energy Security Act reaffirmed the President's authority, originally provided by EPCA, to [illegible] exchange this oil to fill the SPR. The Act's Conference [illegible] committee report went further, stating that the President should give a high priority to using this oil. If a disruption occurred then, diverting SPR oil to the economy could significantly reduce the size of the shortfall to the Nation.

However, we believe that DOE should not suspend purchases except during severe disruptions, at least until the SPR has reached a minimum threshold size. Given the high priority of the SPR, filling it should be considered part of U.S. base demand and should not be cut back under tight market conditions. Furthermore, resuming fill can receive high international visibility. As is well known, during the 1978-79 Iranian oil supply interruption SPR fill was not maintained, and after the interruption the administration was apparently reluctant to resume fill because of possible opposition of both our allies and certain Arab oil exporters and to avoid putting pressure on the spot market. To guard against this occurring again, DOE should seek to maintain at least a nominal fill rate except during severe disruptions. Congress should provide for maintaining backup authority requiring refiners to contribute oil to the SPR.

Fiscal year 1981 purchases through mid-August averaged 300 MBD at an annual rate--a vast improvement over previous years. However, the Nation's vulnerability to supply disruptions and the poor state of readiness of U.S. contingency measures make it imperative that DOE fill the SPR at the fastest practicable rate. DOE's fiscal year 1981 appropriation legislation provides for DOE to seek to fill the SPR at an average rate of 300 MBD, or until funds are exhausted. The Omnibus Budget Reconciliation Act of 1981 amends EPCA to provide that DOE seek to fill the SPR at the same rate. If DOE were to maintain that rate beyond mid-1982, however, it will need to acquire additional storage capacity.

Various alternatives to finance the SPR off-budget have been discussed. While fiscal year 1982 funding is authorized through the Omnibus Budget Reconciliation Act of 1981, we believe that completing the SPR is so essential to our preparedness that filling the SPR should not be delayed if the debate over long-term financing continues. The SPR is a vital element in our national security preparedness, and is an important component of upgrading the Nation's defense.

We recommend that Congress:

--continue DOE's authority to require refiners to contribute oil to the SPR as a backup in case other acquisition strategies fail, since this authority expires with the EPAA after September 30, 1981. (For suggested legislative language to accomplish this recommendation see Appendix A, p. 72.)

We recommend that the Secretary of Energy:

--improve SPR oil acquisition strategy to provide a greater proportion of secure supplies. With due regard for existing contractual arrangements and SPR storage capacity, the Secretary should obtain, at a minimum, all Federal offshore royalty oil from leases which produce 100 barrels a day or more of royalty oil, and continue to seek to obtain Alaskan royalty oil.

--ensure that comprehensive contingency plans clearly specify options considered for SPR use, including rate, amount, and timing of drawdown, and method of oil distribution.

Establish standby capability for surge oil production

There appears to be substantial potential for surge oil production--as much as 326 MBD. This potential would be gradually achieved over 12 months with minimum damage to oil fields or loss of ultimate recovery. However, various obstacles stand in the way of realizing this potential.

The greatest potential for surge oil production is on non-Federal lands in Texas and Alaska (about 300 MBD). However, current State regulations do not permit surge oil production. Even if regulations were relaxed for emergency purposes, financial considerations might limit the potential for increased production. According to the NPC, surge production requires some investments ($30 million) to prepare the fields and expand pipeline capacity. Therefore, increased production will depend on the companies' willingness to make these expenditures in advance for contingency purposes.

Concerning oil produced on Federal lands, DOE has prepared a draft plan for Elk Hills surge production, but legislative action is needed to authorize increased production from Elk Hills beyond the established maximum efficient rate of production. The potential for securing surge production from other Federal lands has not been established.

We recommend that Congress:

--authorize production at Elk Hills above current maximum efficient rates during oil supply emergencies when there is minimum risk of damage to the oil field. (For suggested legislative language to accomplish this recommendation see Appendix A, pp. 73.)

We recommend that the Secretary of Energy:

--complete a plan for Elk Hills surge oil production and examine the prospects for surge production on other Federal lands.

--seek cooperation from governing authorities in States with significant potential for surge oil production, to allow increased production where feasible in the event of a national oil supply emergency and to prepare standby programs for this purpose.

DEVELOP STANDBY PROGRAMS TO ENSURE CONTINUING OIL AVAILABILITY

The coming expiration of EPAA at the end of September 1981 has focused much of the emergency preparedness debate on the Government's role in distributing oil during disruptions. The debate has largely been between those who would rely on government allocation of available supplies and those who would leave distribution in the realm of unfettered markets.1/

1/In a recently released study, the Congressional Budget Office discusses several distribution mechanisms. See: Congressional Budget Office, Managing Oil Disruptions: Issues and Policy Options, September 1981.

Arguments for and against
free market distribution

The arguments in favor of relying on markets to distribute supplies during disruptions are compelling. Advocates assert that the market would channel oil to its most productive uses, thereby minimizing economic losses. They also point out that a nonintervention policy would cause no public expense and not burden the industry with regulatory requirements. Balancing supply and demand via markets would also avoid gas lines and conserve oil as consumers cut back their purchases in response to higher prices. Finally, a nonintervention policy would be an incentive for the industry to protect itself by building private stocks.

Against this list of virtues, critics point out what they perceive as severe drawbacks. One of the most persistent arguments is that the very high oil prices caused by a disruption will price all but the wealthy out of the market, causing great personal hardship. An important variant of this point is that vital public health and safety activities may suffer as State and local budgets will not be able to rapidly accommodate the skyrocketing prices. Critics also point to the large windfall profits that accrue to owners of domestic oil resources, which, they say, result from OPEC manipulation rather than regular business activities. Other points often made include: possible discrimination against independents by large integrated companies, fears that the market will not work quickly enough to meet regional shortfalls because of legal and contractual rigidities; and general uncertainty over the prices and amounts of oil which will be determined through the market. Lastly, critics charge that not preparing a distribution plan in advance will cause acute political pressure when a disruption hits, and the resulting intervention may be ill-advised and damaging.

Arguments for and against
government allocation

Proponents of government allocation state that such a system will solve the problems they identify with market distribution. That is, they assert that controlling domestic oil prices will both keep oil products affordable and prevent windfall profits for producers. Allocation, they also assert, will guarantee supplies to independents, will direct supplies to all regions and customers, and will remove the uncertainties of market results.

Critics, of course, deny that these benefits will actually come from allocation. They point out that restraining prices causes gasoline lines and prevents reductions in demand. They also point out allocation's complexity, its burden on industry, and the poor administration of past allocation programs. Another of their arguments is that allocation is based on a past demand pattern and during a shortage demand patterns will necessarily change. Thus, gasoline will not be available where it is needed--a problem which was noted during the 1979 oil shortfall.

Finally, they cite two political liabilities--that the priority designations set up by allocations are subject to political pressures and abuse, and that once created priority users can exert enough influence to keep allocation in place long after a disruption is over.

Current oil distribution proposals

While the issues of allocation versus market distribution are most easily seen by looking at extreme cases, there are relatively few advocates of either approach in its absolutely pristine form. Most current proposals are variants of pure market and thoroughgoing allocation, designed to deal with the most obvious drawbacks of each.

Market variant I: tax/rebate plans

When a disruption hits and oil prices rise, Federal corporate income and windfall profits taxes also automatically rise, taking half to two-thirds of the windfall. Combined with state income and severance taxes, the total would be somewhat higher. In order to enable consumers to afford the higher oil prices, some have advocated rebating these revenues back to consumers. Another version of this idea is to increase the windfall profit tax to cut the companies' gains even further or to impose a tax on imported oil. Versions of rebates include simply targetting them to all households or setting aside special rebates to State and local governments to maintain essential services. Many tax and rebate systems are possible, but all are meant to give consumers money so they can more easily afford the higher prices and avoid letting the oil industry reap large windfall gains. Advocates also point out that since this market variant does not control prices, it would encourage conservation and avoid the large administrative and regulatory burden imposed by full allocation.

Market variant II: SPR & stock drawdown

Due to the higher fill rate of 1981, the SPR is approaching the size where drawdown is a viable strategy. Advocates point out that one purpose of allocation is to supply crude-short refiners. SPR drawdown could accomplish this without taking oil from those who have successfully procured it. The SPR oil could be distributed in various ways: it could be allocated directly to needy refiners, or it could be sold in open or limited competitive sales.

Government could also intervene in private oil stocks, ordering both crude and product stocks to be drawn down so as to increase the amount of oil reaching consumers. This oil could, but need not be, allocated. Such a company-by-company program would certainly be difficult to administer, but probably its

[illegible] potential government [illegible] private disincentive [illegible]

Allocation variant I: crude allocation only

[illegible] concerns of those who recommend [illegible] is that if some refiners lose a large fraction of their [illegible] they and their customers will bear an unfair share of the reduction burden. This can be addressed by allocating only crude, the assumption that products will then flow reasonably equally to all customers. It makes little sense to control crude prices only, since doing so would simply shift windfall profits from producers to refiners. Thus, probably the only price control needed would be to ensure nondiscriminatory pricing by holders of allocated crude. This would allow prices to rise, thereby achieving the conservation expected under the market approach.

Allocation variant II: product allocation only

Just as it is possible to allocate only crude, product allocation could be used to ensure that all customers receive their fair share. Here again, price control would not be used since crude would be priced at market levels. Of course, without crude allocation, customers of especially crude-short refiners would experience large cutbacks. State set-aside could be used in this case to alleviate any special hardship.

Allocation variant III: gasoline rationing

The appeal of rationing--which is allocation all the way to the end user level--is equity. Gasoline may be in short supply but everyone will at least be able to get the gasoline represented by his coupon allotment.

While rationing can certainly be made to work, our analysis in Chapter III of this volume and Chapter VI of Volume II has shown that the practical difficulties of rationing would be serious. Questions exist concerning timeliness, equity, matching coupons and actual gallons, the treatment of diesel fuel, accuracy of coupon distribution, and cost. All these problems add up to a clumsy system, one that would disappoint a great many consumers.

Rationing also implies price control. Thus, the system is still subject to two principal criticisms of allocation, namely, that it does not promote conservation and causes a loss of economic efficiency. While rationing is a legitimate variant, and one which was endorsed by the Government in the past, our examination of the practical equity and economic problems of rationing have satisfied us that it should not be used.

Evaluating the alternatives

Whether to use some form of governmental allocation or some form of market distribution is controversial. It is controver-

sial in part because of honest differences over what is the best approach and in part because of our lack of experience with most of the alternatives. What is clear, however, is that complete nonintervention in markets or throughgoing allocation and price control both carry serious flaws. The variants--more limited allocation or use of stocks or tax rebates--offer promising alternatives for receiving the benefits of the basic approaches while avoiding at least some of their costs. These alternatives need further study and definition. However, it seems to us that a standby system based on one of them holds more promise than a do-nothing or a do-everything approach. The Nation needs a system to distribute oil--or money to purchase oil products--in order to effectively counteract the serious hardships of disruptions.

Whatever system is finally adopted, it should have certain features for successful operation. First, and most important, it must be fully designed, tested, and kept ready for emergency use. While this may seem obvious, the emergency programs used during past disruptions were not kept ready, and this led to serious problems. Another desirable feature is provisions to mitigate disincentives to build private stocks. The problem here is that companies may feel that they should not build stocks because Government will allocate them to others in an emergency. Some companies may also feel that building stocks is not necessary since Government will allocate supplies to them. These are legitimate concerns, and a number of measures can be taken to counter them. Several alternatives, which are discussed in Chapter IX of Volume II, include: (1) requiring oil companies to hold three percent of the previous year's imports or throughput; (2) granting tax credits or other financial incentives to companies to build and maintain stocks; and (3) establishing a quasi-public corporation to finance the acquisition of additional stocks.

A third desirable feature of any oil supply assurance program is a means to discourage excessive spot market purchases. Such purchases may drive spot prices higher than is justified by the underlying supply and demand conditions, with official prices likely to follow. The serious economic damage caused by disruptions may be significantly exacerbated in this way. Of course, the mere existence of a reliable standby assurance mechanism will help check excessive spot purchasing. Another way to discourage such activity would be by distributing SPR oil to refiners especially hard-hit by the disruption. Finally, if a traditional buy/sell form of crude allocation is chosen, the system should not penalize sellers by forcing them to sell oil at far below replacement costs. One way to accomplish this has been suggested by the National Petroleum Council: the price charged by refiners-sellers would consist of a weighted average of the most costly one-third of their crude. By pricing oil only slightly below spot prices, buyers will be encouraged to seek their own direct arrangements and not to rely on other refiners for access to supply.

We recommend that Congress:

--replace the expiring EPAA authorities with a standby system to help assure oil availability during disruptions. Whatever system is chosen should not embody overall domestic oil price control and should be fully developed, tested, and maintained in readiness for future disruptions.

These authorities need to be replaced as soon as possible. Congress can act quickly if it decides to choose some variant of the allocation approach since past experience with allocation provides a useful basis for designing a new system. A market approach, however, which goes beyond complete nonintervention may require more time to develop. In particular, the tax/rebate alternative has received relatively little attention. Its potential as a flexible and equitable tool is apparent, yet it involves complex considerations that would need to be carefully addressed before proceeding ahead to pre-implementation of such a system. Because of this, and in the event that Congress favors the market approach, we recommend that the Congress require the Secretary of the Treasury, with the assistance of the Secretary of Energy, to:

--review tax and rebate alternatives for use in oil supply emergencies, and recommend legislation if it is appropriate. (For suggested legislative language to accomplish this recommendation see Appendix A, p. 74.)

OVERHAUL DEMAND RESTRAINT PLANNING AND PROGRAMS

Demand restraint contingency planning needs to be overhauled. The results produced to date, after eight years of efforts, are pitiful.

As a first step, the Emergency Energy Conservation Act (EECA) of 1979, which dominates demand restraint planning, should be amended. The principle that States should have a leading role can provide a useful basis for planning and implementing demand restraint programs. Energy consumption patterns vary significantly across the States. Consequently, Federal measures imposed at the national level may have uneven effects on different States and may not achieve optimal results, especially if shortages occur regionally as they have in the past. However, if the States are to play an important role, they should be subject to standards similar to those we believe the Federal Government should observe. This means that States should have programs designed, developed, and on-the-shelf ready for implementation on a standby basis. Consequently, in amending EECA, Congress should require States to submit their demand restraint plans for approval to DOE before disruptions; and the plans should demonstrate that standby programs exist which can achieve specified results.

Since only the Federal Government can fully assess the Nation's vulnerability to oil supply disruptions and the need for various programs to deal with them, the Federal Government should provide the States with specific standards as to how much demand should be restrained in various situations and the time in which reductions must be achieved.

The Federal Government should, as EECA now requires, have its own set of standby demand restraint programs that will be imposed on States that do not have approved programs or whose programs fail to achieve the intended results. But it must also have the ability to impose these programs quickly. Many months cannot be allowed to slip by before the Federal Government can swing into action. We believe that the Government should be capable of imposing its standby measures after two months of the onset of a disruption if State measures are not working and immediately in States which have no approved plans.1/

To achieve this, EECA should be amended to streamline the procedures for implementing Federal plans. In addition, the Government needs to establish data monitoring programs which can clearly and quickly demonstrate whether States are adequately reducing consumption--provided that it can be shown that cost effective programs can be devised.

At the same time, States need to know in advance what programs the Federal Government has available for standby use. The States also need to have access to the information used by the Federal Government to identify supply-demand patterns and monitor State performance in reducing demand. Without such information States cannot effectively plan or operate their demand restraint programs.

Amending EECA will provide the structure necessary for the development and use of contingency plans, but without adequate measures the savings would still be minimal. The current Federal Coal Plan is a case in point. DOE should expand the plan to include a set of measures having the potential for achieving significant oil savings.

1/Under existing legislation if a State's plan is not approved, the Government cannot impose the Federal Plan unless the President finds, "after a reasonable period of time," that the State is not likely to meet its emergency energy conservation target. (In addition, the President must consult with the State Governor before making the Federal Plan effective.) This statute introduces additional delay which we believe is unnecessary, since under our recommendation States would be put on notice that they must have an approved State Plan or else be subject to immediate imposition of the Federal Plan in an emergency.

Federal demand restraint measures should meet certain criteria which indicate that they provide benefits that outweigh their disadvantages. A demand restraint measure's first test is the amount it reduces fuel consumption. However, a measure should also promote orderly reduction of energy use with a minimum of inequity, uncertainty, and disruption of normal activity. Any measure that adds to the chaos and confusion created by a disruption would not be suitable, even if it had great fuel saving potential. In fact, measures that promote order and reduce panic during an emergency have value even if they do not save an appreciable amount of fuel.

Any measure that can meet these two basic criteria--producing significant savings and promoting order--should then be scrutinized in terms of other factors. Is the action authorized by present law? Would it involve exorbitant costs? Could it provide results in a timely manner? If mandatory, could it be enforced? If voluntary, could people be persuaded to use it? Each measure must be examined from these additional perspectives before it is included in a Federal contingency plan. During a supply disruption, imposition of a faulty measure could cause more problems than no measure at all.

We believe that voluntary measures are usually preferable to mandatory ones and that voluntarism should be emphasized in the initial phase of a disruption. Even mandatory programs depend heavily on consumer cooperation for their effectiveness, because means of enforcing compliance may not be readily available. However, they do not leave it up to end users how and to what extent to reduce consumption. Such programs should be included in a comprehensive contingency plan for backup purposes; depending upon the effectiveness of voluntary programs, implementation of severe mandatory measures may not be needed.

The principle problem with voluntary cooperation is that when the crunch strikes, the public's response may not match the need. This point certainly needs to be taken into account in sound contingency planning. Since it is a distinct possibility, it means that mandatory backup programs should be ready for use. Nonetheless, the potential inherent in voluntary demand restraint programs should not be overlooked. In past emergencies, and not just energy emergencies, Americans have frequently shown themselves ready to rise to the occasion provided that the need to make voluntary sacrifices was clear. For example, communities which have experienced serious droughts have had successful voluntary reductions in water use. If voluntary programs fail, then mandatory programs can be used and the need for them is clearer to everyone.

Voluntary demand restraint leaves people free to decide where and how to best reduce their own consumption. Well-informed individuals can judge better than bureaucrats how to reduce consumption so as to minimize any adverse impacts on their lifestyles and interests. If the Federal Government must resort to mandatory programs that apply broad restrictions on particular activities (e.g., what days you can gas up or drive your car, how

high or low to set thermostats, etc.) or that try to make all end users restrict use to the same amount (e.g., gasoline rationing), a great deal of individual flexibility would be lost.

Mandatory measures, on the other hand, provide enforced equity and a sense of "sharing the burden" equally. In severe disruptions, even those mandatory measures that have anticipated adverse economic and/or social effects may be justified because they prevent more hardship than they cause. When the approach is mandatory, Government accepts the responsibility for weighing the relevant factors and deciding how best to curtail demand. Individual decisionmaking is overridden. It is therefore of the utmost importance that these measures be adequately evaluated in advance, before they are included in a standby plan.

In the course of our study we reviewed nearly 400 proposed demand restraint measures in terms of the above criteria. Our purpose was to suggest promising areas for an expanded plan. We winnowed the nearly 400 measures down to eight:

1. Reduced gasoline and diesel fuel purchases;

2. Reduced jet fuel use;

3. Energy cutbacks by leading industrial users of energy;

4. Reductions in electricity, oil, and gas use by residences, commercial, and industrial enterprises;

5. Speed limit reductions;

6. Restricting vehicle use;

7. Closing gas stations on weekends; and

8. Compressed work and school weeks;

Each of these has advantages and disadvantages. However, we believe that some of them, particularly the first four, might--if properly conceived and executed--yield significant oil savings at tolerable costs. The first four could initially be voluntary and would, if necessary, be followed by mandatory implementation. The latter four measures have to be mandatory and could be more disruptive. Since they entail major changes in lifestyle and/or considerable inequitities, they would be reserved for later use in especially severe disruptions. Energy consumers would be urged to cooperate fully in implementing the less disruptive voluntary approaches, and warned that otherwise tougher measures might become necessary.

To be successful, we believe that it would be essential to ready measures prior to any disruption but to activate them only as necessary when the probable size of the disruption can be

reliably estimated. Equally important, we believe, is that the measures should initially be employed on a voluntary basis. As discussed earlier, mandatory measures may entail considerable hardship and suffering for some people and must be carefully evaluated in advance. If the measures are voluntary, they can be applied almost immediately. Mandatory measures may require at least several weeks lead time to put in place and deal with exemptions, whereas voluntary measures leave these choices up to the individuals.

Finally, we believe that the American people should be given an opportunity to voluntarily adjust their lifestyles to restrain demand. Americans have done so in the past. The key to such a response, of course, is a perception that the effort is really necessary. This leads to a third essential ingredient--strong public information programs. These are needed to convince people that demand restraint is necessary and to tell them how they can effectively reduce demand to achieve local, state, and national demand restraint goals.

We believe voluntary programs can work provided that (1) they are begun quickly with strong public information presentations, (2) that emergency data collection systems determine--with minimal time lags--how much demand for key products is being reduced, and (3) that steps are simultaneously taken to prepare for the use of mandatory measures if necessary. On this basis, a largely voluntary approach can be given a chance to work since the United States would have an appreciable lead time before any shortfall reaches the Nation's shores. This is because at a disruption's onset, oil tankers at sea will be carrying many weeks of normal supplies of oil imports for U.S. consumption.

For demand restraint contingency planning in general we recommend that Congress amend EECA to:

--provide for implementation of the Federal Plan in any State if--(i) 60 days after the Governor has been notified of an emergency energy conservation target, the President determines the State plan is not working effectively; or (ii) immediately if a State plan has not been approved.

--require that DOE within 60 days provide States with criteria by which their plans will be reviewed. These should include how much reduction in energy consumption State demand restraint programs should be capable of realizing within specific time periods.

--require that State plans be submitted for approval to DOE within nine months.

For suggested legislative language to accomplish the above recommendations see Appendix A, pp. 74-76.

We recommend that the Secretary of Energy:

--prepare, if it proves to be cost-effective, an information system for monitoring State energy use that can be used for demand restraint programs in concert with State governments.

--expand the current Federal Standby Plan to include a set of measures with potential for achieving substantial oil savings.

--prepare public information materials and programs in advance for use during disruptions to promote demand restraint.

ACQUIRE BETTER UNDERSTANDING OF THE ROLE FUEL SWITCHING CAN PLAY

The purpose of a fuel switching program is to encourage fuel substitution in industrial facilities and utilities which have alternative fuel burning capability. The oil displaced from such action would be available for those installations which cannot burn other fuels. While voluntary action is likely to occur, a plan is needed to ensure that those facilities that can use alternative fuels but are not short of oil would switch, and to better estimate the overall fuel substitution likely to occur in a disruption. If effectively implemented, the plan can free up oil without necessarily reducing overall energy consumption or industrial and utility output.

The potential for oil-to-gas and oil-to-coal switching seems substantial but a thorough assessment of all the variables affecting switching has not been performed. In particular, DOE has not adequately examined supply, transportation, legal, and regulatory constraints. The Government's information base appears inadequate for designing effective programs in these areas. DOE should vigorously pursue the information and analyses needed to clarify the potential for fuel switching. Only then can better determinations be made as to the role fuel switching can play during disruptions and what actions are needed to ensure it occurs.

Concerning oil-to-gas switching, a recent DOE draft contingency plan estimates a maximum potential over a 12-month period of 435 MBD. However, both the American Gas Association and DOE's Office of Planning and Evaluation have estimated the potential as high as 1.1 to 1.2 MMBD. The substantial disparity in these estimates cannot be resolved because data on surge natural gas production, transport capacity, and end-user capability to switch is dispersed among various sources. It is not organized in a manner suitable for analysis. DOE officials told us that in some cases the information is outdated and incomplete. This information needs to be revised and made suitable for designing and implementing emergency measures in this area.

DOE has estimated considerable potential for oil-to-coal switching in the event of a lengthy disruption. It calculates that 6 to 12 months after the onset of a disruption existing coal-burning plants might displace as much as 231 MBD of oil. However, DOE has not yet developed a well-developed standby plan for assuring that this potential could be achieved in a timely manner, and barring the availability of such a plan at the onset of a disruption, we doubt it can be realized. Many complex issues must be addressed and the cooperation of numerous actors must be obtained (several DOE offices, the Environmental Protection Agency, State governments, electric utilities, etc.). One way to ensure timely preparation of a suitable standby plan would be to organize a task force which brings the relevant parties together for this purpose.

We recommend that the Secretary of Energy:

--acquire the information needed on end-user multifuel use capabilities and complete in a timely manner on-going studies of gas transportation and emergency oil and gas production.

--design appropriate information systems to effectively monitor supply availability, transport capacity, and end-user switching capability.

--evaluate the constraints to fuel switching, and identify options to deal with the constraints so as to effectively implement an emergency fuel switching program.

DEVELOP A MORE CREDIBLE INTERNATIONAL EMERGENCY PREPAREDNESS PROGRAM

The IEA's Emergency Sharing System (ESS) must be improved, as must the IEA's ability to handle disruptions which result in shortfalls too small to trigger the ESS. The United States and other IEA member countries should decide whether they are really serious about demand restraint. If not, other measures are needed to fill the gap demand restraint was designed to meet. If we really believe in demand restraint, the United States must design sound programs and encourage other IEA members to do so. The IEA should conduct more thorough and frequent reviews of each member's programs.

We believe it is in our and other IEA nations' interest to require 90 days of true emergency reserves and consider expanding the requirement to 120 days. Reserves at this level would significantly increase the capability to weather severe oil supply disruptions. Of course, the building of additional oil stocks would have to be done gradually and under stable market conditions.

To deal with small disruptions, we believe the member countries should set aside a portion of emergency reserves for possible drawdown to relieve pressures on the spot market and help balance

supply and demand. We also believe there is a strong case for creating an effective mechanism for using flexible reserves. One possibility would be creation of an international spot market stabilization fund, patterned on the mechanism used by industrialized countries to protect their currencies against unwarranted speculative pressures in international markets.

Concerning the ESS, its information system must be improved to resolve discrepancies about the flow of oil into and among IEA countries. A binding mechanism is needed for resolving price disputes among member countries. The IEA Secretariat should review the effectiveness of each member nation's internal allocation program to ensure it will function well in an emergency.

Finally, we believe the IEA countries need a mechanism for reducing at least some of the negative price and domestic consequences which are bound to accompany a major oil disruption. One possibility would be to use an emergency tax on oil products or a crude oil disruption tariff to restrain demand, reduce the transfer of wealth abroad, and provide revenues for assisting those most seriously affected by the disruption. While it would be constructive for the United States to institute such measures, coordinated action on this front would be more than proportionately useful.

We recommend that the Secretary of Energy and the Secretary of State seek IEA members' agreement to:

--maintain 90 days of true emergency reserves and evaluate the desirability of amending the present requirement to 120 days.

--set aside a portion of emergency reserves for possible drawdown in periods of market instability or disruptions not large enough to trigger the Emergency Sharing System.

--consider creation of a spot market stabilization fund.

--provide for thorough and frequent review of the effectiveness of member nation demand restraint programs, and emergency reserves and fair sharing programs.

--upgrade or revise the ESS information system to ensure resolution of discrepancies about the flow of oil into and among member countries during a disruption.

--provide a binding mechanism for resolving price disputes among member countries under emergency sharing.

--consider enactment by each of the members of legislation authorizing establishment of an emergency tax on oil products or a crude oil disruption tariff for use in severe disruptions.

CONCLUDING NOTE: UPDATE ON DOE'S ORGANIZATION FOR CONTINGENCY PLANNING

Chapter VIII of Volume II of this report addresses how well organized DOE presently is for contingency planning. Our assessment updates a March 1981 report which we prepared on the subject.1/ That report appeared shortly after DOE announced a reorganization of the entire Department, including the contingency planning function.

In our March report we concluded that contingency planning had had low priority, been overly decentralized, been directed by a person without the authority to command adequate support from other DOE offices, and not been sufficiently staffed. We recognized that DOE's reorganization had gone some way toward rationalizing the contingency planning process.

However, we noted ambiguities regarding the ability of the new organization to develop timely, effective contingency plans. These were whether contingency planning had been adequately centralized, placed at an appropriate level in the authority structure, and accorded the high priority it deserves. In our present report our conclusions remain tentative, partly because the new organization structure is still being developed and partly because not enough time has yet elapsed to permit full assessment of progress to be made.

In an overall sense, however, DOE has made progress since February in alleviating many of our concerns about the adequacy of centralization, authority, and priority. In particular, we find that the new Assistant Secretary for Environmental Protection, Safety, and Emergency Preparedness has most of the major contingency planning and operations functions and responsibilities under his control. An organizational structure and mission and function statements have been approved down through the Deputy Assistant Secretary, office and division level. In addition, and at the direction of the Secretary of Energy, an Energy Emergency Preparedness Steering Committee of top DOE officials has been established to ensure Department-wide input into contingency planning and the development of operational strategies for implementing plans. The committee is chaired by the Assistant Secretary EP. Thus, the Assistant Secretary seems well positioned to direct the development of coherent and integrated contingency plans for dealing with oil supply disruptions. We note, however, that there is still some uncertainty about which DOE office is ultimately responsible for planning and implementation of plans involving international programs and activities.

1/U.S. General Accounting Office, "The Department of Energy's Reorganization of Energy Contingency Planning Holds Promise--But Questions Remain," EMD-81-57, March 4, 1981.

We also believe that the priority of emergency preparedness has been upgraded. The fact that the new administration quickly reorganized the contingency planning function is an indication of a high priority which it places on contingency planning. We think that the thrust of the reorganization has been in the right direction. We also think that the attention of the Cabinet Council on Natural Resources and the Environment to key energy emergency preparedness issues is another indication of high priority being given to this issue. On the less positive side, though, we must point out that although more than seven months have passed since the administration took office, the Assistant Secretary has not yet been confirmed. As a result, all of the key contingency planning and operations positions under the Assistant Secretary are being filled by acting officials. One official has been acting in four capacities, three of which concern the most important energy emergency preparedness positions in DOE.

A factor complicating the question of effective organization is the relationship between DOE and the Cabinet Council on Natural Resources and Environment. Such an examination would go well beyond the scope of this report. However, it is clear that the Council's review of energy emergency preparedness has necessarily impacted on DOE's progress in the contingency planning area.

In the final analysis, it still remains to be seen if DOE's new organization for contingency planning and the priority attached to it will be sufficient to lead to sound, comprehensive contingency plans and programs. The principal message of this Chapter--and of the entire report--is that adequate plans and standby programs do not exist to deal with oil supply emergencies.

SUGGESTED LEGISLATIVE LANGUAGE

FOR RECOMMENDATIONS

This appendix provides suggested legislative language for accomplishing many of the recommendations to Congress made in Chapter V.

The language addresses recommendations in the following areas:

--management of industry oil stocks;

--authority to require refiners to supply the Strategic Petroleum Reserve;

--a temporary emergency production rate for Naval Petroleum Reserve No. 1;

--study of tax and rebates for ameliorating consequences of oil shortages;

--state standby emergency conservation plans; and

--implementation of the Federal standby conservation plan.

Management of industry oil stocks

"(a) In order to alleviate an existing or imminent regional or national supply shortage of crude oil, residual crude oil or refined petroleum products resulting from a severe petroleum supply interruption, or obligations of the United States under the international energy program, the President may, by rule or order, require adjustments in the amounts of crude oil, residual fuel oil or any refined petroleum product which are held in inventory by persons who are engaged in the business of importing, producing, refining, marketing or distributing such oil or products.

"(b) The authority specified in subsection (a) may be exercised to require either--

(1) a distribution from such inventories to specified levels of inventory accumulation; or

(2) the accumulation of inventories at specified rates of accumulation or to specified levels,

as the President determines may be necessary or appropriate to provide for the attainment, to the extent practical, of the objective in subsection (a).

"(c) The authority specified in subsection (a) of this section may require the maintenance of inventories at levels greater or lesser than such person's normal business or operating requirements; except that such amounts shall not exceed the amount of oil or product, as the case may be, such person would use or distribute during any 90-day period of peak usage and in no case may the requirement to accumulate inventories be applied to any person in a manner which would necessitate such person making physical additions to storage facilities in order to comply with any such rule or order.

"(d) (1) The term 'severe petroleum supply interruption' means a national supply shortage of crude oil, residual crude oil or refined petroleum products which the President determines

(A) is, or is likely to be, of significant duration,

(B) may cause major adverse impact on national security or the national economy; and

(C) results, or is likely to result, from an interruption in the United States supplies of crude oil, residual crude oil or refined petroleum products, or from sabotage or acts of God.

"(2) The term 'refined petroleum products' means gasoline, kerosene, distillates (including No. 2 fuel), LPG, refined lubricating oils or diesel fuel."

Authority to require refiners to supply the Strategic Petroleum Reserve

Section 6240 of title 42, United States Code, is amended by adding a new subsection (f), which shall read as follows --

"(f) In the event that voluntary arrangements and competitive government purchases are ineffective in procuring sufficient quantities of crude oil for the Strategic Petroleum Reserve, the Secretary of Energy is authorized, for purposes of implementing the Strategic Petroleum Reserve Plan, to require petroleum importers and refiners to supply and deliver, for cash or exchange, such amounts of crude oil, as are determined by the Secretary to be necessary to complete the establishment of the reserve."

For the purposes of this subsection the term "refiner" means integrated and independent refining companies which the Secretary determines are capable of supplying crude oil for the Strategic Petroleum Reserve.

Naval Petroleum Reserve No. 1 (Elk Hills) temporary emergency production rate

Section 7422 of title 10, United States Code, is amended by adding the following new subsection (d), which shall read as follows:

"(d)(1) The Secretary [of the Navy] shall, to the greatest extent practical, determine the temporary emergency production rate, if any, for Naval Petroleum Reserve Numbered 1, and shall, notwithstanding any other provision of law, at the direction of the President, require crude oil to be produced from Naval Petroleum Reserve Numbered 1 at such rate during a severe petroleum supply interruption.

(2) The term 'temporary emergency production rate' means the maximum rate of production for the Naval Petroleum Reserve Numbered 1

(A) which rate is above the maximum efficient rate of production established for the Reserve; and

(B) which may be maintained for a temporary period of less than 90 days without reservoir damage and without significant loss of ultimate recovery of crude oil from the Reserve.

(3) The term 'severe petroleum supply interruption' means a national supply shortage of crude oil, residual crude oil or refined petroleum products which the President determines

(A) is, or is likely to be, of significant duration;

(B) may cause major adverse impact on national security or the national economy; and

(C) results, or is likely to result, from an interruption in the United States supplies of crude oil, residual crude oil, or refined petroleum products, or from sabotage or acts of God.

As used in this paragraph, the term 'refined petroleum products' includes gasoline, kerosene, distillates, (including No. 2 fuel), LPG, refined lubricating oils and diesel fuel."

Study of tax rebates for ameliorating consequences of oil shortages

"Since severe petroleum supply interruptions may result in (1) significantly higher prices for petroleum products, including

crude oil, residual oil, and refined petroleum products, and (2) an inequitable distribution of income in the United States, the Secretary of the Treasury, with the assistance of the Secretary of Energy, shall study, review and analyze tax and rebate alternatives which could be used by the Federal Government to ameliorate such possible adverse consequences of oil supply shortages. Within one year of the date of enactment of this act, the Secretary of the Treasury shall prepare and submit to Congress a report describing and comparing the various tax and rebate proposals considered and containing specific recommendations, if any, including legislative proposals, to establish standby tax and rebate programs to be put into effect by the President during an oil supply emergency."

State standby emergency conservation plans

Section 212 of the Emergency Energy Conservation Act of 1979, Pub. L. 96-102, 93 Stat. 759, is amended --

1. By striking out subsection (a) and inserting in lieu thereof the following,

"(a) State standby emergency conservation plan -

"(1) Not later than nine months from the date of enactment of this statute, the Governor of each State shall submit to the Secretary [of Energy] a State standby emergency conservation plan, which shall provide for the emergency reduction in the public and private use of each energy source for which an emergency conservation target may be in effect under Section 211 of this title. Such plan shall contain such information as the Secretary may require. The Secretary shall, within 60 days of enactment of this Act, publish standards by which the plans will be reviewed. These standards shall include the level of reduction in energy consumption for each energy source to be obtained by State demand constraint programs and the periods in which such reductions in consumption are to be achieved in the event the State standby plan is put into effect. At any time, the Governor may, with the approval of the Secretary, amend a plan established under this section.

"(2) The Secretary may, for good cause shown, extend to a specific date the period for the submission of any State's plan under subparagraph (1), if the Secretary publishes in the Federal Register notice of the extension together with the reasons therefor.

"(3) Each State standby emergency conservation plan shall provide that the Governor of the State will determine that the plan is effective in the State for an energy source upon receipt of the President's notification under Section 211(b) of this title that a target for such energy source has been established."

[NOTE: Conforming changes to other parts of Pub. L. 96-102 may be required.]

Implementation of the Federal standby conservation plan

Section 213 of the Emergency Energy Conservation Act of 1979 (Pub. L. 96-102), 93 Stat. 762, is amended--

1. By striking out subsection (b) and inserting in lieu thereof the following

"(b) Implementation of standby Federal conservation plan--

"(1) The President shall determine, 60 days following a State Governor's receipt of the notification establishing an emergency energy conservation target pursuant to section 211(b) of this title, if a State standby emergency conservation plan, approved and made effective under section 212 of this title, is not substantially meeting a conservation target established under section 211(a) of this title for such State and it is likely that such target will continue to be unmet.

"(2) If the President makes the determination described in paragraph (1), then the President shall, after consultation with the Governor of such State, make effective in such State all, or any part, of the standby Federal conservation plan established under subsection (a) of this section for such period or periods as the President determines appropriate to achieve the target in that State.

"(3) The President shall determine immediately following a State Governor's receipt of the notification pursuant to section 211(b) of this title, if a conservation target under section 211(a) of this title will likely be met in a State which

"(A) has no standby emergency conservation plan approved under section 212 of this title, or

"(B) has substantially failed to carry out the assurances regarding implementation set forth in the plan approved under section 212 of this title.

"(4) If the President determines that the condition described in paragraph 3(A) or (B) exists, then the President shall, after consultation with the Governor of such State, make effective in such State all, or any part, of the standby Federal conservation plan established under subsection (a) of this section for such period or periods as the President determines appropriate to achieve the target in that State."

[NOTE: Conforming changes to other parts of Pub. L. 96-102 may be required.