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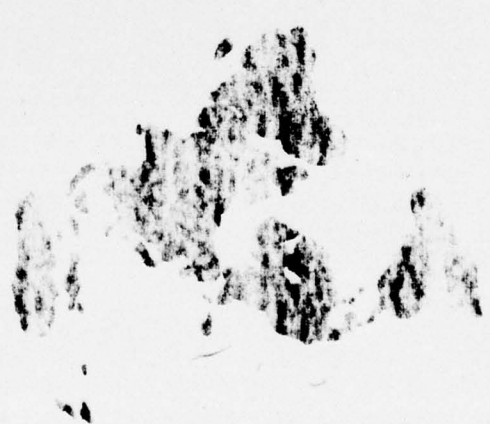
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# GEOPOLITICS OF ENERGY

## Volume II

### "Overview and Options"



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# GEOPOLITICS OF ENERGY

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This study also discusses and makes recommendations on energy policy options which would give the United States and allies greater assurance of energy supply.

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PART I

SUMMARY AND OVERVIEW

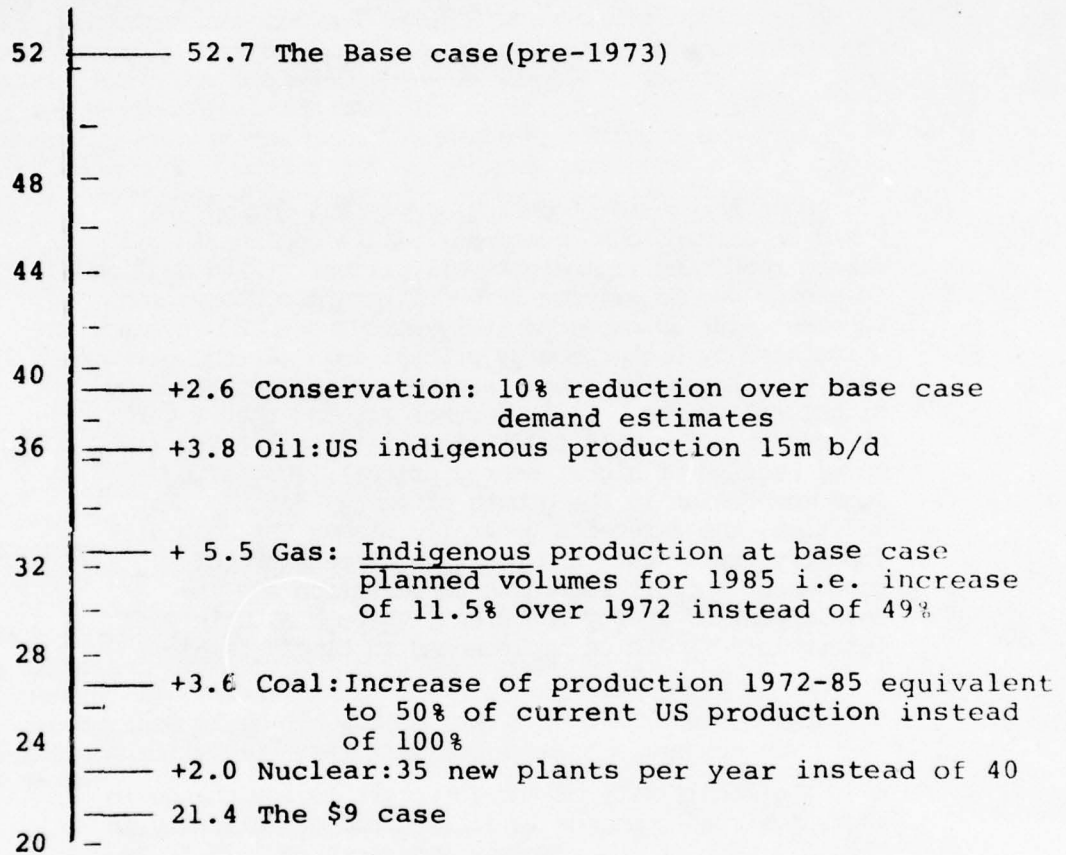
Most forecasts of energy supply and demand are based on assumptions regarding: (1) a decline in oil demand resulting from higher oil prices; (2) a decline in energy demand arising from deliberate conservation schemes; (3) an expanded indigenous (non-OPEC) production stimulated by higher energy prices; and (4) the development of alternative energy sources, also encouraged by higher oil prices. It is further assumed that future GNP growth rates will fall below historical trend (in part, because of higher energy prices), suggesting some moderation in the growth of energy demand. In addition, the forecasts generally assume the requisite industry investments and positive expressions of government support regarding conservation and the development of energy resources, through a variety of interrelated policies implemented in timely fashion.

The sensitivity of the forecasts to any change in their basic assumptions is illustrated dramatically in the 1973 OECD study, "Energy Prospects to 1985." In the OECD example, the projection based on a current dollar price of \$9 per barrel of oil includes very optimistic assumptions regarding the ability to expand OECD indigenous oil production, the ability to develop alternative energy resources, the oil savings to be derived from conservation, and the decline in oil demand resulting from higher oil prices. Oil imports provide the balancing mechanism between OECD oil supply and OECD oil demand.

If the assumptions regarding alternatives, indigenous production and or conservation prove wrong, the extreme sensitivity of the forecast to these errors is suggested in the following chart:

## OECD OIL IMPORTS - 1985

Million b/d



A failure to develop alternative energy sources (coal, gas, nuclear) in the assumed quantities adds 11 million B/D to OECD oil imports in 1985. All told, failure to develop alternatives, failure to find and develop adequate quantities of indigenous energy resources and failure of conservation efforts adds 18 million B/D to the OECD oil import level for 1985. While it is unlikely that a total failure in all these directions will occur, a 50% shortfall would still be equal to today's total production of Saudi Arabia.

In addition to possible failures in achieving the quantitative requirements, there is the need for all developments to occur in a timely fashion. Energy supply and demand are determined by a complex and interdependent set of economic and political factors. Failure to complete any particular step in time, or partial but insufficient success in another phase, can trigger a set of consequences which could throw all forecasts off.

The critical importance to this total energy effort of some form of government coordination (at least), and probably involvement, is obvious, as is the role of industry. In the absence of an effective national energy policy and its implementation there is no inherent reason why market forces alone will call forth an industry response in either the necessary direction or with adequate scope and speed. The interrelatedness of all aspects of the energy equation also suggests that ad hoc and isolated government initiatives will not be sufficient to meet national energy objectives; the need is for a comprehensive energy policy. The provision of adequate and continuous energy supplies necessary to economic well-being and military security now involves government and industry; anything less is an abnegation of government responsibility. The form of government participation may be a subject for debate; government involvement per se is not.

Given the current ambiguity in government policy and the long leadtimes required for the full development of any particular energy resource, the energy balance in the industrialized states through 1985 is not expected to differ radically from the current energy supply situation. Oil will retain its dominant place in the world energy balance. Neither gas, nor coal, nor nuclear energy will importantly diminish the import dependence of the free, industrial world. Perhaps the single most important beginning of change will come with nuclear energy accounting for increasing quantities of electric power generation.

Oil retains its central place in energy supply and oil imports will provide the major portion of the oil supply of the industrialized nations. With scant possibility that any major oil finds discovered outside of the Middle East and the Soviet Union can be producing at high volumes by 1985, oil imports will continue to come increasingly from OPEC sources and, more particularly, from the oil producing countries of the Persian Gulf. Moreover, given the quantity of oil demanded, "major" finds would have to be huge even to begin to challenge the dominant position of the Persian Gulf. The prospect is thus for increasing competition for Middle East oil; U.S. competitors will include not only NATO allies and Japan but perhaps the USSR as well.

This situation may well hold into the 1990's, when it is anticipated that nuclear energy, oil from tar sands, oil from shale and coal gasification and liquefaction may be making larger contributions to energy supply. But none of these developments, in this time frame, will eliminate oil's dominant role in total energy supply.

The accompanying chart represents possible changes in the pattern of energy sources from now until 1990. As in the OECD study, the chart is based on the assumption

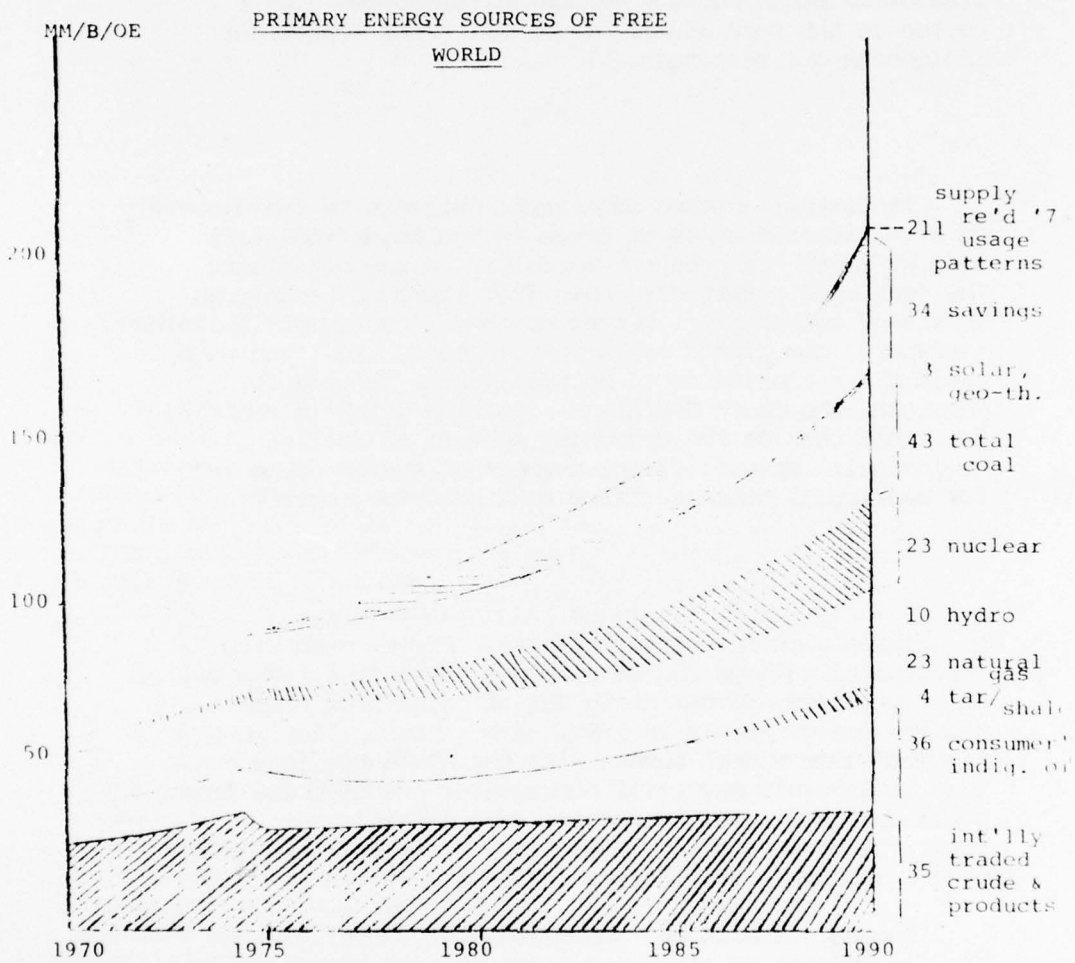
of reasonably intelligent energy policies and adequate incentives to industry to invest the requisite financial, technical and managerial resources either to reduce the role of oil or intensify the search for indigenous oil resources.

It further assumes substantial success in the discovery of significant amounts of crude in the major industrial nations/areas - a prospect which may be too optimistic. The "savings" referred to come from improved techniques in energy consumption, better design of equipment, buildings, transport, new plants replacing old ones, etc., and such savings are considered to be practically attainable. Moreover, the chart depicts a situation which is general for areas outside the Communist sphere; if realized, it would still imply different degrees of energy dependence for particular nations. (See next page for chart.)

Three points deserve emphasis. First, even with anticipated savings and development of alternatives, oil still provides approximately 40% of total Free World primary energy supply in 1990. A more recent forecast from the same source agrees with the Exxon prediction that in 1990 oil may still account for 50% of total Free World energy supply. Moreover, even if oil's share in total energy supply should decline, the absolute quantity of oil demanded will increase through 1990.

Second, it must be remembered that shortfalls in the development of alternative energy sources and failure to expand indigenous oil production can only be compensated for by increased oil imports.

Third, in spite of the expansion of nuclear energy, almost 75% of the 1990 Free World primary energy supply still derives from conventional energy sources - coal, hydro, natural gas, and oil. Of these, oil will be far and away the most significant energy resource in international trade. Further use of conventional fuels also may not free Europe and Japan from energy import dependence. Additional reliance on gas imports would present the unattractive alternatives of becoming dependent on Soviet gas exports or multiplying dependence on the Middle East (now gas as well as oil).



In addition, developments in nuclear energy, tar sands and oil shale, do not necessarily reduce the energy import dependence of all the industrialized countries equally or at all.

Tar sand and oil shale deposits appear to be concentrated in the United States, Canada and Venezuela. Outside the U.S., uranium deposits appear to be concentrated most prominently in Canada, Australia and South Africa, while enrichment capacity may still be dominated by the U.S. in the early 1990's. In terms of the ore, while these states are counted among the industrial and advanced developing countries rather than among the OPEC countries, it would be prudent to anticipate that the interests of these producers will not automatically coincide with those of consumers.

Generally, the European and Japanese resource position in energy is clearly less favorable than that of the U.S. and the U.S.S.R. may be in the most favorable energy resource position of all (over the long term and considering only Soviet domestic requirements).

Under these circumstances, the immediate and near-term measures available to energy-deficient states lie in "defensive" undertakings such as the strategic crude and product reserves, maintaining adequate refining capacities and retaining sufficient control over the tanker fleets. Less "defensive" - and of a longer term nature is the intensified search for oil in areas closer to the industrial nations and more absolutely under their control.

If little else is done, a continuation of present trends results in a situation through the 1990's that may be characterized by: (1) the continued dominance of oil in total energy supply; (2) the demand for increasing absolute volumes of oil; (3) the West's and Japan's increasing dependence on oil imports; and, (4) the increasing importance of Persian Gulf oil and intensified competition for that foreign-source oil involving the U.S., its NATO allies, Japan and possibly, the Soviet Union and the People's Republic of China. The varying degrees of our respective dependence upon Persian Gulf exports, with Europe and Japan far more dependent than the U.S., will serve to constrain the former. From the Gulf producers' perspective, the greater importance to them of Europe and Japan has equal significance.

Throughout this century, and still farther into the future, it is inconceivable that the great industrial areas of today will not still be the bulk of the energy consumers and also the energy importers of tomorrow. Both in the case of oil, for this century at least; and for uranium ore, for as long as present generation reactors constitute the principle source of nuclear power, the consumers will be in the "North"; the producers will be in the "South".

A significant change will surely come in the geopolitics of energy as the producers begin ever more to process their raw materials, and probably to enlarge upon their involvement in the marine logistics of supply. But the "bottom line," the ultimate markets, will still be in the "North" and the trends generally will be to correlate the interests of consumers and producers. The potential exceptions - those cases in which great influence over supply is matched by no pressing need to meet demand levels in international trade - will be very few and even, perhaps, be limited to Saudi Arabia. Nevertheless, there will remain exceedingly important considerations affecting energy supply which warrant further and more specific mention - and these are embedded in "location" and "control".

A. Location and Control  
as Geopolitical Factors

Oil is indeed where one finds it but there are additional considerations which make location crucial. The new element in the international oil situation is the combination of location and control in one and the same group of under-developed countries. The concentration of oil reserves in a small group of less developed countries, increasingly more assertive in their international relations, combined with the real need of the industrialized nations for oil and the lack of immediate substitutes, gives the coincidence of location and control a compelling importance.

The oil producers are less developed countries (LDCs) and to some extent they share the world view common to most LDCs. Location and control become elements of prestige and instruments of influence and power - bargaining levers to be used to reform or replace the prevailing international economic and political system, now dominated principally by the U.S. and its allies. The systems seem to be exploitative and designed, perhaps consciously, perhaps inadvertently, to secure the interest of the industrialized countries at the expense of the LDCs. From their perspective, control over their natural resources, vital to the industrial nations, holds out the possibility that economic independence, growth and development are now attainable.

While the LDC solidarity resulting from a common colonial or neo-colonial experience and a common sense of grievement is real, it must not be overstated. It is opportune for the oil producers to champion LDC causes in the various conferences and international organizations involved in the "North-South" debate. OPEC can uphold the LDC cause at little cost to its members by linking the question of access to adequate and continuous oil supplies at "reasonable" prices to areas of interest to other LDCs. Moreover, by increasing their links to other LDCs the cost of any precipitous action possibly being considered by external powers is increased.

Non-oil producing IDCs, suffering enormously under the burden of higher oil prices, still find the OPEC/LDC relationship vital. Disunity would not get them less expensive oil and, separated from the oil link, the industrialized countries would be even more reluctant than they are now to make concessions to LDC demands for a New Economic Order.

The skewed location of oil reserves, the success of the oil producers in securing to themselves the largest share of the benefits from their natural resources, and the model which this suggests to other raw material producers, raises important questions of access to raw materials, the terms under which access is secured, and issues of North-South relations in general.

From the perspective of the industrialized countries, the location of oil reserves and the loss of control over them have compelled a recognition of an uncomfortably more symmetrical interdependence than was thought to exist. The acknowledgement of interdependence (indeed, dependence), the necessity for bargaining and the uncertainty associated with dependence and bargaining is unsettling to countries accustomed to assuming that power was their exclusive preserve, that the status quo was the right and natural order of things, and that they had a monopoly on wisdom (and power) which secured the peace.

If the initial U.S. response to the OPEC challenge was a call for solidarity among the industrialized states - a show of force of sorts when the use of force itself has been, perhaps temporarily, rejected - it is now clear that there are differences within the group of industrialized states as well. There are differences in terms of resource dependence; generally, Europe and Japan are in far less favorable resource endowment positions than is the U.S. Essentially this means that the U.S., with less at risk, has relatively greater freedom of action. The differences in resource endowment mean that the European and Japanese perceptions of an emerging world order may be significantly different from that held by the U.S.

Nations accustomed to declining power and cognizant of their continuing and inescapable dependence may be more willing to deal creatively with interdependence than a nation accustomed to greater independence of action. If the U.S. can, through its enormous economic and market power, prevent a deterioration in the terms and conditions of access to raw materials so much the better. But this does not preclude a European-LDC arrangement or new Japanese-LDC relations affecting raw materials - including energy - from which the U.S. may well be effectively excluded either as a result of its own attitude, or even intentionally by other industrial and/or the developing states. Should such occur, the divisive effects upon NATO would be very considerable. Nor are we in a position even to guess intelligently about the capabilities and intentions of the USSR in this changing array of interests.

Location and control of oil reserves has seemingly drawn a line separating an emergent LDC bloc from the industrialized countries. Yet the reality of international politics is far more complex than the superficial division of the world along North-South lines. Developments in "North-South" relations will certainly have an important bearing on the question of access to raw materials but the situation is malleable and the shape of new international relationships is still evolving.

We are in a curious position; the parameters of our energy position are clear, and they are unlikely to change absent national policies of a comprehensive, demanding character. Yet in no case has a commitment commensurate to the challenge been made - neither in the U.S., Europe nor Japan. If our energy situation is left to drift, aimless, then our vulnerabilities can only increase, and the chances multiply of a grievous miscalculation on the part of either key producers or consumers.

B. The Farther Prospect:

Energy Beyond the 20th Century

It is difficult to speak of this time; not only are technical and quantitative factors only vaguely perceptible but, more importantly, the details of the energy situation in the twenty-first century depend heavily on the decisions nations take today and in the near future - or do not take. In addition, we do not know what society will look like so far into the future and surely the nature and structure of the society will have a bearing on energy requirements.

With these provisos in mind it is possible to suggest that in the years following the turn of the century, the geopolitics of energy may be far less important than it is today. Toward the very end of the current century, electricity will provide an ever-escalating share of energy supply. Nuclear energy and breeder reactors will supply a larger share of electrical generating capacity. Uranium scarcity may be as acute as the current oil situation but the breeder reactor may be functioning sufficiently to extend the life of uranium resources. Oil usage may be more restricted to its critical uses - transportation and petrochemicals. Contributions from oil shale, tar sands and solar energy will be more significant. However, it is only a decade or more into the 21st century that it is at all possible to talk about the possibilities of energy independence for a large number of countries.

Nuclear fusion would, of course, constitute a totally domestic energy source if it can be operationalized and commercialized. Solar energy also holds out the promise of energy independence as does - for the U.S. at least - the maximum utilization of coal. Fusion and solar energy would largely free nations from the constraints imposed by the geopolitics of energy but not much is expected of them

before the first or second decade of the 21st century - and could they have the desired effect before the middle years?

The challenge posed by the geopolitics of energy is how the world will meet its energy requirements for the remainder of the century, but particularly for the next ten, fifteen or more years in which oil remains dominant and its location is so sharply restricted to one geographic region. Later, oil will be important as a feedstock and in uses in which alternatives simply are not available; non-fuel oil uses will exceed oil used for fuel. The question is how do we survive in the intervening years? How well will the industrial energy-consuming nations cope with the competition between them over access to energy resources? How well will relationships evolve with the energy raw material producers?

PART II

CONSIDERATIONS AFFECTING

U.S. ENERGY POLICY

1. The events of 1973 demonstrated that U.S. security and well-being was dependent on a continuous flow of imported oil in adequate quantities, the control of which had passed to the oil producing governments. Economic well-being and industrial production, domestic political stability and military capability are interrelated so that the shift in control of oil supplies to the oil producing states implied that the U.S. had become vulnerable to the actions of certain countries to an unprecedented extent. With the military requirement of adequate and continuous oil supplies, the importance of the control of oil resources by foreign countries, whose interests may differ from those of the U.S., is even more compelling.

2. At the same time, "foreign policy" has two aspects: (a) the protection of U.S. domestic interests and objectives from adverse developments overseas; and, (b) the promotion of U.S. interests abroad. In reality, the two are closely intertwined, not necessarily in harmony and sometimes actually conflicting.

3. Post-1973, U.S. freedom of maneuver in international affairs has been and is likely to continue to be unduly constrained by our dependence on oil imports and the necessity to consider the interests and demands of the oil producing states. While access to overseas energy is only one of our key interests, it cannot be relegated to low priority but must stand among our most important. How well we secure our energy interests will help determine our success in meeting other goals.

4. Without minimizing the essential importance of oil, we should keep in mind that a nation's freedom of maneuver in international affairs is limited by domestic considerations and this is as true of energy as with any overseas interests. This becomes increasingly true as the implications of world-wide economic interdependence become clearer.

5. In addition, while oil has peculiar characteristics (e.g., its vital importance to industrial economies and the unavailability of immediate substitutes), the U.S. does have power to affect developments. The U.S. has considerable market power by dint of its large size and wealth and the U.S. still occupies a commanding position in international economic relations (which gives the U.S. veto power at least). The U.S. energy resource position is more favorable than that of most other industrial states. Finally, the U.S. retains a military capability which some oil producers see as a guarantee of their own security or, perhaps, a U.S. asset which could be employed in last resort to obtain supply, a capability not presently possessed by another oil importing country.

6. In effect, the post-1973 world offers both constraints and possibilities for international action; our oil dependency creates problems as well as opportunities.

7. The need to insulate the domestic economy from forces beyond U.S. control, the need to free military operations from the potential constraints imposed by foreign powers and the desire to free foreign policy to some greater extent from the constraints of domestic considerations (which should follow naturally from success in the first two areas) constitute a general U.S. objective which may be described as the need to limit U.S. economic, political and strategic vulnerability resulting from dependence on energy imports.

8. From this follows a host of additional issues full consideration of which must go into the determination of objectives. These issues deeply involve the interests and vulnerabilities of allies. U.S. energy interests and initiatives can not - or must not - be considered in isolation.

9. To the extent that U.S. allies in Western Europe and Japan remain vulnerable to the actions of energy exporters, efforts to limit U.S. vulnerability must include consideration of the effects upon Western Europe and Japan.

10. Pressure can be brought to bear on the U.S. through the continuing and inescapable import dependence of its allies. At the very least, the U.S. economy could not remain unscathed by adverse economic and political developments in Western Europe and Japan resulting from inadequate or sporadic oil supplies.

11. We have already argued that competition between governments for Middle East oil will intensify over the next 10-15 years.

a. Within this competition, the U.S. will be concerned with the divisive effects of competition for oil within the Western alliance.

b. The U.S. will also be concerned with its own competitive economic position vis-a-vis its allies and vis-a-vis the Communist nations as it may be affected by this competition.

c. The U.S. will be concerned with the relative competitive position of the Western alliance vis-a-vis the Warsaw Pact.

12. In addition, oil exports will increasingly originate in the Persian Gulf thus engaging U.S. interest in:

(a) the stability or direction of political and economic change in the region;

(b) limiting or countering the extension of Soviet influence in the area;

(c) the relative positions of Saudi Arabia and Iran;  
and,

(d) the security of the Straits of Hormuz.

13. Within the Gulf area, Saudi Arabia will be pivotal and thus an area of profound concern to all energy-deficient states.

14. Recognizing that access to oil, and raw materials in general, may no longer be determined as automatically as it had been in the past, the U.S. must be concerned with those new avenues and mechanisms for securing access which may evolve, with or without U.S. participation, and which will create precedents for energy in world trade.

15. More broadly, the issue of access to raw materials, including energy, is linked to developments in "North-South" relations generally.

16. Adequacy of OPEC production will be an area of concern

to the U.S., with adequacy in terms of U.S. interests still to be defined.

17. It should be noted again that energy import dependence is not limited to oil, but includes West European and Japanese potential dependence on Middle Eastern or Soviet gas exports, and a possible U.S., West European and Japanese dependence on imports of natural or enriched uranium.

(a) The U.S. must be concerned with areas where it appears likely that new uranium resources will be located.

(b) For many reasons, the U.S. must be concerned with the potential for nuclear weapons proliferation resulting from the increasing spread of nuclear energy world-wide; to some extent public interest in limiting proliferation can affect the use of nuclear power for peaceful purposes and even the investment in next-generation nuclear technology.

18. In the area of natural gas, the U.S. must be concerned lest its own increased imports of LNG, as well as Europe's and Japan's, increases energy dependence on the Soviet Union, or multiplies dependence on the Middle East.

19. Volume I of this study postulates Free World dependence on energy imports at least through the end of the century. The central issue is how to navigate through the interim period during which dependence on imported energy sources persists, and before the constraints imposed by the geopolitics of present forms of energy may be lifted. Domestic politics and foreign policy objectives beyond access to energy will sharply affect our passage.

PART III

THE NATURE OF THE THREAT:

EMERGENCY SITUATIONS

A. Introduction

Before an energy policy dealing with long term energy considerations can be formulated, it is necessary to assure that there is, in fact, going to be a long term. In effect, only after the capacity exists to overcome short term, occasional shocks, is the environment conducive to the careful, time consuming, complex analysis which is necessary for the elaboration of long term objectives and policies. The so-called emergency situations must be attended and in order to accomplish this the nature, extent and scope of the potential threats must be defined.

Policy can be devised to serve two interrelated goals. First, policy can be designed to deter the actualization of a threat. Second, policy can be designed to negate the effects of a threat which has already been implemented. Clearly, the second is an important element of the first, but it does not exhaust the possibilities for deterrence.

A. Embargo

From 1973, the most obvious threat takes the form of deprivation via a deliberate embargo on oil shipments to the industrialized countries, either collectively or selectively, by the oil producers acting in pursuit of some political objective.

Given the disparate nature and interests of the OPEC countries, we doubt they share sufficiently a common political purpose which all members would be willing to support to the extent of halting all oil exports to the industrialized world. The collapse of "North-South" discussions might be such an issue but a more likely response to Western intransigence appears to involve higher prices and/or some cutback in production rather than a total generalized embargo. In fact, a total generalized embargo in support of LDC objectives has never been proposed, would probably involve much higher costs than OPEC is prepared to pay for LDC diplomatic support and would depend on a greater, united commitment to general LDC goals than probably exists within OPEC. However, higher oil prices and curtailed production are quite serious enough.

In addition, an OPEC-wide embargo clearly involves heavier costs for some OPEC members than for others. Given their internal political, economic and social systems, some OPEC members are better able to sustain periods of lost revenue than others. Saudi Arabia, Kuwait, the United Arab Emirates and Qatar - all countries whose income exceeds their present revenue needs - may be able and willing to sustain an embargo with little negative domestic repercussions. Iran, Venezuela, Indonesia and Nigeria are countries with large populations and ambitious development plans making oil revenues more than a convenience; the likelihood of their participation in an embargo for any but their own pressing interests is debatable. Longer term, they may be better able to sustain a loss of revenue with economic development and the development of new revenue sources. The position of other OPEC members is still more uncertain but they are not large enough producers, perhaps even in combination, to make or break an embargo: Algeria, Iraq, Libya, Ecuador and Gabon.

The narrower, all-Arab OAPEC however, includes those countries capable of sustaining a loss in revenue and may, in fact, include those countries sharing a sense of common political purpose derived from the Arab-Israeli conflict or from Arab nationalism. It should be recalled that in 1973, it was OAPEC which instituted that embargo and the associated production cutbacks. For domestic political reasons, an embargo in support of an Arab cause might be attractive to these countries. (Even here however, the extent of unity can be questioned; Iraq, an anti-Israeli militant, did not participate fully in the 1973 embargo.)

In an embargo of short duration the wealthier OAPEC states could probably subsidize the poorer oil producers for their participation if it were necessary to include them. However, as OAPEC will be increasingly the most important source of oil supplies (and Saudi Arabia the most important single source), even an embargo which excluded Nigeria, Gabon, Venezuela, Ecuador, Indonesia and Iran might produce a situation in which oil supplies from the non-participatory states could not compensate completely for oil lost in the action.

B. "Conservation"

There is another category of possible producer state actions which could have effects similar to those of an embargo. Different objectives of different states might coalesce in conservation measures. A major producer, or a combination of them, could institute "conservation" measures and thereby reduce supply, perhaps in graduated steps. Conservation measures may be entirely legitimate, i.e., based on objective facts regarding field characteristics or surplus revenue accumulation. Such measures may also be used to tighten the oil market to sustain prices. Other producers may simply want to dampen the rise in excess revenues. For others, conservation measures might be used to put escalating political pressure on consumers. Elements of all four might serve among disparate producers as one or more reasons sufficient to institute measures to restrict production.

C. Conflicts in the Middle East

Beyond the threat of a deliberate oil embargo of varying proportions and the threat posed by conservation policies, an additional threat to secure and adequate oil supplies might originate in conflicts within the Gulf in which sudden oil shutdown in one nation or another could be expected. A long anticipated variation is one in which animosities among the Arab states, or between some of them and the Iranians (complicated by U.S. relations with both Iran and Saudi Arabia), could shut off very large volumes of oil, even if only sporadically.

The pivotal actor in all these possibilities is Saudi Arabia. The Saudis alone might not be able to completely offset the effects of any of these developments but their participation could guarantee success. Their non-participation might be sufficient to avoid catastrophe in the industrialized countries. Under any circumstances, the Saudis would be under intense political pressure emanating from both sides. The political future of this sparsely populated nation, possessing a resource vital to others, accumulating substantial financial resources, and located in a highly unstable region will continue to be of utmost concern to all energy import-dependent countries. The other potential actor is, of course, Iran whose ambitions, military power and insatiable need for revenue could find access to other's oil irresistible.

D. Responding to Emergency Situations

International energy cooperation to date has been geared largely to meeting emergency situations posed by producers against consumers. International cooperation has revolved around efforts to: (1) deter the actualization of threats; (2) negate the effects of a threat already implemented; (3) demonstrate the seriousness with which threats are viewed by the industrialized countries; and, (4) avoid debilitating competition among consumers.

Very much an American initiative, encouraging energy cooperation among the industrialized countries has generated less than full enthusiasm in either consuming or producing states. In arguments reminiscent of developed country objections to OPEC, most producers assert that cooperation among the industrialized nations encourages a policy of producer - consumer confrontation, which, it is argued, benefits no one.

Consuming states which are more dependent on imported oil than is the U.S. are seriously ambivalent toward the cooperative effort. International energy cooperation is beneficial to the extent that it avoids implementation of threats and higher costs. At the same time, to the extent that the producers denounce "confrontation," heavily dependent consumers become increasingly nervous. Moreover, to the degree that consumer states judge that their link with the U.S. multiplies their risks, international energy cooperation in the framework of the International Energy Agency could become too expensive.

We continue to believe in the necessity for having in hand responses adequate to meeting emergency situations. We have the elements of the requisite program in the International Energy Agency. The near - automaticity of the sharing agreement must not obscure the differing risks members believe they run from their association in the IEA or the high probability that the overly - complex and nearly incomprehensible formula for sharing can scarcely be implemented. We shall turn, again, to the companies to share available oil as equitably as possible, under the aegis of governments. The fact that the vulnerability of the industrialized countries appeals to OPEC members does not suggest the desirability of such a policy for the Western nations and Japan.

Assuming that another embargo is initiated, which nations are likely to be the targets? Increased U.S. dependence on Middle East oil could make the U.S. a direct target - particularly if the provocation for the embargo was again the Arab-Israeli conflict.

However, we realize now that the targets might be Western Europe and Japan with the intention of bringing indirect pressure to bear on the U.S. The very possibility that Europe and Japan may be compelled to bear the brunt of Arab displeasure with U.S. Middle East policy could have intensely divisive repercussions within the Western alliance which would become evident at the moment of crisis unless the U.S. has foreseen the possibility and shapes its response intelligently.

The fact that Europe and Japan are now linked to the U.S. in the emergency sharing formula almost guarantees their involvement in an embargo. Even if the oil producers should permit oil exports to Europe and Japan on levels not exceeding pre-embargo shipments, the necessity for sharing would reduce oil supplies available for domestic use. The linkage can be seen to multiply the risks incurred by Europe and Japan.

The emergency sharing program should serve to negate the effects of an actualized threat. However, if the U.S. is the target, the Europeans and Japanese must run the risk of incurring the displeasure of the oil exporters by sharing available supplies with the embargoed country. If Western Europe and Japan are the targets, the burdens will be spread among those countries more than the U.S. will be able to contribute to their supply, offsetting the embargo. It seems most likely that the emergency sharing formula serves as something of a deterrent; once deterrence fails, all bets may well be off.

The emergency sharing component of the International Energy Program is divisive and unlikely to survive the test of embargo. However, since it does introduce an element of uncertainty in producing government calculations, it probably can not now be abandoned without suggesting to the producing countries that the industrialized countries are as divided and weak as the former believe them to be. Still the United States must be prepared for a European and/or Japanese extreme reluctance to invoke the emergency sharing formula - and the U.S. should be quite ready and willing not to ask for invocation in the first place.

The essential operational characteristic of an embargo is that it must accomplish its objectives in a short period of time. The longer the embargo, the more drastic the economic consequences to the industrialized countries (which will have negative economic repercussions in the oil producing countries and other LDCs as well) and the greater the chances that, in desperation, military action will be taken against an unspecified producing state ("unspecified" so as to encourage the embargo participants to break ranks).

Stockpiling or strategic reserves are the mechanisms now accepted not merely to tide a country over a period of embargo but also to meet the possibilities of conservation policies limiting available oil, or supply disruptions caused by upheavals in the Middle East.

The indeterminate effects of stockpiling must be recognized; stockpiles and reserves provide some protection against supply disruption but may also provoke a longer, more geographically widespread and quantitatively larger cut in oil supply, with a sense of greater commitment by the producers, once an embargo is decided upon and implemented.

At the same time, efforts enabling the industrialized countries to weather an embargo imply that the producers must be prepared to sustain greater and longer-lived financial and other costs. Thus a national Strategic Reserve provides an essential tool not for embargoes alone but for supply situations short of an embargo as well. It serves both a deterrent and an after-deterrence-fails function. As stocks are drawn down, the pressures on producers and consumers for some form of political settlement increases.

In addition, we must give consideration to the point that a very large consumer-importer, possessed of a Strategic Reserve, could itself decide to apply pressure against a major supplier by suspending imports for a time. Depending upon the world oil market, such an initiative could severely damage an oil exporter.

PETROLEUM STOCKS

In normal circumstances, stocks, or inventories, are a vital part of the oil industry's distribution system. When the normal flow of oil is disrupted, stored oil can "fill the gap" for a limited period of time. The 1973-4 Arab embargo and subsequent government activities have made this second role of oil stocks very important indeed. At present, and through the 1980's, oil stored in each importing nation will be a key factor in its vulnerability to accidental or deliberate disruptions in world oil supplies.

Stock Information

To discuss the protection current and prospective levels of stocks provide for the major importing countries, the United States, Europe, and Japan, it is necessary to clearly distinguish between commercial stocks and "emergency reserves".

Commercial stocks or inventory are held by the oil companies, and sometimes also by major consumers such as utilities. An integrated oil company will hold stocks of crude oil and product emerging from its refinery. Oil in pipelines, tankers, barges, trucks and rail tank cars are all part of the commercial stocks oil companies report to national governments, and which are included in the stock figures published in statistical surveys. The statistics, when reported weekly or monthly, will show large variations in particular product stocks on account of seasonal fluctuation in demand.

These commercial realities are reflected in stock statistics, and make it extremely difficult to distinguish in those data between commercial stocks and emergency reserves.

This is particularly the case in countries where governments do not require that industry maintain an emergency reserve, e.g. the United States, or where they have only recently done so, as in West Germany. No one can yet estimate precisely how much stored oil in the industrial states could be used in an emergency before the reduction in stock levels begins to cause spot shortages and even run-outs.

The most thorough assessment in this area has been conducted by the United States' National Petroleum Council (Sept. 1974). For the American oil market as of September 1973, 170 million barrels of primary crude, and 140 million barrels of primary product stocks were simply "unavailable"; that is, when inventories are drawn down to that number of barrels the "United States logistics system simply would not operate". This is oil held in pipelines, tank bottoms, and in retail delivery vehicles. An additional 70 million barrels of primary crude stocks and 360 million barrels of primary product stocks are needed by the industry to maintain "continuity" of operations. Thus, the "minimum operating level" of stocks, which is the sum of unavailable oil and stocks needed to maintain the continuity of operations, amounted to 240 million barrels of crude and 500 million barrels of product.

In September 1973, by these definitions, 99 percent of reported crude stocks and 97 percent of reported product stocks were needed to support the distribution processes of the industry. None of these can be considered, according to the NPC, to constitute true emergency stocks or reserves.

The NPC's high estimate of minimum operating levels implies that the American oil industry is very efficient indeed, or that the NPC is very cautious. There is strong evidence, however, to support the claim that the nation's oil distribution system is efficient. The NPC notes that, although demand for oil products increased by 28 percent from 1968 through 1973, and refining capacity expanded as well, total inventories did not rise. Furthermore, stocks are a significant drain on an oil company's cash flow,

especially at today's oil and money prices, and in the absence of government requirements, the oil companies have no incentive to hold more stock than is absolutely necessary.

In a subsequent report, (August 1975) the NPC made a somewhat more generous estimate of what it called the "United States emergency reserve base": as of December 1974, about 140 million barrels, or roughly 23 days of American oil imports.

#### Europe and Japan

There is no equivalent to the NPC assessment for Europe and Japan. In fact, statistics on the stock levels of these countries are generally not reported to the public. Currently, a listing of "stock" levels for all OECD countries can only be found in the "Statistical Survey: International Oil Developments", the biweekly survey of the CIA. The most recent listing of stocks is shown below:

<u>Country</u>	<u>Stocks</u> (000 b)	<u>Days Consumption</u> <sup>1</sup>	<u>Notes</u>
Japan	324,000	68	Average month-end for 1975
Britain	140,000	74	June thru Dec. 1975 only
France	214,000	97	Average month-end for 1975
Germany	169,000	63	Excluding Jan. & April 1975
Italy	157,000	83	Feb., June, July, Aug. 75 only

The CIA does not define stocks into its crude and product categories. Needless to say, it is impossible to conduct even a rough country by country assessment of the level of commercial stocks versus emergency reserves from such data.

<sup>1</sup>Utilizing final inland consumption data found in BP Statistical Review of the World Oil Industry.

Nevertheless, it is certain that a large part of European and Japanese stocks fall into the "unavailable" and "minimum operating level" categories to which the NPC refers to. But since European markets are more compact, have much less pipeline mileage, and more central refinery operations, and the oil companies are required to maintain a certain level of inventories by law in some countries, it is likely that the share of inventories that are readily available is larger than in the United States.

EEC country governments have been under pressure from the Commission to require by law that the equivalent of 90 days of consumption be held in stock at all times. It has recently been reported (PIW, 1/5/76) that the Commission is taking Belgium, West Germany, Ireland, Italy, and the Netherlands to the European Court for failure to establish this legislation. Nevertheless, the Commission has also stated (PIW, 6/7/76) that the Community as a whole has 108 days of consumption in stock. The Netherlands was reported to have 236 days (probably includes stocks held by export refineries), Denmark 141, France 118, Belgium 116, Germany 93, Britain 89, Luxembourg 79, and Ireland 76.

These estimates are meaningless without knowledge of the consumption statistics against which they are drawn. The Commission, however, is not releasing more specific information. Energy specialists in the Commission regard the analysis of the real level of emergency reserves important Community and national government intelligence, and are unwilling to disclose further information.

The OECD and its energy branch, the International Energy Agency, similarly have not make public the members' stock positions. (The OECD at this time is in the process of issuing non-restricted data on crude and product stocks to member governments).

Therefore, we continue to be limited in our ability to assess the extent to which Europe and Japan may be protected from oil import disruptions. Oil industry sources have provided us estimates that European countries, on average, must maintain 30 days of crude and 30 days of product, measured against daily consumption, to maintain the continuity of their oil distribution systems. Using this estimate, we can infer that selected European countries' emergency reserve base, as measured against the data given earlier on country stocks and consumption, is 14 days for Britain, 27 for France, 3 for Germany, and 23 for Italy. Measured in terms of the number of days of imports, the situation in France and Italy is roughly comparable to the United States, in the neighborhood of 20-30 days of imports.

#### Stocks, Imports, and the International Energy Program

The number of days of imports a country has in emergency reserves has become a more confusing question since the formation of the International Energy Agency. In the negotiations leading to the agreement on the emergency program (the IEP) a common definition of emergency reserves was sought because they play a crucial role in the manner in which the IEP's designers hoped to manage a future crisis. The negotiators settled for an interim agreement which adopted the OECD definition of stock levels (never intended for anything but reporting purposes), deduct the oil held in pipelines plus an additional and arbitrary 10 percent as unavailable, and labeled the rest "emergency reserves". This interim definition still stands, in spite of constant attempts by the Secretariat to come up with a more realistic one. It must be noted that yet another proposal is about to be submitted to the Agency's Governing Board.

Although the Agency has not released estimates of the amount of emergency reserves each member has under this definition, it is possible in the case of the United States to work back from the definition to arrive at the IEA's estimate of the emergency reserve. The NPC did this and the resulting figure is about 950 million barrels. The difference between this and the NPC's own estimate of 140 million barrels is striking. The NPC commented that the IEA estimate "does not recognize the need to keep the oil logistic system operating efficiently". A similar judgment can be made in regards to the other IEA members, although it is not possible to be as precise.

We can, however, give a rough indication of how long stocks could protect the IEA members against several kinds of disruptions:

<u>Selected countries</u>	Normal consumption 1975 (000 B/D)	Estimated emergency reserves <sup>1</sup> (millions of bbls)	Number of days emergency reserves would last if drawdown equals follow- <u>in %s of normal consump.</u>		
			10%	20%	30%
United States	15,845	140	87	44	22
Japan	4,905	39	80	40	20
Britain	1,875	27	142	71	36
Germany	2,665	8	30	15	8
France	2,240	81	370	135	68
Italy	1,925	43	226	113	57

<sup>1</sup> Assuming the "minimum operating level" is equivalent to 60 days of normal consumption, excepting the United States, for whom the NPC estimate is used.

In spite of the inadequacy of the data, these estimates are of interest because they show how wrong the data would have to be before the estimates would show that countries could rely on current stocks for a significant period of time.

#### Future Prospects

While conventional stocks have not been appreciably built up since 1974, great plans are being considered by some governments. The United States appears committed to creating a separate "strategic petroleum reserve" of 500 to 1,000 million barrels by the early 1980's. The government of Japan recently declared its intent not only to achieve 90 days of consumption in conventional storage, but also to create an additional 90 day reserve under government control.

European countries, except France, have more modest goals. The EEC standard of 90 days of consumption may be met by all countries, but this represents only an incremental

gain by some of the members, while others already exceed the standard. The IEA may be influential in prompting further increases, but we must await the outcome of the negotiations on a final definition to get a meaningful indication. Various individual countries have embarked on programs of their own. On record are Germany, with a modest objective of increasing federal government stocks from the current 20 million barrels to about 60 million barrels; and France, where the government has decreed that all crude importers and refiners, not just distributors of finished products, are now required to continuously maintain 45 days of stock.

The American and Japanese reserves will make a substantial difference in the length of time a given oil import loss can be maintained. Roughly speaking, if the United States opts for a 500 million barrel reserve, it can quadruple the number of days the shortages can be sustained. However, if the United States' imports and dependence on the Middle East are significantly higher than they were in 1975, the length of time is shortened. The same point can be made for Japan. Europe's vulnerability will not be significantly reduced with the current stock plans.

Finally, an assessment of the role of stocks would not be complete without considering the adversaries against whom they are to be used. The Arab states currently provide about 60 percent of the imports of the United States, Japan and Europe, or, about 12 million barrels per day. Should they decide to curtail production, they must take the increase (if any) in emergency reserves into account in their assessment of how to put pressure on the importers. If they want to confront the importers with an irreplaceable loss of oil supplies quickly, they must curtail production significantly to force the importers to draw down their stocks. Our estimates show that if the Arab exporters cut back by 50%, resulting in an import loss of roughly 25%, and a supply loss of roughly 18%, stocks would be able to maintain a consumption level of 90% for only a few months in many countries. Some will face the loss more quickly than others, which further complicates the attempts of the IEA to create a united consumers' response.

In sum, current stocks can "buy time", but not much, and they do not provide absolute security against determined adversaries. Even when the level of emergency reserves for the United States reaches 500 million barrels, our own higher import dependence and the continued vulnerability of the European countries will still be cause for grave concern. Meanwhile, the incongruity of industrial states not yet being able or willing to confront their energy vulnerability in terms of their commercial stocks versus true emergency reserves--a situation which has now been with us for several decades--is inexplicable.

E. Conclusion

Energy cooperation among the industrialized states involves relations between consumer states, and between them severally and collectively with producers. With regard to the importing countries, cut-throat competition between consumers may have been forestalled. Nothing in the IEP precludes closer relationships between individual consumers and producers but it does make the search for such relationships less frantic. Moreover, at the insistence of Europe and Japan, the U.S. was compelled to moderate the confrontational impression of IEA by calling for discussions with producers.

The variety of responses to possible emergency situations are necessary but they are only palliatives. Real amelioration depends on other actions taken elsewhere.

PART IV

LONGER TERM SUPPLY SECURITY MEASURES

A. Introduction

Emergency stocks, conservation/rationing and standby agreements to share available oil may suffice to permit the energy deficient industrial nations to withstand embargoes and sudden supply disruptions. They are clearly not answers to the situation created by the geopolitics of energy - the location of energy resources in countries other than the major consumers and the need of the industrialized nations to obtain reliable access to them. There are, in addition, another set of concerns which are peripheral to long-term solutions but which nevertheless reflect concerns arising from the geopolitics of energy. Secure energy supply will have to include policies relating to critical segments of supply logistics.

Three aspects of this longer-term situation have been identified in Volume I and include the need for a careful and continuing watch over: refining capacity, tanker control and the security of "superport" facilities and offshore terminals.

B. Refining

With regard to refining, it appears that there is presently a very considerable spare (unused) capacity world-wide in the bulk of the consuming regions. Generally, the U.S. shares in this situation if the Caribbean refineries are included as "secure". The prospect, however, is that with anticipated economic recovery, idle capacity which plagues the industry today could disappear over the next five years. In the case of

the U.S., its "idle capacity" (based upon the Caribbean refineries) will fade considerably sooner and the U.S. may be increasing its product imports (from European refineries). When this occurs, and absent a carefully timed introduction of new refineries, the vulnerability of the U.S. to supply cutbacks from abroad could be considerably increased.

The same vulnerability, (generalized to include Europe and Japan) could result from a situation in which refineries in the consuming countries were rendered "uneconomic" by the expansion of refining capacity in the producing countries with the producers insisting upon their supply of increasing volumes of product not crude - a longstanding OPEC objective.

As indicated earlier in this report, crude imports have a flexibility in sources which permits - within limits - substitution of geographic source; product imports cannot be replaced so readily -- especially when there is no idle refining capacity. Currently, the spare capacity to meet U.S. needs exists in Europe. If and when the producer nations move to refine greater quantities of their own crude the potential for damage to oil importing nations will again be increased.

The requirement is for government-industry anticipation of such developments, and actions taken to assure a U.S. domestic capability to meet all our product needs. Some form of public subsidization of refining capacity may be necessary much as stocks of key materials are created.

### C. Tankers and Port Facilities

With regard to tankers, until the U.S. has deepened its harbors and completed its superport facilities offshore, it will not be able to take full advantage of the economies of scale provided by the giant tankers (VLCC). Presently the largest size tanker which can enter U.S. harbors is still limited to about 85,000 DWT (although lightening of larger vessels is often accomplished). This size tanker no longer dominates DWT in world oil trade; in fact, it has become an anachronism so far as major supply to a giant industrial nation is concerned. The number of tankers in this category is

diminishing and there are few orders for replacement. Yet it is precisely this size tanker on which U.S. supply will be forced to rely for at least the next 5-10 years.

Maintaining an adequate fleet of such vessels is not only a commercial requirement but a charge on the national security as well.

In addition, governments may have to encourage greater investment in product tankers as increasing quantities of world oil trade will take this form. The possibilities for further conversion of some surplus crude oil tanker capacity should also be assessed.

The problem of defending critical offshore terminals, the concentration points for immense volumes of oil, can only be noted. As an example of the importance of these facilities, the single Shetland Islands' installation, Sullom Voe, projected to receive Shell/Esso and BP North Sea production, could become the reception facility for over 50% of Britain's oil. Similarly, terminals in the producing countries which process large volumes of oil for export, such as Saudi Arabia's Ras Tanura and Iran's Kharg Island must be kept secure.

PART V

LIMITING VULNERABILITY:

THE DOMESTIC COMPONENT

Means to limit U.S. vulnerability to sudden, short-term supply disruptions and threats to the logistics system are clearly essential. However, in an important sense these are exceptional occurrences, responses to which buy time, permitting more fundamental actions limiting our continuing, daily vulnerability derived from dependence on oil and oil imports and the control of oil supplies and prices by the producing governments. By concentrating on the U.S., we do not imply that many of our options are irrelevant to our allies; indeed, with some variations to reflect individual cases, comparable opportunities exist for others, acting singly in some options, and acting together when useful to do so.

A. Comprehensive Energy Policy

Obvious as it may be, the first prerequisite for limiting U.S. vulnerability is the adoption, by the U.S., of a comprehensive energy policy; this is far from being the case today.

The absence of an over-all energy policy, by projecting confusion and continued vulnerability, may suggest to producing governments that military action may be the only possible response to an action of theirs which runs afoul of U.S. interests. In this instance, it has been held that deliberate vulnerability can serve as a kind of deterrent moderating the behavior of producing countries. The element of uncertainty is allegedly made to work for the U.S.

We believe this argument serves more as an excuse for a failure to formulate energy policy and make difficult but necessary commitments than it offers a prospect for relief.

A comprehensive energy policy on the other hand, demonstrates the seriousness with which the U.S. views energy matters and the sincerity of its intention to be freed from the constraints imposed by the geopolitics of raw materials. Internationally, a comprehensive energy policy reveals the seriousness of America's commitment to adequate and secure energy supplies: "energy" is unambiguously and profoundly a matter receiving U.S. attention and commitment, a matter not to be left to the whims of foreign nations blessed by a geographical accident with a disproportionate share of the world's oil resources.

A comprehensive energy policy holds out the possibility that the dominance of the producing states may well be temporary, possibly inducing caution among producers. While not suggesting a dilution of effort, we recognize that by making the position of the producing states less secure in the long term, some could be induced to exploit their temporary advantage more vigorously. Against such possibilities, the "defensive" measures of Reserve, adequate tanker control and refining capacity make good sense - if done by all.

The afore-mentioned requirements, if met, would allow the United States then to proceed on its energy initiatives. Domestically, they are: (1) to proceed with the intensive development of coal, (2) the search for additional indigenous and hemispheric supplies of oil and gas and uranium ore; (3) the maximization of efforts to bring nuclear energy into our economy on widely-accepted terms; (4) energy research; and, (5) conservation of all fuels and their highly selective use.

There has been and continues to be some action on these fronts; the essential point is that actions taken to date have been *ad hoc*, with little recognition of the need for an energy policy and commitment which acknowledges the interdependence of all aspects of the energy picture. Moreover, actions to date, emerging from fierce battles between the Administration and Congress and within the Administration itself, have done little to reduce the vast areas of uncertainty which continue to inhibit the private sector.

With regard to the search for additional oil supplies, for the longer term, Volume I offered a number of observations concerning potential, highly prospective oil regions. The U.S. can embark on an unprecedented effort to expand supply sources outside the Persian Gulf, to three highly prospective areas within this hemisphere, and also in the sub-Arctic and Arctic regions where control over discovered oil would be within the grasp of the industrial world.

The three areas referred to consist of Canada, Mexico (and the Caribbean basins) and the Orinocco Belt of Venezuela. Success in developing oil resources in these three, with the strategic crude and product reserve, should give solid assurance that the U.S. can withstand contrived supply shortages. The political interests of these three are not related to the regional political interests of the Gulf (nor are they likely to be participants in embargo actions taken against the U.S. over Israel).

Moreover, the United States should consciously reduce its imported crude and products whose origins are in the Persian Gulf. While we have argued the security implications of the Gulf Straits and the African and South Atlantic routes, we do not ascribe to the view that oil shipments from the Gulf are inherently and continually a source of danger. The interests of all key producers -- except possibly Saudi Arabia and Kuwait -- are embedded in supply continuity, but prudence reinforced by the desirability of keeping the U.S. flexible indicates that preferential import selection away from the Gulf is desirable.

Attainment of a billion barrel emergency stock, coupled to a capability for quick introduction of a stringent, accelerated conservation effort and/or rationing, is still the most important step which the United States can take to limit its immediate vulnerability to supply shortage. A Reserve of this magnitude is probably more than ample (except in the aftermath of a general nuclear war).

However, some assert that creation of such a Reserve may be all that is necessary to render us all but immune to any plausible scenario. This is nonsense. The Reserve is sufficient only to buy time to permit a state to engage all its applicable powers to resume the flow of oil. The Reserve does not, of course, affect the level of imports, encourage indigenous energy resource development, or meet other requirements.

We have also called attention to the need for adequate domestic refining capacity. Within the context of a comprehensive energy policy we would be in a position to examine how to maintain what level of refining capacity needed under U.S. control or influence. Similarly, we could look again at the perennial question of effective U.S. control over crude and product tankers of the required sizes.

In the area of nuclear energy, we still require completion of a massive survey of the United States in terms of tonnage, not so much of the "economics" of uranium ore, in order to determine realistically available indigenous sources of uranium ore and the implied level of necessary uranium ore imports. We require a realistic definition of the additional enrichment or other processing facilities adequate, with some spare, to meet national and international needs.

Finally, among the elements of a comprehensive National Energy Policy must be the beginning of a process to define the roles of industry and government as we move into an energy era of unprecedented complexity. As in so many aspects, our dealing with the really new and important set of relationships, implied throughout this study, has been ad hoc and inadequate, satisfying no branch of government, industry or the public. Yet we must have a clarification of this evolving relationship if we are to engage fully the great economic, technical and managerial assets of the private sector.\*

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\*The authors have been invited to undertake such a study - on an urgent basis - under the auspices of Yale University.

B. Role of Government

Over the past several years we have been assailed by an unending stream of recommendations as to what must be done, by whom and how quickly. Many of these do deal with real and vital interests and objectives; most assert an unprecedented role for government in assuring that the nation's needs are met.

Few of these proposals emphasize, as we have repeatedly, the complex interrelated and interdependent actions which must occur in a timely manner if present, conventional and future indigenous energy sources are to be available. We have cited the case of coal and nuclear energy as excellent examples of the need for a government role to facilitate those under-takings whose scope puts them beyond the means of private companies. Moreover, until the government takes actions in these areas, private activity will be inhibited by uncertainty.

We have also in mind that the U.S. Government must possess the means to assure performance, i.e., guaranteeing that an oil company which is also heavily in coal can not negate a National Energy Policy objective which seeks to limit the use of oil and to expand the use of the other. This calls for an unprecedented kind of peacetime relationship which must be thought through with exceptional care; it does illuminate the hard fact that the provision of energy is no longer only a commercial undertaking. (We must anticipate also the possibility that producer governments, each having its "national oil company" may prefer to deal directly with the U.S. Government on supply; it is a likely outcome of any "special relationship" in which imports are agreed upon. There are other mechanisms, obviously, which can be employed and we do not recommend the U.S. choose the route of an official oil entity.)

It will seem anticlimatic, but we choose to place our greater emphasis on the absolute, fundamental requirement

of a proper and effective national government oversight of energy, and even involvement in its supply when necessary.

No matter how pressing energy priorities may be, no matter what level of investments and technology are available, without a sensible, disciplined and competent energy grasp by the federal government we cannot possibly accomplish the goal of significantly reducing our present and foreseen vulnerability to shortfalls in supply.

Lacking such government oversight, the most we will do is pursue on an ad hoc basis certain aspects of our energy needs in an haphazard, contradictory and inadequate manner; "energy" could then truly become the nation's "Achilles' heel".

If we can be confident in the definition of our energy position - and confident in the intelligent selection of directions, priorities and incentives, and of the durability of national policies, public support for commitments will be forthcoming and the private commercial and research interests of our country can respond.

#### C. Government Organization

There are four aspects of government machinery which need specific attention; if there is nothing much which is new in this list, and the Administration (and others) have generally agreed upon it, we choose to refer to "organization" to add our emphasis to its important place in a national energy program.

a) In the Executive Branch, creation of a Department of Energy whose Secretary should be a statutory member of the National Security Council. This helps assure Defence participation in "energy."

b) Presidential appointment of the Chairman of the Council of Economic Advisors, or the President's Assistant for Economic Affairs, as the Chairman of the Energy Resources Council.

c) Organization of the Legislative Branch's oversight into a Joint Committee on Energy subsuming all other jurisdictions.

d) Reformation of the regulatory processes of our government which, if left to their present devices and delays, could alone defeat the private commercial interests in an expanded energy effort and, in so doing, propel the U.S. Government into unfamiliar and undesirable energy roles.

e) Re-examining, still once more, the question of energy competence in government; how to attract into public service experts who can apply their knowledge to the national task. We must greatly improve the quality of our effort.

We require mobilization of public support for energy priorities. As long as all energy initiatives fall on the desire to refrain from granting advantages to "big business" as exemplified by the oil companies, this emotionalism will make positive energy action difficult; only when the public understands the issues will the pressure be on Congress to take positive action. We have never had this, and cannot obtain it, without private leadership and an educational effort, sponsored not by government or industry, but as exemplified in the Citizens' Committee for the Marshall Plan in the Summer of 1947. (We had what appeared to be a comparable energy undertaking in the winter of 1973-4 which was totally ignored by government and is now forgotten.)

If these six steps are taken, national energy objectives can be attained; if any one of them is not accomplished, we will fail, perhaps not absolutely of totally, but in the sense of incomplete and inadequate responses. Moreover, as we have suggested, if the U.S. sets this energy tone, it's very accomplishment will moderate the attitudes and actions of producer (and consumer) nations who might otherwise downgrade our national resolve.

PART VI

LIMITING VULNERABILITY:

INTERNATIONAL IMPLICATIONS AND OPTIONS

A. Between Autarky and Vulnerability

In adopting a comprehensive energy policy certain international repercussions of policy must be considered. At one extreme, policy tends toward autarky; at the other, toward deepening dependence and both these choices involve important international ramifications.

Autarky may be neither possible domestically (in terms of timing, or at reasonable cost, i.e., costs which allow the simultaneous pursuit of other societal goals) nor desirable internationally. Should the U.S. deliberately minimize its direct involvement in international energy, generally, the U.S. may appear to be lacking in interest and commitment to developments in international energy of possibly vital interest to allies (and to the USSR).

However, commitment can be demonstrated in many ways and it is unlikely that anyone would doubt U.S. concern in an area so vital to its major allies. The point here is not to discredit U.S. movement toward greater energy self-sufficiency but rather to note that every policy involves costs and implications which must be considered if they are to be offset or amplified, as the case may be.

At the same time, greater U.S. energy self-sufficiency could free considerable quantities of oil for use by consumers with fewer energy options than the U.S. It was largely U.S. entry into the international oil market in a big way,

post-1970, which changed a buyers' market into the sellers' market which provided such a major contribution to OPEC's "success".

At the other extreme, the U.S. could attempt to multiply its own dependence on particular producing states as clear evidence of an enduring U.S. interest in them as suppliers. In this way, all the world would be warned that threats to (or from) them would so seriously and directly affect the U.S. that they would be considered to be provocative and likely to elicit a serious American response -- including military action.

Between these two extremes the U.S. must find a way to demonstrate its sustained vital interest in the producing states without backing itself into a corner from which only a military escape is possible. On balance, the risks associated with greater U.S. energy self-sufficiency appear to be less momentous and more easily negated than the risks associated with deliberate U.S. energy vulnerability.

There are those who argue that the U.S. capability to influence the actions of Europeans and Japanese depends upon many forces, an important one being expressed through our collective energy vulnerability which necessitates collective responses. Without knowing precisely what interests and objectives are served by such an argument, we confine our thoughts to what seems prudent and attainable in greatly limiting our energy vulnerability and to the extent possible, aiding allies to do likewise.

B. Energy and the Western Alliance

1. Discussion

With regard to these allies, a comprehensive U.S. energy policy will have important implications for Western Europe and Japan. In fact, the continued lack of a comprehensive energy policy is at least one major reason for the inability of other countries to develop their own energy policies; the uncertainty derived from both the U.S. and the oil producers makes planning nearly impossible. To some, divisiveness within the Western alliance looks increasingly like European pique at its dependence on the U.S., but strains within the alliance are nevertheless real.

This uneasy situation might be somewhat ameliorated if the various elements of U.S. energy policy could be submitted, at least for consideration to allies perhaps within the IEA forum, however tricky it might be for domestic political reasons. We are aware of current plans to discuss within the IEA broad energy policy goals with provision for periodic reporting by member states on their progress in reducing their dependence on Middle East oil. The initiative represents a move in the right direction and should be broadened to include objectives beyond reduced dependence on Middle East oil. If done with tact and with the recognition that allies have something useful to say, it would seem, on balance, that international discussion could be useful both to the formulation of policy and to alliance politics, and might prevent situations in which the policies of different nations conflict and possibly negate each other; competition among alliance countries might be reduced.

Moreover, the U.S. clearly has an interest in evolving European and Japanese energy policies. Since the U.S. itself

may be susceptible to pressure put upon its allies, the U.S. must be concerned with the energy policies of these countries - a rather ticklish proposition given the sensibilities of sovereign states, perhaps partially offset by U.S. discussion in the IEA forum of its own energy policy options.

## 2. New Sources

There are additional areas for intra-alliance cooperation and lessened vulnerability through the development of "new" sources of oil.

Current longer term estimates of highly prospective oil bearing regions are limited very largely to the offshore. Prominent among them is a nearly continuous belt lying along the USSR Arctic, Alaska, the Western Canadian Arctic, Greenland, Spitsbergen. It is never possible to estimate producability absent the most extensive of surveys and then actual drilling; the most that can be said is that based upon present knowledge and assumptions there ought to be important oil (and gas) resources in these latitudes. It is an environment which has been perhaps the most difficult to work in the history of petroleum. The technology for doing so is in the possession of the private oil industry predominantly and is therefore an asset of possibly incomparable value.

The U.S. should take the lead in organizing an international setting of the free governments directly involved in these regions whose single purpose is to encourage and facilitate an immense undertaking by the international oil industry perhaps as consortia, or companies acting singly, to determine what is available and to develop discoveries with utmost speed. It would be an unprecedented endeavor of immense cost but it would be a clear signal of our resolve to remove at least some of the bonds created by a geopolitics of energy which has so sharply focused our attention and bound our energy interests to the Middle East.

### 3. Strategic Reserves

The U.S. should extend particular efforts to insure that IEA members implement rapidly the creation of truly effective, in-place strategic crude and product reserves. Creation of such a Reserve is far more effective when many leading importing states take similar actions. We have warned in this Report that stock figures supplied by all member states of the International Energy Agency continue to be suspect, partly because the very IEA definition of stocks permits member states -- including the United States -- to describe their situations in more optimistic terms than the facts probably justify. It is essential that this highly defensive and necessary creation of Reserves proceed rapidly and convincingly.

### 4. Allies in the Middle East

Reduced U.S. dependence on Persian Gulf oil, which has been identified as one aspect of a comprehensive U.S. Energy Policy would also serve to withdraw the U.S. from some of the implications of the anticipated intense competition between Europe, Japan, and USSR for access to Middle East oil.

If we have alternatives, or can help create them, we could avoid some of the risks we run in the significant complications certain to rise from the difference in the high degree of dependence upon the Gulf of Europe and Japan, and the relatively low dependence of the U.S. Similarly, as we have stressed also in this Report, there are risks to our alliance cohesiveness from a situation in which the U.S. would continue to try and play a lead role in the oil policies of key Gulf producers when, from their interests, the oil markets of Europe and Japan are so much more consequential.

It is arguable that conditions for a more enduring peace in the Middle East may depend to a greater extent than the U.S. admits on a consciously abetted renaissance of European (and a strengthening of Japanese) economic and political interests in the region and a consequent diminishment of the seemingly overwhelming U.S. presence. It need not imply any lesser concern of the United States for the security of the region.

Such a course does, however, imply a major shift in U.S. policy vis-a-vis Saudi Arabia. Caught up in the euphoria of a spate of opportunistic U.S. energy overtures post 1973-74, not one of which appears to have been dispassionately argued then or since, the U.S. is viewed from Europe and Japan as having succeeded in substituting itself in the monopolistic role in Saudi oil previously held by ARAMCO and its shareholders. This is probably an exaggerated appreciation of what the U.S. has really accomplished, and not an estimate liked by some Saudis, but it carries a baggage of political implications.

Is the U.S. acting in a kind of "trust" capacity for Europe's and Japan's supply? Or as the mainstay of a still very potent set of U.S. private oil interests? Or is the U.S. keeping a position of great influence over Saudi Arabia to help keep Europe and Japan in line? Or to be in a position to counter a Soviet move southward? Or does the U.S. Government now have so prominent a presence in Saudi Arabia in order to buttress the present regime? Or to help (whom?) maintain "peace and stability" in the region. Against whose moves to alter conditions? Iran's? Or, by being in Saudi Arabia, does the U.S. Government have

an additional fulcrum against which it might be able to exert pressures -- in the Middle East? On Europe? On Japan? -- in behalf of Israel? Or is the U.S. Government in Saudi Arabia for any or all of these reasons which could be supportable but have not been carefully weighed through a process of disciplined inquiry?

Such an inquiry should have highest priority. The ramifications of the above questions extend deep into our key alliance relationships; their exploration is bound to bring us up against the portentous fact of our varying degrees of reliance upon the Gulf for a commodity which is generally vital to us severally and collectively. And the starting point of such an inquiry should be a definition of the U.S. purpose in having so large a presence in oil from the Gulf. If the answer is that we intend to use our presence to influence European and Japanese conduct, then such an undertaking should, first, be based upon the conclusion that such a role is supported by the American public and, second, that the defense and other commitments to support the role will be made.

We do not believe that such a conclusion is correct; rather, that the temper of our times warns against such a course. Generally, we argue that where the United States does not itself possess a direct and vital interest, or where there are alternatives, it is risky to contemplate a role for the purpose of influencing allies in a matter in which their interests are very substantially greater than our own.

In short, we ask that the U.S. should find ways of making plain to our allies what is now not clear: that it is not our intention to have an exclusive relationship with Saudi Arabia and that, in actuality, we re-affirm our belief in the general beneficial effect of an "Open Door" doctrine among these industrialized countries.

## 5. Conclusion

None of these initiatives will result in a total identity of views or the establishment of complete harmony within the Western alliance; nor are these the objectives (which is to decrease U.S. vulnerability to the geopolitics of energy). The different resource positions of Europe and Japan vs. the U.S. will continue to make for divergent interests and differing world views. Moreover countries will retain the right to go outside the alliance directly to producing states. But the U.S. will retain this option as well. There is too the possibility that U.S. allies will move cautiously in moving beyond the realms of the alliance because bilateral arrangements might prove very costly.

### C. Energy and the "North-South" Dialogues

In the aftermath of the 1973 OAPEC oil embargo, it became increasingly clear that access to raw materials, would no longer be determined automatically by the needs of the industrialized world. Access to raw materials could in no way be considered an acknowledged "right," derived from a now-defunct colonialism or its remnants. By repeatedly linking the issue of access to oil to the demands of the less developed countries, the oil producing states have guaranteed that developments in more general "North-South" relations will have important implications for access to energy raw materials. Actual trade, aid and investment policies emerging from the "North-South" dialogues presently occurring in many international forums may affect access to energy raw materials, but, on a less formal level, the changing relations among countries, occasioned by the "North-South" dialogues, may also have important implications for access to energy (oil and uranium).

In the immediate term, the oil producers have repeatedly warned that lack of progress by the industrialized world

in meeting the demands of the LDCs will result in higher oil prices. Most recently Sheik Yamani, the Saudi Oil Minister, has warned that in the absence of Western concessions to the LDCs, oil production may be cutback. Regardless of the sincerity of the OPEC commitment to the LDC cause, (and it varies from OPEC member to OPEC member), having made the commitment it would be politically embarrassing for OPEC to renege on it now.

Moreover, it costs OPEC very little to champion LDC interests. The happy possibility of raising prices to punish an "unrepentant" industrialized world hardly seems onerous. OPEC/LDC solidarity should not be overstated. With economic recovery in the West and Japan, higher oil prices were probably in the cards in any event. Western intransigence is merely an additional justification for a price increase which may have been coming in any event.

This is not to downgrade the oil link. In fact, it seems likely that the unwillingness of the oil producers to blatantly betray the LDC cause does put enormous pressure on them to do something to demonstrate their continued support of the oil link. Concessions by the industrialized states to the LDCs probably strengthens the position of the "moderates" within OPEC who argue for price restraint and production adequate to meet Western and Japanese needs. Western intransigence probably strengthens the position of OPEC "radicals" who demand higher prices (either directly or through the more provocative mechanism of production cutbacks). Under the circumstances continued Western intransigence makes it harder for OPEC to continue to meet world oil supply needs automatically.

However, the "North-South" dialogues, which actually took off with the convening, in December 1975, of

The Conference for International Economic Cooperation, (CIEC), was meant to have more long-term implications for world oil trade. The oil link was to establish a three-way relationship in which Western concessions to the LDCs would be reciprocated by a formal (preferably formal, from the view point of the West) or informal agreement with the oil producers guaranteeing secure access to adequate and continuous oil supplies at "reasonable" prices (again, from the perspective of the industrialized countries).

Such a formal agreement appears unlikely under any circumstances. Having only recently secured the power to determine prices and production levels it is difficult to understand what reason OPEC would have for sharing that power with the industrialized countries.

Moreover, OPEC's demands on its own account (security of financial assets from the effects of inflation and/or currency depreciation, investment opportunities secured against political risk, greater influence in international monetary affairs and assistance in accelerated industrialization), will be agreed by the West and Japan out of their own self-interests, regardless of an oil agreement.

For example, attractive investment opportunities in the developed countries, hedged against inflation and currency devaluation, are necessary to: (a) encourage those oil exporting countries that are producing oil in quantities which generates income beyond their immediate revenue needs to continue to do so; and, (b) encourage the petrodollar recycling necessary for balance of payments stability in the industrialized countries. "Indexation" will continue to be rejected by the developed countries as being inflationary and also as increasing the prices of raw materials whose producers do not now, (and may never), have the ability to control prices and production unilaterally.

In effect, there is little the developed countries have to offer the oil producers beyond those things which the industrialized countries will offer in any event for reasons of their own self-interest.

The relationship was meant to be more complex; if the industrialized nations had little to offer the oil producers directly, they did have assets to offer LDCs in general. However, Western and Japanese concessions to the LDCs will not result in an oil agreement guaranteeing oil supplies or stabilizing prices because OPEC has little interest in such an agreement. This is particularly true if the oil demand/supply situation will be increasingly tight; under these circumstances OPEC will not want to be bound by an international agreement.

If an international agreement securing oil supplies is unlikely, what then is the relevance of the "North-South" dialogue for access to energy? In the first place, it is conceivable that some different arrangements for commodity trade might be agreed which could have an impact on oil.

More importantly however, international relationships are changing and access to raw materials, including energy, in the future, may well turn on the kind of relationships which emerge between individual countries and blocs of countries from the "North-South" dialogues.

Apparent U.S. leadership of a movement to destroy LDC solidarity and to prevent any substantial agreement in any of the various pieces of the "North-South" dialogues may well be counter-productive in terms of U.S. interests.

As for the Europeans and the Japanese, U.S. intransigence saves them from agreements which may prove costly to these resource-deficient countries, but it does not preclude them from making their own agreements with the LDCs. Such arrangements may not be necessarily detrimental to U.S. interests abroad, but they certainly contain that potential. (The negative impact of the EC/LDC association agreements on the growth of U.S. exports is an example.) To the extent that delay, apparent confusion and U.S. policy make it unnecessary for these countries to pay higher prices for a broad range of goods, the Europeans and the Japanese are still free to attempt a more accommodating approach in other ways, even to the exclusion of the U.S.

For example, the Lomé Convention, (1975), between the EC and the 46 African, Caribbean and Pacific countries (ACP), certainly suggests a greater willingness on the part of the EC countries to meet the LDCs at least half-way. Generalized, non-reciprocal trade preferences, greater multilateral financial assistance and the innovative STABEX scheme for compensatory financing to stabilize LDC export earnings are symbolic of a more accommodating attitude on the part of the West Europeans. The hope is that the goodwill resulting from this European and/or Japanese willingness to meet the LDCs half-way will spill over into the oil and energy areas.

If an international agreement is impossible, all oil import-dependent states may fall back on bilateral arrangements and special relationships and in this case the goodwill generated by a readiness to deal with the LDCs may prove decisive. The U.S., on the other hand, may be handicapped by the LDC conviction that the U.S. is considerably less than an honest and committed participant in the "North-South" dialogues.

This is not to suggest that the industrialized states should succumb to OPEC pressure and resign themselves to

LDC demands. But these LDC demands are not new, even if attention has focused on them only as a result of the oil link. Hard bargaining in many international forums and the arrangements finally agreed will contribute to the kind of international environment in which future questions of access to raw materials and energy resources will be determined.

Moreover, the current environment is conducive to internationally-agreed change. The LDCs are currently less ideologically militant and more pragmatic. They have implicitly recognized the West as being more essential to their own economic well-being than the Soviet bloc, (a point which could not have escaped Soviet notice, although it is not easy to suggest the form the eventual Soviet response will take). The developed countries continue to bargain from a position of strength.

The international environment is more conducive to negotiations, presenting the U.S. with a wider range of options than had existed previously. In the event that the opportunity is allowed to pass, a return to acrimony and confrontation is likely.

What then of the institutional arrangements of the "North-South" dialogue. The dialogue continues in many international forums. The CIEC is due to wind-up in December. CIEC is important to the U.S. because it is the sole international forum, in which the U.S. is a member, dealing with energy issues and including both producing and consuming countries.

Because of its scope and composition the CIEC Energy Commission constitutes a forum for increasing mutual

understanding and appreciation of the respective interests of producing and consuming countries.

Such a forum is both important and necessary. It may prove impossible to convince OPEC or the non-oil LDCs that such a limited initiative should go on regardless of developments in the wider CIEC undertaking. An organization separate from CIEC but similar in composition to the CIEC Energy Commission will be difficult to create because it would look like OPEC's abandonment of the oil link and the LDCs.

The U.S. should make an effort to convince other countries of the continued importance of the Energy Commission or the need for an organization like it. Some moderate U.S. cost might be incurred to keep this important initiative underway.

In a future in which the tone of the international environment and new international relationships will strongly influence access to raw materials - including energy resources (oil and uranium) - it is prudent to ask if current U.S. policy may put the U.S. at a competitive disadvantage?

We have stressed the "North-South" dialogues, and emphasized below the urgent need to engage all the economic interests of producers into the world trading system because such purposeful efforts on our part may be the only way of diminishing the effects of the geopolitics of energy for as long as we are so dependent on oil.

#### D. Balanced Interdependence

Some greater protection against the vulnerability derived from the geopolitics of energy can be found in deliberate efforts to redress the imbalance in interdependence occasioned by the unilateral power of producers over production and prices. The U.S. is not without assets and options in this regard.

With specific regard to oil, producers could be encouraged to participate in all phases of the industry. By multiplying their stakes, producer countries may develop interests closer to those of consumers, even if their greater involvement in oil operations also enhances their ability to manipulate supply and price for other than commercial reasons. Downstream investments in consuming countries might give producers an additional incentive to supply such projects.

We know that there are alternative means for tying producers' interests to consumers' interests and policies would be devised with this end in mind. Others have stressed that increased producer country direct and other investments in the developed countries might provide one route (with appropriate industrial sectors previously determined to be closed to any but national investors, i.e., the key sector approach which is employed by almost every country to insure national control of sensitive industries). In this way the general economic health and well-being of the industrialized countries becomes of more than passing interest to the producing governments. Some of them have already quite explicitly recognized that their own economic well-being is intimately associated with developments in the Western economies. Efforts to make this increasingly clear and valid should be intensified.

We should continue to reinforce trade ties with an expansion in U.S. exports of goods essential to the producing countries - including food. As development plans are implemented and expectations rise, it will be increasingly difficult for the producing countries to do without imports from the industrialized countries; that is, Colonel Qaddafi's threat to simply return to the desert will be increasingly difficult and unpalatable.

These suggestions embrace the traditional means whereby the interests of societies become mutual and, therefore, durable. We do not emphatically regard arms sales as having these results. At the most, they may for a brief period bind some of the interests of one nation to some of those of the other. They can complicate relations between the states rather than create common denominators of national interest. An effort aimed at "buying" oil by arms sales is the near antithesis of what we recommend.

In addition, there are still exporting country demands which may not be unreasonable and which still have not been addressed by the industrialized countries.

Indexation however, should not be considered among them. Saudi Arabia probably does not want to see the introduction of any automatic mechanism for price determination as this would detract from Saudi ability to influence OPEC. Moreover, from our viewpoint, the onus for price increases should remain with OPEC and not be transferred to inflation in the industrialized countries.

Demands for investment guarantees seem more reasonable and if some could be generalized to protect all foreign investors, U.S. foreign investors might benefit as well. Desires for investment instruments hedged against inflation and currency devaluations do not seem out of line but the banking community would be better able to judge the effects of a more widespread use of such instruments. To date, there is little to indicate movement in these directions, or even serious study of what is a frequently expressed producers' objective.

Joint investment opportunities should also be explored. The question of whether countries with government energy companies have an advantage vis-a-vis the U.S. industry should also be studied, with care taken to differentiate "efficiency of supply" from the issue of "political advantage."

In addition to meeting some of the demands of some OPEC countries, such actions as those suggested above do not tie the U.S. to developments in the oil demand/supply situation, i.e., should the U.S. situation turn out to be temporary nothing suggested here binds the U.S. to oil prices which do not reflect the changed circumstances.

The industrialized countries do have assets and opportunities to redress their energy imbalance without necessarily

increasing the vulnerability derived from dependence on imported energy resources. Nothing precludes the producers from taking what appears to the outsider as "irrational" actions; but the costs of such action clearly would be higher.

E. "Special Relationships"

1. Introduction

If secure, adequate, continuous and reasonably priced oil supplies can not be obtained by international agreement, consuming countries may fall back on bilateral arrangements and "special relationships." The questions to be addressed include; (1) to what extent does a special relationship enhance security of supply?; (2) at what cost?; (3) under what circumstances do such relationships endure?; (4) realistically, what opportunities for forming special relationships does the U.S. possess?; (5) what are the problems, perhaps special to the U.S., which our governmental-private sector system raises with "special relationships?" and, (6) what are the consequences of a special relationship for the particular producing governments and are those consequences consistent with the U.S. objective of attaining greater security of supply?

Historically, special relationships have taken various form and served various purposes. Colonialism was a form of special relationship which secured for the colonial country any number or combination of objectives including: (a) areas for settlement; (b) access to raw materials; (c) potential export markets; (d) investment opportunities; (e) sources of labor; and, (f) the trappings of power in a world in which competition for colonies was intense and colonial possessions symbolized strength. Relations between the colonial country and the colony undoubtedly would have been far different in the absence of colonialism, if such

relations existed at all. By and large, colonialism represented an almost exclusive relationship between the metropolitan country and the colonies. Such relationships were not without cost to the colonial countries nor completely without benefit to the colonies.

With the increasing assertion of the colonies and the weakening of the colonial countries in two world wars, the interests of each side became sufficiently different to make a continuation of the relationship on the same terms unlikely. With the rise of the U.S. and the USSR on the world scene, the colonies had alternatives to the mother country and the ascending powers were eager to break the exclusivity of the colonial relationship.

Colonialism was an artificial creation dependent on the overwhelming power of one side to maintain it and the weakness of the other side to resist. Colonialism could not survive the changes that occurred in its foundation.

Alternatively, special relationships may emerge for naturally-occurring reasons, for reasons of a real coincidence of national interests or for reasons of deliberate government policy (or some combination of these).

Geographic location naturally influences relations among states. For example, the Soviet Union has special relationships with the countries of Eastern Europe. While there are many reasons for this, at least an important one among those reasons must have been the Soviet desire to protect its Western flank from a resurgent Germany. Moreover, geography has given all these states a mutual interest in seeing to it that Germany would not threaten them again and providing for the collective defense which could deter and/or defeat a resurgent Germany. (The latter point, of course, binds NATO allies together in their special relationship to West Germany.)

It is these special relationships, based on the foundation of common interests which prove most durable. The Atlantic alliance is an example of a special relationship based on shared common interests which endures because, regardless of differences in relative power, world views, and judgments as to appropriate means, both the U.S. and Western Europe believe that their fates are inextricably tied one to the other.

With regard to access to oil the central question relates to the capacity of the U.S. and hemispheric oil producers to create by government agreement a special relationship which will reflect the mutual interests of the participants. Under "normal" circumstances our system would look naturally to the private sector to accomplish this purpose. The history of "foreign oil" in all the areas under discussion virtually precludes our ordinary approach for political reasons embedded in their national experiences.

We believe the U.S. may have opportunities to fashion such relations with its geographically-close neighbors, shortening the oil supply lines and reducing U.S. dependence on Persian Gulf oil.

A balanced consideration of the value of special relationships will also consider the costs of such relationships and the issue of increasing dependence on single sources, even if those sources are not Arab. An important element in cost considerations is the degree to which the special relationship commits the U.S. in terms of price. If the oil demand/supply situation should change, the U.S. will not want to be bound by prices which no longer reflect prevailing market conditions.

In the context of this Report we have limited ourselves to defining the questions which must be addressed if a policy of cultivating "special relationships" and preferential

sources is to be intelligently evaluated as we believe it must be. We can suggest broad outlines of possible special relationships between the U.S. and its hemispheric neighbors. We can suggest that the opportunity for developing such relationships may actually be at hand and that special relationships with close neighbors offers the U.S. one major avenue for reducing its dependence on Persian Gulf oil, a goal quite as consequential for U.S. allies as for the U.S. itself. We can identify questions which should be addressed if such relationships are to be mutually beneficial and therefore, enduring.

Further study could profitably address all these issues in far greater detail, including the question of costs and increasing U.S. dependence on hemispheric sources of supply. It may well be that oil and energy are so very consequential that cost is a less relevant consideration than security of supply, but the cost should be known.

## 2. Venezuela

During the decade of the 1960's Venezuela repeatedly indicated its interest in preferential access to the U.S. market. That is, in return for preferential access to the restricted U.S. oil import market, Venezuela would guarantee quantities of oil supply. At the time, U.S. government officials ignored the Venezuela proposal. Private oil companies, involved in negotiations with the Venezuela government regarding their concessions, cautioned the U.S. government against any overtures to Venezuela which might jeopardize the negotiations and their interests. In the event Venezuela became a founding member and staunch supporter of OPEC, the concessions were eventually lost in any event and the U.S. may have missed an opportunity to guarantee supply.

The old concessions are securely under Venezuelan control and there is little the U.S. can offer in this area;

the Venezuelans, in new relationships with the private oil companies, need no additional assistance in this area of oil production.

The same can not be said of the Orinocco petroleum belt. Here U.S. financial and technological assistance could enable the Venezuelans to tap this potentially huge source of oil (and oil revenue). Having only recently nationalized the concessions of the major international oil companies, it may prove politically embarrassing to the Venezuelan government to invite these same companies back into an important position in the Venezuelan oil industry by giving them development responsibilities in Orinocco.

A U.S. government initiative designed to assist the Venezuelans in developing the petroleum belt may be less objectionable in terms of Venezuelan politics. However, because the U.S. is hardly more palatable than the major international oil companies, which were viewed as agents of the U.S. government in any event, the terms of such U.S.-Venezuelan cooperation must be firmly rooted in Venezuelan interests and must scrupulously avoid the appearance of exploitation.

In spite of advances in transportation, the U.S. remains a natural market for Venezuelan oil and oil products. The U.S. could then assist in the development of Orinocco with reasonable assurance that any product from this area would naturally find its way into the U.S. market. The U.S. therefore, could refrain from demanding such a guarantee but could encourage the eventuality by offering preferential treatment to oil from the Venezuelan petroleum belt. As Venezuela's natural market however, a preferential agreement may not be necessary.

Consideration should also go to two additional questions: (1) how does the Venezuelan commitment to OPEC solidarity affect the possibility for such a U.S.-Venezuelan relationship?; (2) given that the U.S. is a natural market for Venezuelan oil and the fact that U.S. withdrawal from the Middle East oil market is as beneficial to the Europeans and Japanese as it is to the U.S., might not U.S. allies be encouraged to assist in the development of Orinocco making the initiative more acceptable politically?

### 3. Mexico

The Mexican government nationalized the operations of the private international oil companies in 1938. In spite of the fact that the event is now almost 40 years old, it is still viewed with nationalist pride as marking the real beginning of Mexican independence. In addition, the Mexican government established a state oil company, PEMEX, which by now has accumulated considerable experience and skill.

The possibility that offshore Mexico may hold large oil reserves and that the Reforma field might represent a major oil field discovery and the consequent possibility that Mexico will become a more significant oil exporter makes a definition of U.S.-Mexican relations important.

PEMEX may be capable of developing Reforma alone, in which case preferential access to the U.S. market might be agreed but here too the issue of preferential treatment must be weighed in light of the fact that the U.S. may be a natural market for Mexican oil. Of course, nothing really prohibits the Mexicans (or the Venezuelans for that matter) from incurring the transportation cost of shipping Mexican

oil to Europe and the issue of preferential treatment must be carefully evaluated.

Should the Mexicans reject assistance in oil development there are a whole host of additional Mexican interests which could be addressed in a special relationship - trade, investment, labor issues, etc. A special relationship of this sort must necessarily cover areas other than energy raw materials and the cost to the U.S. may therefore be higher than a straight oil arrangement. Making such a relationship politically acceptable to Mexico may prove even more difficult than in Venezuela which is not to suggest that an effort in this direction, requiring more skill than the U.S. government has previously evidenced in its dealings with LDCs, should not be forth-coming.

Also we emphasize that as far as the U.S. is concerned the choice is not an either-or one, i.e., selecting Venezuela for a special relationship does not preclude a similar relationship with Mexico. In fact, if a special relationship materializes vis-a-vis Venezuela (or Mexico) the other country may be more willing to negotiate a similar arrangement. If both countries participate, the special relationships might be more politically acceptable.

#### 4. Canada

The U.S. has long had a de facto special relationship with Canada in the energy area. At the same time that Venezuela was requesting a special relationship with the U.S., the Canadians received special consideration in U.S. energy policies. The relationship evolved from the close intermeshing of the economies of the two countries and the special situation of Canada often required special Canadian exemption from U.S. laws. It is understatement to

note that, while recognizing the benefits of the U.S. tie, the Canadians were hardly pleased with their dependence on the U.S. Particularly in the area of natural resources - including oil - the control of these resources by foreigners (largely the U.S.) is an irritant in Canadian/American relations.

In the aftermath of the 1973 embargo, the Canadians took the opportunity to claim Canadian oil for Canadians. The oil export tax was raised and exports to the U.S. are to be progressively reduced as the Canadian logistics system is extended to allow greater inter-provincial flows of oil.

The U.S. and Canada might develop joint projects of interest to both countries - including exploration and development in the Canadian Arctic, U.S. assistance in developing Canada's extensive tar sands deposits, and perhaps some greater degree of cooperation in the nuclear energy area. We may seek with Canada joint efforts in gas transmission; we have agreed upon the terms of a general pipeline treaty. Moreover, the Canadian government now accepts the certainty of its becoming an energy importer as its current sources of oil become depleted. As the full import of this assessment sinks in, we expect fresh efforts by Canadian private and public companies (PETROCAN) to explore on a wide scale. The U.S. - privately and publicly - may find fresh opportunities to assist.

#### 5. Conclusion

All these areas provide opportunities and challenges to U.S. policy. The opportunity is available to substantially shorten U.S. oil supply lines and to reverse the trend of increasing U.S. dependence on Persian Gulf oil. The challenge resides in identifying areas of fundamental common interest on which to build durable and mutually rewarding relations.

F. Saudi Arabia

We have returned repeatedly to the pivotal role of Saudi Arabia and the continuing need to adjust U.S. - Saudi relations in light of Saudi Arabia's increasing importance as the major oil producer with spare capacity in a tight oil demand/supply situation, Saudi influence in OPEC, and the essential importance of Saudi oil supplies to U.S. allies.

Decisions taken by the Saudi regime as to production levels and price will be of exceptional importance. A recent study (Walter J. Levy, S.A. of London) has received widespread notice for it emphasizes the necessity of an early Saudi choice, between one of three alternatives, as world demand rises to meet presently available supply, the limit now placed by Saudis on its production (8.5 MMB/D) is some 3 MMB/D below present capacity. The margin is the crucial factor; according to the study, the practical, available Saudi capacity surplus may be 1.5 MMB/D.

The three alternatives discussed in the Levy London report are to 1) maintain the production limit against the increasing demand; 2) lift the limit, and, 3) lift the limit and raise prices. Exercise of any one of these alternatives would be a signal demonstration of Saudi oil power.

There is a fourth alternative which may be equally attractive at least. The fourth alternative is to lower production on the grounds that Saudi oil revenue is wildly excessive to its needs, that there has been no progress on its insistence that excess revenue invested abroad is

protected against loss in the value of the dollar (or other currencies) and that there is no durable, reasonable rate of return for Saudi Arabia's diminishing resource.

Such a decision, which we would argue is as likely as any of the others, would have several immediate effects on the revenue earned by all OPEC states as a price increase would be inevitable (it would also, of course, bring an increase to Saudi Arabia but the effect on all other OPEC states would be great and could, indeed, be one of the reasons in support of such a Saudi move). The other effect would be ominous in that a lowering of the production level would bring producers and consumers closer to the crunch - where demand bumps sooner against supply and the pressures to get oil would build with danger of "miscalculations."

Against these possibilities, it is extraordinary that neither the United States (nor anyone else) is thought to be knowledgeable enough about the Saudi elite to have a more convincing appreciation of the probable directions of its oil policy. For all of the U.S. vaunted "special relationship," others are uneasy over the signals one Saudi or another flies which suggest that the U.S. has either misled itself into thinking that it knows the Saudi directions, or the Saudis may have misled the U.S. Perhaps it is a case of both. Perhaps there is no unity amongst the Saudi elites on these positions or that the intricacies of the Saudi role in world oil are only now being understood by influential cliques within the Royal Family. The blunt fact is that we do not seem to know, which makes judgments as to the directions and durability of the regime more like guesswork.

This is the place, then, in this Report to be reminded of the principal observations usually made of the Saudi government:

1) The Royal Family is closely linked and there is little prospect of a serious division of interest which would be an opportunity for a coup;

2) even if there were a coup, the Saudi interest in oil revenue would compel them to maintain the flow (and it would be a good idea immediately to assure the U.S., Europe and Japan that this is to be the case);

3) there is no possibility the Saudis can generate amongst themselves the skilled (and unskilled) labor force in sufficient number to realize even a scaled-down version of their development program; imported labor on a very substantial scale will continue to be needed;

4) similarly with "management" skill;

5) there is little prospect that the Saudis could defend themselves against an attack from outside (Iran or, conceivably, Iraq); Saudi dependence upon U.S. support of all kinds is thought to be an essential ingredient in Saudi thinking;

6) Saudis prefer to deal with Americans for a variety of reasons including their experience with ARAMCO;

7) It seems likely the Saudis will not be able to meet their principal development goals in time and that the frustrations attendant to this anticipated failure will be a serious factor in internal clique alignments; and,

8) As long as the golden eggs are distributed generously and with a sensitive hand, the chance of disaffection or envy "getting out of hand" is remote.

What is curious about this list is that it does not seem to be read as containing serious warnings but in toto to be read as "assuring" of stability. Applied to another country, the list would be regarded as almost a prediction of trouble: a vast country of an untold energy wealth which is vital to the needs of great, industrial powers; a regime based upon an extended, near tribal system held together to some degree by loyalty but even more by its access to croesus-like wealth and its "fair" distribution; unable to defend itself without dependence on a very major, external power; a country moving into modern times at break-neck speed with all the superficialities one would expect, dependent to an inordinate extent on large numbers of imported laborers and managers; located in a region where historic issues and relationships seem to tend more to divisiveness and suspicion.

These observations constitute necessary reminders of the weak underpinnings of a group to which the U.S. is so deeply committed, for whose conduct in oil matters the U.S. will be held to have been so very influential. This is the situation--an extremely difficult one - in which the U.S. and Saudi Arabia find themselves, or have put themselves. Whether the relationship is durable, or subject to swift change, is, of course, a key question. Whether the U.S., anticipating difficulties in Saudi Arabia, in the Gulf, and with European allies and Japan over its near exclusive position in this oil giant should modify its relationship has already been discussed (see section on U.S. allies in the Middle East).

G. The Soviet Union and the People's Republic of China

As for the Soviet Union, barring its easy access to the capital and technology and management skills of the oil industry, we do not anticipate its being able to be a major oil exporter to the industrial world within the foreseeable future. Instead, we think it more likely to be the case that the USSR will be forced to import oil -- probably from the Middle East -- to meet its domestic needs until such time as it is able to draw upon the prolific fields said to be in Siberia. As such, the USSR may not

be a serious factor directly complicating Western and Japanese oil supply. As a competitor for relatively small amounts of Middle East production it is not likely the USSR could use "oil" as a source of disturbing influence in the region. Under the circumstances U.S. policy will have to carefully reassess the desirability of providing technical and/or financial assistance to Soviet energy development.

We have warned repeatedly, however, that this situation, prevailing for oil, may not hold for natural gas where the potentially leading suppliers in world trade are likely to be the USSR and the Middle East. It is not so much a case of their gas becoming a major source of energy in Europe or Japan as it is a danger that its selective end-use in the industrial economies could give crucial leverage to the suppliers.

In the case of Communist China, its energy potential is impossible to discuss intelligently in any detail. No one knows, although some claim to do so. Based on the fragmentary evidence accumulated, we think it is more likely than not that China will have its hands full with the priorities and requirements of an economy moving into the petroleum age. Such oil as may be made available for export would not be large enough in volume to diminish significantly Japanese dependence upon the Middle East, for example. Royal Dutch Shell's estimate is that China would be fortunate if it could export as much as 800,000 B/D by 1985. In short, we have not considered China to be in itself an important factor in energy world trade.

PART VII

NUCLEAR

On the nuclear fuels supply issue, the U.S. must move on several points; given assumptions accepted in this Report, of the likelihood of a shortage of ore and of enrichment facilities, and the probability that the present lead of U.S. technology will be progressively diminished, the time within which the U.S. can exercise nuclear "muscle" is confined to no more than the next decade or two. Other countries will not wait for the ore shortage to exist or the closing of the technology gap to undertake their own initiatives to assure supply; anticipating these developments and recognizing the long leadtime needed directions will be charted in nuclear energy acquisition. We have seen evidence of this in many places.

Nevertheless, the intimate relationship between nuclear energy for war and peaceful purposes compels the U.S. to move with great firmness towards the adoption of its concept of international, regionally-located fuel enrichment and other processing facilities. The difficulties lie in three directions: (1) the interest of Germany, France, the U.K., Japan and the U.S. governments and industries to develop major stakes in the provision of commercial nuclear plants; (2) the interest of nuclear to-be industrial and developing states who see in their capture of the whole fuel cycle both the symbol of modernity and the means to be in weaponry; and, (3) the potential uranium ore exporting nations -- such as South Africa, Australia, Canada, Gabon, etc. -- who have every reason not to export the ore itself, but as fuel. For all these varied interests, the otherwise obvious attractions of regional processing centers begin to fail.

The convening of the "Suppliers Club" of the leading nuclear - advanced countries has been, presumably, to define the terms on which nuclear energy for peaceful purposes is to be made available to LDCs (and other industrial states). There are those, of course, who ask if this is not another OPEC-in-the-making; and, of the apparent attempt of uranium ore producers to conspire, another comparable undertaking. These assertions raise many complications. The one we single out is both a warning - and an alert for the seizing of a possible opportunity: it seems likely that nuclear energy will become a topic in energy discussions previously limited to oil; the demand for one will be linked to the other. Carefully and imaginatively handled, there could, for some nations, be a constructive link forged which would put energy generally, and not specifically one source or another, into a more general world economic setting.

Surely it should be possible to create a process whereby the equipping of a number of regional fuel centers could be allocated to suppliers leaving them to compete on the reactor level. If it is not possible to attract ore-exporting nations to the regional centers then it may be necessary to examine the potentialities for "special relationships" between the U.S. and exporters to assure the U.S. of adequate uranium ore. We know that other states are actively considering such commitments. Most recently, the Japanese government has undertaken an effort to explore and develop Indonesian uranium supply potentials. Japan has similar intentions with Canadian uranium resources. The examples will multiply. If so, most of the observations pertinent to such special relationships for oil are as valid for uranium (See section on special relationships).

Finally, the creation of national banks of uranium ore, most advantageously after some degree of processing, is as fundamental a security need as is an oil strategic reserve. The difficulty of each nuclear power attempting such is comparable also to the problems raised by major oil importers who wish to create, all at the same time, a strategic reserve when available supply may not permit it.

PART VIII

EPILOGUE - POLICY RECOMMENDATIONS

With regard to reducing U.S. vulnerability to possible emergency situations, the U.S. should:

1. Maintain the International Energy Program as a symbol of the unity and commitment of the industrialized countries. Continuing and necessary efforts to strength the International Energy Agency by defining its functions and possibilities in more realistic ways than has been the case to date are essential.
2. Establish with the utmost urgency the Strategic Reserve which has already received Congressional authorization and requires now intensified effort. In order to enhance the value of such a Reserve, U.S. allies should be encouraged to establish their own Strategic Reserves. Additional work is still needed on defining and measuring adequate Strategic Reserves.
3. Establish a watch over tankers, including particularly the future availability of the smaller tankers which continue to play the major role in transporting U.S. supplies and products tankers, which may be in short supply or under producing state control as increasing quantities of oil flowing in world trade will take the form of products rather than crude.
4. Establish a watch over refining capacity given the possibility that U.S. excess capacity (when Caribbean refineries are included) will vanish in the near future and U.S. products demand will have to be met from European refineries. In addition, if the OPEC countries do enter the refining phase in a big way, the European refineries themselves may be "uneconomic".

In addition to these "defensive" measures more fundamental, long-term actions should be taken to reduce U.S. vulnerability deriving from the geopolitics of energy. Actions designed to limit the need for imported energy supplies and actions designed to secure access to those supplies which are vital must be developed.

1. Of primary importance is the need for a comprehensive National Energy Policy which implies the need for a greater government role in coordinating, overseeing and encouraging energy developments in directions consistent with the U.S. national interest while reducing the prevailing uncertainty which discourages private initiative. Given the interrelationship between all aspects of the energy equation and the need for actions to occur in a timely manner, a comprehensive National Energy Policy is the first priority.
2. In order to arrive at a National Energy Policy changes in government organization may be required; the implementation of such a policy however, is dependent on the centralization of governmental energy functions and responsibilities. We recognize that work has been done with regard to the changes in government organization necessary to an effective energy effort; to date this consideration has been limited to the study phase. The need now is for action. We recommend:
  - a) Creation of a Department of Energy within the Executive Branch whose Secretary should be a statutory member of the National Security Council. This helps assure Defense participation in "energy";
  - b) Presidential appointment of the Chairman of the Council of Economic Advisors or the President's Assistant for Economic Affairs, as the Chairman of the Energy Resources Council;

- c) Organization of the Legislative Branch's oversight into a Joint Committee on Energy subsuming all other jurisdictions;
  - d) Reformation of the regulatory processes;
  - e) Re-examining the question of energy competence in government; and,
  - f) A related effort, but on the part of private, non-energy-industry interests, to mobilize public support for necessary energy policies.
3. In terms of the specific elements of a National Energy Policy, we support actions which have been identified in the past by others but which clearly require greater commitment and action than they have received to date, including:
- a) The intensive development of coal;
  - b) The search for indigenous and hemispheric supplies of oil and gas and uranium ore;
  - c) The maximization of efforts to bring nuclear energy into the economy on widely-accepted terms;
  - d) The intensification of energy research; and,
  - e) The conservation of all fuels and their highly selective use.
4. Possible relationships between government and the international oil companies must be thoroughly explored. In some areas, where the necessary developments are beyond the capabilities of the private sector the role of government may be essential. The American government-business relationship must be compared to the relationship existing in other countries to assess the U.S. competitive position. There are other questions as well. Merely to suggest a greater government role, says little about the role, capabilities and opportunities of the private sector.

U.S. security interests extend to include the continuing and inescapable dependence of U.S. allies on energy imports. The U.S. must be cognizant of the greater dependence and fewer options facing the other industrialized countries which makes them extremely sensitive to U.S. actions in areas where their interests are so much more heavily at stake. This situation makes for divisiveness in the Western alliance and calls for greater U.S. responsiveness to the needs of its allies.

1. We believe that the U.S. has energy options it should maximize and to this end we recommend that the U.S. should:
  - a) Reduce its involvement in the Persian Gulf oil market;
  - b) Develop possible oil and energy sources closer to home, particularly with regard to assessing the potential for "special relationships" with Canada, Mexico and/or Venezuela; and,
  - c) Take the lead in proposing multilateral public/private development of potential Arctic sources of oil.
  
2. The U.S. should reassess its relationship with Saudi Arabia and, while making clear beyond any doubt that U.S. interests are heavily involved in the country, the U.S. should make equally clear to its allies its intention of maintaining an "Open Door" policy in a country of such consequence to them. The Saudis, of course, retain the real ability to establish or break relations with any and all nations as it judges to be in Saudi Arabia's national interest and this is as it should be. We are speaking here only from the U.S. perspective.

We believe that the issue of access to oil is closely related to developments in "North-South" relations in general and the new international relationships evolving from the "North-South" dialogues.

1. It is therefore, necessary to reassess the U.S. position in this area. It seems unlikely that the continued conviction of the LDCs that the U.S. is the major stumbling block in the way of a new international economic order is in the U.S. interest in a world where access to raw materials and energy raw materials will be determined by new relationships now evolving.

U.S. allies may not be opposed to the U.S.'s

self-styled spoiler role (although this may be moderating) since it spares them the need to make costly concessions to the LDCs while it does not preclude European and Japanese agreements with the LDCs from which the U.S. may be excluded.

2. We do not propose resignation to LDC demands but rather continued hard bargaining based on changed circumstances in which access to raw materials will nevermore be determined automatically by the needs of the industrialized world.

Finally, with regard to the Soviet Union, which probably enjoys the most favorable energy resource endowment of any of the major powers, including the U.S., we propose that:

1. the United States government and private interests refrain from extending technical and/or financial assistance to the USSR for the development of Soviet energy resources.
2. the United States should monitor closely the trends in Soviet gas exports to Western Europe and Japan and the export of Middle East gas to these same areas through the Soviet pipeline network. In addition, U.S. gas imports probably are quite justifiably limited. The security implications of the dependence of important segments of the industrialized countries' economies on Soviet gas or Middle East gas subject to potential Soviet control are obvious.