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"Oil Prices and the Future of OPEC"

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Mr. Chairman:

In your letter of invitation to appear today you suggested that I might be able to use research I have been conducting under the sponsorship of Resources for the Future to address two questions of interest to your Committee, namely: 1) what will life with OPEC be like for the United States (and for the world) over the medium term in the future? And 2) will the glue that binds OPEC together continue to stick?

My calculations suggest that the answer to the first question is fairly straightforward. Life with OPEC will be difficult and painful. Adjusting to the emergence of OPEC does not mean having to accommodate to a one-time increase in the price of oil, which is now over. Rather it means having to face a regular and steady push toward higher real prices for petroleum this year, next year, and each year in the future. This appraisal is not contradicted by the apparent "moderation" of OPEC in this year: a 5%-10% increase in oil prices in the first half of 1977, followed by another increase later in the year.* Had the economic recovery been stronger in the OECD countries, as Sheik Yamani admitted, Saudi Arabia would have gone along with an even greater price increase. The most optimistic prediction one can make about OPEC behavior between now and 1980 (and beyond) is that the price of oil will rise <u>in real terms</u> as fast as the macroeconomic policies of the major industrial

* For an appraisal of the impact of the two-tier price system on OPEC, see infra., pp.

countries can adjust. That could mean an average annual price jump of 10% to 15% above the OECD rate of inflation.

The answer to the second question is more ambiguous. To keep prices high (or raise them higher) will require OPEC to absorb larger and larger amounts of spare capacity in the late 1970s. In the past most of this spare capacity has been able to be shunted off, with only a small amount of tension, onto OPEC members for whom the marginal utility of the revenues foregone was near zero. Before the end of the decade, this will no longer be possible. Instead, approximately 6 mbd of idle facilities will have to be held by governments who feel they "need" the revenues those facilities would generate. This has implications that are not now widely appreciated. A large amount of spare capacity in the hands of governments who would like to use it is a tremendously unstable situation for a producers' group that is trying to restrict production. It renders the group vulnerable to the efforts of consumers to play one producer against another and thus weaken the group's ability to collude. But it does not ensure, by itself, that OPEC will break up. Indeed the rational way for OPEC to respond to this vulnerability will be to establish a system of explicit pro-rationing, with a faithful commitment to higher prices being the reward for the members accepting the decision on who must accept how much spare capacity.

Thus, life with OPEC over the middle term will be costly and difficult. But, between now and the early 1980s, the oil-importing countries (led by the United States) will face an unprecedented opportunity to moderate the impact of the energy crises that otherwise will surely come by applying a little solvent to the glue that holds OPEC together. This will require establishing procedures to reward differentially those members who choose to alleviate their financial "squeezes" by expanding volume rather than by restricting it. If the oil-importing countries do not seize this opportunity, however--specifically if the United States continues to drift along with no identifiable energy policy in the vague hope that the energy crisis will somehow disappear--they will find themselves having to shift ever larger annual amounts of real resources to the OPEC nations with traumatic implications for the Third World, for the Fourth World, for the weaker industrial countries and for the international financial system as a whole.

I.

Let me turn to the analysis of these points.

What will life with OPEC be like over the medium term? Since 1973 the conventional prediction in the U.S. government and in private business circles has been that energy prices would remain level, or decline slightly, in real terms between the date of the prediction and 1980. This seemed a reasonable expectation as long as the OPEC countries were awash in petrodollar revenues, supposedly unable to "absorb" them and searching anxiously for ways to recycle them. But the conventional prediction will prove false precisely because constant real oil prices will not generate enough revenues to finance programs that civilian or military elites in the OPEC countries consider too important to give up if they have any choice in the matter.

The perception about the extent to which the oil exporting states will "need" petroleum revenues for their government budgets has taken a quantum leap since 1973 for three reasons: 1) there has been a worldwide explosion in the cost of heavy equipment and construction; 2) the diseconomies of scale of rapid growth have proven very great in the OPEC countries; 3) the goals that the OPEC nations have set for themselves ("development," "welfare," "defense," international "influence") have proved to be enormously expensive. As a result the "Development Plans" of the major OPEC governments would be, if carried out, prohibitively costly. But that is an unrealistic standard--such Plans were typically too grandiose to begin with. What is striking is that even small fractions of the economic, social, and military plans of the major OPEC governments will be too costly to finance if oil prices "only" remain constant.

Iran, for example, planned to spend $112 billion between 1973 and 1978 to lay the foundation for a modern state before the country's petroleum capacity begins to dwindle in the mid-1980s. The Iranian Plan and Budget Organization projected a net revenue surplus, after the completion of all projects, of more than $11 billion. But before the end of 1975 the Iranian government already faced both balance of payments and fiscal deficits. A recalculation of the cost of the programs more realistically suggests that the total Plan will cost at least 50 percent more than the initial estimate of $112 billion dollars. Of this jump, approximately 15 percent will be due to the higher price of imported goods if current trends continue; 35 percent will be generated internally. Even if Iran is able to export oil at full capacity from 1976 through the end of the Five Year Plan with oil prices rising no more than the 15% decreed by the majority of the OPEC members for 1977, it will still be able to finance only about half of the civilian projects contemplated by the Plan and perhaps even a smaller fraction of the military and internal security programs desired by the Shah. At the same time, the authorities in Tehran are facing pressures for additional programs--food subsidies, public housing, rural development--that are needed to retain the present level of domestic political stability. Iran has, not surprisingly, been the forefront of those oil exporting countries pushing for dramatically higher oil prices.

Saudi Arabia is discovering that its oil earnings are buying even less than the Iranians when measured against the original expectations of the Central Planning Office in Riyadh. The Five Year Plan announced for 1975-1980 was supposed to cost $142 billion. In fact it will cost much more than double that figure. (Of the rise in program costs in the Saudi plan, 5 to 10 percent have thus far been "imported inflation." The remainder can be attributed to domestic causes). Few outside analysts thought that the timetable contemplated in the plan was even faintly realistic. Now subsequent calculations indicate that even if the Saudis were to stretch out the plan over a twenty-year period, and drop many projects altogether, they will still have to earn more than $30 billion per year to finance their budget on a current basis. Even if Saudi authorities drop their expectations about economic development dramatically (especially industrial development that requires the use of foreign workers), place no more than moderate priority on national defense and popular welfare, and maintain their interest in domestic stability and the ability to influence intra-Arab affairs (via aid) at current levels, they will have to finance programs at a rate of $30-35 billion (1976 prices) in the late 1970s-early 1980s. Should oil prices rise no more than 5%-10% in 1977 and remain constant (in real terms) thereafter, the Saudi government will have to export 8-9 mbd per year to cover its expenditures or else draw down its financial reserves at a very fast rate. (With massive cutbacks and stretch-outs of programs, Saudi financial reserves will probably peak in 1978 at not much more than $50 billion and decline steadily after that).

But what about those in the royal family or in the Council of Ministers who dislike the high level of economic activity and the pace of public spending in Saudi Arabia, and who would like to go back to the relative quiet of the pre-1973 period? Or what about the assertion, made by Sheik Yamani and others, that Saudi Arabia could cut production to 3 mbd, or even 1 mbd, without feeling the effects? Due to the high current level of official reserves, the Saudi government could easily do this for a short period of time. Thus the threat should be given serious consideration in the event of another Middle East war (although the behavior of other oil exporters with excess capacity at the time would be crucial to the effectiveness of a Saudi production cut). As a longer term strategy, however, one has to weigh the credibility of the Yamani assertion against the kind of domestic upheaval that might result against a future government that tried it. A Saudi government that had already stretched the country's Five Year Plan out over 20 years (and placed stringent limits on the spending of ministries concerned with national defense, economic development, or social stability) would, by 1979, have an annual budget of $26 billion remaining even if it suddenly reduced expenditures on new infrastructure, gas gathering, and industrial projects to zero. That would require exports of 6.4 mbd to finance on a current basis. It could cut its budget to $24 billion by also stopping new municipal water projects completely and eliminating the entire food subsidy program. That would require exports of 5.9 mbd. It could cut its budget to $20 billion by also firing half of the bureaucrats in the Saudi administration. That would still require exports of 4.9 mbd. It could cut its budget to $17 billion by also stopping all foreign aid (predominantly to other Arab states). That would require exports of 4.2 mbd. It could cut its budget to $14 billion by also eliminating all expenditures on military construction and equipment. That would get to the 3.5 mbd mark. And so on.

The record of survival for regimes that try to stop, or reverse, the process of social mobilization and rising expectations once it is started should not recommend this as a promising strategy for a monarchy.

These projections do not mean, of course, that Saudi Arabia will have any inclination to break away from OPEC if its export level does not earn the country $30 billion each year. It simply means that below that level the Saudis will either have to expand their market share at the expense of their OPEC colleagues or to become more sympathetic to the urgings of their fellow members for an escalation in the real price of oil.

Prominent among those members will be the high-population, high-mobilization societies -- such as Algeria, Indonesia, Nigeria, Iraq, and Venezuela. Before 1980 ten or eleven of the thirteen members of OPEC will likely be facing current fiscal deficits. Indeed, depending upon how the market for OPEC oil is divided, all thirteen countries could be experiencing deficits.*

II.

What will this financial squeeze do to the "glue" that holds OPEC together?

OPEC's approaching financial squeeze could be, paradoxically, either the catalyst for the producers' association to perfect its structure as a cartel, or the opportunity for the major oil-importing countries to weaken the ability of the association to collude and thus moderate the impact of the continuing energy crisis. The most plausible calculations of demand for OPEC exports in 1980, for example, indicate a figure of 29-30 mbd (million barrels per day oil equivalent) at current prices, including oil, natural gas, and petroleum products.** With the expanding

* The measure here is fiscal dificits, not balance of payments deficits which will lag somewhat behind fiscal deficits, depending on the country. For the assumptions about the rate of growth of non-petroleum revenues during the simulation period, see Moran, Oil Prices and the Future of OPEC: the Political Economy of Tension and Stability in the Organization of Petroleum Exporting Countries, (Washington: Resources for the Future, in progress 1977).

** On the demand side, the "base case" in my study assumes an aggregate growth in (non-Communist) world energy demand of 4% per year. The projection is consistent with an average GNP growth of 5.0% per year, with an income elasticity of energy consumption of 1.0, a price elasticity of -0.15, and an appropriate lag effect as an energy-intensive capital stock is replaced by less energy-intensive capital goods. On the supply side, the "base case" includes cautious assumptions about output, such as a steady decline in U.S. "lower 48" oil and gas production even with price decontrol, a continuing slowdown in nuclear construction, a one year delay in the Alaskan pipeline, Mexican oil production of only 1.1 mbd in 1980, Egyptian oil production of only 0.5 mbd in 1980, Chinese oil exports of only 0.5 mbd in 1980. From this "base case" comes the figure of 6.1 mbd of spare capacity in the hands of governments for whom the marginal utility of the revenues foregone is high. Under three plausible alternative scenarios unwanted spare capacity rises as high as 8.9 mbd. Under four plausible alternative scenarios unwanted spare capacity drops as low as 5.3 mbd. Only if demand is substantially higher than 4% per year and supply is substantially lower than the cautious projections made in the base case does spare capacity drop below 3.0 mbd.

With the expanding appetite for revenues, this will mean that by 1980, with a 5%-10% price rise in 1977 and constant real prices thereafter, OPEC will have to absorb not merely 17 mbd in aggregate spare capacity but more than 6 mbd of spare capacity in the hands of governments for whom the marginal utility of the revenues foregone is high. While the near-term matching of OPEC revenues with perceived OPEC needs will be close, the medium-term prospects -- after Alaskan, North Sea, and other sources come on-line -- portray a far different picture. In the late 1970s and early 1980s, the market will be a mirror-image of the post-1973 market, with more sellers than there are buyers at the given OPEC price.

Does this mean that OPEC will fall apart spontaneously and the energy crisis thereby disappear? Such a hope surfaces perennially in Washington as government officials try to persuade themselves that if they do nothing the problem will vanish.* But there is little justification for it.

* Indeed, there is occasional wishful thinking that the present two-tier price system constitutes the beginning of OPEC's break-up. While the next six months could highlight the potential for extreme tension that exists among the OPEC members, and indicate how disruptive a Saudi Arabia that refuses to act as a residual balancer to accommodate the price level decreed by the other members could be, the probable outcome will be merely a price rise very close to Saudi Arabia's 5% rather than the beginning of a "break-up."

If the two-tier price system continues through the first quarter of 1977, the eleven members of OPEC who try to hold their price rise at 10% will suffer an aggregate net revenue loss of 16% in comparison to a rapid capitulation to the 5% level. In terms of the strain on their budgets, their tax receipts will be running a full 25% behind what they were in the second half of 1976. For some countries, such as Iran, Kuwait, and Venezuela, whose heavy crudes compete directly with Saudi Arabia's the net revenue loss could be much greater. For this reason, if Saudi Arabia holds firm to its rumored production intentions and if the oil companies are aggressive price shoppers, I would expect the eleven to discover rapidly that adopting the 5% formula (openly or covertly) will be in their own best interest.

Analysis: For the aggregate net revenue loss

1. Demand for OPEC exports in the last quarter of 1976 was about 32 mbd with an inventory build-up of 3-4 mbd, for a "real" demand level of approximately 29.5 mbd.

2. Demand in the first quarter of 1977 will equal about 29.5 mbd minus the inventory drawdown of about 3.5 mbd and minus almost 0.5 mbd in fewer bunkers, or 25.5 mbd.

3. I assume that if all the OPEC countries had adopted an equal 5% price rise the Saudi share of the market would be about 7.0 mbd and the Abu Dhabi share about 1.2 mbd, for a market of 17.3 mbd for the other eleven (25.5-8.2).

4. If, instead, Saudi Arabia increases its production to 9.8 mbd and Abu Dhabi to 2.0 mbd, the market for the other eleven will be 13.7 mbd (25.5 - 11.8).

5. Thus the eleven lose 3.6 mbd in volume or 21% (3.6/17.3), but gain 5% in price (a rise of 10% instead of 5%) for a net loss of 16% in revenues.

For the quarter to quarter comparison

1. Demand for OPEC oil in the first quarter of 1977 will equal (from above) 25.5 mbd.
2. If Saudi Arabia exports at 9.8 mbd and Abu Dhabi at 2.0, the other eleven members of OPEC will share a market of 13.7 mbd.
3. During the last quarter of 1976 Saudi Arabia exported at a rate of 9.2 mbd and Abu Dhabi at 1.6 mbd, leaving the other eleven a market of 21.2 mbd (32.0-10.8).
4. Thus, the eleven will have a market 7.5 mbd smaller (21.2-13.7) or 35% less (7.5/21.2) than the last quarter of 1976.

5. With a gain of 10% in price, they suffer an aggregate net revenue decline of 25%.

It is based on the assumption that, instead of gaining experience and sophistication in the years since 1973 (or, indeed, since 1971), the OPEC members will be less skillful in balancing supply and demand in the future than they have been until now. More plausible is the expectation that, if left to themselves, the OPEC countries will do what is most rational from the point of view of their own self-interest: namely, assign explicit market shares and reward compliance (as well as ease internal tensions) with generous and dependable price hikes.

Will the United States be able to rely upon the "special relationship" with Saudi Arabia that has been the centerpiece of Secretary Kissinger's approach to OPEC? This will be a policy approach of increasing fragility over the next three or four years, especially if the United States continues to ignore the sources of strength that reinforce its own position in that relationship. As the real or perceived revenue needs of the OPEC governments mount, the Saudis will become caught, unavoidably, in having to make a zero-sum choice: either to side with the other members of OPEC that are cutting back on development projects and are angry about the cost of industrial equipment and weapons imported from the West, or to provoke their wrath by following a unilateral policy designed as a favor to the United States, Europe, and Japan. Thus, reliance upon the gratuitous goodwill of a "moderate" Saudi Arabia assumes that the Saudis will regularly and dependably put the interests of consumers above the interests of their fellow producers, Arab and non-Arab alike, and stand ready, at the same time, to withstand the mounting wrath of their neighbors and fellow exporters (a wrath the depths of whose intensity is being demonstrated only mildly in the first quarter of 1977). More plausibly, Saudi Arabia will probably limit its role as a "moderate" in the future as it has in 1976-7 to ensuring that the shift of resources demanded by the other members of OPEC is kept within bounds that does not "strangle" or "destroy" the strong, developed economies of the West.

How high might an explicit OPEC cartel be likely to raise oil prices? Since even the scaled-down versions of the OPEC development plans would require more than a doubling of the oil price in real terms by 1980 (under the most favorable assumptions about supply and demand elasticities), and since a doubling of the oil price would be counterproductive if it produced another severe recession in the West, the primary constraint on the cartel's price strategy would probably be the fear of an adverse impact on industrial activity in the OECD countries. Thus, depending on how well the macroeconomic policies of the U.S., Europe, and Japan will be able to cope with the strain, OPEC price raises might range from "only" 5% when the large Western economies are shaky (or when OPEC members want some political favor like pressure for a favorable Middle East settlement) to 10%-15% above the rate of OECD inflation when the large Western economies are relatively robust.

While this push will ultimately be constrained by the price of substitutes (for example, shale oil or gasified coal), it could in the meantime have a severely adverse impact on the weaker OECD economies, such as Italy and the United Kingdom, and a devastating impact on the Third and Fourth Worlds.*

III.

What are the policy implications of this analysis for the United States?

There are three principal implications for U.S. policy: 1) the energy crisis is not dead. It is only resting, and will soon reappear with potentially more devastating consequences. (For example, the apparent "ease" with which Third World countries have expanded their debt to more than $130 billion since the 1973 oil price jump does not mean that future increases in their import bills will be handled with equal ease. Instead, "ease" in financing the last round means that future rounds will be much tougher to finance).

2) Relations between the major oil-importing countries and OPEC will, necessarily, become more tense and strained in the next years as both sides realize that (while neither wants to kill the goose) they are engaged in a largely zero-sum struggle for real resources that each side feels is necessary for its economic health, social welfare, and national power. There will be no easy, amicable resolution to the problems in the relations between the oil-exporting and the oil-importing countries.

(There is one heartening corollary to the above point. The "financial

* The non-OPEC LDCs "lose" about $13 billion per year on account of the past increases in oil prices, and "gain back" about $5 billion per year in aid from OPEC (with over half of that going to Arab states). The analysis presented here suggests that the opportunity cost of giving aid will rise for most members of OPEC over the next 5 years -- that is, foreign aid will constitute an increasingly sharp "sacrifice" in terms of other programs foregone. Thus one would predict a <u>declining</u> rather than a rising level of foreign aid from OPEC between now and the early 1980s. Indeed the decline has already begun. Iranian aid dropped 41% if one compares the budget for 1975-6 (1354) with the budget for 1976-7 (1355).

squeeze" projected for OPEC means that the petrodollar surplus "problem" is vanishing as abruptly as it appeared, and the justification for pushing every possible policy designed to sop up those petrodollars (especially selling massive amounts of military arms) has disappeared.)

3) The balance of power is not inevitably tilting, however, in favor of the OPEC countries. The need for oil exporters who desire higher revenues to absorb large amounts of spare capacity will render OPEC vulnerable to the possibility of the oil importing countries playing one producer off against another. (As a corollary to this point, conservation measures in the United States plus efforts to stimulate non-OPEC sources of supply will in the future greatly complicate OPEC's future ability to operate as a cartel. A few years ago Secretary Kissinger's call for conservation measures to reduce U.S. consumption by 1 mbd died a quiet death within the Ford administration as other advisers warned that the sacrifice of American consumers could easily be matched by an offsetting reduction in Saudi output that would, if anything, be welcomed by Saudi financial authorities. By the late 1970s this will no longer be possible for Saudi Arabia).

How might the oil-importing countries, led by the United States, strengthen the power they have to countervail OPEC's pressure for higher prices?

The tactical options range from open confrontation (which would probably be both inefficient and undesirable) to quiet subtlety. But the strategic principle would remain the same: to weaken the ability of the OPEC members to collude by rewarding differentially (in economic, political, and military terms) those members who choose to augment their revenues by expanding output rather than by restricting it.

Economically, it could include the plan suggested by M.A. Adelman, for example, to auction import tickets for the U.S. market by secret bidding.* This system would favor any hard-pressed government anxious to expand its market share by discounting its price, while giving OPEC as a whole minimal opportunity to monitor either who the cheaters were or how large the discounts became. Since Professor Adelman is here today I shall not elaborate on the pro's and con's of this system, except to point out that the intensification of the spare-capacity-cum-financial-squeeze problem within OPEC will create a favorable environment for its success. With 6 mbd of idle facilities in the hands of governments that need the revenues those facilities produce, there will be a continuous buyers' market, with more sellers anxious to dispose of their product than there are customers.

Politically and militarily this approach could make the continuation of crucial services provided to OPEC countries by American suppliers contingent upon certain production or price targets being met over specified periods of time. The operative wisdom in the U.S. government at the present time is that any good or service supplied by Americans would be instantly and painlessly provided by others if the U.S. government threatened to stop or slow its provision. For some goods and services that is certainly true. But for others it is patently false. Clearly there is a spectrum from housing construction carried out by private American companies (which

* M.A. Adelman, "Import Quota Ticket Auctions," Challenge, January-February 1976.

could be easily replaced) to sophisticated military equipment and intelligence information provided by American government agencies (which could not be replaced at all). The United States currently has extensive commercial, financial, labor, communications, cryptographic, engineering, cultural, educational, managerial, military, and intelligence-sharing programs with the governments of Iran and Saudi Arabia, for example. Yet it has never taken an inventory of how many of these could be replaced, at what cost, with how long a disruption, and with what reaction among pro-U.S. elements in the civilian and military elites if the United States were forced, because of OPEC policy, to make an "agonizing reappraisal" of the structure of relations between ourselves and either of the two countries.

In the case of Saudi Arabia, there are both price-hawks and price-doves influential in the governmental hierarchy. The price-doves argue that from the point of view of the country's national interest the only way to retard Iran's military expenditures and curb its imperial ambitions is through preventing oil prices from rising. These voices could be strengthened with carefully orchestrated American encouragement.

The main point to be considered as the U.S. government (both Congress and the Executive) begins at last to give energy policy the priority it deserves is that OPEC will be pressing for ever higher real prices for oil. The United States can remain passive only at great economic and political cost. It must begin to develop the tools to counteract that pressure.