CHAPTER II PRESENT OUTLOOK AND CURRENT CHOICES

A. U.S. ENERGY ALTERNATIVES

Although the United States is not now, nor is it likely to be in the next 10 years, experiencing massive fuel shortages, it is beginning to experience various fuel-specific shortages. Domestic oil and gas supplies are inadequate to meet demand at current prices. Thus, oil and gas must be imported leaving the United States vulnerable to embargoes. Even with optimistic projections of supply, domestic oil and gas production will be inadequate to meet total demand at all but the highest of prices. Although the United States does have massive reserves of energy - in the form of shale and coal - these resources will not be rapidly developed to supplement conventional oil and gas supplies in the near future.

Assuming it is desirable to achieve some level of energy self-sufficiency, the United States must:

- Change the demand pattern so that it corresponds more closely to the domestic energy supply;
- Modify domestic energy supply to more closely correspond to the demand pattern.

While modification of the demand pattern is possible through conservation and fuel switching, there are some constraints limiting the rate of change. The major limitation is due to the fact that, until a few years ago, major investment decisions were predicated upon inexpensive energy. This has left the United States with enormous capital investments that rely heavily upon the inexpensive availability of oil and gas. The capital investment needed to make major changes in homes, industry, and transportation is large and would mean major dislocations if an overly rapid transition were sought.

Modification of the energy supply, can be achieved by creating liquid and gaseous fuels from coal, shale and organic wastes, and by

speeding the production of domestic oil and gas and bringing nuclear power on line faster. This additional energy supply would provide flexibility in choosing between restricting demand, undertaking rapid major investments, consuming imports or producing synthetic fuels. In this manner, time would be gained and a transition from conventional oil and gas to other energy forms might be achieved with minimal disruptions.

As the United States approaches a point of decision regarding its long-term dependence upon foreign oil and the actions that can be taken domestically to reduce this reliance, there are certain basic choices to be made. The extent of Government involvement in the development of new energy sources, in reducing the demand for energy, and in preparing for future emergency situations must be determined. Generally, there are two principal approaches: free market solutions, and Government intervention solutions.

B. FREE-MARKET SOLUTIONS

Under the free market approach, supply, demand, and price for oil (and other competing energy resources) would be set by the market without government intervention. No projected energy future can be considered as a truly free-market situation, since some controls on energy production operations and the availability of many of the potential sources of energy such as imports are in Government hands. Thus, two very different situations under which a free-market might be allowed to operate would exist -- with unlimited imports and with restricted imports.

1. Unlimited Imports

If there are no new Government actions other than decontrol of old oil prices and deregulation of new natural gas, oil imports are expected, by the year 1995, to grow to about 11 million barrels per day (mm b/d). This represents more than 50 percent of the 1985 domestic petroleum demand. However, if the world oil price stabilizes at a high figure, demand would be reduced and domestic supply would increase to bring petroleum import levels below 5 mm b/d.

Natural gas supplies are also expected to fall considerably short of demand at current regulated prices. Even under optimistic assumptions of gas supply, shortfalls of 4-6 trillion cubic feet (tcf) may be expected in the next several years. Such shortages would amount to about 20 percent of projected demand assuming that all interruptible uses of gas are curtailed and that all current Canadian imports (about 0.9 tcf) are discontinued. Without curtailments of all interruptible uses of gas, 1985 gas import requirements could be as high as 10-12 tcf, or about one-third of an unconstrained demand of 32 tcf.

While there would be ample world supply sources for oil, and liquified natural gas supplies could be made available, the impacts of such a large import dependency could be severe. Unless very large new domestic supply sources were to be discovered and developed, most of the increased imports would have to come from insecure Middle-Eastern sources. Such imports would be subject to cut-offs, large price fluctuations, and could be used to influence U.S. foreign policy. A cut-off of foreign oil or gas supplies, if the nation was import dependent for 30 to 50 percent of its energy needs, could result in severe economic and social impacts. At current prices (1975 dollars), the yearly outflow of dollars for 10 million bbl/d of oil and 5 tcf of natural gas is approximately $55 billion.

2. Restricted Imports

As an alternative to unlimited imports, there have been a number of proposals to restrict the amount of imported oil allowed. Such restrictions could be either broad or selective (only restrict "insecure" sources), with unsatisfied demand being met by allowing prices to rise or allocating in some manner the shortages among users.

If imports were restricted to about 6 million bbl/d, using the price mechanism to meet the shortage could result in large price increases with significant negative effect upon GNP. (This will be discussed in more detail in Chapter V). Furthermore, relying on allocations would

almost certainly lead to rationing. It is clear that a policy of import restrictions can only be accomplished if other actions are taken to increase supply and reduce demand. Taken alone, import quotas would have a severe and probably unacceptable impact on the economy.

C. GOVERNMENT INTERVENTION SOLUTIONS

The use of the free-market, while desirable, is unlikely to result in acceptable levels of import dependency and domestic oil and gas production. The Government is already involved in a number of aspects of energy production or consumption. It makes Federal lands available for exploration and production, permits the siting of energy facilities, funds energy research and development efforts, sets energy conservation and environmental standards, and consumes large amounts of energy.

The United States could reduce the need for imported oil to less than 5 million bbl/d by 1985 if the Federal Government takes an active role in increasing supply or reducing demand. Analyses have indicated that both supply and demand actions would be needed and that a program designed solely to increase supply or solely to reduce demand would not be successful. These conclusions led to the formulation of the President's energy program for 1985. To increase supply, the President has recommended the following actions in his State-of-the-Union message:

- Explore, develop, and produce oil from the Naval Petroleum Reserves. In particular, NPR-1 (Elk Hills, California) could produce 400,000 barrels per day in 3-4 years, and NPR-4 (Alaska) could produce 2 million bbl/d by 1985.

- Accelerate development of the Outer Continental Shelf in the frontier areas of the Atlantic, Pacific, and Gulf of Alaska. This could add 1.5 million bbl/d by 1985.

- Increase the use of coal by converting oil-fired electric generating capacity to coal. These actions, carried out consistent with public health standards, could reduce oil imports by 400,000 barrels per day for utilities alone with industrial conversions saving another 300,000 to 500,000 barrels per day.

- Facilitate the licensing and siting of nuclear power plants to reduce the need for oil and gas in electric power generation.

- Encourage and support the development of alternative energy sources, such as synthetic fuels, solar and geothermal power.

- Modify Clean Air Act standards to enable greater use of coal-fired capacity.

These actions could combine to increase effective domestic supply by about 5 million bbl/d by 1985. In the near-term, however, none of these actions will result in significant new production.

To reduce further energy imports, the President has proposed needed measures to restrain demand. These include measures to:

- Increase the value of energy with respect to other goods, through higher taxes and decontrol. These actions could save over 2 million bbl/d by 1985.

- Establish automobile efficiency standards. This could save 1.0 million bbl/d by 1985.

- Provide a tax credit for insulating existing buildings to save 0.3 million bbl/d.

- Set mandatory national thermal efficiency standards for building to save 0.3 million bbl/d.

- Set appliance efficiency goals to reduce imports by 0.3 million bbl/d.

These actions would also reduce demand for coal and could free more coal to replace oil and natural gas.

For the period 1985-2000, additional possibilities exist both for supply enhancement and conservation. Given that it is not reasonable to

assume that total energy use will not increase over this period, the potential importance of establishing the beginning of a synthetic fuel industry would lie not so much in its absolute contribution to energy supplies in 1985; but rather in the base which would have been established for a significant synthetic fuels industry for the 1990's and beyond. The next chapter addresses the issue of when synthetic fuels might be needed in the U.S.