RAYMOND C. SCHEPPACH
ASSISTANT DIRECTOR FOR
NATURAL RESOURCES AND COMMERCE
CONGRESSIONAL BUDGET OFFICE

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Mr. Chairman, I am pleased to appear before this task force to discuss the various proposals to develop a synthetic fuel industry in the United States. In my remarks, I will address several major issues:

- o The appropriate production goal for a synthetic fuel program;
- o The effectiveness of alternative financing mechanisms to stimulate synthetic fuel production; and
- o The budgetary and economic issues raised by the various programs.

The Appropriate Production Goal for Synfuels

Most of the synthetic fuel bills under active consideration by the Congress have production goals of between 500,000 and 5 million barrels of oil equivalent per day by 1985 or 1990. The appropriate production goal should depend upon whether the program objective is to develop an information base for planning the most effective long-run transition to synthetic fuels or to reduce oil imports significantly.

A certain production threshold is necessary to acquire the environmental, technical, and economic information needed to select what technologies and resources are most effective and should be developed over the long run. Although this threshold cannot be specified with precision, it

probably falls between 200,000 and 400,000 barrels of oil equivalent per day. Such an output would require four to eight commercial-size plants; that is, two different technologies for each of several resources (oil shale, coal, and biomass). A strong case can be made for a program at this level on the grounds that the United States will eventually have to change to alternative fuels and that such a base of knowledge will assist in choosing those resources and technologies that will allow an effective transition.

Whether the production total should be set above this information threshold depends on two factors: first, the effectiveness in terms of oil import reductions per dollar of synfuel production as compared with alternative programs; and second, the level of oil imports considered acceptable from the standpoint of economic and national security risks. Previous CBO analysis indicates that U.S. oil imports could be reduced from the approximately 12 million barrels per day expected in 1990 to 8 million more effectively through incentives to conserve energy, to use alternative sources such as unconventional gas or solar power, and to accelerate the replacement of oil and gas boilers with coal rather than through additional synthetic fuel production. Even if the decision is made to develop synthetic fuel production substantially above the information threshold, there would still be advantages in a two-stage program. The two stages would be: first, the construction of four to eight commercial-size plants in order to acquire information; and then, after three to five years, a more ambitious produc-

tion program. The first stage would provide information about costs, technology, and environmental effects that would reduce the risks to both the private sector and the government in initiating a full-scale program.

Financing Mechanisms

The private sector has not as yet been willing to invest the approximately $2 billion necessary to build a synfuel plant large enough to take advantage of the economies of scale common to such processes. This is because they feel that the various risks involved are too high. Not only are there technological, cost, and regulatory risks, but there is also uncertainty about the level of future OPEC prices.

In developing a synfuels program, the federal government should choose a financing mechanism--whether it be loans, loan guarantees, or purchase guarantees--that would have the government absorb the risk that future OPEC prices will not be as high as currently anticipated. Since the nation as a whole benefits from lower OPEC prices, the government should be willing to absorb that risk. On the other hand, the technological and cost risks should be absorbed by the private sector, which traditionally accepts these risks in making investment decisions. Such a separation of risks would provide the private sector with sufficient incentive to construct and operate

synthetic fuel plants efficiently. In addition, the financing mechanism chosen should be one that would have a predictable impact on the budget and would be considered in the normal budget process.

Given the size of the investment required, as well as the overall risk, it is very doubtful that federal government loans, even at subsidized rates, would provide sufficient stimulus for the private sector to construct the plants. Alternatively, if the federal government itself were to build these plants, it would then absorb all the risks--that is, the technological and the cost risks, as well as the risk associated with any future changes in OPEC prices. Since private sector money would not be involved, overall efficiency would probably be lower.

Similarly, loan guarantees would shift much of the cost and technological risk of building plants from the private sector to the government, thus reducing the incentives for efficiency. From a budgetary standpoint, moreover, loan guarantees for large-scale projects are undesirable since they tend to obligate the federal government to a potential future outlay (because of a default) that may be considerably above the initial appropriation. Loan guarantees are more appropriately used for programs such as housing, in which the risk is spread over a large number of small projects and the default rates can be predicted with a reasonable degree of accuracy.

Purchase agreements, whereby the federal government contracts to buy a given amount of synthetic fuel at a given price, would have a distinct advantage over other funding mechanisms in that the private sector would absorb the technological and cost risks and, therefore, would have a strong incentive to build cost-effective plants. The federal government, on the other hand, woul absorb the risk that OPEC prices might fall in real terms or not increase as fast as expected. From a budgetary standpoint, purchase agreements would have the advantage of being included in the budget resolutions, and the outlays would be more predictable over time.

The Budgetary and Economic Implications

A federal program to stimulate synthetic fuel production, which is to be funded from the receipts of the windfall profits tax, raises a number of budgetary and economic questions. These include both the level and the timing of federal costs, the issue of a large trust fund to finance synthetic fuel development, the existence of an off-budget agency, and the fiscal impact of a major synthetic fuel initiative.

Potential Federal Costs. The total costs to the federal government, as well as the timing of expenditures, of a synthetic fuel program would depend upon the production goal, the financing mechanism utilized, future OPEC

prices, and the speed at which plants are actually constructed. There is considerable uncertainty with respect to all these factors and, therefore, the actual costs to the federal government are highly speculative. However, on the assumption that the federal government utilizes a purchase agreement and that synthetic fuels average somewhat more than $9 per barrel above conventional oil over the next 15 to 20 years, the total cost to the federal government would be about $29 billion for production of 500,000 barrels per day over a similar time period. Given that it would likely take a minimum of seven years to plan, site, and construct these plants, few expenditures would occur over the next several years, regardless of the financing mechanism utilized. Under the purchase guarantees mechanism, there would be no outlays until 1987.

Trust Fund Financing. In April, the President called for the creation of an Energy Security Trust Fund to receive the revenues from the proposed windfall profits tax. A large percentage of these revenues would be used to finance synthetic fuel production, while the remainder would be used for rebates to low-income consumers and for several transportation initiatives. Depending upon future OPEC prices and final action by the Congress, the total liabilities from this tax could be between $200 and $340 billion over the next 10 years. The desirability of such a large trust fund is obviously an important budget issue.

The primary advantage of a trust fund as a financing mechanism is that it provides a built-in, self-adjusting device for channeling the revenues of a special tax into programs that are closely related to that tax. If the revenue source is steady, it also provides funding security for programs that require a lead time for state and local planning. A trust fund device may be less desirable, however, if uncertainty about the amount of revenues that will enter the fund in future years inhibits careful planning and leads to program inefficiency. This is a potentially serious problem for the Energy Security Trust Fund since its revenues are extremely sensitive to future OPEC prices, which are very difficult to project. This fact was demonstrated by the June 26, 1979, OPEC price increase, which almost doubled the estimates of trust fund revenues that prevailed only a few months ago. Earmarking such an unpredictable source of revenues for long-term investments in energy programs could hinder Congressional decisionmaking.

Under the President's proposal, the synthetic fuel program to be funded from the Energy Security Trust Fund would be subject to the normal authorizing and appropriating processes. In principle, this would permit the Congress to adjust expenditures from the fund to fit with energy policy, fiscal policy, changing needs, and evolving legislative priorities. But by earmarking the revenues that enter the trust fund for specific program purposes, the Congress would reduce its flexibility to redirect revenues toward changing priorities. Consequently, decisions about yearly expen-

ditures might be based on the amount of revenues available in the trust fund rather than an independent decision on the importance of the synthetic fuel program.

On or Off Budget? The question of whether a federal synthetic fuel corporation should be placed on or off the budget depends primarily on the tradeoff between Congressional control and the cost effectiveness of the corporation. The major benefit of an off-budget agency is that the private sector might view it as less susceptible to the uncertainties of the annual federal appropriation process and, therefore, more firms might be willing to enter into long-term contracts, perhaps even at a slightly lower subsidy per barrel. The establishment of an off-budget corporation would, on the other hand, eliminate the inclusion of the large outlays of a synthetic fuel program in the annual unified budget. This would reduce Congressional budget control since the expenditures would be outside the budget process. For example, under the President's initial proposal, $88 billion in borrowing authority would be available to the President in increments of $22 billion every 18 months at his request. Once the $88 billion of borrowing authority was appropriated, the Congress would have little control over how much of that money was spent or when the outlays occurred.

Fiscal Impact on the Economy. The synthetic fuel program, in combination with the windfall profits tax, would have varying effects on the

economy over the next decade. Between 1980 and 1985, revenues from the windfall profits tax would accumulate fairly rapidly, while the stream of investment spending on synthetic fuels would increase slowly and probably peak in about 10 to 15 years. Therefore, in the years 1980-1985, the synfuels program and the tax would likely have a somewhat contractionary impact on production, employment, and prices; in the years 1985-1990, that combination would become slightly expansionary, putting upward pressure on output, employment, and prices. But if a large percentage of the trust fund revenues are used for additional transportation investment and rebates to low-income households, the impact would be modified.

Mr. Chairman, I would be happy to answer any questions that the Committee may have.