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Subcommittee on Energy and Power  
of the  
Committee on Interstate and Foreign Commerce  
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Mr. Chairman, I am pleased to appear before this Subcommittee to discuss two bills, H.R. 3930 and H.R. 4474, which address the goal of developing a capacity to produce synthetic fuels in the United States. In my remarks today I will discuss three related issues:

- o The benefits and costs of developing a domestic capacity to produce synthetic fuels.
- o The major issues that must be resolved in designing an effective synthetic fuel program.
- o The advantages and disadvantages of the major provisions of the two bills.

#### Benefits and Costs

Benefits. Domestic synthetic fuel production would provide protection against future shortages or interruptions in the supply of oil. As both the current and 1973-1974 experiences indicate, oil shortages do have a negative effect on the economy and, in extreme cases, could even affect national security. Synthetic fuel production might also reduce the rate of future OPEC price increases, which would improve our balance of payments position and provide some relief from inflationary pressures. Finally, since we have yet to build any commercial synthetic fuel plants, it would provide



technological and cost information that would be helpful in designing our long-range energy policy.

Costs. The potential costs of synthetic fuel production are twofold: First there would be additional environmental degradation, especially from intensive surface mining. Second, since synthetic fuels would probably cost more than conventional fuels, at least in the near term, they would entail higher consumer prices or government subsidies. It is critical to stress, however, that there is great uncertainty regarding the future price of synthetic fuels relative to conventional oil. The price of conventional oil is determined largely by a cartel and reflects political as well as economic factors, while the price of synfuels will depend on scale economies, environmental and technological unknowns, and the future rate of inflation in the construction of large plants. Consequently, if a synthetic fuel program is developed, it should be viewed as insurance against future supply shortages and OPEC price increases and not necessarily as an economically efficient investment.

#### Issues in Designing a Synthetic Fuel Program

If the Congress decides that the benefits of such an insurance policy exceed the costs, there are a number of issues that must be resolved in



designing an effective program. These include the sharing of risk between the government and the private sector, the type of synthetic fuels to be produced, and the desired production level and mix of resources and technologies.

The Sharing of Risk. The private sector has not as yet been willing to invest the \$1 to \$2 billion necessary to build a synfuel plant of sufficient size to take advantage of the economies of scale common to such processes. The various risks are just too high. First, while it is almost certain that synthetic fuels can be produced, specific processes have not been demonstrated on a sufficiently large scale to offer both the levels of technological and cost certainty that businessmen traditionally desire. Second, regulatory uncertainties complicate both the technological and cost problems. For example, synfuel plants quite commonly require 25,000 tons per day of coal for feedstock. A change in surface mining regulations or Interstate Commerce Commission transportation rates, for example, could create havoc with the financial viability of a synthetic fuel project. Finally, there is the possibility that future world oil prices will not increase as rapidly as in the last few years and that they may, in fact, fall in real terms, thus increasing the relative cost of synfuels. In developing a synfuel program, the federal government should be willing to absorb the risk that future OPEC prices will be lower than some specified level. The technological and cost risks would then be absorbed by the private sector, which traditionally



accepts these risks in making investment decisions. The federal government should also be willing to absorb a share of the regulatory risk by creating greater certainty and stability in long-run environmental and other regulatory decisions.

Fuel Type. With our abundant supply of solid coal and the potential for domestic, Alaskan, and Mexican gas, as well as the economic and technological viability of low and medium Btu gas production processes, the most probable future shortages will occur in liquid fuels. Consequently, any synfuel program would most profitably be oriented toward producing either liquid fuels or fuels that can free up liquids for alternative uses.

Production Level and Mix of Resources and Technologies. The production level and the mix of resources (shale oil, coal liquids, or biomass) and technologies should depend primarily on whether the goal of the program is to provide maximum short-run production as insurance against oil shortages, or to develop an information base about several resources and technologies. While some combination of these two goals is also possible, there are, however, obvious trade-offs. For example, a synfuel program oriented toward enhancing immediate production might stress production from only one resource and technology, such as shale oil and a surface retorting technology. Although such a strategy would perhaps be most cost effective on a per barrel basis, it might sacrifice an important information



base on alternative resources and technologies and thus could limit the longer-run synthetic fuel options. A program oriented toward gaining technological, environmental, and cost information on a number of resources and technologies would most likely cost more per barrel in the near term, but might provide more lower-cost production over the long run.

#### Advantages and Disadvantages of the Various Provisions in the Two Bills

The federal government can use various policy instruments to stimulate the development of synthetic fuel production in the United States. Among the major alternatives are loans, loan guarantees, direct government funding of plant construction, and guaranteed price agreements. Both H.R. 4474 and H.R. 3930 rely on guaranteed price agreements as the major incentive, although H.R. 3930 does provide authorizations for loans and loan guarantees. Both bills specify targets of 500,000 barrels per day and H.R. 4474 emphasizes that liquid fuels should be stressed and that fuel resources should be diversified. H.R. 3930 leaves these decisions to the President. H.R. 3930 does not limit the price guarantee; H.R. 4474 specifies a price of 110 percent of what the Secretary of Energy projects the 1985 price of imported oil to be.

Although there are also many administrative differences between the two bills, my comments will focus on the overall policy provisions.



The federally guaranteed price approach, used in both bills, is an effective policy instrument to stimulate synfuel production since it shifts the risk of future OPEC price changes to the federal government. Additionally, the technological and cost risks are left with the private sector which traditionally accepts these in making normal investment decisions. The loan and loan guarantee provisions of H.R. 3930, however, are less desirable policy instruments. Since they would shift some technological and cost risks to the federal government, some of the incentives to develop efficient synthetic fuel technologies and plants would be lost. However, in a limited way for certain small scale projects, they could represent an appropriate policy tool.

Although neither bill specifies the exact nature of the synthetic fuel to be developed, H.R. 4474 does emphasize that liquids would be produced. H.R. 3930 leaves this decision to the President, which could be disadvantageous if solid or to a more limited extent gaseous fuels were developed, since these would not alleviate the anticipated shortage in liquid fuels such as gasoline and distillates.

The target, in both bills, of 500,000 barrels per day of synfuel production by 1985 appears to stress the need for immediate production more than the need to develop technological and cost information on several resources (shale oil, coal liquids and biomass) and alternative technologies or



processes. This is, however, more true of H.R. 3930 than H.R. 4474 which does stress diversified sources of supply of synthetic fuels. While such a production goal might be desirable in the short run, since it would most likely minimize the per barrel cost, it could restrict the options available over the very long run. An alternative would be to diversify the production goals so that a minimum of four to six commercial size plants of varying resources and technologies would be constructed. While this would probably result in a higher cost per barrel, the diversification would increase the long-run options for production. This flexibility might be particularly important if environmental and regional economic restrictions precluded the primary use of any one resource, such as shale oil or biomass, for our future energy needs.

There is considerable uncertainty about the potential costs of these bills since they depend primarily on the difference between the future world price of conventional oil and that of synthetic fuels. The first is dominated by political and economic unknowns while the latter is dominated by technological, cost, and regulatory unknowns. While it is possible that this program could cost close to \$1 billion per year (assuming that synfuels cost \$5.00 per barrel more than conventional oil), it is also possible that it would be a net revenue producer for the federal government if the future price of OPEC oil increases dramatically. Therefore, if OPEC prices increase considerably, the federal government and the public win since lower-cost



synthetic fuels would be available. On the other hand, if OPEC prices do not increase rapidly, then both still win since total energy costs would be lower. The program should, therefore, be viewed primarily as insurance against future OPEC price increases and supply shortages or interruptions.

One final comment concerns the restriction in H.R. 4474 that the synfuel price may not exceed 110 percent of the price of oil imports as determined by the Secretary of Energy. This appears to be overly restrictive and could possibly prevent the development of economic technologies.

In summary, Mr. Chairman, the price guarantee approach of both bills represents one of the most effective government instruments to stimulate synthetic fuel production. This is primarily because the federal government would absorb the risk involved in future OPEC price changes while the private sector would sustain the technological and cost risks traditionally accepted in normal investment decisions. This approach also assumes that the choice of appropriate technologies will remain with the private sector which has the expertise and market incentives to make the best decisions in this area.

The loan and loan guarantee provisions in H.R. 3930, although appropriate in some special circumstances, are generally less attractive



since they would shift much of the technological and cost risks to the federal government, thereby reducing the incentives for efficiency by the private sector. Another disadvantages of H.R. 3930 is that it may allow the production of solid and gaseous fuels which are not anticipated to be in such short supply as liquids. Finally, there is some risk in both bills that only one resource and technology will be developed although this is far less true of H.R. 4474 than of H.R. 3930. Consequently, there may be fewer opportunities to develop a broad information base about multiple resources and technologies. This could be remedied by dividing the production goal among the several resources, such as shale oil, coal derived liquids, and biomass, and by specifying that no more than a certain level of production could be produced by any one technology. Finally, the provision in H.R. 4474 that restricts the guaranteed price to 110 percent of the projected OPEC price may be overly restrictive in attempting to stimulate synthetic fuel production.

Mr. Chairman, I would be happy to answer any questions.

