

APPENDIX C THE IMPACT ON THE CONSUMER OF THE  
COSTS AND BENEFITS OF THE SYNTHETIC  
FUELS COMMERCIALIZATION PROGRAM

Implementation of a Synthetic Fuels Commercialization Program will affect the economic well-being of consumers. Factors of production will be allocated differently from a no-program economy and inevitably, some consumers will benefit from this reallocation more than others. As this decision is to be taken on both economic and political grounds, it is important to consider the distribution of the costs and benefits from a program. The purpose of this section is to explore considerations of equity.

Initially, the purpose of the synthetic fuels program is to allocate resources of the economy to the producers of synthetic fuels in an attempt to realize net gains.

The discussion of the equitability of this process is complicated by the following uncertainties: (1) the magnitude of the final goal is undetermined; (2) the costs of achieving a program goal, once specified, are uncertain; (3) the ultimate realizable benefits and the form that these benefits take, given achievement of a specified program goal, are themselves conditional upon a wide range of external considerations; and (4) the specific means for obtaining government funds required are not yet determined. Nevertheless, it is possible to abstract from these uncertainties and to address in general terms the following distributional aspects of a program:

- How much will the program cost (maximum)?
- Who will pay these costs?
- Who will benefit?

"Consumers," as referred to above, are the participants in the economy. To the extent that they pay taxes, and the program is funded from general government funds, they are also captive "consumers" of the program. Additionally, to the extent that they purchase synthetic fuels or their close substitutes (conventional energy sources), they are potential first order beneficiaries of the program. "Costs" are the resources allocated to the program by both the public and private sectors. This treatment of costs assumes that the portion of the overall commitment to the program which is contributed by industry and taxpayer is an efficient allocation of resources within the constraints of our national priorities.

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Lastly, "benefits" from the program fall into two basic welfare classifications, (1) potential public benefits (such as enhanced international leverage for the U.S.) which are not marketable, and (2) potential increases in available consumer surplus to energy consumers (such as a decrease in the price of the supply of competitively priced fuels). With respect to the benefits derived from marketed synthetic fuels, particular marketing relationships could impose restrictions upon access to specific benefits, and in special cases, the distribution of a specific synthetic fuels could impose net costs on some consumers.

The potential inequities of the program arise if the costs are disproportionately borne, or if the benefits are disproportionately distributed, and the magnitude of these impacts is proportional to the total program's costs-benefits outcome.

A. COSTS AND BENEFITS - MAGNITUDE

The contemplated programs and associated range of government costs assuming constant world energy prices are:

|                     |      |     | <u>Likely Federal Costs</u> |
|---------------------|------|-----|-----------------------------|
| Information Program | .350 | MBD | 8 to 15 Billion             |
| Medium Program      | 1.0  | MBD | 18 to 35 Billion            |
| Maximum Program     | 1.7  | MBD | 29 to 56 Billion            |

The costs, depending on the program level, therefore, range from \$8 billion to a maximum exposure of \$56 billion, over a period in excess of 15 years. For purposes of comparison, if the maximum cost were distributed over five years, the program would represent 3.6% of the federal budget, 7.5% of all business investment, and 30% of all investment in the energy sector in each year.

## B. THE DISTRIBUTION OF COSTS

The distribution of costs cannot be addressed without specifying the alternative sources of funds. These include general tax revenues, sale of bonds, excise taxes on related commodities, import fees, special pricing techniques applied to produced synthetic fuels, and others. Each means would distribute the cost burden differently upon the individual consumer. Principles of equity would argue, at least on a regional basis, that those who receive the benefits should also bear the costs. However, consideration must also be given to the "ability-to-pay" principal to ensure that lower income groups are not unnecessarily disadvantaged.

Since the decision makers have alternatives available with respect to distributing costs, it is sufficient to note that capability, and to treat the obvious means of financing the program which is from the general tax revenues of the Federal Government. If there were no public goods benefits stemming from the program, the optimal financing mechanism from a welfare economic point of view would require the synthetic fuel consumer to pay the incremental cost of the fuels produced. However, the program is explicitly designed to capture net benefits which the market will not realize, and which, to some extent, are not subject to incremental pricing. Accordingly, the program will favor low income groups to high income groups to the extent it is financed from general revenues. Also, this result will produce distribution effects consistent with general government expenditures.

### C. THE DISTRIBUTION OF BENEFITS

Of all benefits derived from a program, some portions are essentially public in nature. Included in these benefits are enhanced national security, lower susceptibility to embargoes (though private firms can undoubtedly internalize to some extent through holding increased stockpiles), and increased international leverage. Other benefits, such as increased availability of energy pricing information, are essentially public in nature, but accrue to individual consumers in proportion to their energy purchases. Direct benefits of the program are increased consumer surplus in energy markets and are proportional to individual consumer energy purchases. Since it is extremely difficult to assess the proportion of total program benefits which are public, this discussion will focus upon the benefits provided by information and incremental additions to energy supplies.

The major problem posed by information is that public funds will be used to develop proprietary information for which rents could be charged. Under the program, either specific conditions will be attached to the disposition of proprietary information developed with government funds, or decision makers will trade-off such conditions in exchange for public benefits.

If the incremental energy supplies which are developed motivates OPEC to lower prices, social surplus (consumers' plus producers' surplus) will increase with the primary beneficiaries being consumers of energy.

Consider the distribution of income. The proposed synthetic fuels program can be expected to affect families at different income levels differently. On the average, families with lower income levels spend a greater percentage of their income on direct and indirect energy purchases. According to FEA's "The Impact of the President's Proposed Energy and Economics Program on Net Energy Costs to Consumers" the current pattern of average energy share of income is:

| <u>Average Income</u> | <u>Percent Spent on Energy</u> |
|-----------------------|--------------------------------|
| \$ 2,500              | 18.9                           |
| 8,000                 | 9.3                            |
| 14,000                | 7.8                            |
| 24,500                | 5.3                            |

Thus, given high synthetic fuel prices, it can be expected that a "roll-in" would be regressive while low synthetic fuel prices will benefit low income families relatively more than high income families.

Alternatively, the existing federal income tax is designed to be progressive. Therefore, subsidization of a synthetic fuel industry out of general revenues would have a distribution impact more in favor of low income than high income groups. It should be emphasized, however, that a Synthetic Fuel Commercialization Program should not be undertaken as an income distribution device.

With respect to regional impacts and impacts upon consumers of particular fuels, the beneficiaries of specific fuels such as synthetic high Btu gas may receive greater benefits than out of region gas consumers. However, to a large extent, these inequities stem from the physical location of the feedstocks as opposed to inherent characteristics of the program.

#### D. INCREMENTAL PRICING

A substantial equity issue which must be addressed is incremental pricing of product. This issue is technically unrelated to the synthetic fuels program since the option to roll-in production from the synthetic fuels program will only exist where the market is constrained by regulation at price levels below optimum. Any decision to roll-in synthetic fuel product to such a market, will penalize local consumers who were benefiting by the distortion. Instances of such roll-in effects which differ substantially from market-to-market are possible, but in all cases, roll-ins will produce a more efficient market, from a welfare economics perspective as opposed to an across-the-board price subsidy.



E. PROBLEMS IN EQUALIZING COSTS AND BENEFITS  
ON A REGIONAL BASIS

While equity requires coordination between the distribution of the costs and benefits, no program can be expected to be perfect in this regard. Consider the case of a high Btu gas plant constructed under this program and assuming cheap regulated natural gas. The typical plant would deliver 240 MCF per day or nearly 90 billion cubic feet per year. Total gas consumption in Minnesota is approximately 320 billion cubic feet. Illinois, the state with the highest consumption, is at 1,100 billion cubic feet per year. If these represent possible synthetic gas markets, rolling in the \$3-\$4 cost to the given market would have significant but varying impacts on the consumer. On the other hand, paying for the synthetic gas out of general revenues would protect the already protected natural gas consumer to the detriment of those forced to use other fuels. A possible ironic outcome is that economically inefficient price regulation leads to a shortage of relatively cheap natural gas which is "ameliorated" by the economically inefficient production of expensive synthetic gas. In other words, if deregulation of natural gas were to take place, consumers may benefit in that the quantity of gas supplied would be the same but at a lower aggregate cost than under the synthetic natural gas program. Furthermore, if deregulation were to occur, high Btu synthetic natural gas would be forced to compete in the market and the question of "rolled-in" prices does not exist.

## F. CONCLUSION

The distributional impacts of a synthetic fuels program are generally amenable to adjustments made by the decision makers. There is a high probability that both the distribution of costs and benefits will be progressive (that is, the distribution of costs and the distribution of benefits will reinforce each other in assisting lower income groups at the expense of higher income groups).

However, it should be noted that the program will subsidize energy consumption. Averaged over the national economy, the price and distributional impacts will be small regardless of the program level chosen. However, the costs and benefits of the program will not be uniformly distributed in terms of regional location or income levels. Decisions made to implement the program will determine the equity of the cost-benefit allocation.