CHAPTER VII RECOMMENDED INCENTIVES AND ESTIMATED PROGRAM COSTS

A. INTRODUCTION

This chapter summarizes the results of the incentive and technology evaluation analysis and provides estimates of the overall expected cost to the Federal Government of several alternative-size synthetic fuels programs. The detailed analyses supporting these recommendations are contained in Volume III of this report.

B. PROGRAM-LEVEL OPTIONS

Several different synthetic fuel 1985 production capacity options were evaluated in the analysis to provide estimates of program and resource costs. Figure 8 illustrates the schedules for the:

1) Single phase information option (350,000 bbl/day)

2) Two-phase nominal option (1,000,000 bbl/day)

3) Maximum production option (1,700,000 bbl/day)

The single and two-phase options represent distinct program approaches. The single phase option is based on the assumption that projects would all be initiated early in the program, that is, within the next two years. The two-phase option, by contrast, assumes that part of the projects would be initiated early, a review made of the progress, and then the remainder of the projects initiated later in the decade.

1. Single Phase Information Option (350,000 bbl/day)

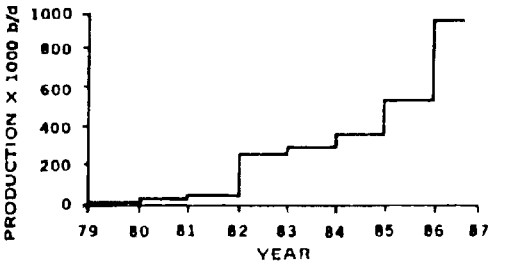
The target level, the fuel/resource mix and the development schedule assumed for the Information Option were selected with a view toward the type of program needed to gain basic information from developing each major fuel/resource type (e.g., oil from shale, gas from coal, etc.).

SINGLE PHASE/INFORMATION OPTION

	77	78	79	80	81	82	83	84	85	86
SYNTHETIC PETROLEUM										
SHALE OIL (50K b/d)						2	2	2	–	–
SYNCRUDE (50K b/d)										
SYNTHETIC GAS										
HIGH BTU (40K b/d)						2	3	3	–	–
SUBSTITUTE FUELS										
UTILITY/INDUSTRIAL (25K b/d)						2	2	4	–	–
BIOMASS (6K b/d)			3	4	5	5	5	5	–	–

TWO PHASE/NOMINAL OPTION

SYNTHETIC PETROLEUM										
SHALE OIL (50K b/d)						2	2	2	3	6
SYNCRUDE (50K b/d)									1	2
SYNTHETIC GAS										
HIGH BTU (40K b/d)						2	3	3	3	7
SUBSTITUTE FUEL										
UTILITY/INDUSTRIAL (25K b/d)						2	2	4	7	10
BIOMASS (6K b/d)			3	4	5	5	7	8	8	8



SINGLE PHASE/MAXIMUM PRODUCTION

SYNTHETIC PETROLEUM										
SHALE OIL (50K b/d)						5	7	9	10	10
SYNCRUDE (50K b/d)						2	2	2	2	2
SYNTHETIC GAS										
HIGH BTU (40K b/d)						5	7	9	12	12
SUBSTITUTE FUEL										
UTILITY/INDUSTRIAL (25K b/d)						4	8	14	21	21
BIOMASS (6K b/d)			4	6	6	6	8	10	12	12

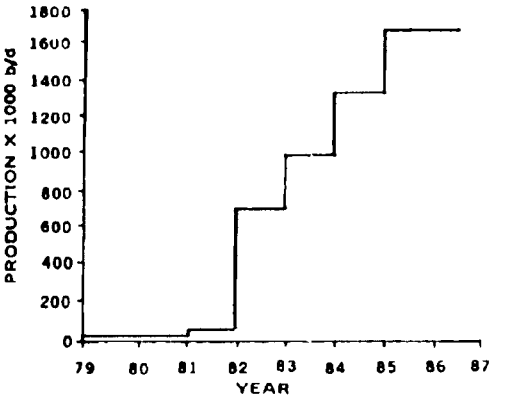


FIGURE 8. ASSUMED PLANT BUILD UP SCHEDULES

Specifically, the information to be obtained consists of:

- Technical information necessary to:
  - Verify plant design
  - Establish operating procedures
  - Establish plant reliability
- Environmental information on:
  - Extraction and reclamation operations
  - The performance of emissions control technology
  - Resource utilization such as water
  - Community impacts
- Economic information on:
  - Construction costs including both institutional delays as well as manufacturing delays and costs
  - Operating costs, including retrofit operations, replacement requirements, and efficiency
  - Market value of the produced product.

Assuming no plant failures, the information described above would be obtained from the construction and operation of one or at most two commercial plants in each of the major fuel/resource categories.

2. Two-Phase Nominal Option (1,000,000 bbl/day)

This program option would balance information gain with a significant amount of usable energy. Under this option, multiple plants using different technological approaches would be constructed for a given application to: (1) assure information is developed in the event a similar plant fails, and (2) determine regional differences, if any. High demand for natural gas and oil and the relatively advanced state-of-technology for the production of shale oil and high Btu gas from coal coupled with appropriate incentives, causes these technologies to be emphasized in this option. Additionally, liquid and gaseous products for utility and industrial needs would expect to find some market penetration. A wide range of technological options would be stimulated through the increased number of subsidized opportunities. Information feedback would occur with particular benefit to the post-1985 period.

This option would proceed in two phases. Phase I would also commit the government to the information option on an identical schedule. Information so developed would then be used in Phase II to influence the mix of technologies and production schedule.

Phase II would begin as early as 1978, but would need to be accelerated by 1982 to meet the 1985 production capacity of 1 million barrels per day.

3. Maximum Production Option (1,700,000 bbl/day)

This option represents the maximum credible amount of synfuels production that could be anticipated with an intense national effort in the absence of major dislocations in the economy. It would maximize production of those fuels in shortest supply. Some technologies of uncertain commercial feasibility are included by implication; however, formal go-no-go decisions are several years away.

4. Technology Mixes and Scheduled Build-up

The options identified above, ranging from 350,000 to 1,700,000 barrels of crude oil equivalent by 1985, provide the basis needed to make detailed cost calculations. Assumptions were made defining the number and type of synthetic fuels production facilities that may be associated with each option for the purpose of analysis. The assumptions were derived from the individual projections contained in Volume III. The nominal plant construction schedules and production build-ups assumed are displayed in Figure 8.

The level of production and technology mix for each of the four program options in Figure 8 was developed specifically to estimate the typcial range of total program costs. It is not implied that any of these options would define the actual synthetic fuel commercialization program. Rather, these options should only be viewed as representative cases for analysis and guidelines for program planning. Normal competitive forces tempered by the incentives offered would determine the actual mix of technologies.

C. RECOMMENDED INCENTIVES

Attainment of the production levels discussed above would require the application of incentives appropriate to each fuel category. The incentives considered for each synthetic fuels category, selection criteria, and incentives recommended for this program are displayed in Figure 9.

Contingencies, or areas of uncertainty, associated with synthetic fuels investments are analyzed in Volume III to show how the candidate incentives shift the favorable or unfavorable impacts among the government, the industry participants, the lenders and the consumers or rate payers. The analysis is performed separately for unregulated and regulated industry. Regulated industry refers to firms such as natural gas pipeline companies and to electric and gas utilities that are regulated by public utility commissions. Unregulated cases pertain to normal petroleum-type operations and the preparation of industrial fuels.

The criteria stipulated in Figure 9 were used to determine the recommended incentives. They include: cost to the government, effectiveness in attracting industry participation, degree of competitiveness, need for government involvement, flexibility and others. All recommended incentives tended to satisfy these criteria more completely than the other incentives not recommended for that fuel type. In Volume III, each synfuel type shown in Figure 9 is separately analyzed against these criteria. The incentives recommended for this program are listed in Items 1 through 5 below:

1. Recommended Incentive for Shale Oil and Syncrude

   - Up to 50 Percent Non-Recourse Loan Guarantee and Price Guaranty, Competitively Bid.

     The major features of this incentive are that it protects the lender from some capital risk through the non-recourse loan guarantee. It protects the corporation in the market place through price guaranties by assuring a fixed price. The procedure of competitive bid for a price

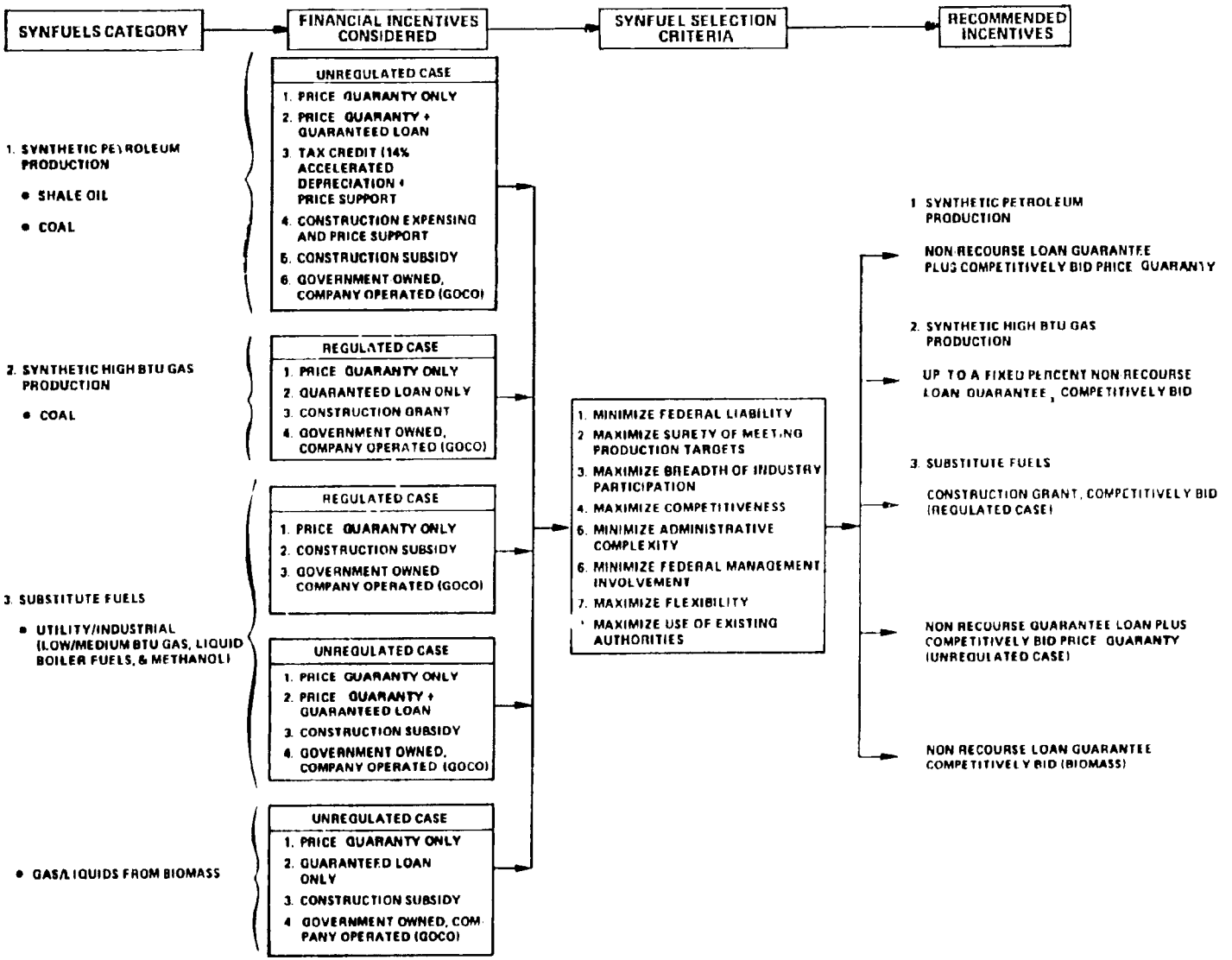


FIGURE 9. INCENTIVES PLAN DEVELOPMENT AND RECOMMENDATIONS

guaranty should result in lower shale oil and syncrude prices which will reduce the cost to the government of the price support program. The bid procedure is intended to competitively locate the most efficient approach to shale and syncrude developments. From the government point of view, the major strength of the recommended incentive is that it:

- Encourages competition and broad participation through its loan guarantee provision for firms needing risk sharing.
- Reduces or eliminates government costs as market prices approach the production prices of syncrude. As market prices exceed production costs, government can recapture past costs through revenue sharing.
- Does not require government management or operation of plants thus minimizing Federal administrative involvement.
- Provides an anticipated subsidy limited to the production plant life and thus would not result in permanent subsidy to industry.

2. Recommended Incentive for High Btu Gas from Coal

- Up to 75 Percent Non-Recourse Loan Guarantee, Competitively Bid.

The major feature of this incentive is that the non-recourse loan guarantee provides substantial protection to the utilities in case of plant failure, removing a major portion of this risk from the utilities and shifting it to the government. In this regard, this incentive should remove the major investment barriers to high Btu gas plants during the present period when actions on filings before the Federal Power Commission have fallen short of what is needed to obtain utility financing. A competitively bid loan guarantee, up to 75 percent of the plant construction cost, is anticipated for this regulated industry.

The major strength of this incentive (assuming plant success) is that it:

- Facilitates the acquisition of debt financing to the regulated industry.

- Entails modest administrative complexity and little direct government involvement.

- Entails no government liability in full life operation; maturity of technology minimizes probability of high cost early termination.

- Retains responsibility for cost recovery from plant amortization and operation with the consumer.

Associated with the economic incentive for high Btu gas from coal is the need to bring synthetic gas production under the authority of the Federal Power Commission (FPC), assuming natural gas is not deregulated. To do so will require that the Natural Gas Act be amended. Thus, it is recommended that the Natural Gas Act be amended to bring, as a minimum, the high Btu gas from coal plants built and operated within the synthetic fuel commercialization program under FPC jurisdiction. This would:

- Give FPC the authority needed to grant a Certificate of Convenience and Necessity for such plants and make plants eligible to sell high Btu gas on a full cost-of-service basis as differentiated from tariffs based on deliveries.

- In the event the plant is not completed or, after completion, is abandoned or otherwise withdrawn from service, require the FPC to grant the operation permission to amortize all unamortized costs over a long period.

3. Recommended Incentive for Utility/Industrial Fuels from Coal (Regulated Case)

- Up to 50 Percent Construction Grant, Competitively Bid.

The major features of this incentive are that it directly provides capital to an industry where debt financing, due to limitations on debt, is currently a major problem. The bid procedure should result in varying grant rates proposed enabling the government to reduce its cost of support or gain broader use of its dollars.

The major strength of this incentive is that it:

- Overcomes loan financing restrictions on electric utilities by providing up-front capital to the participating regulated utility and reduces capital exposure which should attract broad participation.
- Places responsibility for cost recovery from amortization and operation with the consumer.
- Encourages broad participation and thus increases the prospects of achieving production targets.
- Entails modest administrative requirements and government involvement.

4. Recommended Incentive for Utility/Industrial Fuels from Coal (Unregulated Case)

- Up to 50 Percent Non-Recourse Loan Guarantee Plus Price Guaranty, Competitively Bid.

The loan guarantee provision of this incentive will reduce the risk of capital exposure to the corporation. In the case of failure, the non-recourse loan guarantee shifts the risk of the guaranteed debt portion of project capital from the corporation to the government. The price guaranty removes the competitive risks in the market against future declining fuel prices thereby assuring a minimum level of profitability which is necessary to attract equity.

The bid procedure would enable the government to select projects that appear most economically efficient in terms of lowest production costs which, in turn, would reduce the cost to the government of the price guaranty program. The competitive feature also should encourage firms to seek production efficiencies.

The major strength of this incentive is that it:

- Encourages competition and broad participation through its loan guarantee provision for firms in need of capital.
- Minimizes capital exposure and reduces long term market risks with price guaranties.

- Provides flexibility to reduce government costs as market prices approach the production prices of alternatives.

- Reduces product prices significantly allowing the government recovery of market product price differences.

5. Recommended Incentive for Biomass Fuels (Unregulated Case)

- Up to 75 Percent Non-Recourse Loan Guarantee, Competitively Bid.

The major features of this incentive is that it provides for substantial protection of capital investment in case of plant failure. The ability to acquire debt financing is a significant barrier in this field because the developers of Biomass systems have, in some cases, been unable to finance their systems and, in other cases, unwilling to finance their systems without municipal support. This incentive largely removes this barrier. In case of failure, the risk of the guaranteed debt portion of the capital is shifted from the corporation to the government.

The competitive bid procedure enables the government to select corporate projects on the basis of the percent of loan guarantee desired. In the case of failure, the amount of loan guarantee will determine the cost to the government; the competitive bid will enable the government to select projects that minimize its liability.

The strength of this incentive is that it:

- Encourages competition and broad participation by providing access to capital by lowering capital exposure thereby increasing the prospects of achieving production targets.

- Reduces product prices significantly.

- Entails modest administrative requirements.

The analysis in Volume III shows how the recommended incentives shift the distribution of costs and/or financial liabilities

between the producer, consumer, lender and the government. For all synfuels but high Btu gas, the incentives recommended for this program will allow the selling price to be reduced and not affect the return on investment. For high Btu gas, the recommended incentive will not affect the selling price, but will reduce capital exposure.

D. EVALUATION OF LABOR-MANAGEMENT COMMITTEE UTILITY INCENTIVES RECOMMENDATIONS

During the period of February thru June 1975, the Synthetic Fuels Commercialization Task Force developed incentive recommendations for various synthetic fuel categories. One such category was synthetic fuels to be used by utilities in the generation of electricity, and the Task Force recommended a construction grant incentive to stimulate these investments by the electric utility industry. The construction grant involves substantial front-end capital from the federal government to these projects, thereby alleviating the utility's capital requirements and improving the economic competitiveness of the synfuels relative to alternative fuels.

Concurrently, the President's Labor Management Committee, which is an advisory group of 16 labor and industry leaders, was also considering the general financial plight of the electric utility industry. The focus of their considerations was the perceived need to enhance the industry's ability to proceed with recently cancelled or delayed construction of generating capacity and not on synthetic fuel projects. To address the industry's problems, the Committee recommended the following incentives:

- Increase the investment tax credit to 12% and allow the credit to be taken on construction installment payments.
- Continue the 5-year amortization of pollution control equipment for tax purposes and extend the provision to include fuel conversion expenditures.

- Allow depreciation for tax purposes on construction work in progress (CWIP).

- Make the above incentives contingent on inclusion of CWIP in the rate base and normalization of the tax effects for rate-setting purposes.

- Allow deferment of taxes on dividends if the common stockholder reinvests the dividends in additional common shares.

Implementation of the Committee's incentives would potentially affect the conclusion reached by the Synthetic Fuel Commercialization Task Force that a construction grant is needed to effectively stimulate synfuel investments by the electric utility industry. Accordingly, the purpose of this analysis was to re-examine the construction grant recommendation in light of the Committee's incentives. The specific scope of this evaluation was twofold:

- On an industry basis, to evaluate the electric utility capital supply and demand outlook and the impact of the President's Labor-Management Committee incentive recommendations on the industry's ability to generate internal funds and on its need and ability to raise external capital.

- On a case-study basis, evaluate the economic attractiveness of medium Btu gas projects to sample utilities and compare the effect of the Committee's incentives against the construction grant in terms of economics and the ability of the subject utilities to finance the project.

In these case analyses, a government guaranteed loan was also considered as an alternative to stimulate the investments.

a. Industry Analysis - Key Findings

- Due to a reduced long term demand pattern, the industry is making an adjustment in capacity expansion over the next five years that will tend to stabilize constant dollar capital requirements during this period at a level commensurate with (or below) the level of the last two years.

- The Committee incentives, to the extent they are adopted by Public Utility Commissions, will have a substantially favorable effect on the internal funds generated by the industry and will reduce external financing requirements by potentially significant amounts. This would reduce the industry's reliance on external funds or enable it to enlarge its investment outlays.

- However, it is important to recognize that the realization of the potential of the Committee's incentives is ultimately controlled by the individual state Public Utility Commissions, and widespread adoption of the incentives by these regulators cannot be assured. Indeed, only two utilities are currently allowed to treat Construction Work in Progress (CWIP) in the manner required by the incentives.

- Inclusion of CWIP in the rate base would increase rates an average of 4-8%, and the state Public Utility Commissions, through their national association, have indicated considerable opposition to the incentives. It should be noted, furthermore, that the PUC's can capture the benefits of the incentives for their consumer constituency by adopting the rate setting practices but concomitantly lowering the allowed rate of return.

Accordingly, the benefits of the incentives will vary from company to company, and it is probable that the most financially healthy utilities will benefit the most, whereas many will undoubtedly not be affected due to regulatory policies.

b. Case Studies - Key Findings

The key findings of the case studies are:

- A potentially viable application of the medium Btu gas processes is back fitting oil and gas burning units. The FEA has ordered a broad range of such stations to convert to coal but in many cases the utility contends that boiler renovation, coal handling and pollution control costs are prohibitive, and the industry is vigorously opposing the FEA order in these cases. Such dissent will prolong needed conversions. Coal gasification could be used to convert many of these stations with minimum effort required on the existing plant. For the three stations considered in this analysis representing 2500 MW, the daily savings in oil consumption is 87,500 b/d. This could be accomplished by 1980.

- However, conversion involves substantial incremental investment by the utilities, ranging from 10-22% increase in their annual construction budget for each of the three years of a gasification construction program. This increased cost and the associated rate increases are potentially key obstacles in gaining commission approval of such projects. The range of required revenue increases under a gasification program for the three basic incentive programs is as follows:

Incentive	Range of Required Rate Increases (%)
Construction Grants (to 100%)	1.75 - 4.96
Guaranteed Loan (100%)	1.9 - 6.87
Labor-Management Program	.5 - 6.19

- Over a 5-year period, the Committee's incentives (assuming PUC cooperating) have a very substantial impact on internal cash flow for the three companies currently using flow-through accounting practices, and the increased internal funds during that period substantially exceed the cost of the gasification program. For another company, the Committee's incentives have a much smaller impact and tend only to bring that company up to the industry average of internal funds generation.

- For the one case where a new plant was considered (SO_2 removal vs. gasification), the increased annual construction cost for the three year period was over 25%. However, the total cost per Kwh generated was basically the same under both systems. The various incentive options affect this cost as follows:

	First Year Generating Costs in Mills per Kwh
Conventional with SO_2 removal	29.7
Combined cycle with gasifer	29.0
with grants (to 100%)	17.5-26.2
with 100% guaranteed loan	27.9
with Committee incentives	27.8

Technical factors related to operation and reliability would basically determine the choice of systems in this case.

- The Committee's incentives would have a very favorable impact on the internal funds generation of the company building this new plant, the increased amount exceeding substantially the cost of the gasification program over the 5-year performa period.

c. Conclusions

- The severity of the financial plight and heavy demand for external capital of the electric utility industry should lessen substantially over the next few years as the industry capital demand/supply outlook improves. The implication of this improvement for the synthetics program is that the ability of the industry to finance synthetic fuel projects will increase.

- However, the improvement in the general financial health of the industry, which would be accelerated by the Committee incentives, does not obviate the need for construction grants in certain applications to move the synthetic commercialization program ahead on a timely basis.

- The principal obstacle to the use of the medium Btu gas processes analyzed in the cases is likely to be the PUC's unwillingness to accept increased conversion costs until forced to do so. Incentives can play a role in overcoming this obstacle by making these political decisions more palatable, and it is in this regard that grants can be effective. It should be noted, however, that the associated rate increases are not major in comparison with recent hikes, but nevertheless do constitute a significant increment to the other rate increases that most utilities are or will be seeking. It does not appear that the Committee's incentives or the slight cost reduction associated with guaranteed loans will be effective in securing PUC approvals. However, inclusion of grants in the Commercialization Program would have this PUC focus, as well as enhance capital availability to utilities.

- For the other synthetic fuel processes, such as SRC and syncrude, which were not analyzed in this paper, the increase in capital requirements and in total cost of electricity generation are much more substantial. To the extent that the objectives of the Commercialization Program are to also encourage use of these fuels by utilities, the problems of PUC approval discussed above are more severe and capital availability for the individual company can become an obstacle. In these higher cost processes, it seems clear that a grant program would be required.

d. Recommendations

It is recommended that:

- The synthetic fuels commercialization incentive program retain the flexibility to provide construction grants to the electric utility industry.

This incentive is needed to:

- Demonstrate on a timely basis the technical and economic viability of synfuel technologies to the electric utility industry.
- Accelerate the conversion of oil and gas units to synfuels, for direct reductions in oil imports.
- Improve the economic competitiveness of synfuels and thereby encourage PUC approvals of projects.
- Address capital constraints that can arise for individual utilities that otherwise would be logical candidates for the use of synfuels.

E. ESTIMATED FEDERAL COST AND LIABILITY OF THE PROGRAM

Until a program is initiated and the response by private industry analyzed, the cost of the synfuels commercialization program cannot be precisely quantified. However, the range of the cost to government has been estimated under various assumptions.

The cost to government was determined for each of the three program-level options using the recommended incentives with the calculation assumptions contained in Table 13. Development schedules different from those assumed for this analysis and/or different incentive options would yield somewhat, but not greatly, different estimates of costs than those presented here. However, for the purpose of this report, the calculations are sufficient to measure the probable cost to government as measured by:

- Net Present Value (NPV), or Discounted Dollars—NPV is the stream of costs discounted at 10 percent to the present time (1975). NPV reflects the "time value" of money, i.e. a dollar spent today has a higher cost than the same dollar spent at some point in the future, and in this respect NPV is used as an analytical technique to place the costs of various incentive and program alternatives on a common basis for comparative analysis.

- Undiscounted Dollars--Undiscounted Dollars is the stream of costs stated in terms of 1975 values, i.e. no inflation is assumed and the costs are not discounted. In effect, it measures the stream of costs (or receipts) "As Spent" or "As Received" and is thus a useful measure of the impact various program options would have on the Federal Budget.

- Inflated Dollars--Inflated dollars is the stream of costs assuming a 7 percent rate of inflation from 1975 base and not discounted. This measure is used to estimate the total budget request for the program (part 4 of this section).

The main use of the NPV measure is to compare the cost to the government of the program options. The main use of undiscounted cash

TABLE 13. INCENTIVE CALCULATION ASSUMPTIONS

SYNFUEL	INCENTIVE CALCULATION BASIS
SYNTHETIC PETROLEUM SHALE OIL SYNCRUDE	50% NON-RECOURSE GUARANTEED LOAN + PRICE GUARANTY
SYNTHETIC NATURAL GAS FROM COAL	75% NON-RECOURSE GUARANTEED LOAN
SUBSTITUTE UTILITY/INDUSTRIAL FUELS	
REGULATED	50% CONSTRUCTION GRANT
UNREGULATED	50% NON-RECOURSE GUARANTEED LOAN + PRICE GUARANTY
BIOMASS UNREGULATED	75% NON-RECOURSE GUARANTEED LOAN

NOTE: LEVEL OF PRICE GUARANTY VARIES, SEE TEXT.

flow measure is for near-term budget planning. Included in both categories are cash outlays (or receipts) for price supports and construction grants. The government commitment for the three program options includes operations that extend beyond the construction period, and in the case of price supports, government liability could extend to the year 2005. Detailed assumptions for this analysis are given in Volume III.

1. Cost to Government

Government costs (price supports plus construction grants) for the three development options are presented in Table 14. Both Net Present Value and Undiscounted Cash Flows ("As Spent") are shown.

Table 14 represents only the summary information from a much larger tabulation of these cash flows by year through 2005 and by commodity. The calculation results are presented in Appendix D of Volume III.

Four sets of data are presented in Table 14 for each development option. Each of these is discussed below:

World Energy Price Constant - Case I in this category has been selected to illustrate a high cost to government. That is, Case I assumes that the world price of oil falls and remains at $7 per barrel (in 1975 dollars), but simultaneously, the cost of domestic coal will rise and remain at $17 per ton. This is a highly unlikely occurence, but was assumed to represent the maximum cost case. LNG is assumed to remain constant at $2.60 per million Btu.

Case II, on the other hand, was selected to represent no real change in current world energy prices (i.e., $11 per barrel oil, $2.60 per MMBtu gas, and $11 per ton coal).

TABLE 14 COST TO GOVERNMENT--SYNTHETIC FUELS COMMERCIALIZATION PROGRAM

(BILLIONS OF 1975 DOLLARS)

Cost \ Price Assumptions	Information Option; First Phase — World Prices Constant Case I	Information Option; First Phase — World Prices Constant Case II	Information Option; First Phase — World Prices Increase Case III	Information Option; First Phase — World Prices Increase Case IV	Nominal Option; Two Phase — World Prices Constant Case I	Nominal Option; Two Phase — World Prices Constant Case II	Nominal Option; Two Phase — World Prices Increase Case III	Nominal Option; Two Phase — World Prices Increase Case IV	Maximum Option; Single Phase — World Prices Constant Case I	Maximum Option; Single Phase — World Prices Constant Case II	Maximum Option; Single Phase — World Prices Increase Case III	Maximum Option; Single Phase — World Prices Increase Case IV
DIRECT GOV'T PAYMENTS												
• SUPPORT												
AS SPENT	5.0	1.1	<2.4>	<3.1>	25.7	10.5	0.8	<2.4>	38.5	14.7	<2.1>	<7.2>
NPV	1.2	0.2	<0.6>	<0.8>	4.8	1.9	0.1	<0.6>	8.8	3.3	<0.1>	<1.3>
• GRANTS												
AS SPENT	0.4	0.4	0.4	0.4	0.9	0.9	0.9	0.9	1.8	1.8	1.8	1.8
NPV	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	1.1	1.1	1.1	1.1
• TOTAL COST TO GOV'T												
AS SPENT	5.3	1.4	<2.1>	<2.7>	26.6	11.4	1.7	<1.5>	40.3	16.5	<0.3>	<5.4>
NPV	1.4	0.4	0.4>	<0.5>	5.3	2.4	0.6	<0.1>	9.8	4.4	1.0	<0.2>
TOTAL PER BARREL COST												
AS SPENT	2.12	0.56	<0.84>	<1.08>	3.69	1.58	0.24	<0.21>	3.30	1.35	<0.02>	<0.44>
NPV	0.66	0.16	<0.16>	<0.20>	0.74	0.33	0.08	<0.01>	0.80	0.36	0.08	<0.02>
PRODUCTION EQUIPMENT												
• DAILY RATE (CBE)	350,000				1,000,000				1,700,000			
• CUMULATIVE BILLION BBLS (From 1975 to 2004)	2.6				7.2				12.2			

	World Oil, $ per bbl		Liquefied Natural Gas $ per million Btu	Domestic Coal, $ per ton	
	7	11	2.60	11	17
CASE I	X	–	X	–	X
CASE II	–	X	X	X	–
CASE III	–	X*	X*	–	X
CASE IV	–	X*	X*	X	–

< > Brackets indicate negative cost to government

* World prices begin to rise from this level at a rate of approximately 6% per year; see text for details

Price combinations were selected to yield high and low Government costs; those not computed will fall within the ranges thus established

World Energy Price Increases - Cases III and IV assume that the price of world oil is initially $11 per barrel and then increases in real dollars at approximately 6% per year.

For both Case III and Case IV, liquefied natural gas is assumed to be initially $2.60 per million Btu's and rise in real dollars by about 6% a year.

The rate of increase for both oil and gas was assumed to be approximately 6 percent per year through 1985. Beyond 1985, the price of world petroleum is assumed to gradually rise to a level of $18 per barrel while natural gas levels out at $4.26 per million Btu.

A useful measure of the program cost is the "Total Per Barrel Cost" to government given in Table 14 . These data are displayed in Figure 10. In terms of Net Present Value, Government costs range from $0.56 to $0.80 per barrel for the high cost cases. Likewise, for the low cost case which assumes rising world energy prices, the Government cost is estimated to range from <$0.20> to <$.01> per barrel. It should not be concluded from these data that it is cheaper (on a per barrel basis) to develop a 0.35 million barrel per day synfuels industry than it is to have a 1.7 million barrel per day industry. The difference in per barrel cost represented in Figure 10 is due to a different mix of plants used in the calculations and not to the scale of operations. Mathematically, there can be no per barrel effects due to the level of production since the same costs are used for each plant.

Total program cost is, however, a function of the production level as shown in Figure 10. For the information production option (350,000 barrels per day), total government cost on a net present value basis is estimated to range from <$0.5> billion to $1.4 billion. On a similar basis, the cost to government for the nominal option (1,000,000 barrel per day) ranges from about <$0.1> billion to $5.3 billion. The maximum production option (1,700,000 barrel per day) is estimated to cost from <$0.2> billion to $9.8 billion.

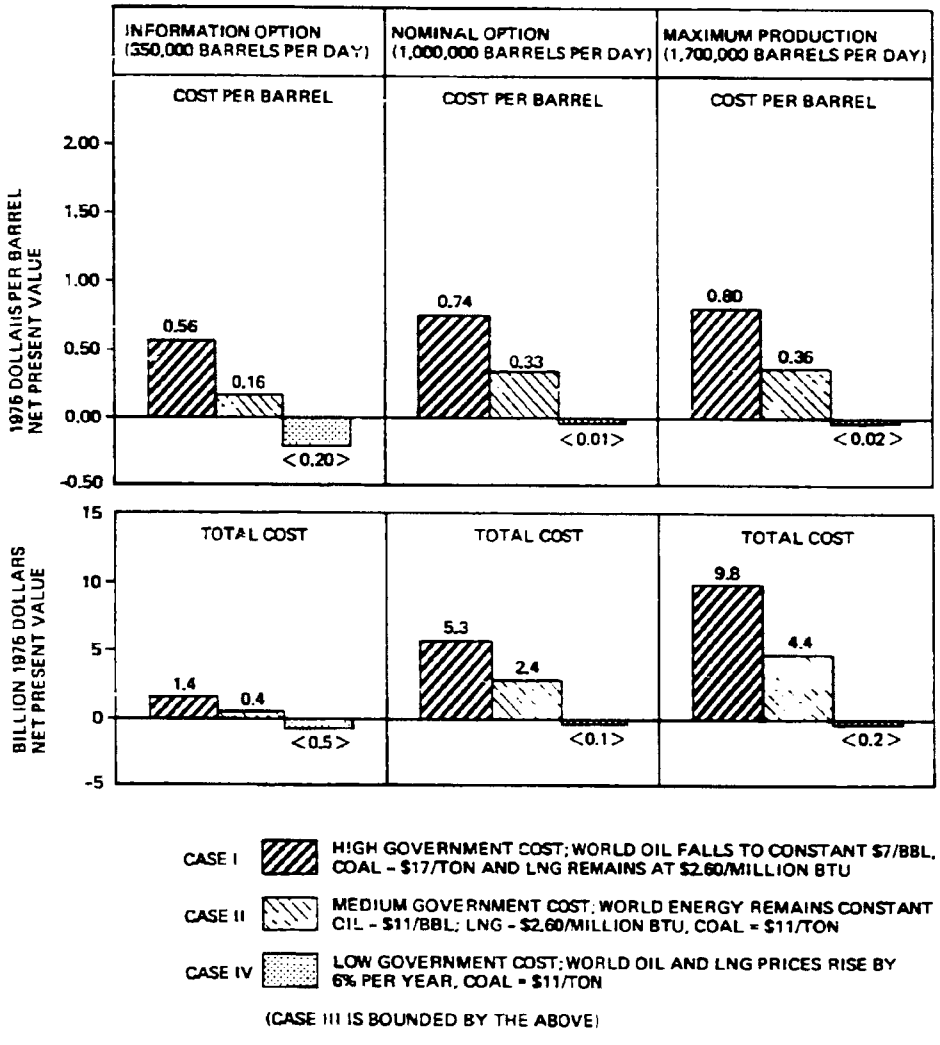


FIGURE 10. SYNTHETIC FUELS COST TO GOVERNMENT

Annual expenditures and cumulative Government costs for the 4 cases considered above are displayed for two program options in Figure 11.

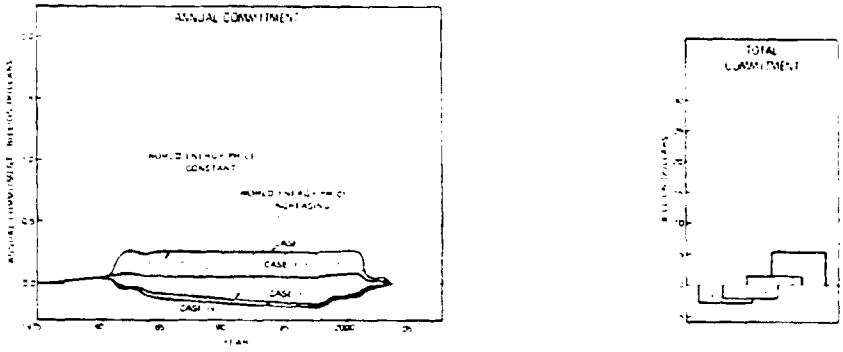
Table 15 displays the estimated cost to the government of the one million barrel per day program under various assumptions regarding the price of world oil and gas, assuming it remains at a given fixed level over 20 years. The resulting cost to the government in NPV cost varies from $5.3 billion for the $7 oil, $2.60/MMBtu gas case to $0.3 billion in the event that world oil goes to $15 and gas goes to $3.60/MMBtu.

2. Government Loan Liability

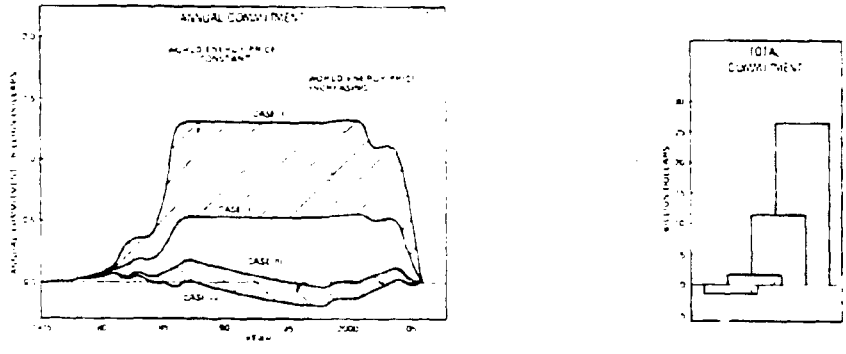
All but one of the recommended incentives (for regulated utility fuel producers) involves a government guaranteed non-recourse loan. The loans are raised in the private sector and as long as a venture is able to meet principal and interest payments there will be no cost to the government. However, the loan is of the non-recourse type which means that the parent corporation(s) of the synfuel producers are not liable for unpaid principal and interest if insufficient funds are generated to cover debt payments. Under these circumstances creditors can demand that the government liquidate unpaid principal and accrued interest. In this case, salvage value and working capital become the property of the government and can be used to offset government liabilities. The analysis involves detailed calculations to determine the magnitude of the government loan liability at any point in time. These liabilities are in addition to those reported in Table 15 and payment would only be made upon failure of a given venture.

The undiscounted liabilities for the information and two phase nominal options are presented in Figure 12. As shown, government liability rises rapidly reaching a peak value in 1986 at $6.2 billion in undiscounted 1975 dollars for the two phase nominal program and $2.6 billion for the information program. The data presented are not cumulative, but rather represent total liability at any given time.

INFORMATION OPTION



TWO PHASE NOMINAL OPTION



(Commitment is in 1975 dollars)

	World Oil, $ per bbl		Liquefied Natural Gas $ per million Btu	Domestic Coal, $ per ton	
	7	11	2.60	11	17
CASE I	X	—	X	—	X
CASE II	—	X	X	X	—
CASE III	—	X	X	—	X
CASE IV	—	X	X	X	—

FIGURE 11. GOVERNMENT COMMITMENT

TABLE 15. EFFECT OF CONSTANT WORLD ENERGY PRICES ON COST TO GOVERNMENT (350,000 AND NOMINAL 1 MM b/d OPTIONS)

OPTIONS	ESTIMATED TOTAL COST TO GOVERNMENT (Billions of 1975 Dollars)					
Price Assumptions*						
World Oil, 1975 $ per barrel	7		11		15	
LNG**, 1975 $ per million Btu	2.60		2.60		3.60	
Domestic Coal, 1975 $ per ton	17	11	17	11	17	11
350,000 Barrel/Day First Phase Info						
Undiscounted	5.3	–	–	1.5	–	–
Net Present Value	1.4	–	–	0.4	–	–
1,000,000 Barrel/Day						
Undiscounted	26.6	22.7	15.3	11.4	1.7	<1.7>
Net Present Value	5.3	4.6	3.1	2.4	0.3	<0.3>

* Prices assumed to be constant at the level shown.
** LNG = Liquified Natural Gas
– = Analysis Not Performed

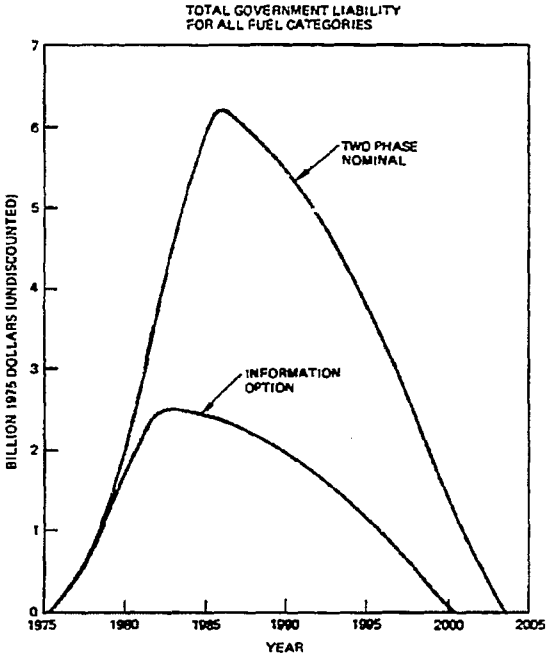


FIGURE 12. EXPECTED NET GOVERNMENT LIABILITY FOR ALL FUEL CATEGORIES

The maximum values by fuel category (about 1986) are given in Table 16.

TABLE 16. EXPECTED UNDISCOUNTED LIABILITY, BILLION 1975 DOLLARS

FUEL CATEGORY	INFORMATION OPTION	TWO PHASE NOMINAL OPTION
High Btu Gas	1.21	2.76
Shale Oil	0.49	1.43
Biomass	0.61	0.93
Utility/Industrial Fuels	0.26	0.64
Syncrude	—0—	0.52
TOTAL	2.57	6.28

The loan liability for high Btu gas could be reduced significantly if the Natural Gas Act is amended to allow gas companies to keep synthetic gas plants in their rate bases even if the plants had to suspend operations prematurely. In effect, the loan liabilities would be liquidated by the gas company's customers instead of the government.

The general conclusions that can be drawn from this analysis are as follows:

- If world oil prices fall from their present $11 per barrel level to about $7 per barrel and remain low for some time and domestic coal increases to $17 per ton, a 1 million barrel per day synthetic fuels program will require direct government expenditures of approximately $5.3 billion in Net Present Value (NPV), or about $26.6 billion in undiscounted dollars. This amounts to about $.74 per barrel (NPV basis).

- If world energy prices remain at about current levels, and domestic coal is $11 per ton, the cost of the 1 million barrel per day program will approximate $2.4 billion (NPV) or $11.4 billion in undiscounted dollars. This amounts to about $.33 per barrel (NPV basis).

- If world energy prices increase at a rate of approximately 6 percent per year (Case IV) or if world oil rises to $15 per barrel and remains constant, the 1 million barrel per day program will gain the Government about $2 billion through the year 2005 since initial subsidy payments will be offset in later years by revenue to the Government.

3. Evaluation of the Effects of Inflation

A sensitivity analysis of inflationary effects on cost to the Government was performed for the information option and two phase nominal option. The detailed computations, assumptions, and ground rules for the analysis are presented in Appendix G to Volume III. The principal outcomes are highlighted in Table 20 below.

A similar exploration was made of the Government's exposure to liability from loan guaranties, on a current-dollar basis in an inflationary environment. The buildup and reduction of such contingent liabilities are pictured for the information option and for the two phase nominal option in Figure 13. As in the constant-dollar analysis, these liabilities were reduced by estimated recoveries from working capital and plant salvage values at each point in time.

Peak loan liabilities in the inflationary cases were about 35 to 40% higher than in the constant-dollar analysis. For the price guaranties, inflationary effects actually decrease* budget requirements by about 50% for the 1 million b/d program. The inflationary effect on the construction grant budget caused it to increase about 50%.

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* Inflation decreases the price guarantee budget because world oil prices increase at a constant 7% per year, while producers' prices increase at 3 or 4% since such price components as depreciation, interest, taxes, and profits do not inflate. Consequently, the time at which the government begins to recover price guarantees ("Negative Subsidies") is significantly sooner in the inflation case than in the non-inflation case.

TABLE 20. COST TO GOVERNMENT - INFLATIONARY CASE

(BILLIONS OF INFLATED DOLLARS)

COST	INFORMATION OPTION FIRST PHASE		NOMINAL OPTION TWO PHASE	
	WITH RECOVERY OF NEGATIVE SUBSIDIES	WITHOUT RECOVERY OF NEGATIVE SUBSIDIES	WITH RECOVERY OF NEGATIVE SUBSIDIES	WITHOUT RECOVERY OF NEGATIVE SUBSIDIES
DIRECT GOV'T PAYMENTS				
• SUPPORT				
AS SPENT	<3.2>	1.1	7.1	17.4
NPV	<0.7>	0.4	1.3	3.4
• GRANTS				
AS SPENT	0.6	0.6	1.4	1.4
NPV	0.3	0.3	0.7	0.7
• TOTAL PAYMENTS				
AS SPENT	<2.7>	1.6	8.5	18.8
NPV	<0.4>	0.7	2.0	4.1

ASSUMPTIONS

- WORLD OIL PRICE, $11 PER BARREL; LNG PRICE, $2.60 PER MM BTU
- COAL PRICE, $17 PER TON
- INFLATION RATE, 7% (STARTING IN 1977; 1976 COSTS SAME AS UNINFLATED COST)

INFLATION RATE - 7%

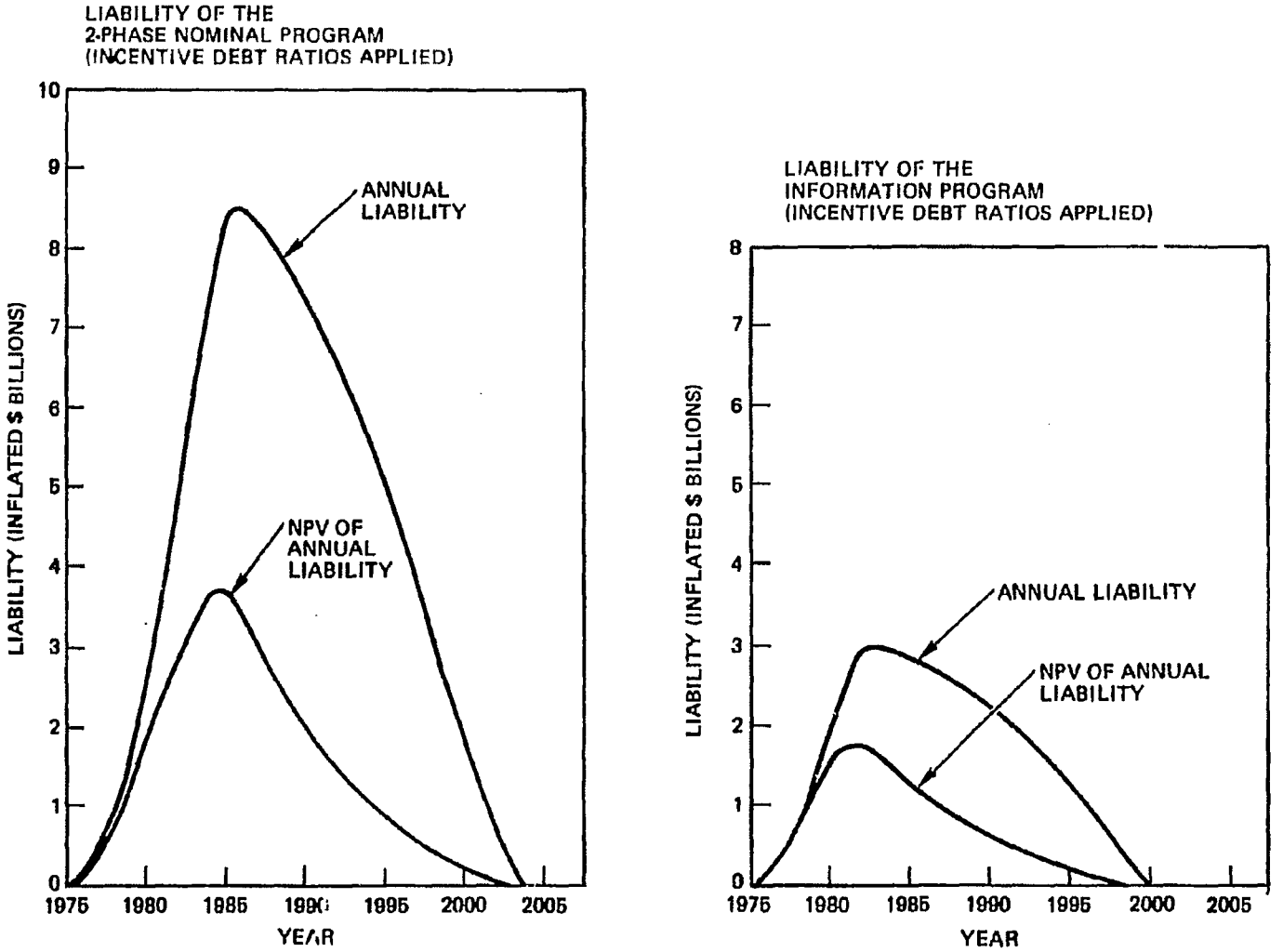

FIGURE 13. GOVERNMENT LIABILITY UNDER INFLATIONARY CONDITIONS

4. Program Budget

In order to arrive at a projected budget for implementing a Synthetic Fuels Commercialization Program, a specific set of assumptions had to be selected with regard to program size, plant mix, phasing, incentives, and future energy scenarios. The stream of dollars in this section, furthermore, reflects anticipated inflation at a 7 percent annual rate and allows for unanticipated contingencies. As a result, the budget dollars in this section will be higher than the program dollars displayed in other sections of the report.

Unlike budgeting for a private firm, the budget for a Federal program has to allow for Congressional approval procedures. Normally, Congress authorizes and then appropriates funds on an annual basis. Following these two separate Congressional actions, the Treasury is empowered to disburse funds for one more year, unless Congress specifies otherwise. In circumstances where it is clear that multiyear commitments are necessary, then Congress authorizes and appropriates funds without fiscal year limitation. In addition, where the specific amounts are very uncertain the Congress can authorize direct borrowing from the Treasury prior to Congressional appropriation actions. The long term nature and uncertainty of the costs of the Synthetic Fuels Commercialization Program requires the use both of authorization/appropriations without fiscal year limitation and of borrowing authority.

Estimating the exact expected cost and corresponding budgetary authority necessary for the commercial demonstration program is complicated by the long-term nature of the synthetic fuel plant construction and operation (25-30 years) and by other significant uncertainties including:

- the future foreign/domestic market prices of oil and gas
- the cumulative effect of inflation over this time frame
- the overall success/failure rate of the plants.

In view of these uncertainties and the need to develop "best possible" estimates for the program, a rigorous financial analysis effort has been completed. This analysis included:

- detailed plant cost estimates for the various technologies
- detailed social infrastructure development cost estimates based on estimated increases in population in a locality attributable to the synthetic fuel plants
- use of a series of computerized cost models for each plant type with flexibility to change plant mixes to evaluate differing programs and the capacity to estimate capital as well as operating phases for each plant
- the capability to alter key assumptions for future market prices, inflation rates, plant and operating costs and the cost of energy resources used by the conversion technologies.

In the process of developing budgetary estimates, numerous program cost scenarios were estimated by changing assumptions for the market price of oil, inflation rates, and the cost of coal resources. Extreme scenarios were calculated based on pessimistic assumptions, e.g., market price of oil $7 per barrel. As a result of the many differing calculations, recommended budgetary requests have been formulated that are adequate for the program and will be ample to cover most unforeseen contingencies. The estimates are for the full term of the program and unless extremely adverse developments occur, the authorizations will be adequate to complete the program. It must be recognized that the budgetary authorization estimates do not represent actual cost to the government but rather reasonable estimates of funding authority necessary to implement the program.

d. Authorization Request

Exhibits 1 and 2 show the individual plant cost estimates by type of plant including social infrastructure costs and the estimated number

EXHIBIT 1 PHASE I BUDGET AUTHORIZATION REQUIREMENTS

Plant Type	Project Start Schedule			($ Millions)			
	1976	1977	1978	Total Investment	Loan Guaranty	Construction Grants	Price Guaranty
Shale Oil	2	-	-	2100	1050	-	900
High-Btu Gas (Regulated)	2	1	0	2700	2000	-	-
Utility/Industrial Fuel							
Regulated	1	0	1	1000	-	500	-
Unregulated	1	0	1	1300	650	-	3600
Biomass	3	1	1	1200	900	-	-
Social/Infrastructure asst.					400		
Contingency*					1400	100	-
BUDGETARY AUTHORIZATIONS					6000	600	4500

Specific Key Assumptions:

Assumes recommended incentives of 50% loan guaranty for unregulated utility/industrial fuel, and oil shale plants; 75% loan guaranty for biomass and high Btu gas plants; and price guaranties for shale oil and unregulated utility/industrial fuel. Should higher than recommended percentages for loan guaranties be necessary, the Contingency Reserve could accommodate.

All statistics assume 7% annual inflation rate for capital and operating costs.

Total project investment is based on a 7-year development schedule for all plants, except for biomass conversion which are expected to be completed in a 3-year period. Plants are assumed to have a 20-year operating life.

Investment totals do not include costs of such auxiliary developments as coal mines, roads, pipelines, etc., which if they occur, could be accommodated by the Contingency Reserve.

Loan guaranty statistics refer to the gross Federal commitment. The cost of an actual default will be less depending on the number of defaults if any, the timing of the default and the amount of recoverable assets.

The contingency amount for loan guaranties and construction grants provides for construction delays, extraordinary inflation, different plant mixes, increased incentives, etc.

The price guaranty statistics were calculated assuming that the market price for shale oil rises at 7% per year from a 1976 base of $7 per barrel, and for utility/industrial fuels, the price rises from a base of $9 per barrel. The statistics further assume that no revenues accrue to the government even if market prices exceed the guaranty level.

Exhibit 2 INDIVIDUAL PROJECT STATISTICS[1]

($ Millions,)

Plant Type	Size (bbl/d)	Investment[2]	Loan Guaranty[3]	Construction Grant	Price Guaranty[4]
Shale Oil	50,000	1000	500	-	450
High-Btu Gas	40,000	870	650	-	-
Utility/Industrial Fuel: Regulated	25,000	460	-	230	-
Unregulated	25,000	610	300	-	1800
Biomass	6,000	230	170	-	-

[1]Data are rounded and a detailed analysis is available in the Synthetic Fuels Commercialization Task Force Report, Volume III.

[2]The 7% annual inflation rate is included, and the projects are all assumed to start in 1976.

[3]Presumes recommended incentives of 50% loan guaranty for unregulated utility/industrial fuel, and oil shale plants; 75% loan guaranty for biomass, and high-Btu gas plants; and price guaranties for shale oil and unregulated utility/industrial fuel.

[4]Contingent costs for price guaranties were estimated assuming that the price of shale oil rises at 7% per year from a 1976 base of $7/bbl and for utility/industrial fuels, the price rises from a base of $9/bbl; and further assuming that no revenues accrue to the government even if market prices exceed the guaranty level.

to be included in the commercial demonstration program. The basic assumptions used in developing these estimates are enumerated on the Exhibits. The requested levels of funding authorizations for loan guaranties, price guaranties and construction grants are shown at the bottom of the Exhibits and derived directly from the plant cost and operating estimates. Exhibit 3 shows the outlay schedule for price guaranty payments. Except for the most unusual circumstances, the following authorization levels will be adequate to allow execution of Phase I of the Synthetic Fuels Commercialization Program:

Loan Guaranty	$6.0 billion
Price Guaranty	4.5
Construction Grants	.6
Total Budgetary Authority .	$11.1 billion

Section 103 of Senate ERDA Authorization bill (S. 598) provides an adequate loan guaranty authorization of $6 billion for the Phase I program. In addition, an authorization request for price supports and construction grants will be necessary since a number of the plants in the proposed program involve these incentives.

$400 million of the $6 billion authorization will be reserved for the guaranty of municipal debt for necessary social infrastructure development caused by substantial increases in municipality population because of a synthetic fuel plant. Under this proposal the ERDA Administrator would be given the authority (under Section 103) to guaranty municipal bond issues that are necessary to finance the construction of needed basic municipal facilities (e.g., sewers, water, public safety) to service the influx of new population caused directly by the synthetic fuel plant. A detailed description of this proposal is contained in the Social Impact Assistance Fact Sheet.

EXHIBIT 3 POSSIBLE OUTLAY SCHEDULE FOR PRICE GUARANTY PAYMENTS[1]

	($ MILLIONS)									Total Payments Thru 2005
	1982	1983	1984	1985	1986	1987	1988	1989	1990	
Payments to Unregulated Utility/Industrial Fuel Plants[2]										
$9 Oil	50	109	166	233	229	225	220	215	209	3600
$11 Oil	34	71	106	144	134	123	111	98	84	1100
Payments to Oil Shale Plants										
$7 Oil[3]	167	153	137	120	102	83	63	41	18	900
$9 Oil	58	35	12	-	-	-	-	-	-	105
$11 Oil	-	-	-	-	-	-	-	-	-	0

[1]Calculations assume 7% per year inflation in capital and variable operating costs; projects start according to the schedule of Exhibit 1.

[2]No payments are assumed to accrue to the government even if oil and gas prices exceed the synthetic fuel price guaranty level.

[3]Oil and gas prices are presumed to rise at 7% per year from a 1976 base of $7 per barrel for oil and $1.65 per MMBtu for gas. The $9 and $11 scenario have proportionately higher bases, but same inflation rate.

In order for the government to proceed with the complete program, the requested authorizations are needed prior to the execution of any agreements with the private sector. However, certain plants can be initiated with only a loan guaranty authorization.

While the total authorizations requested for the program exceed $11 billion, the actual cost to the government of the program is expected to be a small fraction of the requested authorization because:

- most loan guaranties are expected to be repaid and at least a portion of any defaults will be covered by fees charged for the loan guaranty and sale of any project assets that are recovered.
- actual price guaranty payments are likely to be significantly lower than the requested authorization if the world price of oil continues to increase which is likely.

Costs to the government will be incurred for the construction grants up to $600 million and for expenses to administer the program estimated at $10-$15 million annually. Overall, for the 20 to 30 year life of the program, it is anticipated that it will cost the government about $2 billion (Exhibit 5).

b. Borrowing Authority and Appropriation Request

Although there is a possibility that guaranties will never result in the expenditure of Federal funds, the ERDA Administrator must have the full authority to outlay funds in the very unpredictable circumstances when they may become needed in order to make the recommended guaranties credible and effective. To accomplish this purpose, it is proposed that the ERDA Administrator be empowered with a limited, renewable authority to issue notes or other obligations to the Treasury should payments be required, either because of a default on a guaranteed loan or because of price guaranty payments that may arise subsequent to completion of the commercial demonstration plants.

The authority to borrow from the Treasury to make payment, if required for price and loan guaranties, was selected in favor of no specific appropriation authority or an advance appropriation arrangement for several reasons including:

- It is important for the ERDA Administrator to have a clear-cut authority to make payments on defaults in advance to remove the uncertainty on the part of investors about the timeliness of payment and/or the USG intent to pay.
- Default or price guaranty payments are not likely to occur for a number of years.
- The precise amount of such payments are difficult to estimate and may not occur if favorable conditions result in the future.

In view of these factors, giving the ERDA Administrator limited authority to issue debt, if and when the need arises, is the most expeditious and efficient means of financing the program. Repayment of ERDA's debt held by the Treasury would be accomplished through subsequent specific Congressional appropriations.

The Administration will transmit to the Congress separate appropriation requests for the borrowing authority consistent with the terms of the Budget Reform Act.

The following basic factors were considered in assessing the amount of borrowing authority needed:

- Time-phasing of projects starts over the 1976-1978 period.
- Likelihood of projects simultaneously defaulting on loan guaranties and likely cost of default to the government.
- The future market price of oil and gas and the resultant rate of revenues, if any, and/or price guaranty expenditures.
- The 20 to 30-year economic life of the synfuel projects.
- The need for flexible and credible program administration as well as periodic accountability to the Congress.

After analyzing these factors, it is recommended that $1.5 billion in loan guaranty borrowing authority be provided to cover loan default costs. Debt outstanding under this authority could not exceed $1.5

billion at any time. Outstanding debt would be repaid by the ERDA Administrator by obtaining specific appropriations. This amount is 25 percent of the gross Federal loan guaranty liability (Exhibit 1). Although default costs could exceed 25 percent, it is very unlikely that this would occur before Congress had the opportunity to repay ERDA's debt to the Treasury. The $1.0 billion borrowing authority recommended for price guaranties will provide for about 3 years of price guaranty payments under the very pessimistic assumption that oil prices fall to $7 per barrel. Should recent trends continue for the price of oil, it is unlikely that any price guaranty payments will be made.

Construction grants are different from loan and price guaranties because they will require budgetary expenditures. A straightforward appropriation request will be made for this incentive. Consequently, even though construction grant outlays are not anticipated during FY 1976 because of the lead time in incurring construction costs, the full appropriation of $600 million is requested so that the Administrator can enter into contractual agreements during FY'76 even though outlays will be spread over a number of subsequent years.

In summary, the following borrowing authorities and appropriations are recommended to be enacted:

Loan Guaranty	$ 1.5 billion
Price Guaranty	1.0
Total Borrowing Authority . . .	$ 2.5 billion
Construction Grants	$ .6 billion
Total Appropriations	$ .6 billion

The program's five-year projections for construction grants, administrative costs, and guaranty fees are shown in Exhibit 4. Total cost projections are shown in Exhibit 5.

EXHIBIT 4 FIVE-YEAR BUDGET PROJECTIONS FOR THE 350,000 BBL/DAY PROGRAM [1]

(annual outlays, $ million)

	FY 1976	T.Q.	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981
Loan Guarantee[2]	-	-	-	-	-	-	-
Price Guarantee[2]	-	-	-	-	-	-	-
Administration	2.5	1.5	10	15	15	15	15
Construction Grant[3] Project No. 1	-	-	7	15	25	42	67
Construction Grant Project No. 2	-	-	-	8	17	29	48
Total Outlays	2.5	1.5	17	38	57	86	130
Load Guarantee Fees	(1)	-	(5)	(12)	(20)	(31)	(39)
Net Total Outlays	1.5	1.5	12	26	37	55	91

[1] Budget authority appropriations are needed in FY 1976 of $600 million for construction grants, and subsequent appropriations, $15 million per year, may be necessary to fund administrative expenses.

[2] Neither payments for loan guarantee defaults nor price guarantees are anticipated during this period.

[3] Construction grants of 50 percent are expected to be given to regulated utility/industrial fuel producers.

EXHIBIT 5 ANTICIPATED TOTAL COST TO GOVERNMENT (FY 76 THRU 2005) 350,000 BBL/DAY PROGRAM
($ million)

Financial Incentive	Fiscal Years '76 – '81	Fiscal Years 1982 – 2005	Total Cost of Program FY 76 – 2005
Loan Guarantees – Defaults (2 plants)[1]	-	$1000	$1000
– Fee collected by Government (Revenue)	$ (108)	(720)	(828)
(1% annually – debt outstanding)[2]	258		
Price Guarantees (assumes $11 oil scenario)	-	1100	1100
Construction grants	258	242	500
Administrative (assumes $10-$15 million annually[3]	74	240	314
TOTAL COST TO GOVERNMENT[4]	$ 224	$1862	$2086

[1] From Exhibit 1, 12 plants require $6 billion in loan guarantees. If two plants default at most, $1 billion would be lost.

[2] See Exhibit 4 for Fiscal Years '76 – '81. Calculation for 1982-2005 assumes average annual outstanding debt over the 24 years of $3 billion.

[3] FY 76-81 statistics from Exhibit 4, and FY 1982-2005 assumes $10 million/year for 24 years.

[4] Fees are subtracted from outlays.